Quality Principles for Competency-Based Education

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About *Competency*Works

*Competency*Works is a collaborative initiative dedicated to advancing personalized, competency-based education in K-12 and higher education. iNACOL is the lead organization with project management facilitated by MetisNet. We are deeply grateful for the leadership and support of our advisory board and the partners who helped to launch *Competency*Works: American Youth Policy Forum, Jobs for the Future and the National Governors Association. Their vision and creative partnership have been instrumental in the development of *Competency*Works. Most of all, we thank the tremendous educators across the nation who are transforming state policy and district operations, as well as schools that are willing to open their doors and share their insights.

About iNACOL

The mission of iNACOL is to drive the transformation of education systems and accelerate the advancement of breakthrough policies and practices to ensure high-quality learning for all.

CONTENTS

Introduction

Performance-based learning is right for kids and it's right for teachers.

Heather O'Brien, Teacher and President of Mesa Valley Education Association, District 51, CO, 2016[1]
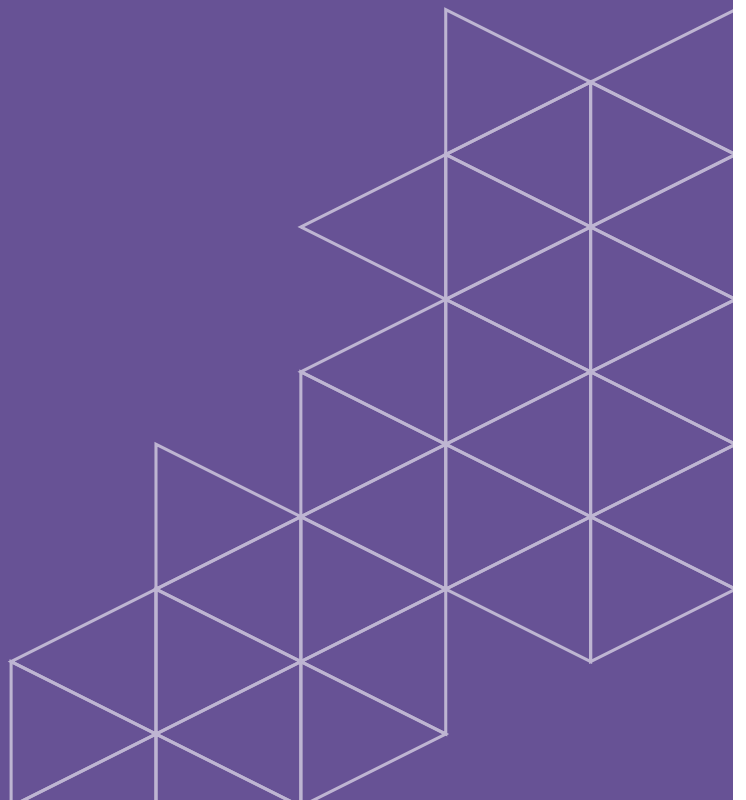
Competency-based education—also referred to as mastery-based, performance-based and proficiency-based—is gaining momentum. In recent years an increasing number of districts and schools have adopted competency-based education. Districts and schools turn to competency-based education for different reasons: to develop globally competitive graduates, to design schools that promote what is best to help students learn, to achieve greater equity, to create a system of continuous improvement and learning, and to foster deeper learning.

States are creating innovation space for competency education by launching pilots, creating innovation zones and introducing proficiency-based diplomas to transform the education systems.[2] As the number of districts and schools turning to competency education expands, some have done so with a deep foundational understanding of the purpose, culture and key elements. Others have not, instead treating competency education as a technical reform or resorting to piecemeal implementation. As a result, some competency-based schools have not served students in a way that fulfills the promise of the model, and many students are not benefitting as much as they could. Furthermore, insufficient attention to quality due to rapid growth and inadequate understanding jeopardizes the potential impact and successful scaling of competency-based education.

As it is frequently noted, "Every system is perfectly designed to get the results it gets."[3] This report, developed in collaboration with practitioners as part of the National Summit on K-12 Competency-Based Education, offers 16 Quality Design Principles to guide the development of competency-based schools with the goal of creating a system in which every student succeeds. While producing high-quality schools certainly requires attention to the structure, policy and operations, it also requires replacing the underlying beliefs and culture of the traditional system with an inclusive culture of learning. In fact, it is the very beliefs, assumptions and values that shape the culture of a quality competency-based school that make its structure

so powerful. The competency-based structure will falter if it rests on the same beliefs and assumptions upon which the traditional system was built. Moreover, students will not benefit unless provided with effective instruction and assessment firmly grounded in the learning sciences. Thus, the Quality Design Principles are organized by culture, pedagogy and structure.

A commitment to integrate all of the Quality Design Principles is necessary to create a high-quality, sustainable competency-based system. When districts and schools implement some, but not all, it is unlikely that they will see sustainable improvement or realize success for all students. Consider, for example, a school that tries to increase transparency with standards-based grading but fails to build the capacity to cultivate a growth mindset for students or to provide greater instructional support to respond to struggling students. This school will be unlikely to see higher engagement or achievement because its structural change was not supported by an aligned change to culture and pedagogy.

As states, districts and schools re-design education systems, the 16 Quality Design Principles provide a cohesive framework that offers a set of guideposts for schools and districts. While all principles are essential, districts and schools are using different entry points to begin transforming their systems and make different design choices. Furthermore, they will find themselves at different stages of integrating each of the principles into their operations. To be clear, quality does not require a single model or approach. In fact, schools and districts with strong results find themselves engaged in an ongoing cycle of continuous improvement and innovation. No matter the entry point, the depth of implementation or the model, the Quality Design Principles are composed to spark discussion that will accelerate the shift from the paradigm of the traditional system to one that seeks to have every student succeed by personalizing learning. We hope that the Quality Design Principles will be a doorway to deeper understanding and innovation.

Working Definition of Competency-Based Education (2011)

In 2011, 100 innovators in competency education came together for the first time. At that meeting, participants fine-tuned a working definition of high-quality competency education:

» **Students advance upon demonstrated mastery.** By advancing upon demonstrated mastery rather than on seat time, students are more engaged and motivated, and educators can direct their efforts to where students need the most help.

» **Competencies include explicit, measurable, transferable learning objectives that empower students.** With clear, transparent learning objectives, students have greater ownership over their education.

» **Assessment is meaningful and a positive learning experience for students.** New systems of assessments give students real-time information on their progress and provide the opportunity to show evidence of higher order skills, whenever they are ready, rather than at set points in time during the school year.

» **Students receive timely, differentiated support based on their individual learning needs.** Students receive the supports and flexibility they need, when they need them, to learn, thrive and master the competencies they will need to succeed.

» **Learning outcomes emphasize competencies that include application and creation of knowledge, along with the development of important skills and dispositions.** Personalized, competency-based learning models meet each student where they are to build the knowledge, skills and abilities they will need to succeed in postsecondary education, in an ever-changing workplace and in civic life.

❝ We looked at several different school models, and each one is different. It quickly became clear to us that we can't tell people how to do it. We want to support education entrepreneurs who can create a personalized learning school using their vision and strengths."

Aaryn Schmuhl, Assistant Superintendent for Learning and Leadership, Henry County School District, GA, 2016[4]

Understanding Competency-Based Education

Mastery-based learning has pushed our teachers to think about planning in a new way as well. We are asking ourselves, 'How will they know that students get it? What questions should I anticipate from the students?' Some of our really good teachers are becoming great teachers through mastery-based learning.

Penny Panagiosoulis, Principal, KAPPA International High School, New York City Department of Education, NY, 2016[5]

Understanding competency-based education takes time, reflection and the willingness to challenge assumptions. Most of us grew up and were shaped by our experiences in the traditional school system with its focus on schedules, ringing bells telling us to move to the next class, points for good behavior and summative assessments that told us what we know but didn't help us learn what we didn't know. With so many sharing the same experience, it isn't easy to imagine a different system that personalizes the educational experience to the degree that all students are fully engaged and receiving the support they need to advance. Misconceptions about competency-based education develop when only one aspect of the traditional school is challenged—such as pace or grades. In fact, competency-based education is a redesign of the culture and structure of school systems to support effective instruction and learning.

In this section, two different ways to explore competency-based education are offered for those who are new to competency-based education, as well as those who are seeking to further deepen their understanding. We begin by revisiting the purpose of the K-12 public education system to understand how desired outcomes can drive the education system. Then we provide an analysis of the traditional system followed by a comparison with the distinguishing features of competency-based education.

A. Readiness for College, Career and Life: The Purpose of K-12 Public Education Today

66 The mastery-based approach is changing what it means to graduate. Before, we had the language of all students to be prepared for college and careers. With a mastery-based diploma, it becomes more operationalized...I ask students to talk to me clearly and with compelling reasons why college isn't for them. They have to have a meaningful alternative. The one situation that is unacceptable is for a student to not want to go to college because they aren't prepared or because college is too hard."

David Prinstein, Principal, Windsor Locks Middle School, Windsor Locks School District, CT, 2016[6]

Effective system design starts with a clarity of purpose, or said another way, what are the results we want to get from our system of public education? The current design of our K-12 public education system delivers the following results: After decades of policy reforms and targeted improvement strategies, the on-time graduation rate has inched up to 82 percent, with states ranging from 61 percent to 91 percent. Yet, inequitable outcomes remain. Alaska Natives, students with disabilities, Native American, African American and Latino students continue to graduate at much lower rates: 55, 64, 70, 73 and 76 percent, respectively.[7]

Among those students who graduate high school, nearly 25 percent of them, from all socioeconomic groups, require remedial courses in college, costing them and their families $1.5 billion a year.[8] Graduates who enter the world of work directly after high school fare no better, with 62 percent of employers by one account indicating that "high schools aren't doing enough to prepare their graduates to meet the expectations of the workplace."[9] Students are not fully prepared for civic engagement to ensure a functioning democracy (only 30 percent of today's young people believe it is "essential" to live in a country that is governed democratically.)[10] These results are evidence that students are not getting what they need, and the implications ripple through their lives, their families, communities and our economy. In the next section, we will explore why the traditional system is designed to produce these results. First, let's consider what results we want instead.

So, what is the purpose of public education today, and what are the results we want it to deliver? States and districts define the purpose of education in a variety of different ways.[11] Increasingly that purpose is stated as "college and career readiness," or a variation thereof. But what does it really mean to be college and career ready? Although the terminology and details may vary, almost all states and districts continue to use a combination of time-based academic credits, state graduation exams and state accountability exams to measure learning. For the majority of states, these elements prioritize content knowledge rather than skills, with a focus upon a narrow set of areas—math and English language arts.

High-quality systems of competency-based education start with a community's aspirations for students. These systems begin with the recognition that merely completing 12 years of school is an insufficient outcome for students. Though each is different, high-quality competency-based education systems include goals that students will be able to articulate a vision for their futures, exercise agency in pursuing that vision and effectively navigate

their own paths.[12] This vision is available to all students, not simply those on a particular path or from a limited set of backgrounds. Competency-based culture, structures and pedagogical strategies are designed to ensure that all students will attain these outcomes. While college and career readiness are absolutely central to any educational system, the definition used in most states today is more limited than the vision of educational equity that competency-based education makes possible. For this reason, it is important to begin with a statement of the intended purpose for competency-based education.

Unlike traditional systems of K-12 education, competency-based structures place an equal emphasis upon academic knowledge, the skills to transfer and apply that knowledge (higher order skills), and a set of lifelong learning skills that enable students to be independent learners. Lifelong learning skills that empower students include growth mindset, metacognition, self-regulation and other social and emotional skills, advocacy, and the habits of success. Districts that are pursuing competency-based systems share a belief that the current purpose of K-12 education is to facilitate a process through which all students graduate high school with the academic and lifelong learning skills to be leaders in their communities, visionaries and agents of their own success—whether in college, career or navigating the opportunities and challenges they will encounter in their lives. While each community expresses its own values and goals in the choices it makes around curriculum, pedagogy and school rituals, this core purpose is shared by districts leading the way in competency-based education.

As discussed in more detail below, we believe competency-based education offers the most effective culture and structure for achieving this educational purpose. This clear articulation and understanding of purpose sets us up now to turn to why the traditional system is unable to fulfill this purpose and how competency-based education is designed to best achieve it.

B. How Does Competency-Based Education Differ from the Traditional System of Education?

66 The best thing about mastery-based learning is that teachers have confidence that students are learning. Before we didn't really know if students were learning."

Casey Smith, Assistant Principal, KAPPA International High School, New York City Department of Education, NY 2016[13]

Before exploring key issues in a competency-based system, it is valuable to unpack why the traditional system is an obstacle to creating high-achieving schools and equitable outcomes. The strategies used by districts in response to state accountability exams including delivering grade-level curriculum regardless of what students know, exposed the limitations of the traditional system for what it is and how it reinforces inequitable achievement. At the time the accountability policies made sense as an effort to create transparency and expose inequitable outcomes, but they do not help to serve students equitably, nor do they promote effective learning and teaching according to all we know about the learning sciences.

Many schools struggle to produce better outcomes largely because the traditional system is not set up to do so. Despite educators' persistent best efforts to support every student, the traditional system passes students on before they have mastered each stage of learning. Those who have mastered the required skills continue on a path toward graduation and college. For those who have not, little is offered to help them learn what was expected. The result is a new set of students each year who may not have the necessary prerequisite skills and knowledge to take on the content offered by each successive year's teachers. This sets up teachers and students alike for failure. This sorting function of traditional education is exacerbated by unequal and inequitable school resources that continue to haunt the education system.

66 Graduation is a great day for educators. We are saying to the world, 'We've had them for 12 or 13 years and we're sending them out into society. They are our product, our contribution to society.' The reality for many of our graduates is that they soon find out they didn't get what they needed. Some of the kids fall into deep despair when they realize they have been betrayed. They were told that they are ready, but they're not."

Tom Rooney, Superintendent, Lindsay Unified School District, CA, 2015[14]

Ten Flaws in the Traditional System

The traditional system is simply not designed to produce the goals we have set for it, or that our children, communities and nation so desperately need and deserve. There are 10 primary flaws in the traditional system that perpetuate inequity and low achievement. They can be corrected by redesigning the system for success in which all students achieve mastery. These flaws of the traditional system are listed below.

Purpose and Culture

The traditional system is focused on a narrow set of academic outcomes emphasizing academic skills, memorization and comprehension of content. It fails to recognize that student success is dependent on more than academic knowledge. Success requires a full range of foundational skills including social and emotional skills and the ability to transfer knowledge and skills to new contexts. Competency education is designed to help students learn academic knowledge, the skills to apply it and lifelong learning skills that are needed to be fully prepared for college, career and life.

The traditional system is built on a fixed mindset—the notion that people's "abilities are carved in stone." Purpose includes ranking and sorting students creating "winners" and "losers" and perpetuating patterns of inequality in society. In contrast, a competency-based education system is built upon a growth mindset with a belief that all children can learn with the right mix of challenges and supports.[15] Competency-based education meets students where they are to ensure that each one can be successful to the same high college- and career-ready standards.

The traditional system relies upon a bureaucratic, hierarchical system that perpetuates traditional roles, cultural norms and power dynamics. These said dynamics value compliance and doesn't support inclusivity and cultural responsiveness. Competency education seeks to create an empowering, responsive system that is designed to build trust and challenge inequity.

Pedagogy

The traditional system is organized to efficiently cover the curriculum based on age and depends on extrinsic motivation. Traditional systems developed before the emerging research about what we know about how children learn and are motivated. In competency-based education, everything should be rooted in what we know is best for students in terms of engagement, motivation and learning. Competency education fosters intrinsic motivation by activating student agency and providing multiple pathways for learning to the same high standards.

The traditional system targets supports to students when their academic or behavioral needs are identified as significantly above or below the norm (i.e., special education, gifted). Competency-based education provides timely and differentiated instruction and support. Schools offer daily flex time and time for students to receive additional support before and after the semester.

The traditional system emphasizes assessment for summative purposes to verify what students know. One-size-fits-all assessments are conducted at predetermined points of time or at end of unit and are administered to all students at the same time and in the same format on the same content. In competency-based schools assessment for learning with robust formative assessment contribute to student growth. A balanced system of assessment aligns with high expectations that students learn how to transfer knowledge and skills through performance-based assessment. When possible, assessment is embedded in the personalized learning cycle.

Structure

The traditional system allows high variability in how educators determine proficiency. Competency-based systems ensure consistency in expectations of what it means to master knowledge and skills. Districts build educator capacity to make judgments of student mastery to the same high standards.

The traditional system articulates opaque learning objectives and performance expectations with limited information for students about their learning cycle. Students receive grades with little guidance on what is needed to do better or opportunities for revision. Competency-based education values transparency with clear and explicit expectations of the learning cycle and architecture including what is to be learned, the level of performance for mastery and how students are progressing.

The traditional system uses academic grading practices that can often send mixed messages and misleading signals about what students know by reflecting a mix of factors, including behavior, assignment completion and getting a passing grade on tests, not student learning. Grading in competency education is designed to communicate student progress in learning academic skills and content as well as the skills they need to be lifelong learners

The traditional system is time-based. Schools batch students by age and move them through the same content and courses at the same pace. Students advance to the next grade level after a year of schooling regardless of what they actually learned. Competency-based education is based on learning: students must demonstrate mastery of learning, with schools monitoring pace and offering additional supports to meet time-bound targets.

Traditional systems determine their work "complete" when students meet the number of credits required for high school graduation despite the persistent inability to adequately prepare so many students for success in college, career and life. The result is low achievement and educational inequity. Time-based credits have allowed districts to graduate students from high school with only middle school skills or worse. Transcripts listing courses say little about academic skills, and students bear the cost—68 percent of those starting at public two-year institutions and 40 percent of those starting at public four-year institutions took at least one remedial course.[16]

The National Assessment of Educational Progress (NAEP's) data reminds us that slightly more than one-third of our students test at proficient or higher in eighth-grade math and reading. Astonishingly, only 13 percent of black students are proficient or higher in eighth-grade math and 18 percent in eighth-grade reading.[17] Or is it really so shocking? If the traditional education system is designed to sort students rather than help all students learn, why would we expect results different than these?

Distinguishing Features of Competency-Based Education

66 The challenge of meeting the needs of students with gaps in their skills existed before mastery-based grading. However, mastery-based grading makes you have to deal with it very directly."

Meredith Gavrin, Program Director, New Haven Academy, CT, 2016[18]

Across the country, schools, districts and states are replacing the traditional, time-based structure with one

that is designed to help each student reach proficiency. Competency-based education is a system designed for equitable student achievement to ensure all learners master academic knowledge, develop the expertise to apply it to real-world problems and build the skills to be lifelong learners for future success. Schools are organized in ways that respond to students and support, engage and motivate them to take ownership of their own learning. Competency-based structures are also designed to ensure students reach proficiency so that they, as well as their

parents, are confident that they are learning what they need to as they advance toward graduation.

Although models will vary, there are 10 features developed through a collaborative effort involving practitioners and policymakers that distinguish competency-based education from traditional systems.[19] It is important to understand that even the most developed competency-based systems do not have *all* of these features fully implemented although they are certain to have some of them firmly in place.

Ten Distinguishing Features of Competency-Based Education

Purpose and Culture

1. **Student success outcomes are designed around preparation for college, career and lifelong learning.** Traditional systems narrowly prioritize and measure academic skills, often at the lower levels of Bloom's taxonomy. Competency-based systems emphasize ensuring that students can apply academic knowledge and skills to new contexts and become adept problem-solvers and independent learners. Thus, competency-based districts and schools align around academic knowledge, transferable skills and the ability of students to become lifelong learners. Culture, pedagogy and structures are designed to develop student agency, build foundational academic knowledge and engage students in deeper learning that provide opportunities to engage in real-world problems.

2. **Districts and schools make a commitment to be responsible for all students mastering learning expectations.** While many traditional districts and schools have missions that purport to achieve "success for all," many of these same districts and schools maintain systemic practices that contribute directly to gaps in opportunity and inequitable academic outcomes. For example, when schools use grading practices that obscure and conceal students' actual learning levels, students do not have the information they need to improve. When schools fail to support students in addressing critical gaps in knowledge and skill, students become increasingly burdened by learning gaps that accumulate and widen over time.

    By contrast, competency-based districts and schools proactively challenge these practices and put in place alternative systems and structures that promote success for all. They portray student learning authentically and transparently. They meet students where they are and ensure they have mastered key content. Importantly, they become flexible in using time, resources and student supports to ensure that students continue progressing toward success. Commitment to mastery for all requires districts, schools and educators to challenge and "unlearn" part of traditional education as we know it, and embrace collective accountability, continuous improvement and personalization instead.

3. **Districts and schools nurture empowering, inclusive cultures of learning.** It is well-known that school culture is important to creating high-performing schools. The traditional system tends to emphasize order, safety and high achievement. Although high achievement is a shared value between competency-based and traditional systems, the interpretation of achievement is different. Traditional schools privilege students that are already at grade level by ranking and sorting students based on grade point average or other similar mechanisms. Traditional systems often emphasize order and compliance, manifesting in school disciplinary policies that exclude students, disproportionately impact students of color and contribute to students feeling that they do not belong.

Competency-based schools create cultures that emphasize growth, inclusion and empowerment for students and adults. The culture of competency-based systems is rooted in the learning sciences, which emphasize maximizing safety and belonging, promoting active learning, developing skills to manage learning, and intrinsic motivation and cultivating intrinsic motivation. Districts and schools foster a growth mindset in students and adults. Students are empowered to take ownership of their learning. Distributed leadership structures empower educators to make decisions in the best interests of students. Equity lies at the heart of competency education to ensure that all students benefit, not just some.

Pedagogy

4. **Students receive timely and differentiated instruction and support.** In traditional schools, students often have to fail before they receive support. Many times, these "supports" come in the form of remedial learning opportunities that are long delayed. In competency-based systems, schools develop schedules and mechanisms for students to receive additional support while they are struggling with new concepts so that they can continue to learn and build knowledge and skills. Formative assessment and effective feedback based on the learning task are essential to supporting students to learn, make progress and advance at a meaningful pace.

5. **Research-informed pedagogical principles emphasize meeting students where they are and building intrinsic motivation.** Many traditional systems seek to create aligned systems of learning and integrate the learning sciences into instruction. However, these systems sort and teach students based on their age, not on their actual learning needs and goals. Without falling into the trap of tracking, educators in competency-based schools begin with the concept of "meeting students where they are" and design instructional strategies for students based on their development, social and emotional skills and academic foundations. They use these assessments of student learning and development to determine the supports that will be most effective in helping them learn and progress. Pedagogy and learning design for students and adults are grounded in the learning sciences and seek to embed equity strategies such as culturally responsive approaches and Universal Design for Learning into the core of instruction. Helping students to build the lifelong learning skills often referred to as student agency is rooted in science of learning and one of the student success outcomes.

6. Assessments are embedded in the personalized learning cycle and aligned to outcomes including the transfer of knowledge and skills. Traditional systems place heavy emphasis on summative assessment, much of which emphasizes the lower portion of Bloom's taxonomy: memorization, comprehension and application. All students take grade-level assessments at the same point in time. In competency-based education the emphasis is on assessment *for* learning. Formative assessment is deeply embedded in the cycle of learning to provide feedback that helps students master learning objectives and guides teacher's professional learning. Students continue to practice or revise when they are "not yet" proficient until they reach the commonly defined performance level that demonstrates mastery of learning expectations. Students are empowered and engaged when the process of assessing learning is transparent, timely, draws upon multiple sources of evidence and communicates progress. In the most developed competency-based schools, summative assessments are used based on the personal pathway of students when they have shown evidence of proficiency, not grade level, as a means of quality control and internal accountability to ensure that students are being held consistently to high standards.

Assessment systems in competency-based districts and schools also emphasize deeper learning. Districts and schools build the capacity for performance-based assessments to ensure students know how to transfer knowledge and build the higher order skills of analysis, synthesis and evaluation.

Structure

7. Mechanisms are in place to ensure consistency in expectations of what it means to master knowledge and skills. Variability is a feature of the traditional system: what is to be learned, at what performance level mastery is set, and how student work is graded will vary across districts, schools, and even within classrooms. The result is that students are held to different expectations. Variability is also problematic because it is highly susceptible to bias: when teachers and leaders who have not addressed their own biases are the final arbiters of student learning, they may intentionally or unintentionally perpetuate inequitable outcomes for students. By contrast, competency-based education asks: *How do we know if students have learned?* We cannot be confident that students are really developing the desired knowledge and skills if we are not confident that we know how to measure those knowledge and skills, or that educators across the system measure them the same way. Moderation processes ensure teachers share expectations and understandings of standards. Similarly, teachers calibrate to ensure that they assess evidence of learning consistently. Confidence in schools grows and equity is advanced when students, teachers and families receive clear and trustworthy information about exactly where students are on the pathway toward graduation.

8. Schools and districts value transparency with clear and explicit expectations of what is to be learned, the level of performance for mastery and how students are progressing. A transparent common learning continuum, including standards and competencies that reflect the student success outcomes, establishes shared expectations for what students will know and be able to do at every performance level. Students are more motivated and empowered when learning targets and expectations of mastery are clear, and when they have voice in how they learn and demonstrate proficiency.

9. Strategies for communicating progress support the learning process and student success. In traditional systems students receive periodic report cards with A–F grades based on points for assignments, tests and behavior. Teachers often have their own system of grading, which results in variability in determining achievement. There is little opportunity for revision, a critical part of the cycle of learning, and students are ranked using the status of their performance. The problem is that risk-taking, failure and revision are part of real and authentic learning processes. Traditional grading systems create disincentives to these aspects of learning because they penalize failure. Grades in the traditional system may reflect knowing, but they do not necessarily reflect learning.

In competency-based districts and schools, grading systems are rooted in the learning sciences. Failure and mistakes are part of the learning process. The transparent common learning continuum is the backbone for the system of grading. Students are clear on what they need to learn, what proficiency looks like, and the ways they can demonstrate learning. Currently many schools use standards-based grading aligned to grade-level standards. Some schools are beginning to use competency-based grading aligned to personalized learning paths. Grading policies separate behaviors and lifelong learning skills from academics to ensure transparency and objectivity, with students receiving effective feedback and guidance on both. Students are expected and supported to engage in additional practice and revision until they can demonstrate proficiency.

10. Learners advance based on attainment of learning expectations (mastery) through personalized learning pathways. In traditional schools, students advance to the next set of content and the next grade level whether or not they need more time to master the content. Likewise, students are expected to engage with grade-level content whether or not they have already mastered that content. Pacing guides tell teachers to move forward in the curriculum even if students have not learned what they need.

Competency-based systems recognize that students may need more time to learn concepts and skills deeply. If they have gaps in their mastery, scaffolding may be required to attain all the prerequisite knowledge and skills. More instructional support and time are provided if needed and students advance when they are ready. Depending on the domains and learning targets, students may be able to pursue personalized pathways forward rather than linear progressions. Competency-based systems ensure students are truly prepared for future learning by basing progress and credit accrual on demonstration of knowledge and skill, rather than the traditional system's dependence on proxies for learning, such as attendance or amount of time in class.

There is a risk in only focusing on the distinguishing features, as it can be easily construed that if some of those distinguishing pieces are in place then a school has developed a high-quality model. This problem is best exemplified by the shallow interpretation of the feature of "advance upon mastery" as flexible or self-pacing with a number of schools describing themselves as competency-based without attention to the other elements. Remember, when committing to creating a high-quality system that benefits every student, it is important to think about it comprehensively.

Figure 1 illustrates key differences between competency-based education as compared with traditional education systems, and offers examples of how competency-based systems can embed an intentional focus upon equity.

Educators often turn to competency-based education when they realize that no matter what curriculum, program or instructional strategy they use, the traditional system was never designed to have all students succeed. As districts and schools begin the redesign toward a personalized, competency-based system, they often begin with study, reflection and dialogue about what communities and parents want for their students upon graduation from high school, what a system looks like that will reliably produce those outcomes for all students and what practices of the traditional system need to change. They embrace a shared responsibility to do what is best for students to help them successfully learn academic knowledge, the skills to apply it and the lifelong learning skills needed to be successful in college, career and life.

❝ EPIC schools are personalized. We are responding to the needs of our students academically and developmentally, and we need a structure that enables personalization. The transparency and responsiveness of mastery-based systems also enable students to take ownership for their learning. When implemented effectively, a mastery-based approach helps to create a school-wide culture of responsibility and accountability with a commitment to growth and achievement."

Harvey Chism, Co-designer of EPIC school model, New York City Department of Education and Executive Director, South Bronx Community Charter High School, NY, 2014[20]

Figure 1: Comparing Traditional Education and Competency-Based Education with Equity at the Center

	Ten Flaws of the Traditional System	Features of Competency-Based Education	Examples of High-Quality Competency-Based Education with Equity at the Center
Outcomes	Focuses on a narrow set of academic outcomes emphasizing academic skills, memorization and comprehension of content. Fails to recognize that student success is dependent on a full range of foundational skills, including social and emotional skills, and the application of skills.	Focuses on a broad and holistic set of student success outcomes that include deep understanding of content knowledge and skill demonstrated through application, and competencies that prepare students for college, career and lifelong learning.	Recognizes students for the assets they already possess and encourages them to develop their interests and talents, while building academic knowledge, skills and competencies.
Mindset	Based on a fixed mindset: that people's abilities are innate and immutable. Ranks and sorts students creating "winners" and "losers," perpetuating patterns of inequality in society.	Builds upon a growth mindset: that learning and performance can improve with effort. Demonstrates belief that all children can learn with the right mix of challenges and supports. Takes responsibility for all students mastering learning expectations. Requires shared vision, collaborative approach, flexibility to be more responsive and commitment to continuous improvement.	Ensures gaps in knowledge and skills are addressed so students are fully prepared for more advanced studies. Seeks out and disrupts inequitable practices and bias.

	Ten Flaws of the Traditional System	Features of Competency-Based Education	Examples of High-Quality Competency-Based Education with Equity at the Center
Culture	Emphasizes compliance and order in school culture. Relies upon a bureaucratic, hierarchical system that perpetuates traditional roles, cultural norms and power dynamics.	Nurtures empowering, inclusive cultures of learning. Values agency for students and adults with distributed leadership. Recognizes safety and belonging is important to learning.	Embraces cultural responsiveness at all levels of the district. Involves students in school governance.
Supports	Targets supports to students when their academic or behavioral needs are identified as significantly above or below the norm (i.e. special education, gifted and talented).	Designs to provide timely and differentiated instruction and support. Provides daily flex time and time for students to receive additional support before and after semesters.	Embeds culturally responsive support and instruction. Provides academic pathways for students who are off-track to graduation by 18 to complete their secondary education.
Pedagogy	Delivers a single curriculum to all students based on age. Emphasizes covering the curriculum each year. Fails to ground learning and teaching in the learning sciences—what we know about how children learn.	Draws upon learning sciences to inform pedagogical principles for students and adults. Takes into consideration student pathway in designing instruction. Increases motivation, engagement and effort through research-based strategies.	Grounds instruction in personal relationships and curriculum is intentionally examined to address bias and create a culture of inclusivity. Incorporates Universal Design for Learning strategies.
Assessment	Emphasizes assessment for summative purposes to verify what students know. Conducts one-size-fits-all assessments at predetermined points of time or at the end of the unit and are administered to all students at the same time and in the same format on the same content.	Embeds assessment in a personalized learning cycle and aligns to outcomes including the transfer of knowledge and skills. Clarifies students' next steps for individual learning pathways. Informs educator professional learning. Aligns assessment with the expectation that students will be able to transfer knowledge and skills to challenging new contexts.	Maintains rigor and high expectations for all students. Supplies on-going opportunity to apply or transfer a learning target in novel contexts and provide evidence. Includes coaching students on building blocks of learning to build lifelong learning skills and agency.
Reliability	Permits high degrees of variability in how educators, schools and districts determine proficiency. Students are held to different standards within courses, schools and districts.	Ensures consistent expectations and definitions of what it means to master knowledge and skills. Builds moderated judgment of student mastery and holds all students to the same high standards. Ensures calibrated grading practices.	Establishes moderation and calibration processes across schools and across districts to reduce variability and different levels of standards for different students and communities.

	Ten Flaws of the Traditional System	Features of Competency-Based Education	Examples of High-Quality Competency-Based Education with Equity at the Center
Learning Infrastructure	Offers opaque learning objectives and performance expectations with limited information for students about the learning cycle. Students receive grades with little guidance on what is needed to do for revision. Varies in teacher expectations of what high achievement means.	Values transparency with clear and explicit expectations of what is to be learned, the level of performance for mastery, and how students are progressing. Provides measurable learning targets and proficiency is transparent to students.	Empowers and motivates students by creating opportunities for more voice in how they learn and demonstrate learning.
Grading	Uses academic grading practices that can often send mixed messages and misleading signals about what students know by reflecting a mix of factors, including behavior, assignment completion and getting a passing grade on tests, not student learning.	Communicates progress in ways that support the learning process and student success. Closely monitors growth and progress of students based on their learning pathway, not just grade level. Designs grading and scoring to communicate with students about their progress in learning academics, transferable skills and building blocks of learning.	Monitors how students progress to ensure all students meet high levels of rigor. Produces data on student progress that informs professional learning of teachers, collaboration and inquiry-research to build capacity of school.
Advancement	Is time-based. Batches students by age and moves them through the same content and courses at the same pace. Advances students to the next grade level after a year of schooling regardless of what they actually learned.	Advances students based on attainment of learning expectations (mastery) through personalized learning pathways. Provides instruction until students fully learn the concepts and skills and then advance after demonstrating mastery. This requires additional support, not retention.	Designs students' learning pathways around individual student progress and needs and may not follow linear process. Provides instructional support that reflects a pace and rate of progress designed to result in students achieving mastery of college and career readiness by graduation.

> **"Personalized learning is tailoring learning for each student's strengths, needs and interests—including enabling student voice and choice in what, how, when and where they learn—to provide flexibility and supports to ensure mastery of the highest standards possible."**
>
> iNACOL, Mean What You Say: Defining and Differentiating Personalized, Blended and Competency Education, 2011

C. Competency-Based Education and Personalized Learning Go Hand in Hand

Competency-based structures focus on each student's unique K-12 educational journey while ensuring that all students emerge from their K-12 experience ready to pursue and succeed in the postsecondary pathway of their choice. In this way, they are designed for equity with a focus on responsiveness, consistency, transparency, fairness and continuous improvement. As the learning sciences tell us,[21] it is important to personalize learning rather than depend on the one-size-fits-all instruction and curriculum of the traditional system. In fact it would be nearly impossible to have all students reach college and career readiness without doing so. Competency-based education assumes that schools will meet students where they are; personalized learning is an approach to optimizing a school's pedagogical strategy to effectively support each student, drawing on research about learning, motivation and engagement.[22] In schools using personalized learning, students are active learners with:

- Choice in how they learn;

- Voice to co-create learning experiences and express their own ideas;

- Options to personalize their pathways; and

- Leadership opportunities in which they can shape or contribute to their own environment.

To become active learners who have a sense of ownership of their education, students need to have the right mix of mindsets and skills. Schools invest in helping students build the growth mindset and academic mindset, as well as the habits of success and social-emotional skills they need to be self-directed learners and engage in productive struggle. Schools play a critical role in creating the learning opportunities and coaching that students need to successfully learn how to learn. Instruction is designed to meet students where they are, taking into account their prerequisite skills, mindsets, habits and interests.

Personalized learning relies on the competency-based structures that produce consistency in validating proficiency based on student work, and careful monitoring of pace and progress. This consistency and monitoring is important for districts and schools becoming accountable for student success. Personalization without a competency-based system with an intentional focus on equity can perpetuate and even exacerbate inequity. Competency education without personalization means that students will not receive the instruction and support they need to learn. While the design of competency-based structures and personalized learning practices seek to support equitable education, realizing this goal requires intentionality.

What will students experience in a competency-based school?[23]

Below are examples of experiences that every student should have in a well-developed personalized, competency-based system.

1. I will be fully supported in developing academic knowledge and skills, the ability to apply what I have learned to solve real-world problems, and the capacities I need to become an independent and lifelong learner.

2. I feel safe and am willing to put forward my best effort to take on challenging knowledge and skills because I have a deep sense of belonging, I feel that my culture, the culture of my community and my voice is valued, and I see on a daily basis that everyone in the school is committed to my learning.

3. I will have opportunity and support to learn the skills that allow me take responsibility for my learning and exercise independence.

4. I have access to and full comprehension of learning targets and expectations of what proficiency means.

5. I have opportunity to learn anytime, anyplace, with flexibility to take more time when I need it to fully master or go deeper, and to pursue ways of learning and demonstrating my learning in ways that are relevant to my interest and future.

6. I am able to own my education by learning about things that matter to me in ways that are effective for me with the support that allows me to be successful.

7. I will receive timely feedback, instruction and support based on where I am on the learner continuum and my social emotional development to make necessary progress on my personalized pathway to graduation.

8. My learning will be measured by progress on learning targets rather than level of participation, effort or time in the classroom.

9. Grades or scoring provide feedback to help me know what I need to do to improve my learning process and reach my learning goals.

10. I can advance to the next level or go deeper into topics that interest me as soon as I submit evidence of learning that demonstrates my proficiency.

Sixteen Quality Design Principles

As districts and schools convert to proficiency-based learning, they are knocking down load-bearing walls. It's impossible to have all the answers because any organizational change often has multiple consequences. Learning to be a superintendent in a proficiency-based district meant I had to let go of the pride of having all the answers. No one person is going to do this all by themselves or be able to figure it all out entirely by themselves. Instead, we have to ask ourselves, 'How can we take a position of trust and respect that can harness the collective intelligence needed to bring about transformative change?'

Virgel Hammonds, former Superintendent of RSU2, Maine and currently Chief Learning Officer, KnowledgeWorks, 2014[24]
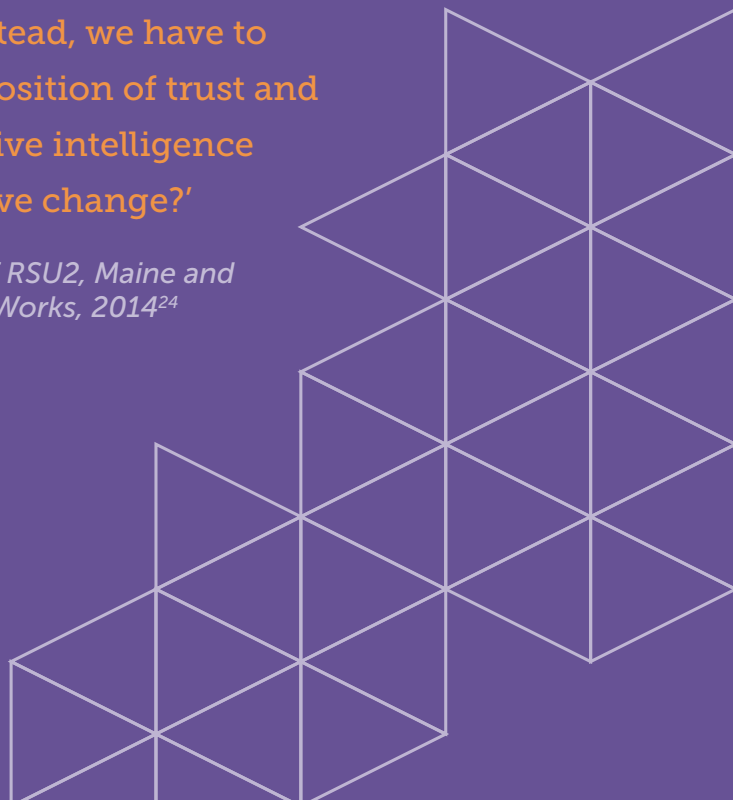
There are multiple strategies for defining and improving quality within a field: articulating models, creating quality standards, documenting best practices, implementation playbooks and benchmarking indicators and outcomes, to name a few. With districts and schools starting from various points—with different strengths and using different entry points, different roll-out strategies and different models—defining models and concrete implementation steps are not a viable approach. They would be too easily construed as technical changes without the cultural shift that is essential to quality. Furthermore, it is not yet known if one approach or set of practices is better than another. Some might see this as a reason to not begin the transition to personalized, competency-based education. However, once districts and schools recognize how the design flaws of the traditional system produce low achievement and inequity, they realize that there is no other option than to move forward. The status quo is no longer acceptable.

> " We need to be comfortable starting with 'What if…?' What if all the rules were removed and you could do what you valued most about kids? What would you do? The expectation at Henry County is that we aren't sitting in the status quo. It is becoming unacceptable to be status quo."

Aaryn Schmuhl, Assistant Superintendent for Learning and Leadership, Henry County School District, GA, 2016[25]

With a growing number of districts seeking full implementation, a handful of innovative models employing a student-centered learner continuum and increasing numbers of districts and schools just beginning, we need an approach that can build knowledge and understanding of competency-based education while accelerating the introduction of a new paradigm to replace the underlying beliefs and habits of the traditional system. Design principles do just that by offering diverse doorways or lenses to understand competency education without the constraints of a specific model or set of practices.

The Difference Between a Common Learning Continuum and a Personalized Learner Continuum

Moving to a new paradigm requires common language that helps clarify the shift. Consider the difference between a continuum of the learning expectations organized solely around grade-level standards and one that provides the continuum of learning targets that reflect where a student or a group of students are in their progress.

Common Learning Framework or Continuum: The set of learning expectations used by districts and schools to define what every student should know and be able to do organized by grade-level standards or performance levels. Instruction and assessment are organized around the standards, not the student.

Learner Continuum or Progression: In every classroom, different students are at different stages of their learning. A student's learner continuum or a classroom's learners continua indicates where students are in their learning. This is based on the zone of proximal development using learning targets that students can reach and the necessary level of support including consideration of the student's social and emotional skills. The learner continua is used to communicate progress, monitor pace and identify future learning targets so that it is transparent to students, teachers and parents where students are in their growth.

The term "learning framework" is used to indicate the continuum of grade-level standards and competencies, and "learner continuum" to convey the roadmap of the actual ways that students are progressing.

Figure 2: Sixteen Quality Design Principles At A Glance

Purpose & Culture Principles

1. Purpose-Driven
2. Commit to Equity
3. Nurture a Culture of Learning & Inclusivity
4. Foster the Development of a Growth Mindset
5. Cultivate Empowering & Distributed Leadership

Teaching & Learning Design Principles

6. Base School Design & Pedagogy on Learning Science
7. Activate Student Agency & Ownership
8. Design for the Development of Rigorous Higher-Level Skills
9. Ensure Responsiveness

Structure Design Principles

10. Seek Intentionality & Alignment
11. Establish Mechanisms to Ensure Consistency & Reliability
12. Maximize Transparency
13. Invest as Educators as Learners
14. Increase Organizational Flexibility
15. Develop Processes for Ongoing Continuous Improvement & Organizational Learning
16. Advance Upon Demonstrated Mastery

Overview of the 16 Quality Design Principles

As part of the National Summit on K-12 Competency-Based Education the 16 Quality Design Principles were informed by a collaborative process involving teachers, principals, district and state leaders, researchers and technical assistance providers. The principles are organized into three categories. (See Figure 2 Sixteen Quality Design Principles At a Glance)

Purpose & Culture: A high-quality competency-based system starts with a clear purpose and a vibrant culture—the values, beliefs, relationships, rituals and routines—that provide the foundation upon which the design and daily operations rest. Design principles include:

- Purpose-driven;
- Equity;
- A culture of learning and inclusivity;
- Growth mindset; and
- Empowering and distributed leadership.

Teaching and Learning: Competency-based districts and schools create a shared understanding of teaching and learning based on learning sciences. There is no one right instructional method in competency-based schools although there are implications for the types of learning experiences (i.e., curriculum), instruction and assessment so that students are mastering knowledge and skills using higher order skills. Design principles emphasize:

- Learning sciences;
- Agency and ownership;
- Rigorous higher-level skills; and
- Responsiveness.

Structure: The organizational architecture or structure refers to the operations, processes and policies that create the conditions for teaching and learning. A modified set of structures are necessary to make good on the promise of supporting all students to reach mastery. Districts and schools need to become organizations that reliably help students to progress in building the knowledge and skills they need for the next step in their education. Design principles include:

- Intentionality and alignment;
- Consistency and reliability;
- Transparency;
- Educators as learners;
- Flexibility;
- Continuous improvement and organizational learning; and
- Advancement upon demonstrated mastery.

It is important to remember that each of the design principles has implications for other aspects of how schools are designed and for other principles. For example, investing in educators as learners (i.e., professional learning) has direct implications for teaching and learning and transparency is critically important for student agency. These intersections of the principles will be highlighted throughout the report with a "#" and the number of the principles to enable readers to pursue concepts across design principles. For each principle, a short description is followed by a set of key characteristics, a discussion about the design principle, a set of policies and practices often used to operationalize the principle and examples of implementation problems, referred to as "red flags."

Reciprocity of Quality and Equity in Competency-Based Education

In competency-based education quality and equity are inextricably connected. The principles that guide creating an equitable system—one that effectively serves all students—are much the same as those principles that drive quality. It is difficult to imagine achieving quality without a relentless focus on achieving equity, and you could not call a competency-based school high quality unless it were also an equitable school. In effect, we are saying that while quality can be explained and enacted through a set of principles, it is not, at the end of the day, about inputs and processes. Quality is about outcomes—success for all students—and therefore a conversation about quality cannot be separated from a conversation about equity.

Designing for Equity: Leveraging Competency-Based Education to Ensure All Students Succeed.[26]

In describing the design principles, we err on the side of being aspirational by drawing on the most promising of what districts and schools are putting into place. Although most systems and schools are still in planning or early implementation stages, many districts have developed some aspect or practice of competency-based education that illustrates what a fully-developed system might look like. The entire field of competency-based education is rapidly learning and evolving. Even the most advanced districts would say that they are still learning as they reconfigure their systems.

The best way to use design principles is to approach them in the form of questions. For example in considering grading policies we might ask:

- In what way does the grading policy reinforce a *culture of learning and inclusivity*? In what way might it be impeding the development of the culture?

- In what way is the grading policy aligned (or not) with the *learning sciences*?

- In what way is the grading policy *transparent* with students and families about their progress in learning? In what ways might be the grading policy be sending false signals?

In this way design is inherently empowering. When districts and schools use a design-orientation they are immediately becoming intentional about what their purpose and what they want their students to learn. The design principles seek to produce higher-quality competency-based schools by driving toward more robust understanding of competency-based education. As districts and schools become more familiar with and more adept at using the design principles, the routines of the traditional system will no longer feel so intractable, and the design choices will become boundless.

For those who would like another approach to understanding what a comprehensive competency-based system might look like, please see Levers and Logic Models: A Framework to Guide Research and Design of High-Quality Competency-Based Education System.[27]

A. Purpose and Culture Design Principles

"As an instructional leader, I focus my job on three goals. First, my job is to keep the compelling purpose of supporting our learners alive. It's easy to slip back into doing things just because that's the way we've always done them. Second, my job is to empower our staff. They need to have the freedom to do their jobs in supporting our learners. Third, I operate from a position of service and collaboration. This is very important because if I used top-down leadership, I wouldn't be able to empower staff. These three elements go hand in hand.

The reason that Lindsay is able to make this transformation is because of the structure of shared leadership...My job as a principal is to make sure our decision-making processes are managed effectively. At times I may need to step in to remind the team of our compelling purpose – our learners. When we have a shared goal, it makes decisions a lot easier. Collaboration is also a lot easier."

Jaime Robles, former Principal at Lindsay High School, CA, 2015[28]

There is an adage that "culture eats strategy for breakfast." And in education that is certainly true: The best strategic plan in the world will likely flounder if the beliefs of the teachers and students are not supportive. District and school culture shapes how adults and students interpret, make meaning of and act within the systems and policies that have been established. This is especially true for schools transitioning to competency education.

A school's culture is the daily manifestation of its purpose and core beliefs. It can be seen in people's belief about themselves and about others. Thus, the beliefs of adults and students about each other contribute to the culture of schools. The culture becomes embodied in the relationships between students and teachers and in the routines and rituals, both formal and informal, that shape daily interactions. School culture drives how decisions are made and what people believe warrants time, resources and attention. Everyone contributes to the culture with school and district leadership, whether intentionally or not, exerting considerable influence.

Traditional school systems emphasize high achievement, competition, order and compliance. Although both traditional and competency-based schools value high achievement, they interpret achievement differently. Traditional schools tend to emphasize lower order skills and competition. They also privilege students who perform at grade level through ranking and sorting systems. Competency-based systems value deeper learning and recognize that everyone, students and adults alike, are continually learning. Traditional systems emphasize order and compliance, manifested in school disciplinary policies that exclude students, disproportionately impact students

of color and students with disabilities and make many students feel that they do not belong. In competency-based schools students are active learners. Schools attend to the social and emotional aspects of learning so that students become self-directed learners. Inclusion is actively promoted with behavior issues understood as opportunities for growth and to deepen relationships with students.

Competency-based systems ground culture in the learning sciences, which emphasize the importance of safety and belonging, active learning, self-regulation, intrinsic motivation and purposeful engagement for students and adults. They establish culture that empowers: students take ownership of their learning and teachers make decisions in the best interests of their students. District and school leaders will find that intentionally engaging teachers, students and families in conversation about beliefs and culture will expedite the shift from the traditional paradigm to the empowering, inclusive culture of learning needed for high-quality competency-based education.

66 The culture of the district and schools is very, very important. If we don't get that right, the rest won't work effectively. It's important that schools begin to create new cultures now. If the legislature ever decides to make mastery-based learning mandatory, it will make it more difficult to get the culture right. Schools will be making the decision to become mastery-based out of compliance rather than doing what is best for kids."

David Prinstein, Principal, Windsor Locks Middle School, Windsor Locks School District, CT, 2016[29]

#1 Purpose-Driven

66 Our community told us they wanted their children to be lifelong learners. We had to ask ourselves, what are we doing in our classrooms to help them be lifelong learners? What structures and supports do our teachers need to help develop lifelong learners? It came down to needing to have an active learning environment. Students need to be able to seek out things they are personally interested in, create a plan and find the resources. We are always looking for ways for students to learn beyond the classroom."

Doug Penn, District Principal, Chugach School District, AK, 2015[30]

Description

Quality requires intentionality and intentionality requires clarity of purpose. Creating a shared purpose that is meaningfully connected to the lives of students and families is essential to designing effective culture, structure and pedagogy. A shared purpose lives in the vision and values that orient a system. In competency-based systems, the shared purpose emphasizes the commitment to every student succeeding. The definition of success is expanded to include academic knowledge, transferable competencies and the skills to be lifelong learners. Students and adults draw connections between their educational experience and their current and future lives, bringing relevance and meaning to the learning experience.

Key Characteristics

- **Shared purpose.** Districts and schools have a shared purpose to support every student being successful in their learning. Each member of a school community has a true sense of purpose: they make connections to their current and future lives within the learning process. The shared purpose promotes collaboration, continuous improvement and decision-making in the best interest of students.

- **Definition of student success.** The purpose of education must be rooted in the current and future lives of students and their families. Districts and schools shape what this means in terms of specific skills, knowledge and traits. High-quality districts and schools design for the knowledge and skills needed for success beyond high school.

- **Relationships.** Districts and schools invest in healthy relationships between students, teachers, leaders and the community.

- **Cultural relevance.** Students and teachers see connections between learning environments, learning experiences and their personal and cultural identities.

- **Application.** Students have opportunities to apply their learning in ways that are personally meaningful. Active connection between learning and the world around them increases students' engagement and purpose.

How is Being Purpose-Driven Related to Quality?

> ❝Is this best for kids? That is at the core of our entire district. We identify what is best for kids and then we figure out how to make it happen.❞
>
> *Missy DeRivera, Teacher, Chugach School District, AK, 2015[31]*

A school's purpose—the answer to why a district or school exists—intentionally shapes all aspects of its culture, pedagogy and structure. Districts and schools often turn to competency-based education for the purpose of turning the rhetoric of "all students prepared for college, career and

life" into reality. From this purpose emerges all other design principles: nurturing a culture of learning and inclusivity so that every student and adult feels safe and supported in taking risks to learn new things, personalizing learning so that students learn the skills to own their education and become lifelong learners, responding to students by meeting them where they are with timely and differentiated supports, and advancing students based on demonstrated mastery not simply because they completed a semester or course.

In the following discussion three aspects of what it means to be purpose-driven are explored:

- Creating a shared purpose;

- New definitions of student success; and

- Instructional implications of the purpose.

Shared Purpose

Public education is based on a social contract with families and communities. Schools prepare students for their futures: to pursue further education or training; take on adult roles in their families, the workplace and their communities; and foster their personal well-being. Districts and schools beginning the transition to competency-based education establish or renew the compact by engaging community members, parents and students in describing a vision for graduates. The process of creating a shared purpose and vision contributes to a sense of shared ownership and mutual accountability—a deep sense of responsibility to each other based on understanding their interdependence in reaching the shared vision—between teachers, students, parents and the community. District leaders offer several ways that engaging the community in creating a shared vision lays the groundwork for change.[32]

- **Contributing Valuable Perspectives.** Members of the community will create a richer conversation by bringing to the table ideas, values and perspectives that educators might not necessarily have thought to include.

- **Re-Building Respect and Trust.** Community engagement can help overcome mistrust and build the mutual respect that is needed to create a culture of learning. In many districts, there are segments of the community that have

either had bad experiences in school or have historically been underserved and disrespected by school systems. Districts must create a space for people to talk about what they want for their children and have honest conversations about the current academic achievement levels and graduation rates

- **Nurturing Consensus and Leadership.** Communities need to be given time to understand the new approach and why it is important. The greater the number of people in the community who are knowledgeable about the why and how schools need to improve, the more they can help others to understand.

- **Sustaining Change.** Community engagement is an essential ingredient for staying the course when unanticipated consequences of implementation arise and when district leadership changes.

Engaging communities in creating a shared vision and purpose is always shaped by the context. Leaders and teachers will want to find ways to recognize and address historical disenfranchisement. To not do so sends signals that educational leadership doesn't care or doesn't respect communities enough to understand their experiences. Individuals and communities who have experienced exclusion, who have felt that their education system was not designed for them, may not leap to participate in education systems in the ways described here. Historical mistrust will need to be navigated and intentional efforts to build or rebuild trust be consistently demonstrated. Districts and schools cannot simply call for active participation from community, they must work to engage those who have been historically and systemically left out.

> 66 We took direction from the community about the kind of graduates they wanted and the type of school they wanted. As we began the high school redesign process, we have never backed off from engaging our community. Our community is in the driver's seat."

John Freeman, Superintendent, Pittsfield School District, NH, 2014[33]

New Definitions of Student Success

As communities, districts and schools clarify the purpose of school they tend to focus on preparing students for college, careers, civic participation and to be lifelong learners. New definitions of student success usually include three types of expectations, although they may use different terminology to capture them: academic knowledge, transferable skills and the skills and traits to be independent lifelong learners. Figure 3 New Definitions of Student Success provides a detailed explanation of each of these expectations.

Districts and schools use this purpose statement, often referred to as a graduate profile, as the North Star when designing schools and systems. The hope is to redesign schools so that all aspects of learning environments and learning experiences align to help students develop the building blocks of learning and the higher order skills that let them apply academic knowledge and skills to real-world problems. [#7 Student Agency & Ownership and #8 Rigorous Higher-Level Skills]

How Purpose Drives Instruction

> 66 The graduate profile is the touchstone for everything else we do in designing the performance-based system and learning experiences."

Leigh Grasso, Executive Director of Teaching and Learning, District 51, CO 2017[34]

After communities align around a shared purpose around a definition of student success, they commit to ensuring that all students—each and every student—can achieve this goal. Truly aspirational, this commitment to equity is the turning point for the shift from the traditional model to a personalized, competency-based one. [#2 Equity] When they make this commitment, districts and schools recognize that a one-size-fits-all approach won't work: they will want to customize learning to meet students where they are academically, emotionally and developmentally. Structural and pedagogical approaches

Figure 3: New Definitions of Student Success

Academic Knowledge, often referred to as content, are the set of facts, concepts and processes used in the domains students are expected to learn in school, including but not limited to mathematics, English language and literacy, natural sciences, social sciences, the arts and technical subjects. State, district and school policy define the domains and expectations for performance that students are expected to learn in school.

Transferable Skills are the adaptive expertise and abilities that enable people to effectively perform roles, complete complex tasks, or achieve specific objectives. Successful young adults have sets of competencies (e.g., critical thinking, problem-solving, creativity, collaboration) that allow them to be productive and engaged, navigate across contexts, perform effectively in different settings and apply knowledge to different tasks. Some or all of these skills or competencies may be referred to as transferable skills, higher-order skills or 21st century skills.

Lifelong Learning Skills that prepare students to be independent learners are based on the *Building Blocks for Learning* [35] including healthy development, social and emotional skills, mindsets, perseverance and independence. Related terms are intrapersonal skills, student agency or non-cognitive skills.

Source: Building Blocks for Learning from Turnaround USA. Reproduced with permission.

will be required that can provide each student with the right supports at the right time, all the while emphasizing each student's personal agency and responsibility to drive their own learning. [#9 Responsiveness] All decisions about culture, structure and pedagogy originate from this commitment to ensuring *all* students can achieve newly defined high standards for success.

Academic standards are essential for clarifying the academic knowledge and skills students need to pursue postsecondary education and training. However, they do not offer guidance on what it will take to get students there. For that, competency-based schools turn to the research on the science of learning that students are active learners and that learning is a complex interplay between cognitive and psychological aspects of the learner. The demand for students to become independent learners requires that students learn to learn. [#6 Learning Sciences] They do so by developing the "building blocks of learning" including a growth mindset, self-regulation, social and emotional skills, metacognition and perseverance. These skills are often bundled together under terms such as student agency or self-determination. When students have the skills to take ownership, the dynamics of the classroom change: teachers are able to provide more intensive instruction to small groups and individuals. [#7 Student Agency & Ownership]

Rather than developing compliant, obedient students, competency-based systems are designed with the assumption that students will be active learners as informed by the learning sciences. For this to work in practice—for students to take ownership of their learning—they must be motivated and engaged to do so. To this end, competency-based systems nurture cultures and strategies that motivate and engage students by fostering connections and relevance. They connect learning to individuals' sense of purpose and passion to help students envision possible future selves, and they validate individuals' personal and cultural identities so that learning and professional environments are relevant. In all these ways, competency-based systems cultivate a culture of connection and relevance so that students can participate as active agents in their learning.

To ensure each and every student is successful, districts and schools reject the weak proxy of seat-time for learning. Instead they turn to the concept of advancement upon demonstrated mastery. [#16 Advance Upon Mastery] This requires transparency of a learning framework and where students are in their learning. [#12 Transparency] Learning becomes customized to meet students where they are. Instruction, assessment and learning experiences are organized to maximize student effort by engaging them as active learners and paying attention to the role of their emotions and motivation. Schools become more responsive to ensure students receive timely, differentiated supports. [#9 Responsiveness] Finally, consistency in credentialing learning is needed so that variability is minimized and students are no longer passed on without the skills they need for more advanced studies. [#11 Consistency & Reliability]

Finally, it is important to note that altering the vision for student success will have implications for teachers as well. Changing outcomes for students changes the role of the teacher: they must be empowered and must have autonomy to be more responsive to students. [#14 Organizational Flexibility] Districts and schools utilize distributed leadership strategies that enable those closest to students to develop the best solutions. [#5 Empowering & Distributed Leadership] Teachers will need new types of support and opportunities for growth: to change their instructional practices, to change classroom culture and management practices, to confront and address their own biases and to learn to form deep relationships with each and every student. They develop their knowledge, skills and professional judgment through personalized and collaborative professional learning rooted in inquiry. [#13 Educators as Learners]

How does a shared purpose relate to quality? If purpose includes competencies we know students will need for success after high school, aligned schools promote rigorous deeper learning that continually build these knowledge and skills. If purpose is developed to include the goals and values of communities and families, stakeholders share accountability for every student's success. If purpose is truly shared and culturally relevant, then diverse

stakeholders can collaborate and persist through the inevitable challenges of transitioning to a competency-based model. In these ways, becoming purpose driven is the first step in creating a personalized, competency-based system.

Policies and Practices to Look For

Shared vision, a graduate profile and guiding principles used for decision-making are developed through a community engagement process.

- Staff can explain the rationale and connections between instruction; learning experiences; assessments; and meaningful career, college and life competencies.

- The definition of student success drives how student progress is measured and monitored. Multiple ways of measurement are used including quantitative and qualitative data. Assessments include demonstrations, portfolios, and capstone projects.

- Proactive, culturally relevant strategies are used for engaging stakeholders with a focus on including marginalized voices.

- Educators have ongoing conversations about alignment and continuous improvement in the context of the shared purpose and vision.

- District organization has been redesigned to support mission, strategies and support to schools. Districts and schools have revisited structure and job descriptions and human resource policies—including evaluation—to reflect values, mission and strategies.

Examples of Red Flags

⚑ **Superintendent defines the vision.** In many cases, superintendents as the leaders of a district set the vision for the school system. Although that vision might be just what the community would have intended, it nevertheless creates challenges in sustainability with the departure of one superintendent and the arrival of the next with a different vision. In addition, the process of setting (and revisiting) a shared vision created with community, parents and students establishes a foundation of trust that is needed for mutual accountability. The process of community engagement in setting the vision can also be very useful in the stages of early implementation when there may be bumps and mid-course corrections.

⚑ **The transition to competency-based education is driven by compliance, not a student-centered purpose.** In many cases districts and schools turn to competency-based education because they have realized that the traditional model is flawed and limits the ability to serve all students well. They turn to personalized, competency-based education because they believe that students will achieve at much higher levels by drawing on the learning sciences, customizing learning and ensuring students actually learn rather than passing them. However, there are some cases, especially in states that have boldly set the direction toward transforming their education systems, where the late adopters are changing in response to state policy rather than because it is good for students. These districts may put into place a few practices or focus solely on the technical changes without changing culture or pedagogy. For these districts, it may be valuable to take a step back and engage in an inquiry-based study about the research on learning and to what degree their policies, culture and instruction align.

#2 Commit to Equity

" We aren't just trying to close the achievement gap. That's using a deficit model. When we started designing the school, we wanted to have a place where students discover the things that make them special. In this way, we are recognizing students as assets and affirming their creativity and intelligence…something that a lot of schools fail to do."

David Weinberg, Principal, EPIC High School North, New York City Department of Education in 2014[36]

Description

A culture of equity starts with conviction that every child can learn at high levels in conjunction with a commitment to meeting all students where they are with timely supports. A culture of equity supports these aims by prioritizing fairness. Fairness tells us that each person receives what they need to succeed, whereas equality tells us that each person receives the same as everyone else. A culture of equity takes root in trusting relationships that demonstrate respect and support dialogue, reflection and learning. Districts and schools pursuing equity design to ensure that each student's needs are met and embed culturally responsive approaches to promote belonging. Continuous improvement efforts and professional communities of practice root out bias and institutional practices that contribute to inequity.

Key Characteristics

- **Commit to all students succeeding.** Districts and schools articulate a comprehensive definition of student success and commitment to ensuring all students can achieve this success. Furthermore, they put into place structural and pedagogical systems that support students equitably and use continuous improvement to adjust systems that are not effective.

- **Create inclusive multicultural schools.** Schools honor and respect each individual: their personal, cultural, historical and community identities. They foster greater empathy and understanding between community members. They make cultures and languages of power explicit, simultaneously helping students navigate them and working to make a more inclusive community. Diversity is not just touted as a matter of representation, but also leveraged to improve performance. The perspectives most likely to be marginalized are actively sought and integrated into school decision-making to generate new practices and innovations.

- **Address bias.** Districts and schools recognize that all forms of inequity—racism, classism, ability, gender, orientation, religious discrimination and others—live in the individual and collective consciousness of community members. Individual teachers, leaders and students are supported to investigate and address their own biases.

- **Interrupt inequitable practice.** Districts and schools recognize that inequity lives not only in individual bias, but also in the structures and policies that make these biases operable and enduring. They seek to eradicate systemic barriers to equity including resource allocation and policies.

66 A culturally responsive teacher must be willing to engage in deep introspection of personal biases and their impact on classroom instruction. Part of the job of the principal is to provide professional learning which will forward this work and elicit strategies to address the results of this introspection. Because so few teacher preparation programs support pre-service teachers through this type of personal analysis, principals are left to guide their staffs through it. But, a principal cannot lead where he or she is not willing to go. School leaders must also engage in effective professional development to guide introspection of their personal biases and develop ways to work around them."

Joseph Ellison, Principal, Martha Layne Collins High School, Shelby County Public Schools, KY, 2017[37]

How Is a Commitment to Equity Related to Quality?

The pursuit of quality and the pursuit of equity have a reciprocal and reinforcing relationship. Equity is a moral imperative that pushes relentlessly to achieve greater equality for all. It is both a set of strategies that help students be fully supported by schools *and* a commitment to continually adjust practice and improve to help every student succeed. Quality is an imperative for effectiveness that drives equity by promoting instructional strategies grounded in the learning sciences, organizational agility to respond to student learning and consistency in determining proficiency. Operating together, quality and equity help districts and schools move past rhetoric about all students achieving and move closer to making this reality.

When designing for equity, it is important that individual strategies are coherent and reinforced by energetic continuous improvement efforts. To emphasize this

point, consider what might happen if equity strategies are not aligned and robust. If a school attempts to promote equity by meeting students where they are but does not also have critical data and support structures to ensure that every student has the right resources, and is making appropriate progress toward proficiency, inequity may be exacerbated. Or, if a school makes the shift toward personalized competency-based education but does not support teachers to moderate their understanding of what it means to be proficient or to unpack their biases, teachers may wind up unintentionally tracking and sorting students on learning pathways with differing levels of rigor.

As part of the 2017 National Summit on K-12 Competency-Based Education, participants looked deeply at the issue of equity and what would be needed to ensure that competency-based education led to improvements in equitable achievement. This definition of educational equity developed by the National Equity Project was selected to guide discussion on equity as it powerfully reminds us that to reach equity, states, districts, schools, educators and communities must work at three levels: systemically, organizationally within schools and classrooms, and as individuals.

According to the National Equity Project:[38]
Educational equity means that each child receives what he or she needs to develop to his or her full academic and social potential. Working toward equity in schools involves:

- *Ensuring equally high outcomes for all participants in our educational system; removing the predictability of success or failures that currently correlates with any social or cultural factor;*

- *Interrupting inequitable practices, examining biases and creating inclusive multicultural school environments for adults and children; and*

- *Discovering and cultivating the unique gifts, talents and interests that every human possesses.*

Please note, referring to students' "potential" runs the risk of reinforcing a fixed mindset or notions that students have a predetermined amount of potential, some having more or less than others. Alternatively, "potential" can be

understood in a more aspirational way, pushing us to look beyond what students have accomplished to date to focus instead on what more is possible. It is not for educators to determine potential, but to help students discover and reach their own.

The following 10 cornerstones of equity-oriented practice aligned to the National Equity Project's definition[39] delves into how to create an equitable competency-based system. The intersection with the quality principles are numerous, including purpose-driven, transparency, consistency, inclusive cultures and educators as learners. In fact, equity is such an important aspect of creating effective competency-based systems a companion report that looks deeply at these key design principles, Designing for Equity: Leveraging Competency-Based Education to Ensure All Students Succeed, has been prepared to fully explore this issue .

Commit to All Students Succeeding

- **Recognize broader goals and purpose of education.** Alongside academic competency, equity-oriented systems prioritize college and career competencies and skills for lifelong learning. They recognize student agency as an important learning outcome and seek to ensure that students have the knowledge and skills to make meaningful choices about college, career and life.

- **Promote accountability and transparency.** All aspects of the learning experience—especially progress, pace, and proficiency—are explicit and accessible to students and families to empower informed decision making and continuous improvement.

- **Invest in continuous improvement.** Equity oriented systems respond and adapt to students to ensure every student's needs are met.

Create Inclusive Multicultural Schools

- **Prioritize belonging and inclusion.** Learning experiences reflect and validate students' personal and cultural identities and experiences. They promote awareness and empathy across these backgrounds and actively support positive cultural identity development.

- **Engage in community participation and empowerment.** Beyond transactional engagement, equity-oriented systems validate, elevate and integrate community voices in all aspects of design, implementation and improvement. They proactively and respectfully seek to include the voices of communities who have been historically excluded.

Address Bias

- **Invest in adult culture and development.** Districts, schools and educators commit to ongoing examination of beliefs and biases that may be affecting education and opportunities for students of color and other historically oppressed groups. They promote a strengths-based approach, equitably high expectations for all, and the belief that all students are capable of achieving high levels of academic success.

Interrupt Inequitable Practice

- **Confront historical and institutional oppression.** Equity-oriented systems recognize, validate and seek to dismantle to the dynamics of historical and institutional racial and socioeconomic oppression.

- **Address disparities in resources, supports, care and expectations.** Equity-oriented systems provide these supports to students, and perhaps also to families, to ensure all have equal foundations for success, and the resources and opportunities to build on their natural strengths and abilities.

- **Ensure equal access and opportunity.** Equity-oriented systems never sort or track students based on perceived ability. Further, they address previous patterns of sorting and tracking by proactively creating opportunities and ensuring that marginalized students receive the supplemental resources necessary to access, engage and achieve success in rigorous learning opportunities.

- **Allocate resources through an equity lens.** Equity-oriented systems allocate and invest resources through an equity rather than an equality lens, focusing on need and accounting for historical practices of underinvestment and oppression.

Equitable Education Systems		
Ensure Equal Outcomes	**Disrupt Institutional Inequity**	**Include and Personalize**
Ensure equally high outcomes for all participants in our educational system; remove the predictability of success or failures that currently correlates with any social or cultural factor.	Interrupt inequitable practices, examine biases, and create inclusive multicultural school environments for adults and children.	Discovering and cultivating the unique gifts, talents and interests that every human possesses.

The only way to ensure every student is fully ready for college, career and life is to identify and remove systematic barriers to equitable outcomes, eradicate inequitable practices and ensure all students can access relevant, effective and empowering learning experiences. Individually, we must each take responsibility for uncovering, unpacking and addressing the biases that we carry consciously and unconsciously in our hearts and minds.

In short, achieving equity is the result of action. And furthermore, it is not piecemeal action—it is strategic and coordinated action. We recognize that this is an ongoing challenge for individuals, organizations and systems. This work cannot be done all at once, and it will not happen overnight. The key is to know where we have come from and where we want to go and to have a plan to engage and sustain others along the way.

Policies and Practices to Look For

- The school or district's vision expresses a commitment to ensure every student succeeds, supported by an analysis of which students and subgroups are and are not succeeding in terms of growth and grade-level proficiency.

- Students describe having strong relationships with their teachers and that they feel respected and supported in discovering positive identities and their potential. Students often articulate a sense of belonging and describe their school or classroom as a family.

- The school/district engages stakeholders in decision-making and proactively seeks out stakeholders who have been previously marginalized.

- Intentional efforts to identify bias and patterns of inequity within professional learning communities and through management reports.

> " Competency-based learning is about getting everyone on the same page in terms of common high expectations of mastery. It allows teachers to work together to do their very best for kids."

Karen Perry, Special Projects Coordinator, Henry County School District, GA, 2016[40]

Examples of Red Flags

⚑ **Student skill or motivation at one point in time is misinterpreted as their potential.** The goal to have all students succeed is a commitment to equity. Districts and schools pledge to do whatever it takes to ensure that students have opportunities to pursue college and work upon graduation. Although some may choose to pursue trades or go immediately to work after graduation, it is likely that at some point they will want to pursue either college or postsecondary training to access higher wage jobs. When schools determine that students are not "college material" too early and fail to ensure they have the skills they need to enter college without remediation, they are at risk of failing to support

students in discovering their potential. Certainly, they are at risk of breaking the social compact with students and families.

⚑ **Grouping students around academic need has slipped into grouping by perceived ability level.** Flexible grouping is a strategy used to better meet the needs of students based on their own learner continuum rather than delivering one curriculum to all students. This can be a highly effective practice, allowing teachers to organize instruction through a student-centered lens. However, this practice can easily slip back into tracking if students are grouped based on their perceived ability and held to different expectations accordingly. Tracking has proven to be ineffective and to replicate inequity. Thus, it is important for schools to use flexible grouping carefully, to balance homogeneous and heterogeneous grouping strategically, and to regroup often. Most importantly, monitor that students are showing growth and able to advance upon demonstrated mastery.

⚑ **Learning is "culturally relevant" but not rigorous.** When teachers initially build skills in culturally responsive practices, they might introduce symbolic efforts yet fail to use the learning sciences to design robust learning environments and experiences. However, culturally relevant strategies require rigorous learning experiences based on high expectations. An effective practice is to "tune" learning experiences by having a set of criteria and review by other teachers to strengthen the initial designs.

#3 Nurture a Culture of Learning and Inclusivity

❝ Kids don't say, 'I'm so stoked to make this standard today.' They come to school because people care, there is meaningful and relevant curriculum and clear learning targets. We need to offer great teachers and engaging curriculum. For students below grade level, we have to get to know them really, really well. We want to know what motivates them because they are going to have put in extra work and time to catch up. We will customize a path for them. The bottom line is that they need to feel loved every day so that they are willing to put in some extra work every day."

Derek Pierce, Principal, Casco Bay High School, ME in 2015 [41]

Description

When a culture of learning and inclusivity is in place, students and adults—including those who have been the most marginalized—are respected and empowered to take their place as an active learner within the learning community. Belonging and inclusion are built through intentional structures that strengthen trust and relationships that are then reinforced through rituals and routines. When they are respected and included, students and adults experience optimal conditions for learning and growth. Emotional engagement promotes cognitive engagement:

safety and trust enable risk-taking which is critical to productive struggle. Learning ceases to be time-based, sequential and truncated. Rather, everyone continually grows with the instructional support they need to master skills and concepts, including the self-regulation and metacognition that power lifelong learning.

Key Characteristics

- **For learning through learning.** Culture fosters collective responsibility for ensuring students succeed. Schools draw on learning sciences and practice continuous improvement to help students and adults learn and grow.

- **Reflection as an important step in learning.** Reflection is an ever-present routine. Students reflect to build metacognition, self-regulation and habits of success. Adults participate in do-plan-act-adjust cycles to improve practice and policies.

- **Growth mindset.** There is shared understanding that intelligence is not fixed and that learning requires effort and appropriate supports. Culture actively takes advantage of mistakes and failure as a part of learning and improvement.

- **Relational belonging and inclusion.** Culture fosters authentic relationships between the students and teachers. Culture and strategies actively promotes trust, empathy, collaboration and social learning across all elements of diversity including culture, race, ability, social class, sexual orientation and gender.

- **Cultural responsiveness.** Relationships, learning environments and learning experiences respect each student's personal and cultural identities. Culture actively supports all stakeholders, especially adults, to identify, investigate and address unconscious bias and stereotypes.

How Is a Culture of Learning and Inclusivity Related to Quality?

❝ This school is run based on how we learn…If you are struggling, the teachers will help you. You can tell the teachers really care about us, because they care that we are learning."

Student, EPIC North High School, New York City Department of Education, 2014[42]

A strong culture of learning and inclusivity is the bedrock of a competency-based system. Schools seek to create a culture in which students and adults feel valued, respected and have a trusting relationship—all essential for learning. Students and adults learn best when they experience a strong sense of belonging and can connect with others as they construct new knowledge. They will put forth more effort and take more risks if they feel cared for and optimistic that they can succeed.

This culture enhances the technical changes that are required to transition to a competency-based system in multiple ways. For example, it contributes to the professional culture seen in successful systems like in Finland and New Zealand where inquiry-based approaches to professional learning drive improvements in instruction and assessment. [#13 Educators as Learners] Additionally, a strong culture of learning and inclusivity challenges the assumptions and beliefs of the traditional system. By challenging notions of fixed intelligence and hierarchy, it helps to phase out the habits and routines of institutional inequity that may impede implementation of a high-quality competency-based system. Finally, it is instrumental in sustaining students and adults through the challenges of the change process itself.

The culture of learning has both individual and organizational dimensions and implications. At the individual level, research demonstrates the importance of growth mindset[43] and positive beliefs[44] for learning and development. Students learn optimally when they believe that they can improve with effort and support, when they believe that they are capable of learning at high levels and when they believe that learning has personal value for their lives. Mindsets and beliefs are not innate. They are malleable: they can be shaped by experiences, rituals, routines, systems and structures. In a culture of learning, features such as incentives, grades, assessments and feedback processes align to support this view of intelligence and learning. [#4 Growth Mindset]

Beliefs and mindsets are also important at the organizational level. Nurturing growth mindsets can speed and ease the transition to competency-based systems, as adults need to feel confident that they can become competent in the new instructional and leadership strategies. The culture of learning drives continuous improvement that is central to organizational learning and to creating a system of education that can quickly adapt, improve and innovate so that more students are achieving at the highest levels. [#15 Continuous Improvement]

Given the broader social and historical contexts that have long shaped education systems and that continue to create inequities, creating a culture of inclusion requires intentionality. Those schools that are deliberate about disrupting inequity purposefully investigate individual bias and seek strategies to dismantle systemic barriers to equitable outcomes. They cultivate dialogue, engagement and ritual that honor and reflect students and their families thereby opening doors to genuine trusting relationships. Their goal is for all students and adults, especially the most marginalized, to feel safe and respected. At the same time, they acknowledge the existence of a dominant culture. They help students who lack fluency in the language and social cues of mainstream culture understand and navigate these systems of power, while also working to make the school culture more inclusive and empowering. Culturally responsive education strategies promote positive identity within a growth context; students and adults experience

respect when they receive direct and responsive and feedback. [#2 Equity]

> **❝** There are very few rules that were actual barriers. You pull back the onion skin and they aren't rules that are preventing change. They are traditions that can be replaced with new practices once people feel it is safe to let go."
>
> *Aaryn Schmuhl, Assistant Superintendent for Learning and Leadership, Henry County School District, 2016[45]*

Policies and Practices to Look For

- District and school leadership monitor school culture and can explain strategies to address areas of improvement. There are formal strategies to seek and apply feedback on culture including focus groups and surveys.

- Formal structures such as professional learning communities explicitly take responsibility for culture and share strategies that reinforce the desired culture.

- Educators work with students through an asset-based lens that views language, culture and family background as strengths that can contribute to a student's learning.

- Students and educators have opportunities for choice, voice and leadership within the school and school governance.

- Students and educators see their cultural, racial, social class, sexual orientation and gender identities acknowledged, affirmed and reflected around them.

- Educator and administrator workforce reflects the diversity of the student population and actively works toward attaining cultural competency.

- Disciplinary policy recognizes that behavior problems are opportunities to form stronger relationships with students and address underlying issues.

- Teachers have opportunities to work collaboratively to pursue inquiry-based professional learning.

Examples of Red Flags

🚩 **The school is diverse but the staff is not.** Staffing patterns send signals to students and parents about who is valued and who is not. Too often district staffing patterns do not reflect the diversity of the communities they serve. To correct this situation, districts and schools nurture a culture of inclusion in which diverse staff will want to work. They seek to open dialogue to identify routines or practices that are perceived as disrespectful or exclusionary. They upgrade hiring policies and practices to ensure a multi-racial candidate pool. They integrate culturally responsive approaches that recognize the assets everyone brings to the workplace.

🚩 **Buy-in rather than engagement strategies are used in communicating with the community.** Districts and schools often make decisions internally and then use strategies to market the idea to gain buy-in from the community. Engagement strategies that invite community members, parents and students to share their ideas early in a process are more likely to demonstrate respect and enhance trust. Districts that are committed to building a culture of inclusion will seek out ways to build relationships with historically marginalized groups and neighborhoods, understanding that generations of mistrust are not going to disappear overnight.

🚩 **Grading practices penalize students for taking risks and failing, even when these risks and failures are part of the learning process.** Traditional grading systems privilege those students who have all the prerequisite knowledge and skills and penalize students who do not. The policy that students should continue to practice and revise while receiving additional instructional support is an essential pedagogical principle aligned with the culture of learning and inclusivity. Competency-based districts that implement grading policies too soon without attention to the culture and needed technical infrastructure often turn or return to elements of the traditional grading system. In many cases what is termed standards-based grading is actually standards-referenced: students are still passed on without opportunity or supports to fully master knowledge and skills.

> "I have too often listened to school administrators find every reason to explain away their poor culture. They blame the Department of Education, the parents, Central Office and even the students. I too blamed the external environment until I realized that the culture of my school is the one thing I can impact directly. Once I understood that culture is the organizational values, what people believe and are willing to work for, I realized that I can affect what is happening for our students. By focusing on school culture, I can impact student achievement, graduation rates and teacher effectiveness. This is why I assess culture early and often."

Bill Zima, former Principal at Mt. Ararat Middle School and currently Superintendent, RSU2, ME, 2013[46]

#4 Foster the Development of a Growth Mindset

> " It starts with a growth mindset that values all of us as works in progress. It's the joy of learning that motivates all of us to do our best. We have to let go of fixed mindsets that make us afraid of taking risks that might lead to failure. We must have a culture that understands failure is temporary, focusing one's efforts and supports to conquer the challenge."

Don Siviski, former Superintendent of Instruction, Maine Department of Education and currently School Change Coach, Center for Secondary School Redesign, 2018[47]

Description

Undergirding the traditional system is a belief that there are winners and losers based on the idea that intelligence is fixed, and there is little to do about it. The result is some students are well-served receiving the education that prepares them for college and others are underserved. By contrast, a growth mindset culture means believing that intelligence is malleable. It anticipates failure and uses it to advance learning. The importance of the growth mindset applies to students and adults alike. Competency-based districts and schools strive to create growth-oriented cultures and structures to support learning.

Key Characteristics

- **Productive feedback.** Students receive productive feedback to learn and grow. Teachers have strong assessment literacy related to the domain-specific concepts, as well as knowledge about how to construct effective feedback related to the learning target.

- **Building blocks for learning.**[48] Students are supported in building the skills and traits related to building a growth mindset and become active lifelong learners, including metacognition, self-regulation and perseverance.

- **Meeting students where they are.** Stakeholders in growth-oriented systems believe all students can learn with the right effort and support. Accordingly, they commit to meeting students where they are on a learner continuum and providing timely and differentiated supports to ensure they progress.

- **Opportunities for improvement.** Growth happens through trial, error, sustained effort, feedback and supports. Growth-oriented systems provide students and teachers with opportunities to practice, fail, revise and learn. Grading systems provide meaningful feedback and increase engagement of students in their learning.

- **Professional support.** Teachers are supported to create the culture and provide the coaching for students to develop a growth mindset. Likewise, they are supported to develop the competencies necessary to teach in highly personalized environments. Finally, teachers experience the same growth context as students: they, too, need opportunities to receive timely supports, collaborate, fail, revise and learn.

How Is a Growth Mindset Related to Quality?

> " We used to understand that failure was part of learning. Now we take advantage of failure. We talk about it and discover what we can learn from it."

Terry Schmalz, Principal, New Emerson Elementary School, District 51, CO, 2017[49]

The traditional system of education is built upon the belief that intelligence is fixed: there are smart people and not-as-smart people, winners and losers, and little anyone can do to change someone's innate ability or potential. As a

result, the traditional system expects that some students will do well and receive an education that prepares them for college, while others will not. This worldview, when combined with bias, can normalize inequitable allocation of resources and outcomes that vary predictably along lines of race and income.

By contrast, a growth mindset culture believes that intelligence is malleable and that all students can learn with effort and support. On its own, growth mindset is a theory of psychology. We speak of growth mindset as an internal phenomenon: it primarily resides within the individual, influenced by individual's experience in the world, and it affects how the individual makes meaning of learning, effort and performance. While all of this is true, it is not complete. As a cultural phenomenon, growth mindset is important for quality because it enables learning that improves individual *and* organizational performance. Without trying things, discovering what works and what does not, and using that knowledge to guide future action, neither individuals nor organizations can improve learning and performance. Thus, we introduce the idea of "growth-oriented organizations." Districts and schools that are growth-oriented promote continuous learning and progress, and they anticipate and exploit failure to advance learning and progress.[50] [#15 Continuous Improvement] They attend to the pedagogy of adult learning and help adults become more adept through personalized professional learning in response to data on student learning. [#13 Educators as Learners]

There is a reciprocal relationship between growth mindset as an internal phenomenon and as a cultural and organizational property. As described earlier, specific organizational practices and structures can help individuals develop growth mindsets. Curriculum can include teaching about brain science to help students understand how intelligence is malleable. Grading and assessment practices can allow for revision and emphasize growth. Projects and tasks can be designed to include opportunities for failure and revision. Feedback structures can be put in place to help students and teachers reflect and adapt. Students identify and monitor progress toward a goal *including*

how failure promotes progress toward their goals, just as a scientist has systems to capture hypotheses, findings and implications.

Schools working with students (especially older students) who have had overwhelmingly negative learning experiences have a particular challenge to help students overcome past failure and trauma and see themselves as lifelong learners with potential. This requires "unlearning" as well as learning. Students who have been disenfranchised in and traumatized by their past educational experiences will need help to critically analyze their past experiences, understand the systemic and individual forces that shaped their experiences and identify and move past negative perceptions of self and school. They are likely to need help in adjusting the ways they have learned to cope in the past as they begin to think of themselves as learners and scholars. In these situations, educators have to invest more deeply in building relationships, provide more frequent check-ins and pay more attention to emotional issues. Furthermore, they have to attend to gaps in students' metacognitive, self-regulation skills and other building blocks of learning.

When an organization becomes growth-oriented, investing in everyone developing a growth mindset and establishing structures that support growth, the learning becomes collective. It becomes greater than the sum of its parts. Beyond contributing to better performance for individual students and teachers, collective learning results in better performance for the entire system. Learning protocols such as plan-do-study-act cycles can help leverage individual learning to promote collective learning. These protocols allow learning communities to focus on improvement in shared priorities and contribute individual learnings to the common improvement process. It can also occur through learning infrastructure that captures, surfaces and shares key individual learning, making it available to others. Whatever the process, the important point is this: growth mindset matters for quality because it enables individuals and learning communities to improve performance over time. [#15 Continuous Improvement]

❝ Not every student is going to have intrinsic motivation. It is something we help develop over time. Thus, the role adults play is very important in helping students to understand that it is never too late to learn, never too late to go back and learn what was supposed to be learned in elementary school. Adults play a critical role in providing hope for students that they can succeed and that they can graduate. We don't allow previous performance from keeping students getting back on track to graduation."

Kristen Kelly, Mastery Learning Specialist, Cleveland School District, OH, 2017 [51]

Policies and Practices to Look For

- Districts and schools invest in nurturing a growth mindset among students including providing knowledge about the brain and building specific skills, such as managing self-talk and goal-setting.

- Students receive feedback, instructional support and time for revision in the pursuit of fully reaching mastery.

- Grading policies reward learning and do not penalize mistakes.

- Students are taught the building blocks of learning including metacognition, self-regulation and habits of success.

- Adults have opportunity to learn about and strengthen their growth mindsets for themselves before teaching it to students.

- Teachers receive ongoing feedback and support in building their competence.

- Staff can provide an example when there was a mistake or failure and how they or the organization learned from it.

- The district and school recognizes that the effectiveness of continuous improvement efforts depend on the effectiveness of adults as learners.

Examples of Red Flags

⚑ **There are posters about the growth mindset on the walls but traditional grading practices do not allow for revision in pursuit of mastering the learning targets.** The walls of some schools are decorated with posters about growth mindset. However, teachers have not been fully supported in coaching students in how to develop a growth mindset, and many practices remain aligned with a fixed mindset. For example, teachers may provide grades on summative tests without helping students to understand and correct misconceptions. Students do not have opportunity for revision, and they move on to the next unit with gaps in their learning.

⚑ **Incentive and performance structures reinforce a culture of competition and the idea that there are good students and bad students.** The GPA is a powerful artifact from the traditional system used to rank and sort students. When schools continue to offer daily ranking of students, they emphasize competition between individuals and label some students as good students and the others as mediocre or poor. Although parents will raise concerns that students will be disadvantaged by proficiency-based transcripts, colleges and universities have consistently stated that as long as there is an accompanying letter the proficiency-based transcript is acceptable. See Great Schools Partnership's list of colleges and universities accepting proficiency-based transcripts.[52]

" The kids don't like how much the teachers expect of us. It feels like too much pressure. Mr. Dash expected so much from me. We all had goals to write a page but he wanted me to write three pages per section for a total of 30 pages. I wanted to give up and not do any of the work. I thought I should just drop out. But he pushed me and wouldn't let me give up. I'm glad he pushed me. I found out that I had more strengths than I realized"

Student, EPIC High School North, New York City Department of Education, 2016[53]

#5 Cultivate Empowering and Distributed Leadership

" I'm asking teachers to allow students to drive their learning. That means I need to allow teachers to drive the policy, the culture, and the decision-making."

Juan Carlos Ocón, Principal, Benito Juarez Community Academy, Chicago Public Schools, IL, 2017[54]

Description

Distributed leadership and a culture of empowerment enables schools to create the flexibility to personalize learning, respond to students' changing needs and rapidly respond to emerging issues. This view of leadership is distinct from most traditional schools that generally draw upon a bureaucratic culture and top-down management strategies. Distributed leadership encourages schools to become more adaptive by providing the autonomy to those closest to students to respond to their needs in real time. When students are building agency and having voice in their education, it is important that teachers are equally empowered to engage and co-construct learning experiences. A competency-based school without this feature will be hard-pressed to reliably meet students where they are.

Key Characteristics

- **Leadership.** Leadership sets the tone for the culture of empowerment. Leaders model specific values and behaviors, including seeing mistakes as an opportunity to learn rather than one for blaming.

- **Empowerment.** Students and educators are able to make or participate in decisions that support their personal learning paths and progress. Empowerment is reflected in management and operational structures.

- **Transparency.** For distributed decision-making to work, stakeholders need access to timely and accurate information, guiding principles and opportunity for consultations and collaboration.

- **Collaboration.** While decision-making is distributed, it is not solely autonomous. Students and teachers make decisions in partnership with others. Partnerships may occur through conferences, professional learning communities, knowledge management processes or other structures and protocols.

- **Clear decision-making.** While decision-making is distributed, it is not random or disorganized. There are clear criteria, processes and protocols for making decisions, as well as clear parameters (sometimes thought of as "tight loose" definitions) to define the boundaries of decision-making. These parameters ensure that decision-making is distributed, while also ensuring that all decision-making contributes to collective success.

- **Flexibility.** Decision-making is located as close as possible to students and teachers. Accordingly, students and teachers (and leaders and schools) have the

flexibility to make these decisions. Unlike top-down management approaches that expect them to follow set curriculum, rituals and routines, students and teachers in competency-based systems have the room to exercise personal and professional judgment vis-à-vis critical aspects of learning environments and experiences.

- **Risk-taking.** Empowering decision-making requires creating a safe environment for employees to take risks. Strong cultures of learning and professional learning communities are essential to building the respect and trust that enables risk-taking.

> 66 When we started down the road to transformation, we had to deconstruct the systems that were in place. We redesigned with the goal of student ownership, involving them along the way. If students are going to be empowered, so must the workforce be empowered. The only way to manage an empowered workforce with empowered students is through a middle-up-down management approach that constantly seeks input and opportunities to distribute leadership. Superintendents who separate leadership and management do so at their own peril."

Dr. Bob Crumley, former Superintendent, Chugach School District, AK, 2016[55]

How Does Cultivating Empowering and Distributed Leadership Relate to Quality?

The culture of traditional districts and schools value order and compliance. Likewise, they value hierarchical processes that slow decision-making down as it moves problems up and decisions down the bureaucratic ladder. Although the one-size-fits-all approach of the traditional education system could be directed and coordinated by a central office, personalization cannot. Personalization requires empowered, strategic and coordinated action from the

people who are closest to learning: students and teachers. A culture of distributed leadership contributes to quality by generating greater flexibility and responsiveness to meet student needs and address issues as they emerge. [# 9 Responsiveness and #14 Organizational Flexibility]

And yet, we also understand the concerns and fears that can accompany distributing leadership:

- *If we "let a thousand flowers bloom, how will we know what's working or even know what is happening?"*
- *If we empower teachers, can we rely on them to make good decisions?*
- *If everyone does something different, how will we have the resources to support them all?*
- *If we "let go," will teachers retreat into silos?*
- *Will students simply spend all their time on devices?*

These are not unreasonable fears. If distributed leadership is understood as a free-for all, it could certainly detract from quality, and it could lead to disorganization. Therefore, specific structures and parameters are necessary to ensure that distribution promotes quality and does not detract from it. First, in competency-based schools leaders manage decision-making processes as much or more than they make decisions. Leaders play vital roles in leading the effort to create a shared purpose, guiding principles, structures and protocols that guide decision-making. There is clarity about where decisions are made (e.g., what is tight, what is loose), as well as how decisions are made (who is involved, what data is used and how decisions are evaluated). Explicit criteria or guiding principles based on the shared purpose are used to help teams make strong organizational decisions. Similarly classroom management practices create shared visions and codes of cooperation to enhance relationships and guide student decision-making. [#1 Purpose Driven]

Second, leaders understand that their job is to cultivate leadership of others. Distributed leadership holds that leadership qualities can be nurtured in everyone. Not only do leaders set the tone for distributed leadership, they also play a key role in hiring and developing the right talent

to participate in distributed leadership environments. They also seek to help others build decision-making skills through coaching, supports and commonly used protocols. In this way decision-making is closer to the customer (students). One of a leader's most important leadership functions is to support professional learning communities, making sure teachers have the time to meet and are staying true to the norms that allow them to be a source of collaborative, professional learning. In turn, teachers play a critical role building these same skills in students. While skill-building will look different for a six-year-old and a fifteen-year-old, all students will need support developing the competencies required to act as agents of their own learning. [#7 Student Agency & Ownership]

Third, leaders uphold transparency and consistency as core features of the district or school. Transparency is an important part of creating an environment that empowers others. Teachers are empowered to respond to students' unique motivations and learning needs in real-time. In the classroom, the learning process and the learning targets are explicit so students can take more ownership of their education. Transparency is cultivated by a combination of relationships, holding consistent expectations and timely, accurate data. Through relationships and open dialogue, especially regarding mistakes and disagreements, stronger understanding of the shared purpose develops. Leaders play a vitally important role in creating systems of consistency and transparency where measurable learning objectives, rubrics and moderated understanding of how to determine proficiency supports teachers' decisions about student progress. Without transparency and consistency, teachers might make different decisions about different students based on inconsistent definitions of progress and proficiency. [#12 Transparency]

Fourth, leaders recognize that centralized control can inhibit responsiveness and pursue greater autonomy for schools and teachers. To best respond to student learning, schools need autonomy to manage budgets, schedules, organizational structure, staff roles and hiring. It is one thing to empower others to make decisions, but there is much more value when resources can be allocated to support action. With the expectation that teachers will tailor instruction for students and cultivate student agency, they must also be empowered to have professional agency. This requires them to use their professional judgment. [#14 Organizational Flexibility]

Fifth, professional judgment is highly valued. Therefore, professional learning is valued as well. Teachers are supported in personalized professional learning to build their knowledge and skills in the context of student learning. Professional learning communities support the development of collective professional judgment drawing from the knowledge of multiple teachers. [#13 Educators as Learners] Finally, leaders understand that their actions, words and behaviors can lead to strengthening or weakening the culture of learning. Being empowered means being open to risk-taking. Students and teachers, even when they use the best data and follow all protocols, simply cannot know whether something is guaranteed to work. They must use their personal and professional judgment to do what they think is best, evaluate the outcome and adjust course. This does not happen if there is a feeling of being unsafe or no margin of error to be wrong. In competency-based schools, being wrong and learning from it are called "smart failures." Making mistakes produces valuable knowledge about what's working and what is not. These are fostered through connection and collaboration. While distributed leadership empowers individual action, it results in quality when it is also supported by profoundly cooperative action. [#3 Culture of Learning & Inclusivity]

❝ We want our learners to be empowered. We support our learning facilitators [teachers] in developing their own leadership capacity to empower learners. Everyone on this campus shares this goal, and we can see the difference everywhere. Empowering learners and staff has had a huge impact on the culture of the school. Learners and staff recognize that they have an impact on the school community. Our disciplinary issues have dropped dramatically and our school spirit has increased dramatically. Learners feel respected. They feel empowered to hold each other accountable."

Jaime Robles, former Principal, Lindsay High School, Lindsay Unified School District, CA, 2015[56]

Policies and Practices to Look For

- Clear decision-making processes are established so that everyone knows when and how decisions are developed.

- Decision-making includes representatives of those who are impacted by the decision, including students.

- Decision-making is based on predetermined criteria that values and weighs what is good for students above all else.

- Reflection is a routine used by adults and students during and after learning new skills or projects.

- Teacher evaluation has been updated to reflect the values and culture. Teachers are supported in their learning new skills before it has been included in the teacher evaluation.

- Educators have the autonomy and resources they need including time to plan, strong professional learning communities, and effective feedback on their instructional skills and assessment literacy. This may seem obvious, but many schools try to move forward without having these elements in place, only to find that they are important ingredients.

Examples of Red Flags

⚑ **Making the transition based on compliance rather than empowerment.** When state leadership has bravely set the course toward next-generation education, it can create an unintended consequence. Instead of starting from an empowered commitment to equity, districts and schools start the transition to competency-based education as an act of compliance. Thus, it is difficult to create the necessary empowering culture needed to transform the school to do what is best for students. Teachers are more likely to implement technical practices without first taking on the inquiry-based stance needed to continually learn and improve in response to students. Consider a period of shared inquiry about the learning sciences, the limits of the traditional system and why a personalized, competency-based system may be a better way of organizing schools followed by asking educators to vote whether they want to go forward.

⚑ **Hierarchical decision-making continues with decisions being pushed up to the school leader or superintendent.** In some districts and schools, the leaders are more comfortable with top-down decision-making and continue to have problems that emerge in the conversion to competency-based education lifted to the administrative level. The result is bottlenecks with educators waiting for a response, implementation slowing down and frustration on the rise. These are lost opportunities for engaging staff in reflecting on the values, beliefs and norms that operate in the traditional system as compared with personalized, competency education. Some districts begin the process of moving to competency-based education by investing in leadership teams, reflecting on leadership strategies and learning what is required to manage the process, not the decision.

⚑ **The school has begun implementation with the development of a learning framework or continuum but professional learning communities are weak or non-existent.** Helping all students master all the knowledge and skills they need for success begins with adult learning. If adults don't have the opportunity to plan and learn it is unlikely that the school will be able to move beyond a standards-referenced approach. Professional learning communities for monitoring student learning, planning, collaboration and professional learning are simply non-negotiables for the transition to competency-based education. The first step in preparing for the transition to competency education begins by making sure professional learning communities are healthy.

> " You can't empower people by just saying it. We have to create the conditions for our teachers to succeed. We foster a culture where teachers can find success through networks and structures, and where they have the freedom to work together to find solutions and make decisions. We also have systems in place. You need both a strong culture of learning and the systems to support."

Doug Penn, District Principal, Chugach School District, AK, 2016[57]

What Are Your School's Shared Beliefs[58]

In competency education, an explicit set of shared values and beliefs drive decision-making, culture and learning design. Educators who have started down the road to competency education often discuss the fact that competency education is a second-order change. Whereas first order-change focuses on altering inputs and practices, second-order change is based on embracing a different set of underlying beliefs and relationships. These values and beliefs breathe life into the competency-based education structures. They empower students and educators to work together under a shared purpose and shared way of relating to one another. The following set of beliefs was developed by education leaders from across the country.

An Effective School Begins with the Commitment to Students, Their Education and Discovering Their Potential.
1. Students need to learn academic knowledge, the skills to apply it and the lifelong learning skills to be able to use it.
2. Each and every child, from every background, race, gender, ethnicity, income level or disability status, can learn to levels of high achievement.
3. Improving equity—access, opportunities and outcomes—requires intentional strategies to ensure every student feels valued and that they belong, to identify and correct bias and to dismantle inequitable systems and patterns.
4. Transparency of expectations, the cycle of learning and student progress is essential for creating a culture of learning and accountability.

A Shared Theory of Learning and Teaching Centers on Students and Is Grounded in Evidence.
5. Instruction and assessment should be grounded in learning sciences—cognitive, engagement and motivation.
6. By educators building trusting relationships with students and cultivating a growth mindset, self-regulation, social-emotional learning and habits of success, all children can propel their learning.
7. Learners in a personalized competency-based education environment develop increasing capacity to make informed decisions about their education when they receive explicit instruction, opportunity to practice and effective feedback.
8. Mistakes and failures are opportunities to learn.
9. Adults are learners, too, with the beliefs and principles described here benefiting educators and students alike.

An Effective School Requires Intentional Alignment.
10. School culture, structures and instruction and assessment are all equally important in creating an effective school.

B. Teaching and Learning Design Principles

> ❝ We are focused on improving the quality of instruction by building a common belief system of what is good instruction and creating the instructional culture to support collaborative dialogue. The structure of mastery-based learning allows us to focus more closely on how students are progressing, allowing us to use instructional models that will work for students and provide more opportunity for them to be active learners.❞
>
> *Susan Bell, former Superintendent, Windsor Locks School District, CT, 2016[59]*

"Increases in student learning occur only as a consequence of improvements in the level of content, teachers' knowledge and skill, and student engagement."[60] In his seminal work on education reform, Dr. Richard Elmore makes the case that the improvements in education cannot occur without improvements to the instructional core. While technical adjustments and add-on programs can make changes around the periphery in education, it is primarily the quality of pedagogy, defined as the interaction between the student and teacher and content, that contributes to academic growth. Therefore, creating a high-quality school requires the districts and schools to consider the effectiveness and alignment of instruction, assessment, professional learning and student support strategies. Competency-based schools will find they need to draw upon the strongest research and evidence-based practices to drive improvement in the heart of the instructional core.

Identifying shared pedagogical principles is an important part of the transition to becoming a personalized, competency-based education system. Transformation processes start with and continually engage with the questions, "What do we know about the ways our students learn? And what must be true of content, instruction and assessment as a result?" These questions catalyze progress toward becoming a student-centered learning system that empowers students as active learners and toward creating a professional culture in which teachers have common language about learning, instruction, and assessment.

Shared pedagogical principles strengthen collaborative relationships among teachers. Common knowledge about student learning gives teachers shared language about instruction and assessment. Shared language opens doors to allow teachers to engage in continual and collaborative inquiry processes that build their professional knowledge, skill and judgment. Specifically, they improve the capacity to use the learning sciences, building blocks of learning[61] (growth mindset, self-regulation, metacognition, perseverance and social and emotional skills), instructional content knowledge and assessment literacy to improve student motivation, agency and achievement. Inquiry-based approaches ensure that professional improvement is responsive as teachers learn from the needs, interests and assets of their students. As a result, they continually deepen their shared "well" of instructional expertise.

Some districts have launched their efforts to creating personalized competency-based systems by clarifying their pedagogical philosophy. Others started by making structural changes and then clarifying their pedagogical philosophy over time through the process of alignment. However, given the importance of the learning sciences as a driver for shaping culture, structure and pedagogy,[62] doesn't it make sense to have an early step in implementation to include the review of the learning sciences and their implications for learning experiences, teaching and assessment?[63]

66 It's important for teachers to have a common language and one that is precise enough to help them build their instructional strategies and skills in formative assessment so they can identify why a student isn't understanding something."

Mike McRaith, Principal, Montpelier High School, Montpelier School District,VT, 2016[64]

#6 Base School Design and Pedagogy on Learning Sciences

66 One of the biggest changes is from assuming that the stand and deliver approach to learning in which teachers deliver curriculum and students are expected to just give it back on tests actually works. We are inching along in our understanding that scholars have to be active learners and that we need to build on what they already know. We can't assume what they know – we need to discover it. Without the data, we are at risk of just making up stuff and spinning our wheels. If you are making me learn letters when I already know them, you are not helping me reach my potential. When first-graders are ready for second- or third-grade standards, we need to be able to scaffold up. Practitioners [teachers] are going to have to know and understand the content and have access above grade level."

Cynthia Lamkin, Lead Learner, Otken Elementary School, McComb School District, MS, 2018[65]

Description

Competency-based systems leverage instructional approaches and systems of assessments all of which are based on the learning sciences. Teachers design learning experiences, select instructional strategies and use assessments based on their knowledge of their students' cognitive, psychological and biological development. The learning sciences have implications for all aspects of school design and pedagogy, including transforming the practice of teaching to a more student-centered approach in which students are active learners.

Key Characteristics

- **Learning sciences.** Pedagogy reflects the most recent research about how people learn and develop—cognitive, psychological (motivation and engagement), and biological—ensuring learning environments and learning experiences result in powerful learning outcomes for students.

- **Shared understanding.** Teachers internalize understanding of the learning sciences and corresponding pedagogical expectations. Students also have opportunities to understand how learning happens so that they develop metacognitive abilities and the skills to monitor their own learning.

- **Development opportunities.** Educators have powerful and personalized opportunities to develop the competencies required of practitioners of the learning sciences. Professional development also reflects the learning sciences so that teachers learn in the ways they are expected to teach.

- **Design to the edges.** Instructional strategies that address the educational needs of historically underserved students are embedded into the core instructional strategies.

> 66 Teachers are used to being the source of power, the source of knowledge, and the source of learning. It's hard to give that up. It's hard to let go of being in front of the classroom and moving everyone at the same time. We start to reach a tipping point when teachers are able to step back from being in the front of the room and depending solely on whole group instruction. In order to accomplish this, they need to have developed a number of the effective practices, including growth mindset, shared vision, code of cooperation, and standard operating procedures and workshop. The challenge is that performance-based learning isn't just a set of new practices. The key is in the understanding of the pedagogy upon which these practices rest."

Scot Bingham, Principal, Broadway Elementary School, District 51, CO 2017[66]

How Is Developing a Shared Pedagogical Philosophy Based on the Learning Sciences Related to Quality?

> 66 The more educators give students choice, control, challenge, and collaborative opportunities, the more motivation and engagement are likely to rise."

Eric Toshalis and Michael J. Nakkula, Motivation, Engagement, and Student Voice[67]

Drawing from cognitive, psychological, developmental and biological domains, the learning sciences can inform school design, curriculum and learning experiences, instruction and assessment. Although the body of research on the science of learning is greater than can be summarized here, the following are nine cornerstones of the learning sciences that should drive teaching and learning, as well as culture and structures.

Cornerstones of the Learning Sciences[68]

Learning is an activity that is carried out by the learner.[69] Students do not simply absorb information and skills. Rather, learning requires active engagement and effort. Effort is influenced by motivation. Similar to intelligence, motivation is malleable. Beliefs about intelligence shape the amount of effort students are willing to invest.[70] Those who hold a growth mindset will put more effort toward learning than those who hold the misconception that intelligence is a fixed trait. Providing incremental opportunities to experience growth reinforces that effort will result in success. Learners will be more motivated when they value the task and if they are confident they will be successful with supports available if needed.[71]

Learning results from the interplay of cognition, emotion and motivation.[72] The brain does not clearly separate cognitive from emotional functioning, so optimal learning environments will engage both. Motivation is important to learning but it is also dynamic and changes in response to a number of factors. In fact, as students learn more about their cognitive processes, they develop a greater sense of competence and thereby increase their motivation. The relationship between cognition, emotion and motivation is dynamic.

Learning does not occur through a fixed progression of age-related stages. The mastery of new concepts happens in fits and starts.[73] Learning is shaped by multiple factors, some of which are related to the neural, social and emotional development of children. Others are dependent on the types of experiences and contexts provided for the learner to build new understanding on prior knowledge. Practically speaking, this means that biological factors are only a part of the story. Frequent challenges matched by

social and emotional support can strengthen cognitive and psychological development. Rich learning experiences facilitated by helpful guides along with recurring opportunities to experiment, practice and improve will help students learn, develop and achieve.

Intrinsic motivation leads to better long-term outcomes than extrinsic motivation.[74] Extrinsic or controlled motivation (systems of reward or punishment such as the traditional grading system of 0-100 points for assignments and behaviors) may be useful in the short-run but often produces the unintended consequence of disengagement and resistance. Self-determination theory explains that motivation will increase when learners experience competence (I can be successful), relatedness (I have meaning and connection) and autonomy (I have control over the process).[75] It's important to remember that motivation is dynamic. It increases and decreases. It can be shaped by cognitive processes, and external expectations can become intrinsic motivation.

Effort is dependent on motivation and self-regulation. When learners are able to self-regulate—when they can successfully manage thoughts, behaviors and emotions— they are better able to initiate and sustain focus and effort on difficult tasks. Students may be highly motivated but not have the skills necessary to manage the emotions they experience in the process of learning. Thus, students need coaching to build the social and emotional skills to manage the stress they experience from situations in or out of school, the metacognitive skills to monitor their learning and the self-regulation skills to change strategies as needed.[76]

Learning is shaped by the way information is processed and transferred into long-term memory.[77] New information is processed in working memory before it can be transferred into long-term memory. Working memory has limitations to how much new information it can absorb, requiring students and teachers to consider the cognitive load. Strategies can be used to reduce demand on working memory and helping to transfer new information and concepts into long-term memory.

Learning builds on prior knowledge and context.[78] People learn new knowledge optimally when their prior knowledge is activated. Learners need to have structures to organize and retrieve information. Thus, attaching new information to what they already know in a context where that knowledge is accessible, relevant and responsive to cultural understanding can be helpful in mastering new ideas and skills.

Acquiring new knowledge and skills requires effective feedback.[79] Effective feedback focuses on the task (not the student) and on improving (rather than verifying performance). Assessing student learning, identifying misconceptions or gaps in understanding and providing feedback are critical steps in the learning process. Assessment information is as important to helping teachers to adjust their teaching strategies or improve their skills as it is for helping students adjust their learning strategies. Research on learning progressions[80] helps teachers to understand how students are understanding concepts and processes not just whether they reached the correct answer.

Learning is a social process.[81] Learning occurs in a socio-cultural context involving social interactions. Individuals need opportunities to observe and model behaviors—both from adults and peers—to develop new skills. Dialogue with others is needed to shape ways of thinking and construct knowledge. Discourse and collaborative work can strengthen learning when they allow students to assist each other and take on expert roles.

Learning occurs through interaction with one's environment. The human brain, and therefore learning, develops over time through exposure to conditions, including people, experiences and environmental factors. A person's culture may also serve as "context" that influences learning.[82] Learning occurs best in conditions that support healthy social, emotional and neurological development. Students will be more motivated in schools when they believe that they are accepted, belong and respected.[83] Optimal learning environments attend to and seek to ameliorate status differences and social hierarchies so that students do not feel marginalized, ostracized or threatened.

Five Misconceptions of How People Learn

The Science of Learning, Deans for Impact[84]

» Cognitive development does not progress via a fixed progression of age-related stages.

» Students do not have different "learning styles."

» Humans do not use only 10 percent of their brains.

» People are not preferentially "right-brained" or "left-brained" in the use of their brains.

» Novices and experts cannot think in all the same ways.

When districts and schools consult the learning sciences, they find clear evidence that learning occurs when the learner drives and owns the learning process.[85] They'll begin to think more strategically about how to design learning experiences around students' zone of proximal development, activate prior knowledge, manage the limitations of working memory and the transfer to long-term memory. They will also find that intrinsically motivated learning is optimal:[86] motivation and performance will increase when learners experience competence (I can be successful), relatedness (I have meaning and connection) and autonomy (I have control over the process).[87] Districts and schools that turn to the learning sciences to define their pedagogical philosophy will inevitably find themselves focusing on student ownership, engagement and motivation. This focus will improve learning and teaching, and contribute to the culture of empowerment necessary to sustain a competency-based system.

Competency-based systems "design to the edges" with their entire student population in mind. Traditional education systems have relied heavily on instructional strategies that are designed to "teach to the middle."[88] They design for a "typical" student, often using a definition of "typical" that is rife with bias and assumptions. However,

a district or school tailoring education to meet students where they are will need to design to the edges and understand its students deeply, seeking opportunities to know them before the beginning of school and think about what is going to be needed to ensure they succeed. They ensure that pedagogical principles are adequately flexible to support the diversity of needs that will inevitably present themselves in a school, and even in a single classroom. They also recognize that oftentimes designing for students with the most "extreme" needs can result in benefits for all students. In other words, if a classroom is doing a good job of serving the student who is the farthest behind and the student who is the most advanced, they are almost certainly meeting the needs of all the other students.

Policies and Practices to Look For

- There is a clearly articulated pedagogical philosophy or set of beliefs that drive instruction.

- Professional learning gives educators the opportunity to develop the skills necessary to enact the shared pedagogical philosophy. It draws upon the learning sciences and is personalized for educators. Within professional learning communities educators engage in inquiry to understand research to better support students that are struggling.

- Instructional strategies take into consideration that students start with different sets of academic skills, social and emotional skills and life experiences.

- There are schoolwide approaches for helping students develop the building blocks of learning or self-directed learning skills such as growth mindset, metacognition, self-regulation and perseverance.

- Learning experiences and instructional strategies are designed to meet the needs of diverse learners. It is learner-centered and culturally responsive, including, but not limited to, communication of high expectations, active learning teaching methods, student-driven discourse and small group instruction.

- All students have opportunities to apply learning and build higher-order skills supported by performance tasks and performance-based assessment.

- Systems of assessments include assessment *for* learning that are embedded in the cycle of learning with actionable feedback and structured reflection to build metacognition.

  - Grading practices are aligned with the learning sciences.

> 66 Mastery-based grading makes the relationship between the student and teachers more intimate. It becomes a two-way relationship rather than a one-way relationship where the teachers just give you the grades. I can talk about my struggles with my teacher in a very clear way that is focused on specific skills and specific performance tasks. I know what I need to do in order to get the grade I want."

Student, Young Women's Leadership School[89]

Examples of Red Flags

⚑ **There is no shared understanding of how people learn and implications for teaching.** Teachers may share a common curriculum or an instructional model (i.e. project-based learning), but cannot articulate common expectations for how students will actually learn. Learning environments and learning experiences look very different classroom to classroom and students are not consistently engaged in meaningful, challenging work.

⚑ **Students are expected to listen and learn, with little opportunity for practice or feedback.** Direct instruction and lecture has its place in the set of instructional strategies teachers use. However, if most classrooms have students sitting and listening to teachers with little opportunity for students to practice, receive feedback or actively apply their learning, there is a good cause to be concerned that the school has not fully understood or explored the implications for the learning sciences.

⚑ **Assessments rely heavily on tests that all students are expected to take on the same day.** If students all begin at different places in their learning and have variation in the tempo of their learning, why would we expect them to all be prepared on the same day to take a test or an assessment? If assessments are going to be used formatively to inform instruction and guide the next steps of learning, it may make sense to have assessments given on the same day. However, if the assessments are summative, it is important that students have had adequate support and time to become proficient. Deadlines matter as an important part of time management skills. However, that value diminishes when students simply need more time because they are putting forth effort to repair gaps and master rigorous expectations.

> 66 There are many who don't realize that delivering grade-level curriculum day after day to kids regardless of whether they are learning or not is based on an archaic pedagogy. Many students are harmed by this – they end up thinking that they aren't smart or give up on school. We know so much more about how students learn today, and our schools should be shaped around it. But if they don't know that they are doing something harmful, are they really responsible? Once you see personalized, performance-based learning in action, you face a moral question. Are you going to be like Thomas Jefferson who knew that slavery is wrong but kept doing it anyway? Or once you realize that there is a better way to help students learn, are you going to do it, even if you bump up against other parts of the system?"

Darren Cook, Teacher, East Middle School, District 51[90]

#7 Activate Student Agency and Ownership

> "In the beginning it was hard. There were projects rather than textbooks. But then I realized I was learning a lot of things. I learned to manage my time and resources. I set goals now and plan my day. I've learned to self-regulate myself. I even plan to give myself free time every day."

Student, EPIC High School North, New York City Department of Education, NY 2014[91]

Description

The learning sciences point out that learning is something done by students, not to or for students. Thus, competency-based schools use strategies to help students build agency: the skills and ability to direct one's course in life and become a lifelong learner. When students have agency they find purpose in learning, are motivated to put forth the effort needed to persist through challenges and are able to manage their progress in learning. Agency requires both mindsets and skills, including growth mindset, self-regulation and other social and emotional skills, metacognition and perseverance. Districts and schools can help students to develop these skills; they can design learning environments and experiences that teach these mindsets and skills explicitly, give students opportunities to practice them and give students time to reflect as they grow. When students take ownership of their learning, they transform the learning environment so that teachers are better able to provide tailored and targeted instruction.

Key Characteristics

- **Active learning.** Schools and pedagogy are based on the learning sciences with students actively engaged in their own learning.

- **Opportunities for agency.** Instructional strategies are designed to help students build skills and have some degree of autonomy in their learning. Teachers construct opportunity for students to make choices in their learning and co-design learning tasks. Students learn to set and reflect on a goal. They have voice and ownership in decisions about their learning and increased leadership in classrooms, school activities and school governance.

- **Building blocks for learning.** Students are supported to build developmental skills, mindsets and character traits of learning. Learning experiences provide opportunities for practice and feedback. There are additional supports and learning opportunities for students that have not yet learned or are struggling to master the building blocks for learning.

- **Timely and transparent information.** Students have access to accurate information to support informed decision-making.

- **Educator support.** Educators are supported and have opportunities to develop their own competency in coaching students on the building blocks for learning, designing learning experiences in which students have opportunity to practice and effectively assess student development with attention to cultural differences.

How Is Supporting Students in Building Skills for Agency Related to Quality?

" Agency is the capacity and propensity to take purposeful initiative—the opposite of helplessness. Young people with high levels of agency do not respond passively to their circumstances; they tend to seek meaning and act with purpose to achieve the conditions they desire in their own and others' lives."[92]

The Influence of Teaching Beyond Standardized Test Scores: Engagement, Mindsets, and Agency by Ronald F. Ferguson with Sarah F. Phillips, Jacob F. S. Rowley, and Jocelyn W. Friedlander, 2015

One of the most transformative changes in personalized, competency-based education is the shift from compliance to empowerment. Whereas the traditional system expects students to be compliant, passive learners, high-quality competency-based systems engage them as productive, active learners. There is powerful evidence that agency is vital to student learning and development. For this reason, high-quality competency-based education systems turn to instructional strategies that help students find authentic purpose in learning and motivate them to put forth the effort needed to learn. They are intentional in helping students build intrinsic motivation and with graduated release provide opportunity for students to learn to make decisions about and co-design their learning. [#6 Learning Sciences]

There are at least three capacities that schools need to build to support students in becoming active learners and build the skills for lifelong learning: coaching, meaningful information and opportunities.

- **Coaching:** Although one can argue that we are all born with agency, it requires skills to be able to become strong self-advocates and lifelong learners that can successfully navigate new environments and challenges. Multiple skills and mindsets are needed for student agency and have been best described as the building blocks for learning.

These skills and mindsets include growth mindset, self-regulation and other social and emotional skills, metacognition and perseverance. [#4 Growth Mindset]

- **Meaningful Information:** Empowering students means providing them with meaningful choices. Students can only make meaningful choices about their learning when armed with adequate information about the cycle of learning, learning targets, what proficiency looks like, and concepts and skills they needed to reach proficiency. For this reason, schools and teachers must provide students with timely access to information about learning targets, moderated definitions of mastery and where they are in their learning progress. [#12 Transparency]

- **Opportunities:** Empowering students also means providing them with real opportunities to practice the skills necessary to be independent learners. Teachers can proactively develop these skills in students and construct learning experiences that let students practice self-regulation and develop academic behaviors. Classroom management strategies can enable students to practice decision-making at appropriate developmental levels. Teachers support students to build skills, using gradual release that empower students and increase agency, not simply handing over the reins. Many schools create opportunities for students to expand their agency by taking on increasing levels of responsibility from the classroom to activities to clubs to school governance at the highest levels. These opportunities build skill development and contribute to a culture of respect and empowerment. It is important to ensure they are offered to a range of students and that, over time, all students have opportunities for leadership roles.

As students become active learners with increasing ability to guide their learning, the roles and power dynamics in the classroom will change. With the help of classroom management strategies and routines, students can take more responsibility for their learning and free teachers to work purposefully with small groups or individuals. In classrooms where students have high degrees of agency, an observer might see groups of students working collaboratively and independently on projects, guiding themselves through learning through student-to-student

inquiry and student-directed learning tools. A teacher or teachers might circulate between groups asking critical questions to push their learning, provide targeted supports to a small group of students struggling with a similar concept or skill, or provide virtual feedback on student work. Thus, a virtuous cycle is created: when learning is personalized and students become active participants in their education, greater degrees of personalized learning are enabled. Teachers are better able to meet students where they are and students feel more engaged when they have more autonomy of how they learn, how they demonstrate their learning, and more opportunity to pursue tasks that are of interest to them.

This shift in power within the classroom is significant not only for its impact on learning outcomes, but also for its impact on students' lives. When students develop agency they build the skills to take active roles in their learning. These very same skills also allow them to make change in their lives and in their communities. Promoting agency also promotes equity by ensuring that students develop into adults who have the capacity and resources to direct the course of their own lives and counteract injustices in the world around them. [#2 Equity]

It is critical that educators are supported in learning how to help students build the skills needed for agency. For many teachers, this will require building new skills *and* addressing certain mindsets. It is not at all uncommon to hear teachers express fear that agency is "good for some kids, but not for my kids." While it is certainly true that some students might need more support or different supports to develop agency than others based on their learning and life experiences, we caution teachers and leaders against assumptions about who can have opportunities for leadership and self-direction and who cannot. As districts and schools create opportunities for teachers to learn instructional strategies for building agency, they might also want to provide opportunities for discourse and reflection that challenge assumptions about what students can learn to do. [#13 Educators as Learners]

> "I learned to trust kids. It was really scary at first, but I decided, 'I'm just going to go for it – I'm all in.' Then my students started coming up to me, asking, 'Can I show you that I learned it?' It is totally mind-blowing. I saw so much more growth in my students, and they were becoming confident learners."

Jennifer Denny, Teacher, Red Bank Elementary School, Lexington School District, SC, 2016

Policies and Practices to Look For

- Classroom management, learning experiences, instruction and assessment are designed to develop the mindsets, motivations and skills that promote agency. Students have opportunities to develop these competencies in their core learning experiences, through coaching and advisement and in extended learning opportunities.

- Students have timely access to information about learning targets, definitions of mastery and their own progress to make decisions about their learning.

- Common assessments and common outcomes enable students to have access to flexible pathways, co-design projects that reflect their interests, multiple ways to learn and multiple ways to demonstrate learning.

- School strategies to nurture student agency are intentionally monitored to ensure that all students, specifically historically underserved and marginalized students, are receiving the feedback and coaching they need to build skills.

- Teachers use similar classroom management routines and practices to support students taking ownership. Navigating different routines and dynamics in each classroom is minimized to increase the sense of safety and lessen demand on working memory.

- Students can explain what they are working on, why it is important, what they need to do to demonstrate learning, and what they can do if they are struggling.

- Students, regardless of academic achievement levels, are encouraged to take on leadership roles and participate in governance.

- Student-led conferences are used to engage parents and guardians in which students prepare and present their growth academically and as learners.

Examples of Red Flags

⚑ **Student agency is thought to be the same as choice.** Too often schools interpret the concept of student agency as equivalent to choice. This misconception shows up in many ways: teachers think students have agency if they get to pick which book they read or where they sit, or think that having longer playlists equals more agency. There is nothing wrong with these practices—choice provides a limited form of autonomy for students to exert control over their learning process. Providing choice is only one technique to help students build agency, but it is not adequate on its own. Choice needs to be meaningful, grounded in a student's awareness of where they are in their learning, what they need to do to progress and what matters most to them. Without cultivating purpose, metacognition and self-regulation, choice can be superficial.

⚑ **Students are encouraged to participate in governance and leadership opportunities but only if they are on track (i.e., at grade level)**. Privileging students who are on grade level or on track is a trait of the traditional system. It is important to check assumptions about gateways to other learning and leadership opportunities in a school. At first glance, it may make sense to not let a student who hasn't completed their learning objectives for a semester participate in leadership or other extracurricular activities so that they can direct their time toward learning. However, if they are on a trajectory to getting on track by filling gaps and learning at a growth rate of 1.5 or 2 performance levels per year, they should be commended not penalized. Pay attention to growth, not just grade-level standards.

⚑ **Teachers do not receive support in how to coach or assess the building blocks for learning needed for agency.** Schools often highlight some or all of the building blocks for learning to help students take ownership and build the lifelong learning skills but fail to remember that educators need support themselves in building these skills and in coaching these skills. In addition, coaching and assessing the building blocks for learning is a potential area for bias: without consciousness or intention, bias can undermine efforts to support students in building agency by skewing a teacher's perception of who has agency or is capable of having agency. For example, a common attribution bias is assuming that students who are late don't care about their education. However, the exact opposite might be true. There are students that care so deeply about education that they may wake up before dawn to take three buses to get to school or may have helped their three younger siblings get to school.

❝ Everything starts with relationships. The kids learn that they have to have agency within relationships. We expect our students to ask 'Who says?' and 'What makes you say that?' so that they build their own understanding and learn how to give productive feedback and advocate for themselves."

Kim Carter, CEO, Making Community Connections Charter School, Manchester, NH, 2014[93]

#8 Design for the Development of Rigorous Higher-Level Skills[94]

" What is honors? We realized that it wasn't more work, or faster. It was deeper learning, something all students should have access to."

Jennifer Gay, Personalized Learning Project Manager, Luella High School, Henry County School District, GA, 2016[95]

Description

Competency-based education supports students to not only learn academic content, but also to apply it in different contexts. Through application or engagement in deeper learning students develop higher-order skills often referred to as transferable skills. These skills include evaluation, synthesis, problem-solving, creativity and communication. Instruction, learning experiences and assessment, including performance-based assessments, are aligned so that all students can experience deeper learning by applying their learning in the classroom and in the community.

Key Characteristics

- **Definition of student success.** Definitions of success include academic knowledge, transferable skills, and lifelong learning skills. They explicitly value the higher-level skills students will need to be successful.

- **Application and transfer.** Students engage in higher-level thinking by applying knowledge and skills to challenging, interdisciplinary contexts and problems.

- **Reflection and revision.** Not only do students apply and demonstrate knowledge in meaningful ways, they also have opportunities to use assessment as part of the

learning process. Feedback and data is used to improve their performance and deepen their understanding.

- **Performance-based.** Students demonstrate mastery by showing what they know by submitting evidence of transferring knowledge and skills, participating in performance tasks or through performance-based assessment.

- **Productive struggle.** Learning experiences encourage and support students to experience productive struggle as they engage with cognitively challenging work within their zones of proximal development and to experience failure as a necessary part of learning.

- **Moderation and calibration.** Processes are in place for teachers to build shared understanding of higher order skills and consistency in grading to improve the reliability of their decisions about student learning so that students are not passed on with gaps in knowledge or skills.

How Is Designing for the Development of Rigorous Higher-Level Skills Related to Quality?

" In the beginning I didn't like the school. I didn't understand what we were learning or why we were learning it. In my old school we rarely had projects. Here it was all projects. I really didn't like it until I got a lot of help from teachers. When I realized that I was going to get help, the projects became interesting."

Student at EPIC High School North, New York City Department of Education, NY 2014[96]

The concept of competency is the capacity to transfer knowledge to new contexts. Competency-based systems raise the bar in two ways: they expand the definition of student success to include higher-order skills needed to transfer knowledge *and* they expect that all students will meet this bar. Thus, districts and schools need to design systems of learning and assessment that ensure all students

have opportunities to experience and demonstrate rigorous deeper learning.[97]

Traditional districts and schools were organized around the assumption that intelligence was fixed, and that students should therefore be ranked and sorted to determine who was "college material." In these systems, only students in honors or advanced courses had access to rigorous learning, while other students—usually those students who had been historically underserved—were only expected to memorize and comprehend. By contrast, competency-based education systems ensure *all* students have opportunities for building higher-order skills and inquiry-based learning.

While deeper learning is not tied to any one instructional model or pedagogy, it can be seen in high-quality applied learning such as capstone projects, inquiry-based, project-based, problem-based, expeditionary learning, and extended learning in the community, among others. These types of learning experiences are interdisciplinary and required students to select and develop the appropriate mix of knowledge and skills to use. Teachers find that collaborative design processes are helpful for creating robust applied learning experiences as so many instructional aspects need to be integrated. For example, teachers will want to draw on culturally responsive education strategies in recognition that how students demonstrate higher-order skills may be influenced by culture and intergroup dynamics. Districts and schools will want to ensure that capacity is developed for performance-based assessments so that teachers have a moderated understanding of proficiency in higher-order skills. Furthermore, it is important to ensure that there are no barriers to deeper learning, such as course placement prerequisites.

To promote rigor for all, districts and schools usually need to consider the number of strategic design questions. What social, emotional and noncognitive supports will students need to engage and persist at higher levels of learning? How will schedules promote deeper learning? How many community partnerships are needed to create authentic problems to be solved and opportunities for internships?

How might teachers scaffold problem-solving? How can teachers balance deeper learning and meeting students where they are with the very real pressure to accelerate learning for the students who are the farthest behind? How can teachers build their capacity to support performance-based assessment? What mechanisms for moderation and calibration exist so that teachers have shared understanding and grading practices for assessing higher-order skills?

Without strategic design, setting this doubly high bar for student success is merely aspirational: there is little reason to believe that all students will meet a higher bar of competency if we have not designed for the edges. Gaps in knowledge will need to be repaired and learning experiences designed to ensure all students engage in rigorous higher-order learning at every step along their educational path.

Furthermore, this high bar cannot be met without attention to equity. Rigorous deeper learning isn't something that is made available to students after they are proficient. If the definition of student success is academic knowledge and the expertise to apply it, then *all* students have to have the opportunity to build higher-order skills through rigorous deeper learning regardless of their proficiency level. Many schools set a level 3 to indicate proficiency and a level 4 to indicate deeper learning or honors level work. When this happens, students who are performing below their grade level are pressured to "move on" when reaching proficiency in an effort to "catch up" to grade-level standards. The result is that they never have the opportunity for extending their learning or engaging in deeper learning.

To prevent this situation from occurring, deeper learning can be embedded into the design of all learning experiences through core instructional strategies, intersessions, capstone projects or extended learning in the community. Some schools do this by including performance-based assessment or performance tasks that let students demonstrate their learning in ways other than quizzes and tests, which tend to emphasize lower levels of depth of knowledge. In this way all students, no matter their performance levels, can have the opportunity for learning how to apply skills.

> 66 If you focus on pace, it becomes a linear march through the curriculum. When the focus is on speed, it's easier to fall into the trap of low cognitive demand instead of emphasizing deeper learning."

Michael Martin, Director of Curriculum & Technology, Montpelier School District, VT 2016[98]

Policies and Practices to Look For

- Students are involved in at least one meaningful project that makes connections to the real-world.

- All students, including those who are learning at levels below their age-based grade, have opportunities to apply knowledge and skills.

- The schedule and calendar have been aligned to ensure students can receive extra help, participate in deeper learning such as project-based learning and take advantage of extended learning opportunities.

- Teachers have time each week for planning, learning, collaboration, as well as professional learning opportunities, to build their capacity in instruction and assessment for higher-order skill development.

- Performance tasks and performance-based assessments are used to ensure students are building higher-order skills.

- Moderation and calibration processes are in place to ensure consistency in credentialing higher-order skills.

- There is a school-wide strategy for helping students understand graduation-ready competencies and an opportunity to work on cross-cutting, transferable skills in multiple classes so students can see how they differ within different domains.

Examples of Red Flags

- ⚑ **The graduate profile includes world-class skills or transferrable skills but students advance based on multiple choice assessments or other forms of tests for comprehension and analysis.** The traditional system has emphasized the lower levels of Bloom's taxonomy—

memorization and comprehension. Assessment strategies that deem students proficient based on 80 percent pass rates, often embedded into digital instructional software, may result in reinforcing lower expectations. Students are passed on with potential gaps in knowledge and without the expectation or opportunity to apply and transfer skills. As districts are guided by the beliefs and principles about teaching and learning, many find themselves turning to performance-tasks and performance-based assessments to help lift their instruction from the knowledge levels of recall and comprehension toward analysis, synthesis and evaluation.

- ⚑ **School schedules are still based on 50-minute classes.** Inquiry-based learning and project-based learning all require time for deeper discussion and exploration. Students need blocks of time for collaboration, creating and innovating. More developed competency-based schools create schedules to support deeper learning including block schedules, inter-sessions for project-based or work-based learning and flexible opportunities to pursue research and inquiries.

- ⚑ **Students can only do projects, community-based learning or elective learning when they have reached proficiency.** Students who are behind grade level have to move on when they meet proficiency rather than go deep. Understandably, many teachers feel that this is the best way to help students who are behind; with all the best intentions, teachers rush their struggling students along. But there are problems with this approach. First, students who are the farthest behind are often the same students who are the most disengaged. When these students do not have the chance to go deep into something that intrigues them, they are less likely to persist. Second, a student who pushes forward to grade level but never has time to apply their learning in meaningful ways will *only* have demonstrated academic content knowledge, *not* deeper learning. They may have become proficient in the academic knowledge but not in the higher-order skills needed to use that knowledge. While it may look and feel (according to standardized assessments) like this student has closed the gap, there will still be a "deeper learning gap." In other words,

students who entered the education system more privileged will still leave the system more privileged if they are the only ones who get to experience deeper learning.

66 We want students to stretch themselves toward going deeper in their learning. Too often we are still expecting students to memorize facts even if they are at our fingertips. It is an entirely different experience when it is inquiry-based. Facts are sucked into the vortex of a kid who is engaged by a big question. They gain meaning because they can be used, not just memorized."

Bill Zima, former Principal, Mt. Ararat Middle School and currently Superintendent, RSU2, ME, 2016[99]

#9 Ensure Responsiveness

66 We don't blink if you are at the second-grade level when you are in the fourth grade. If teachers really understand the standards and the progressions that are needed to help students move, then we can bridge the gaps. We don't pretend anymore that students can do higher level work if they don't have the prerequisites. It makes teaching much more complex as we are teaching students, not just going through a curriculum."

Jennifer Denny, Teacher, Red Bank Elementary School, Lexington School District, SC, 2016

Description

Schools need to meet students where they are to help them master learning targets and build the competencies they need for college, career and life. When schools commit to ensuring that every student can succeed and recognize that students have different knowledge, skills and life experiences, they quickly find that a one-size-fits-all approach will not work. Instead, schools need to be responsive: meeting each student where they are and providing the right supports at the right time. A critical aspect of responsiveness is maintaining consistent expectations of proficiency and monitoring student pace to ensure students are receiving effective instruction and supports.

Key Characteristics

- **Meeting students where they are.** Based on the learning sciences, schools promote instructional strategies and adequate supports to meet students where they are in their zone of proximal development. Within the current policy context, districts and schools likely seek ways to balance between pursuing grade level proficiency and progressing students along the personalized pathway of the learner continua.

- **Addresses foundational skills.** Districts and schools ensure students are mastering the foundational skills and take responsibility for addressing key learning gaps. Students are not passed on without support. Teachers work with students to create plans to address gaps even if it will take several years.

- **Deeper learning for all.** Schools have intentional strategies for ensuring all students have opportunities to develop deep, enduring and transferable knowledge regardless of where they are in terms of grade level proficiency.

- **Personalized instruction.** Teachers coach students in the building blocks of learning to become independent learners, increase motivation and engagement through offering choice and co-design opportunities to pursue interests and use a variety of instructional strategies to support student learning.

- **Timely, differentiated supports.** Districts and schools ensure students have access to the supports they need to keep pace toward graduation.

- **Flexible resources.** Resources, including time, space, modality and technology are flexible to support responsive and personalized instruction.

- **Data-driven practice.** Data on student learning and student work is used to diagnose and address learning gaps, monitor pace and inform professional learning.

How Is Ensuring Responsiveness Related to Quality?

❝ When I arrived at Parker-Varney three years ago, we were program driven. We depended heavily on curriculum programs to drive our instruction. The problem is that when you use products like Every Day Math or America's Choice curriculum, you are completely tied to that curriculum. There is no flexibility or strategy to meet the needs of students who are at a different level."

Amy Allen, Principal, Parker-Varney Elementary School, Manchester School District, NH, 2016[100]

Consider the following analogy. Asking two students with different learning backgrounds and needs to master the same rigorous content at the same time with the same supports is like asking one student to hop over a puddle, and another to leap the Grand Canyon. Meeting students where they are means ensuring that all students can *actually* meet the same rigorous standards by providing students who are behind with the tools, supports and time they need to make that larger leap.

Responsiveness is critical to quality because without it— the ability to meet each student where they are, provide them with the right instructional strategies, resources and supports, and monitor their progress toward proficiency— there is little reason to believe that all students will *actually* learn at high levels or graduate ready for college, career

and life. Likewise, there is little reason to believe that districts will *actually* close persistent equity and opportunity gaps. Thus, responsiveness is a critical element of building a more equitable system. High-quality competency-based districts and schools build the capacity to monitor every single student's growth and respond quickly when students are not progressing.

As previously discussed, a culture of empowerment and agency requires access to accurate and timely information. Likewise, responsiveness requires transparency about student progress and proficiency relative to grade-level standards. Transparency eliminates mixed messages and false signals to students and families about student learning, helping them to make informed decisions. Transparency also promotes teacher development and improvement. The wealth of student learning data generated in competency-based districts and schools provides powerful feedback to educators about their effectiveness and highlights areas for improving instruction. It also allows districts and schools to monitor disaggregated growth data and address inequity and bias as a part of continuous improvement. [#12 Transparency]

In their purest form, competency-based systems are fully student-centered. They are designed to ensure every student is working toward successful completion of competencies with access to instructional supports that challenge and support them within their zone of proximal development and progressing along a continuum of learning at a pace that ensures they will reach proficiency. We know that some worry "meeting students where they are" is code for lowering rigor of instruction and might perpetuate learning gaps. On the contrary, meeting students where they are is about equity because meeting students where they are is highly aligned with learning sciences and standards for equitable practice. When students are met where they are in their learning, they can attach new knowledge to prior knowledge and advance their learning. When they have opportunities to be supported on personalized pathways with targeted supports to keep pace toward proficiency, they are consistently engaged in their zones of proximal development and can therefore develop true mastery.

Furthermore, meeting students where they are is inextricably linked to the practice of closely monitoring student pace and progress. Teachers work with each other and with students to create individual learning pathways that show the pace and progress students need to make, critical milestones and the supports they will need. They monitor student progress frequently to make sure students are on pace and that supports are effective. In other words, meeting students where they are does not mean being complacent about a student who starts behind. It means figuring out what that student needs to move forward and adjusting the course as needed along the way.

The key to meeting students where they are lies in three core capacities: 1) personalizing learning so that students take more responsibility for their learning and teachers are able to work with small groups or individually as needed; 2) ensuring that students can access additional support when they need it; and 3) closely monitoring growth and aligning the level and intensity of support as needed to ensure students are making progress. For a deeper discussion on this issue see the paper *Meeting Students Where They Are.*[101]

There are several challenges in fully implementing a system that can respond to students and monitor student growth and progress. One of the largest challenges derives from the fact that competency-based systems continue to operate in the context of federal and state accountability policy: teachers and leaders navigate the tension between meeting students where they are and assessing students based on grade level. Instead of focusing solely on providing the most effective instruction to students regardless if they are above, at or below grade level, teachers may feel that it is only fair to cover the standards and curriculum upon which the students will be assessed at the end of the year. Some will do this by planning content around grade-level standards and building in strategic scaffolds for students who are behind. Others will prioritize "keystone" or "power" grade-level standards and go deep on them to build students' enduring understanding.

> " Students aren't self-paced at Building 21. If they enter with gaps, then we work with them to create a personalized growth pathway. Their pace needs to mirror their plan so they are in their zone and on a path toward graduation. If they can get adequate growth per year we can get them on track to being college ready."

Sandra Moumoutjis, Educational Consultant, Building 21, School District of Philadelphia, PA, 2016[102]

Most districts and schools in the early stages of becoming competency-based will continue to think about the starting point of student learning as the beginning of the semester and the beginning of a course or a grade level, i.e. a grade-level learning continuum. This focuses their attention on covering standards rather than taking a more student-centered approach. While a standards-based orientation is a reasonable starting point for districts and schools earlier on the pathway to becoming fully competency-based, it is a limited strategy in the long-term. The problem is it truncates learning for those above grade level proficiency while creating risk that students are not receiving the instructional strategies they really need.

Teaching to grade-level standards and using scaffolding to build access to the grade-level content cannot be effective if it's done without the commitment to helping all students address and fill gaps in their skills. This is hard, even impossible to do, if teachers do not know what students' gaps are; do not have instructional flexibility to personalize for students; or do not have the ability to flex time in the day, unit, or year to ensure that all students are actually mastering standards. If, or when districts and schools find themselves ready to fully transition to learner continuum rather than grade level, they will find that student-centered information management systems (rather than those that are organized by grade-level standards within courses) are helpful in enabling educators to monitor and record student progress along their learning continua.

Policies and Practices to Look For

- Schools are using a learner continuum that spans several grade levels rather than grade level standards.

- Students are able to tell you what level they are working on, what they are working on, what they need for support, and how they will know when they reach proficiency.

- Teachers plan for responding to students where they are by organizing and making available learning tasks and/or units that span the learner continuum.

- Teachers and leaders have honest conversations about how well the school is meeting students where they are and producing growth for all sub-groups. Discussions clarify what could be done differently as part of continuous improvement.

- Students have multiple opportunities to access extra support and instruction.

- Data is used to monitor student growth in academic domains, success in deeper learning/higher order skills, and developing lifelong learning skills. Measures of student achievement recognizes both the growth rate based on a personal student trajectory and the age-based grade level.

Examples of Red Flags

⚑ **Students are passed on at the end of the year with gaps in their learning without a plan for how to ensure they fully master knowledge and skills.** Competency-based education is often described with the adage "learning is the constant and time the variable" as compared with the traditional system's use of time as a constant. However, the amount, quality and intensiveness of support is also an important variable. Students may be building prerequisite skills or simply need more support and time when they are struggling. Some may not have completed all the learning targets, either personalized expectations or based on grade-level standards, by the end of a semester or year. Some schools create additional time at the end of semesters to support students while others have organized summer school as a natural extension of the school year. Bottom line:

students should expect that they can pick up where they left off when they begin the next semester and educators should be able to have easy access to information about where students are in their learning.

⚑ **Teachers or students refer to "fast learners" or "slow learners."** It is important to guard against language of students being "fast learners." It is a red flag for two reasons. First, it is possible that students are not being offered enough opportunities for deeper learning, which generally takes more time. They may be fast only because the level of rigor being asked is closer to recall and comprehension than it is to higher-order skills of synthesis and evaluation. Second, the so-called slow student may actually be learning much more, addressing gaps in the prerequisite knowledge that is needed for the task. Thus, students might be "fast learners" only because they are operating in a much narrower zone of proximal development. Third, the term "fast learner" implies a fixed mindset—you are or you aren't.

If your culture of learning is strong, students will be comfortable talking about their grade levels and academic levels even if they are on academic levels below their grade level. Pay attention to language about progress—emphasize efficacy, depth of learning and working harder to tackle challenging material rather than falling into the trap of referring to students as fast or slow. To keep your culture of learning robust, focus on effort rather than comparison.

⚑ **Scaffolding only helps students have access to a curriculum.** Students often have gaps in their knowledge including the highest achieving students. Scaffolding that only provides access to a curriculum without ensuring that students actually repair the gaps means that the next year and the year after they may continue to be ill-prepared for higher level coursework. With a shared commitment to filling gaps, teachers will collaboratively develop strategies to repair those missing gaps, even if it takes longer. Sometimes plans will need to be made so that students can continue to get support in the summer and when they return the next fall. The importance is that there is continuity in their instruction and support.

" The beauty of transparency is that teachers are not afraid to come to us to look at student work and have a conversation about what we can do. With some targeted professional development, our teachers are better able to identify early on if we are dealing with dyslexia or some other issue that needs special education specialists or if students are missing skills."

Penny Panagiosoulis, Principal, KAPPA International High School, New York City Department of Education, NY, 2016[103]

C. Structure Design Principles

" Mastery-based learning operates on a different set of assumptions. Even if you have two or three colleagues working together, it is difficult to bring mastery-based learning to life in the classroom without a district vision. As a teacher, you can focus on standards and develop your units around them, but there is no way to create a greater understanding of how the standards fit together to create a sense of purpose for learning if you are working in isolation. Teachers can organize their classrooms around standards, but we want so much more for kids. It takes a much broader vision. The vision of the district and the philosophy of the school shape how people relate to each other, determine what is important and where attention is directed, and sets the values."

Caroline Messenger, Curriculum Director, Naugatuck Public Schools, CT 2016[104]

It is helpful to think of the structure of a district or school as the architecture of a house: the foundation, frame and load-bearing walls. It is essential that each part of the architecture is strong on its own and that all parts fit together to form a solid and resilient frame. The structure, the formal arrangement and relationships between policies, processes and practices influences and upholds the ways in which people interact and how learning occurs. The culture and structure of a school are highly interdependent with culture shaping how people interpret the rules and operating procedures defined by the structure.

At a minimum, competency-based education requires school-wide structures. A district-wide approach produces even greater opportunity for alignment, innovation and sustainability. Making the transition from the traditional system to a competency-based one requires the process of dismantling certain existing structures and creating new ones that intentionally reinforce the underlying values and beliefs of competency-based education. Although some schools attempt to introduce pilots as a way to begin the transformational process, it is impossible to produce the full benefits with just a classroom or two. A shared purpose, culture of learning and organizing the school schedule to provide rapid responses when students need additional support are beyond the scope of what innovative teachers can do in their classroom alone.

This section will explore seven design principles that constitute the infrastructure and capabilities needed to support competency-based education. The first three principles in this section—alignment, consistency and transparency—seek to create confidence on the part of teachers, principals, district leaders, students, families and the broader community that schools are using the most effective strategies. When a school credentials a student as proficient, we can all count on it being so. These three principles are powerful in reducing the mixed messages, false signals and seemingly intractable inequity of different expectations for different students within and across schools. Although highly related, they are treated separately here as each introduces significant changes to how districts and schools operate. The next three principles—educators as learners, organizational flexibility and continuous improvement and organizational learning—are all related to moving beyond the bureaucratic rigidity of the traditional system to create growth-oriented systems that rapidly respond to students. The final principle of advancement upon mastery is a culmination of all the other principles in creating systems that ensure students are developing the competencies they need to succeed in their next level of studies and in their future.

Many districts and schools launch into the change process by focusing solely on the technical structural changes. However, it is important to remember that without clarifying pedagogy and seeding an inclusive culture of learning, beliefs of the traditional system will impede high-quality implementation. Fidelity requires attention to all three aspects: culture, pedagogy and structure.

#10 Seek Intentionality and Alignment

66 One of the biggest benefits of mastery-based learning is the clarity for teachers. We have had so many good conversations with teachers about what they are teaching, what they want students to be able to know and be able to do, and why they are teaching it. We know we are doing a good job at implementation, as it is making alignment a natural process. The selection of activities are more likely to be based on the skills students need and what students need to practice. There is more focus on what students need to do to learn something rather than simply covering the content."

Greg Baldwin, Principal, New Haven Academy, CT, 2016[105]

Description

Coherent systems align all of their parts around a common purpose and vision for student learning. A report, *Alignment in Complex Education Systems: Achieving Balance and Coherence*,[106] by the Organisation for Economic Co-operation and Development (OECD) describes how the majority of developed countries around the globe build alignment of three areas of their education systems: defining the knowledge and skills students need to know and be able to do at progressive stages through graduation, creating curricular frameworks that illustrate

the competencies and learning objectives in standards and measuring learning and attainment through student assessments and school evaluations. The OECD reports, "If these systems are misaligned, it is impossible to draw valid conclusions about the success of student learning or to develop effective strategies for school improvement."[107]

Coherence is the result of intentional design: districts, schools and educators are deliberate in aligning every part of their system, school and classroom. The process of alignment of school design, instruction, assessment and learning experiences is well-managed, recognizing that with alignment comes changes in policies, practice and the capacity of staff to implement with fidelity. There is a clear rationale for each decision point in design, implementation and continuous improvement. Intentional design is thoughtful about the sequence and pace of the implementation process so that staff have opportunities to build capacity as needed. Alignment is not something that is done in one fell swoop. It is a step-by-step process of refinement and sometimes innovation. The best change strategies embody the values and beliefs of the competency-based system to build trust, individual learning and organizational knowledge.

Key Characteristics

- **Purpose-driven.** Districts and schools begin alignment with the the purpose of ensuring each and every student is fully prepared for college, career and life. The graduate profile emphasizing academic knowledge, transferable skills, and the skills for lifelong learning drive decisions. There is shared understanding that all decisions should come back to our central mission.

- **Student-centered.** The purpose to ensure every student is mastering knowledge and skills places students and what it takes to help them learn at the core of the alignment process.

- **Common learning framework.** A transparent learning framework is developed and used to align instruction and assessment. Furthermore, the learning framework and what proficiency looks like at each performance level is available to students and families.

- **On-going alignment processes.** Processes are in place to ensure ongoing processes of alignment and that the school and district systems support an aligned instruction, assessment and learning experiences (curriculum). Leaders manage implementation so that educators have opportunity to pursue personalized professional learning to build their skills to implement an aligned system. Educators draw on collaborative processes to help fine-tune the design of learning experiences to ensure that in addition to building academic knowledge, students will have the opportunity to develop building blocks of learning and higher-order skills.

- **Clarity and capacity.** Instructional, operational and structural systems only matter if people understand them, understand their roles and actually know what to do. Competency-based systems provide the balance of detail and simplicity—so called "elegance"—that enables people at all levels to actually know what they are supposed to do. Resources are provided to support educators in building the knowledge and skills needed.

- **Improvement.** Continuous improvement processes take into consideration the interdependence of an aligned system. As improvements are considered, alignment is maintained by asking, "if we change x, what will it mean for y?"

How Is Seeking Intentionality and Alignment Important for Quality?

66 Without clear learning objectives, teachers—purposefully or not—focus on engaging students for the sake of order and discipline. Instead, proficiency-based learning leads teachers to plan the instructional environment to meet specific learning goals. Proficiency-based learning pushes teachers to think about how to intrinsically engage students with relevant material and the opportunity to see themselves getting better over time. Our students know that success is possible. Proficiency-based learning shifts teachers practices—we are always asking, 'What do you want students to know, where is each student in their learning and how can we create engaging projects that will help them get to the next step?'"

Casey Fuess, Teacher, Lindblom High School, Chicago Public Schools, IL, 2017[108]

Creating a high-quality school and system doesn't occur by happenstance. It requires intentional effort to align the culture, structure and pedagogy around three things: purpose, students and strategies that will lead to reaching the purpose. Intentionality is an ongoing creative design process that empowers people to have the ability to change and improve their environments. When intentionality is a feature of a district and school, leaders, teachers and even students are part of an ongoing process to create and improve the school. Intentional design creates and is created by a strong collaborative culture of learning and a sense of urgency.

Alignment Around What?

Alignment is the process of making sure all the pieces fit together to create a coherent structure that will support learning. But alignment around what? Alignment begins with the *shared purpose and desired outcomes*. Usually this is the graduate profile and definition of student success. When systems align around the goal of students being able to apply their knowledge and be independent learners, there are clear implications for learning and teaching.

Alignment also takes into consideration the *student population*. Districts, schools and teachers to get to know their current students, asking many of the following questions. What is the culture of their families and communities? What has been their educational experience so far? Districts and schools experiencing demographic changes in their communities will find that they need to be more adaptive and possibly develop new capacities to align with their students. Schools are designed to support relationship building so that teachers are better able to know their students. Teachers take into consideration what students know and can do, their social and emotional skills, and the things they care most about in meeting students where they are.

The final focal point of alignment is the set of *strategies determined to best help students learn and succeed*, which are shaped by learning sciences and equity. Districts, schools and educators will want to turn to the research on the science of learning to shape policies, schools design and instruction. They will also want to draw from the research on equitable strategies that have been developed to ensure historically underserved populations reach high levels of achievement. This doesn't always mean integration of strategies: it may also require ending inequitable practices.

In the paper *Levers and Logic Models: A Framework to Guide Research and Design of High-Quality Competency-Based Education Systems,*[109] four logic models are outlined to identify the elements of culture, student learning experience, professional practice, district and school systems. As depicted in Figure 4, these logic models must be aligned within the levers of desired student outcomes,

Figure 4. The Levers and Logic Models of Competency-Based Education
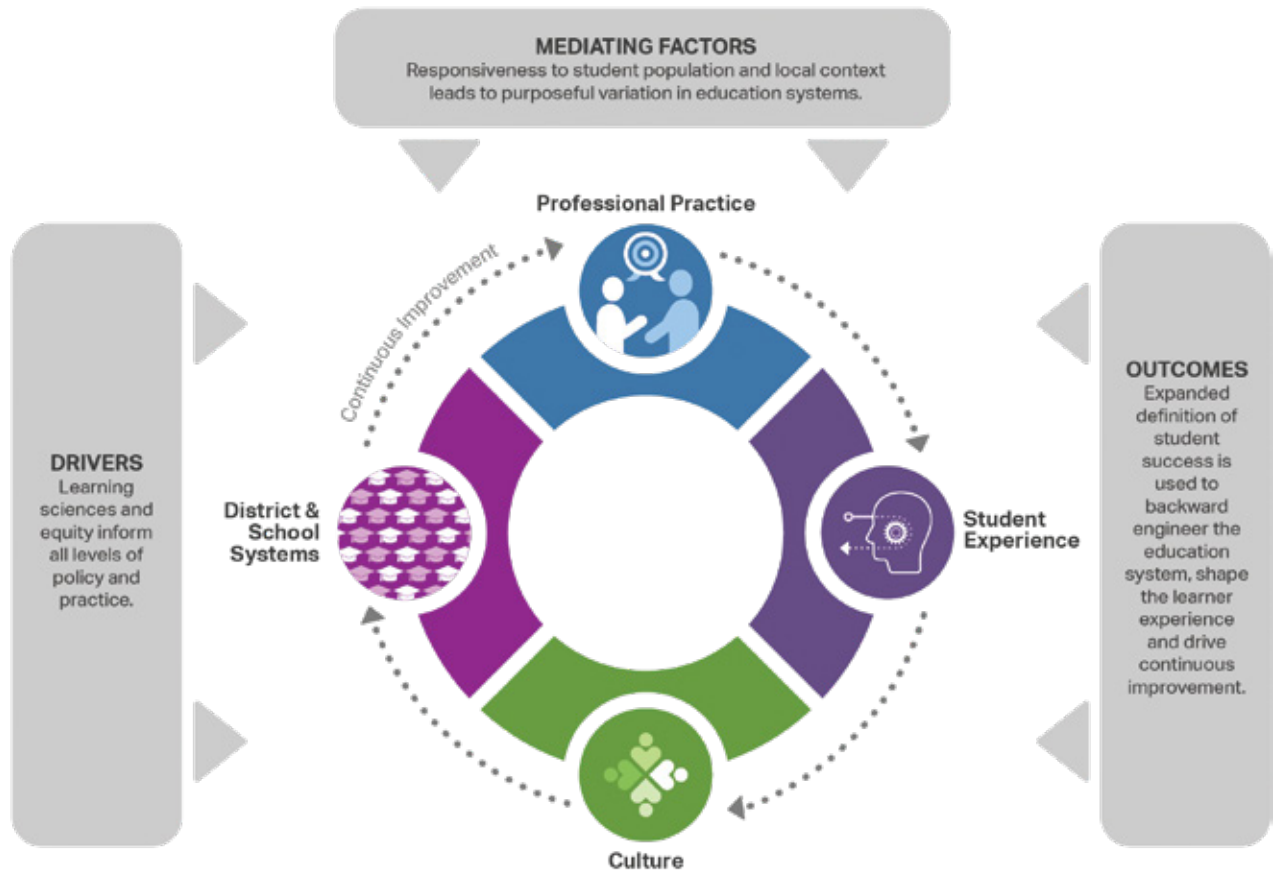
mediating factors of local context and student population and the drivers of the learning sciences and equity strategies.

The Common Learning Framework

Districts and schools develop a central learning architecture or common framework that clarifies what is expected for students to know and do at each performance level or grade level to which instruction and assessment are then aligned. In most cases, performance levels are the same as grade levels, although some districts have established unique performance levels. This common learning framework may be organized around higher level competencies and the standards that contribute to each. However, many districts begin with the state standards with which they are already comfortable and introduce

competencies at a later point in implementation. The value of beginning with competencies are two-fold: 1) competencies demand rigorous deeper learning instruction and assessment and 2) competencies can reinforce a sense of purpose and make connections for students about why it is important to reach proficiency on standards. Once the learning framework has been agreed upon it may be translated into more student-friendly language.

Clarity and Consistency

A critically important step in alignment is the process of building a shared understanding of what it means to be proficient in each of these competencies and standards at each performance level. The processes of building consistency through moderation and calibration catalyzes

the collaborative professional learning of teachers. By looking at student work and discussing the features that indicate proficiency at different performance levels, teachers begin to think more deeply about the instruction and assessment needed to help students master the learning targets. [#11 Consistency & Reliability]

66 It starts with having a cohesive philosophy and a dedication to constantly improving the school. New ideas have to be able to be integrated into our holistic approach. It's a constant conversation to maintain coherence and sustain a shared vision. We have to make sure that improvements, innovations, and new efforts build on each other. "

Deanna Sinito, former Principal, Carroll Gardens School for Innovation, New York City Department of Education, NY, 2014[110]

Aligning Instruction and Assessment

Every high-quality school aligns instruction, curriculum or what we refer to as learning experiences, and assessment. However, competency-based education is intentional about also considering the definition of student success included in the purpose and the student population. Thus, the structures that support instruction, learning experiences and assessment need to have the following capacities: able to respond to students where they are including above or below grade level, designed to help students build the lifelong learning skills and aligned with higher-order skills.

Aligning Professional Learning

Aligning instruction and assessment tends to trigger increased attention to professional learning for educators. For those schools that include clarifying the pedagogical principles and fully embedding learning sciences into instruction and assessment in the early stages of implementation, the process of aligning the capacity of the educator workforce is a natural step. Those schools that begin with creating a common learning framework

are likely to discover substantial areas of misalignment between learning objectives, assessment, instruction and curriculum. This may require sequencing capacity-building across the school as well as supporting individual teacher's professional growth. Teacher professional learning, based on where teachers are in their own skill development and the stage of development of the competency-based system, is likely to focus on how to support students in developing the building blocks of learning, classroom management for personalized learning, instruction for the development of higher-order skills and deepening content instruction and assessment literacy. [#13 Educators as Learners]

Aligning School Design and Operations

Districts and schools will often find that they need to rethink schedules for more applied learning, expand community partnership for offering real-world problem-solving and building capacity for performance-based assessment. Schools may also want to develop or extend the array of wraparound services that students can access.

Opportunity for Broader Systemic Alignment

Although it is beyond the scope of this publication, there are opportunities to align competency-based structures between K-12 and postsecondary institutions—colleges, universities, training and employers—to create more transparent and meaningful credentials.

Quality requires intentionality and alignment: every aspect of cultural, instructional and operational systems must support student learning, student success and the vision driving the district or school. Like a complex machine, all parts of a quality system work in concert to produce desired outcomes. Furthermore, all people in the system must understand their part in the coordinated effort to produce desired outcomes: their role, the needed capacities, and their connection to the other parts. Finally, the system must maintain this focus and alignment through the critical processes of continuous improvement—as people and parts adapt to meet students' needs, systems must learn to manage and integrate these micro changes into the larger whole.

"Mastery-based grading forces you to be intentional. First, I identify all the big ideas that students need to know and do. Then I design all the assessments that will be used by the end of the year. I also weave in all the things I want to make sure the students don't forget. Throughout this process, I can add word problems or interesting context (like hip hop artists) in ways that students don't expect. This intentionality means I have to be strategic about the structure and flow of the curriculum. For example, I agonized this summer over whether I should bifurcate deriving linear equations into rate of change and y intercepts. I love math, and this gives me an opportunity to think even more deeply about it."

Jared Sutton, Teacher, Carroll Gardens Middle School, New York City, NY 2014[111]

Policies and Practices to Look For

- Measures of student outcomes are well articulated, including how equity in outcomes is being measured. The outcomes or graduate profile clearly explains the knowledge and skills students should learn accompanied by examples of student work to clearly indicate performance expectations.

- A common learning framework is well-developed and teachers are knowledgeable with instruction for the level above and below the grade level they teach.

- Teachers have opportunity to experiment and innovate in pursuit of greater alignment.

- Teachers have opportunity to plan, collaborate and learn. Professional learning communities are supported and nurtured.

- School designs, learning experiences and professional learning opportunities for educators are based on outcomes and informed by data on student learning.

- Districts and schools adapt or redesign structures to support the development of outcomes and the strategies used to help students reach them.

- Learning experiences are designed to provide opportunities for students to strengthen their social and emotional skills.

- Instruction and systems of assessments support application of skills and development of higher-order skills. Districts and schools build capacity for performance-based assessment and assessment literacy.

"It starts with having a cohesive philosophy and a dedication to constantly improving the school. New ideas have to be able to be integrated into our holistic approach. It's a constant conversation to maintain coherence and sustain a shared vision. We have to make sure that improvements, innovations, and new efforts build on each other. "

Deanna Sinito, former Principal, Carroll Gardens School for Innovation, New York City Department of Education, NY, 2014[112]

Examples of Red Flags

⚑ **Graduate profile emphasizes deeper learning and higher-order skills but curriculum, instruction and assessments are primarily set at memorization and comprehension.** As districts begin the process of aligning instruction and assessment to the common learning framework of competencies and standards, they often discover that instruction and assessment are not aligned with the depth of knowledge of the standards. They soon begin to make adjustments to have more applied learning opportunities, performance tasks and performance-based assessments.

⚐ **The school knows that many students are entering at levels several years below age-based grade level but continues to emphasize delivery of grade-level instruction.** Alignment isn't just between standards, instruction and assessment. It involves aligning with the student population as well. In early implementation stages, districts often use the semester as a beginning point of monitoring learning with all students expected to master the learning objectives by or soon after the end of the course. This is unlikely to be achieved if students have multi-year gaps in their knowledge. Although schools use different strategies to meet the needs of students with gaps they may continue to pass students on to the next course without developing long-term strategies to address gaps. The failure to have honest conversations with students about the level they are performing does a disservice to students. They will never know what is really expected until they are forced to take remediation courses at college. Thus, districts and schools need to invest in long-term strategies that truly meet students where they are and help them to reach graduation competencies.

❝ Mastery blew our minds. It forces you to think about how you use time. In fact there is no such thing as time, only the intentional way we can can help students learn and get ready for graduation. Our job is to think about the ways we can create additional opportunities for students. For those who need more help or have lots of gaps to fill, how do we provide more instructional support? For those who are ready to move ahead, how do we make sure they always have that opportunity? Mastery has totally opened up our thinking about how to support students."

Ryan Reynolds, former Principal, PACT High School, Cleveland School District, OH, 2017[113]

#11 Establish Mechanisms to Ensure Consistency and Reliability

❝ In the traditional system, it can mistakenly feel more precise because we use mathematics to determine the grade. In the mastery-based system, we have to make sure we are as objective as possible – we have to be subjectively objective. We used to have teachers say that they wanted to give students who had worked hard the benefit of the doubt. Why is there any doubt? We need to have a system in which we can be confident of what students know."

Susan Bell, former Superintendent and David Prinstein, Principal, Windsor Locks Middle School, Windsor Locks School District, CT, 2016 [114]

Description

In competency-based systems, students advance upon demonstrated mastery of learning. In order to do so, those learning objectives must be clearly articulated and reliably understood by all. Moderation builds shared understanding of proficiency, and calibration creates consistency of grading practices to improve consistency in credentialing learning. Creating cross-district and cross-school clarity and consistency reduces variability in expectations. Systems of assessments are aligned with appropriate level of depth of knowledge as defined by the learning objectives.

Key Characteristics

- **Valid and reliable.** Districts and schools have accurate, standards-based definitions of proficiency. These definitions are transparent and available to all educators

and students. Rubrics, examples of proficient student work and other tools are used to communicate proficiency.

- **Authentic assessment.** Systems of assessment are valid and reliable, and produce data that accurately assesses student mastery of standards. Assessment is also meaningful and valuable to the learning process by supporting reflection and guiding further instruction.

- **Aligned to learning objectives.** Systems of assessment are aligned to competencies and standards at the appropriate depth of knowledge.

- **Assessment literacy.** Teachers are supported in using different types of assessments and providing productive feedback to students. Teachers build capacity in assessing building blocks of learning, transferable skills and performance-based assessments.

- **Moderated.** Districts and schools have systems and processes to ensure consistency in the way that proficiency is understood across schools.

- **Calibrated.** Educators work together to ensure inter-rater reliability of grading of student work and assessments.

How Is Establishing Mechanisms to Ensure Consistency and Reliability Important to Quality?

66 To ensure equity and fairness, it is important to have uniform expectations and values. The grading policies reflect our values and need to become a school-wide set of expectations that are applied consistently. A well-designed grading system should be able to answer the question, 'How would I know that this student is making progress?'"

Mike McRaith, Principal, Montpelier High School, Montpelier School District, VT, 2016

Traditional education systems demonstrate high degrees of variability: they permit different understandings of what it means to be proficient between schools (higher-income communities often have higher expectations than lower-income communities), between educators (different definitions in every classroom or school) and between students (different definitions being applied to students, often based on their race, class and perceived ability). Many factors contribute to this variability, including educators working in isolation, A-F grading systems based on student behaviors, assignments and summative tests, biased educator perception and different expectations for students within and across schools. In these contexts, inequities are produced. Students are told they are proficient when they are not resulting in widening learning gaps. Neither students nor educators can access accurate information about what students know and can do to inform instructional decision-making. The results are many: each year teachers are challenged by the number of students with gaps in their knowledge from the previous year. Students without prerequisite knowledge and no avenue to build it become less engaged and motivation decreases. Students with high GPAs go off to college only to discover they need remediation, and parents and communities lose trust in the educational system.

By contrast, competency-based systems emphasize consistency and reliability. Rather than relying on seat-time as a weak proxy for learning, competency-based systems develop structures to build confidence and transparency about student learning. Competency-based education systems value consistency and transparency as strategies that interrupt the replication of inequities. Quality and greater equity are rooted in evaluating student outcomes against a constant criterion—a standard with rubrics clearly outlining expectations for what evidence is needed for successful outcomes—rather than evaluating student outcomes against a single educator's estimation of proficiency. Learning targets and proficiency determinations are transparent. Scoring proficiency is calibrated; educators work collaboratively to define what proficiency looks like using evidence of student work, use common rubrics and calibrated grading practices to increase inter-rater reliability of scoring. Student progress is measured based on outcomes demonstrating proficiency. The efforts of a few leading states to create proficiency-

based diplomas is another strategic effort to create more consistency and confidence that students are mastering what they need to be successful in the future.

Creating consistency in teachers' judgment of learning begins with the development of the common learning framework that identifies the learning targets, common rubrics for each performance level and example of proficient student work. [#10 Intentionality & Alignment] From there several structures play key roles in creating consistency:

Balanced System of Assessments

Competency-based systems emphasize a balanced approach to assessment that drives powerful learning that leads toward common outcomes. Elements of a balanced system of assessment includes: strong emphasis on formative assessment for learning including productive feedback, multiple opportunities for students to reach proficiency, multiple measures used to determine proficiency, assessment aligned with depth of knowledge of learning targets including performance-based assessment and opportunities for students to pursue personalized strategies to provide evidence of learning.

Districts and schools integrate assessment and grading as part of the learning process: assessment illuminates what students need to know, provides students with low-stakes opportunities to practice and self-assess what they know throughout the learning cycle and develops feedback that students and educators can use to improve. The result is that students understand the role of assessment as meaningful to their learning. They see it as the doorway through which they are able to receive the feedback and differentiated instructional support to help them be successful. Assessment is the way teachers show they care for the student by wanting them to be successful, not something by which they are judged. Clear definitions and criteria to evaluate evidence of proficiency are core to a meaningful system of assessments. Validity refers to the degree to which assessments and evaluations measure what they are intended to measure (i.e., how well they are aligned with standards and curriculum). Reliability refers to the consistency and stability of results across student populations or across schools. Usability refers to how policymakers, school leaders and teachers make sense of and respond to assessment and evaluation results. Alignment of assessments and evaluations with standards and curriculum is crucial to usability.

In the most developed competency-based systems, summative assessments are organized to meet students where they are rather than based on pacing guidelines for covering grade-level standards. Students show evidence of learning or are assessed summatively after a teacher has determined that the student is proficient. Thus, summative assessments are designed to confirm proficiency as a form of quality control.

Assessment Literacy

Given the critical role assessment plays in the cycle of learning, competency-based systems invest in building assessment literacy throughout the districts and schools. Assessment literacy—the knowledge and skills to use the full range of types of assessment which are developmentally appropriate on behalf of helping students to learn—becomes a priority after the first stage of implementation. As districts and schools advance in implementation, attention to the system of and knowledge about appropriate assessments increases. Professional learning about assessment often includes attention to formative assessment including the use of learning progressions[115] to better understand how students are solving problems. Student knowledge around self-assessment gains in importance. Districts and schools frequently invest in building the capacity and professional learning around assessment literacy, especially around performance-based assessment, if they do not yet have it integrated into their ongoing pre-service and in-service professional learning. [#8 Rigorous Higher-Level Skills]

Moderation and Calibration

Two processes are critical for creating the consistency need for a high-quality, equitable competency-based system: moderation and calibration. Moderation is a process used to evaluate and improve comparability. The process involves having teachers (or others) work to

develop a common understanding of varying levels of quality of student work. Calibration describes the process of creating consistent, shared understanding of what proficiency means for learning targets for specific levels of performance (or grade levels) and requires teachers to look at student work together. Moderation processes must take place within and across schools, and even across districts, to ensure that students are all held to high standards. Then, there is a need to calibrate the grading practices so that teachers can consistently determine proficiency and identify what students need to learn to reach proficiency. Calibration, like moderation, builds professional knowledge while also operating as a formal mechanism that ensures students are advancing upon mastery.

As schools begin to integrate rigorous deeper learning, moderation and calibration will be needed to help teachers consistently determine higher-order and transferable skills demonstrated through performance tasks, performance-based assessments, portfolios and capstone projects. In the future, it is likely that moderation processes will need to be expanded even further to support teachers in the process of understanding levels of development in the building blocks for learning such as metacognition, social and emotional skills, self-regulation and traits such as perseverance. Moderation processes can take place within schools, across schools and across districts in a state.

Proficiency-Based Diploma

Proficiency-based diplomas are being developed to create consistency in what students know and can do upon graduation. Essentially, the graduate profile drives alignment and also the requirements for graduation. When used as a high leverage policy, the introduction of a proficiency-based diploma can catalyze districts and schools to become more responsive to students so that they are fully supported in their learning starting in elementary school. However, if districts don't make the necessary adjustments to ensure students are building mastery for all the critical learning objectives in the younger years, pressure builds at the high school level about how to respond to students with gaps in their learning within the four years, so that they can demonstrate mastery of all the graduation competencies.

It is by creating these structures that districts and schools can consistently know that students are learning, and credential learning authentically. The result is that teachers, students and parents can all have confidence that they know where a student is performing along the learning continuum (i.e., grade level) and growth (where they started and how they are progressing on their learner continuum).

Policies and Practices to Look For

- Structures and processes are in place to ensure that the instruction and assessments are fully aligned with the learning objectives and offer rich and frequent opportunities for students to perform at the highest possible depth of knowledge.

- Teachers engage in calibration or joint scoring of student work to ensure inter-rater reliability.

- Teacher-generated performance assessments are strengthened by engaging in task validation protocols.

- States, districts and schools establish moderation processes to ensure that levels of proficiency and mastery (application of the skills and knowledge) are aligned to state standards and shared among teachers.

- Professional learning communities seek to create consistency in determining learning. Teachers provide feedback to their colleagues if they credential students as reaching proficiency when they haven't.

- Transparency in the learning cycle and grading provides feedback on student progress and is designed to recognize and monitor growth with improved consistency and reliability. Students are able to see examples of proficiency work on the walls of classrooms or in other resources.

- Districts and schools have mechanisms in place for quality assurance to ensure that variation is not creating situation of lower expectations for some students or students advancing without the opportunity to fully master skills.

Examples of Red Flags

⚑ **Teachers are spending substantial time on unpacking standards and writing rubrics, without looking at student work to moderate their understanding.** The development of the common learning framework with clear learning targets and rubrics can easily slip into a bureaucratic process rather than one focused on teaching and learning. Make sure teachers are spending time looking at student work, talking about what proficiency looks like, and building their assessment literacy. Manage refinements of documents on an annual basis so that it doesn't take up too much of teachers' precious time together. Great professional development can take place when teachers talk about student learning, instruction and assessment as they design and refine the learning continuum.

⚑ **Standards-based grading is introduced too early without the structures for consistency in place.** Many districts turn to standards-based grading too early in the process, often based on the misconception that by doing so they will be considered competency-based. The infrastructure of the learning framework to ensure consistency and mastery—aligned instruction and assessment, the mechanisms of moderation and calibration and flexibility for students to receive support when they need it—should all be in place before introducing grading practices organized around standards. Too often districts say they are doing standards-based grading with the intent to make sure every student fully masters the standards when they are actually using standards-referenced processes that provide feedback based on common standards without making the commitment to help every student achieve them. An additional risk is that students may only be receiving feedback based on grade level standards without attention to addressing gaps. Thus, students are not being held to same standards and false signals about student progress continue.

⚑ **Students can tell you who are the "easy" educators and the "hard" educators in which the hard educators have expectations for students to master the knowledge and skills.** In the traditional model, teachers have autonomy over grading and what they determine as proficient. Students know which teachers have high expectations and which ones don't. The so-called "hard" teachers have high expectations and will make students stretch to receive a high grade. In competency-based systems all teachers should be "hard" holding high expectations for all students. High-achieving students in competency-based schools will often remark that they have to work harder because they are expected to demonstrate their learning, not just memorize for a test.
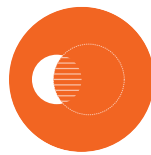
#12 Maximize Transparency

❝ We started along the path toward mastery-based learning when we began to ask ourselves: Why do we assess? Why do we grade? We realized that every teacher did it differently. The transparency and intentionality of mastery-based learning makes a huge difference for our teachers and our students. Our teachers are much more intentional about what they want to achieve in their classrooms. It has also opened up the door to rich conversations about what is important for students to learn, pedagogy, and the instructional strategies we are using. For students, the transparency is empowering and motivating. They are more engaged in taking responsibility for their own education than ever before.❞

Lara Evangelista, Principal, Flushing International High School, New York City Department of Education, 2016[116]

Description

The common learning framework of student learning objectives is transparent to all. Students know where they are on their learner continuum, their progress and growth. Transparency of the teaching and learning philosophy also facilitates student ownership and builds intrinsic motivation for students. Distributed leadership depends on access to guiding principles and data to support collaborative decision-making. As a result, everyone can be actively engaged in the process of continuous improvement. Transparency isn't only about information. It is also relational in creating open, honest and when needed dialogue that addresses problems and challenges bias. Trust builds as understanding of different perspectives deepen.

Key Characteristics

- **Common learning framework.** A common learning framework or continuum of learning has been agreed upon and shared among teachers, students and families about what knowledge and skills students are expected to learn. The framework includes learning targets along with rubrics and examples of proficient student work. In early stage competency-based schools, this tends to be similar to grade-level state standards. Districts and schools may choose to organize around competencies that describe the core sets of skills students are expected to know upon graduation that are then organized to communicate specific performance or grade levels. The most developed districts and schools use a "learner continuum" that includes multiple performance or grade levels to indicate student progression based on where they are rather than where they should be based on their age.

- **Student progress.** Information is available and accessible to students, educators and families on where students are in terms of advancing upon targeted learning objectives including grade level targets and personal growth based on a learner continuum.

- **Assessment for learning.** Students receive feedback so that they understand exactly what they need to learn and do to reach proficiency. Teachers are skilled in assessment for learning to provide effective feedback for students to address misconceptions and successfully reach proficiency.

- **Instructional and assessment level of knowledge.** Teachers are aware of and align the instruction and assessment to the appropriate depth of knowledge called for by the learning target.

- **Grading is an indicator of progress, not judgment or comparison.** Schoolwide grading policies provide feedback on how students are progressing toward mastering learning objectives with transparency about performance level of student.

- **Timeliness.** Information on student data is available in a timely fashion that supports instructional decision-making.

- **Student-centered.** Students and educators can monitor learning across a variety of domains and performance levels.

- **Responsive supports.** Data on student learning supports educators to provide students with targeted supports to help them advance.

- **Decision-making criteria.** District and school leadership and teams have shared purpose and agreed upon criteria to help guide decision-making.

- **Investing in quality of relationships.** The culture of the school is nurtured to support strong relationships that can look honestly and deeply at individual, group or systemic issues related to student learning.

How Is Establishing Transparency Related to Quality?

> " Competency education has helped the entire school and students get on the same wavelength. With transparency in competencies, conversations focus in on learning. Transparency allows for an entirely different type of relationship between students and their teachers to form."

Brian Stack, Principal, Sanborn Regional High School, Sanborn Regional School District, 2015[117]

The traditional education system is highly opaque and demonstrates significant variability in defining what it means to be proficient. Traditional mechanisms like grades and transcripts do not accurately reflect how well a student actually knows content or demonstrates skills. This inaccuracy makes it harder for students to drive their own learning and for educators to meet students where they are. Trust and confidence in the schools is shaken when students and families receive false signals and mixed messages about student progress.

Competency-based systems ensure that goals, learning targets, exemplars of proficiency and student progress are fully transparent and available to students and educators on a timely basis. They build capacity for comparability, validity and reliability in assessments and grading practices to ensure that data is meaningful, and that students are truly mastering content and skills. [#11 Consistency & Reliability]

Transparency plays multiple roles in creating high-quality and more equitable systems. First and foremost, it eliminates the practice of signaling that a student is doing fine with an A, B, or C grade even though they may be performing at two, three or more years below grade level. When schools fail to help students master content and skill, students move forward with holes in their learning that limit and impair future learning. These gaps compound over time, becoming harder and harder to mitigate as students

advance and making it increasingly challenging for students to progress toward college and career readiness. When learning is transparent, however, educators and students know where gaps are and can address them proactively with timely and differentiated supports. Students advance with confidence that they have skills to tackle more advanced challenges. Furthermore, when transparency leads to honest conversations between teachers, students and families about how to help students become successful in their learning, trust blossoms. Trust rooted in relationships fosters support for students to be persistent in spite of challenges. Awareness, trust, effort and persistence are catalytic: they empower students to take ownership and continually move toward mastery.

Transparency is particularly essential in competency-based systems that include personalized pathways. Transparency ensures educators can monitor whether students on different pathways are progressing toward common rigorous outcomes. Additionally, transparency helps students and educators integrate learning that occurs across a variety of learning environments: in the classroom, in the community and online. This can be an important part of helping students to make connections and co-design learning experiences that are relevant to their lives. There are several aspects of transparency that are critically important for operationalizing competency-based education: common learning framework, student agency, grades and information management/reporting.

Common Learning Framework and Learning Targets

The common learning framework is the structure to which all other aspects of the competency-based systems align. When the learning framework is transparent, teachers can build a shared understanding of proficiency, align instruction and assessment to the appropriate depth of knowledge, and share knowledge of instructional strategies. [#10 Intentionality & Alignment and #8 Rigorous Higher-Level Skills] Students can understand learning targets and what proficiency looks like, which helps them to take more ownership of their learning, seek and use feedback to reach proficiency and use different ways of learning and demonstrate their learning. [#7 Student Agency & Ownership]

In the early stages of creating transparency about the learning goals and aligning assessments, teachers may recognize that they are teaching and assessing at lower levels of depth of knowledge than what is called for by the standards. This may cause frustration, disappointment and even a hint of shame. This is an important opportunity to instill the culture of learning—helping teachers to recognize the value of a transparency system, collaboration and learning from mistakes. This can also be a place to develop teacher leaders who embrace the mantra of "doing right for our kids" to help move past the frustration, turning it into a drive to do better.

Student Agency

In addition to the building blocks of learning, students need information about the learning process, the learning targets and their own progress to take ownership of their learning. In competency-based schools, students know the specific learning targets they are working on, what proficiency looks like and the options they have for learning, practice and demonstrating learning. They learn to set and reflect on goals for learning with their teachers.

Transparency is a powerful aspect of the learning cycle. Assessments for learning make it clear to students what they need to continue to work on. They know exactly what they need to learn and demonstrate to reach proficiency. Similarly, effective use of assessments enable teachers to tailor instruction and supports so students reach their learning targets. Schools often turn to learning progressions, research on how students best move from concept to concept, to better understand how students are developing understanding and solving problems.

> " It takes bravery to want to have more transparency. It takes bravery to say your eighth grader has been getting Bs, but they are in fact reading at sixth grade level."

John Duval, former Director of Model Redesign Team in the Office of Postsecondary Readiness, New York City Department of Education, NY, 2016[118]

Grading and Transcripts

Once the common learning framework, moderation and calibration mechanisms and system of supports for students are in place, districts and schools can replace traditional grading practices with ones based around the learning targets. Competency-based schools use rubrics for each learning target. Grading provides feedback on the progress toward reaching proficiency. Progress reports or report cards provide feedback to students and parents about student growth as well as where students are in terms of grade-level expectations. Students value the competency-based grading practices as they provide specific feedback on what students need to learn or improve to reach mastery. Transcripts are beginning to change as well to show what students know and can do. To date, many admissions offers at colleges and universities say that they value proficiency-based transcripts as long as there is an accompanying letter of explanation.[119]

> " The thing that convinced me is that in the traditional grading systems, when a student would come and ask how they could do better in a class, all I could really say was study more. The grades didn't guide me as a teacher. There was no way to help students improve. With mastery-based grading, we talk about specific learning outcomes. I know exactly how to help students and they know exactly where their strengths and weaknesses are."

Rosmery Milczewski, Teacher, Flushing International High School, New York City Department of Education, NY, 2016[120]

Pace

66 We've learned that it is important to focus on helping students to learn skills. Without the skills or habits of work, students are self-paced. With the skills, they become self-directed learners."

Matt Shea, Coordinator of Student Achievement, RSU2, ME, 2016[121]

In competency-based education, pace is based on student mastery of the learning targets, not the teacher pacing guide to deliver the curriculum. It allows us to think of pace differently, based on student learning and progress. Pace is a ratio of individual student growth and time, and it is an important indicator in personalized, competency-based systems as it indicates whether students are adequately progressing along their trajectory and receiving timely, responsive additional supports. If a student entering school with significant gaps in academic knowledge and skills is progressing two grade levels over one year, it is a pace of 2.0 whereas a student at grade level may be learning at a pace of 1.0. It is easier to think of the student at grade level as being "faster" but in fact that student is covering less distance on the learning continua. With transparency about pace, teachers, students and families are able to work together to ensure student progress.

Schools monitor student learning to ensure that students are progressing at a pace that puts them on a pathway to graduation, always seeking to balance accelerated learning with opportunities for deeper learning. Monitoring pace is an important function in driving toward quality and equity. As districts and schools monitor growth, other questions arise. Are students receiving effective instructional strategies that take into consideration what they know and don't know? Are they receiving supports they need when they need them? Do they have opportunities for deeper learning? Are students learning at a rate that is moving them forward and not leaving them behind? These discussions form the crux of the continuous improvement

processes that include instructional strategies, effectiveness of structures and resource allocation.

Given the current accountability policy environment, most competency-based schools are trying to meet students where they are while still covering the standards. This tension may lend itself to innovating more effective instructional strategies. However, there is tremendous risk in continuing to turn our backs on the learning sciences that clearly guide us to meet students where they are. We need to address the misalignment in the traditional system that forces teaching at one grade level and pace instead of meeting students where they are. Instead, a competency-based education system would allow us to measure both pace and depth of learning as key indicators for quality and equity. If we fail to address the issue of meeting students where they are and holding them to the same high expectations with criteria for deeper learning, this is going to result in students continuing to receive a lower quality of education.

Information Management

66 The students can't hide by sitting in the back of the room quietly. We know who they are, not because of an early intervention system, but because our system is based on knowing exactly where students are in their academic journey and how they are progressing. We know if a student is entering from one of our elementary schools with higher math skills but is still struggling with writing in English. We know the ones who need extra coaching because their self-directed lifelong learner skills aren't very well developed."

Brett Grimm, Assistant Principal of Curriculum & Instruction, Lindsay High School, Lindsay Unified School District, CA 2015[122]

Transparency becomes an even more powerful design principle when data on student progress is made available to students, teachers, families, and school and district leadership. Districts and schools are still handicapped by information technology products that continue to be grounded in grade-level standards rather than student-centered approaches. Information management systems will need to be designed to aggregate data for accountability purposes, or what might be thought of as quality control. This would include the effectiveness of schools in producing student growth and helping every student get on track for graduation. Finally, with the goal of helping students discover their potential, student information systems will need to be designed to allow for tracking information on the personal pursuits of students beyond common outcomes. The hope is that eventually transcripts become meaningful tools for students to tell the story of who they are, what they know and what they want to achieve in the future.[123]

Policies and Practices to Look For

- The learning objectives such as competencies and standards are explicit and transparent. Examples of student work at proficiency for each performance level are easily accessible. Learner continua are student-centered to reflect where students are in their learning journey.

- Assessment criteria is transparent so that students can bring evidence of learning from other classes and from activities beyond the walls of the classroom.

- Districts are open and honest in all communication. Clarity of intentions, expectations, learning targets and feedback ensures everyone has the information to advance their goals.

- Students and parents understand that there is a difference between age-based grade level and personalized performance level and where students are in each academic domain.

- Grading practices and policies are clear, fair and communicate student progress in their learning.

- Students understand where they are in their personalized pathway and the cycle of learning. When asked, students can tell you what they are working on, how it relates to competencies they will need in their future and how they are going to demonstrate their learning.

- Students are using the learning targets to co-design projects with community partners where they will be able to apply their knowledge and skills. Students can demonstrate their learning as it relates to their passions, interests and goals by partnering with local and global community members to create service learning or entrepreneurial experiences that contribute toward graduation requirements.

- There is a high-functioning system in place to track students' progress, to capture and store the evidence that demonstrates their progress and communicate their progress. Students use the reporting systems to identify goals, store their body of evidence and reflect upon their lifelong learning skills.

Examples of Red Flags

⚑ **Schools create rigid linear paths for learning that all students must follow.** Transparency should enable flexibility. When students have access to the common learning framework that defines what they should know and be able to do, they should also have input on how they advance. Students may bring ideas of demonstrating mastery in after school programs, church activities or their summer job. Advancement upon mastery implies ensuring every student learns but not exactly in the same pathway. Professional judgment should always be used so that advancing upon mastery does not become a bureaucratic checklist that confines students to rigid linear pathways. Some academic domains, such as math, have prerequisite skills, and students may need to learn some before doing others. However, it is possible that doing the higher-level studies may actually help students to make connections and see how other lower-level skills are applied.

⚑ **The common learning framework or continuum is only available for age-based grade level.** In many schools, the focus is still on covering grade-level standards. It is expected that all students start at the same place in the curriculum at the beginning of the semester and

expected to finish by the end. Grade books only include grade-level learning targets. The problem is that many students need to repair gaps that require them to focus on targets at lower levels. Or they may have already mastered the grade-level standards and are ready to work at the next level. Neither students or teachers are recognized for repairing gaps or learning beyond grade level. Therefore, more student-centered approaches to the learning framework are needed by creating learner continua that represent multiple grade levels within which students are learning. Learning continua create transparency about where students are working in terms of level and growth. This can also help reduce the linearity of only focusing on grade level standards.

Once teachers have organized the learning continuua, be prepared for frustration that curriculum isn't designed well for the competency-based classroom. Publishers create curricular resources on specific grade levels, with different products for elementary, middle and high school. Thus, a teacher in seventh grade trying to teach students with gaps at the fourth- or fifth-grade level may not have appropriate resources or be familiar with the elementary school curriculum.

#13 Invest in Educators as Learners

66 Sure, we could make it easier for teachers, but then our students don't succeed. The other option is to admit that teaching is a complex system, invest in the systems, nurture the culture to support professional teachers...and have the kids actually learn. It's obvious which one is the better choice."

Jed Palmer, Head Teacher, Tatitlek Community School, Chugach School District, AK, 2015[124]

Description

Educators, both teachers and leaders, are active learners who have regular opportunities to engage with colleagues to deepen their knowledge and skill. Educators progress on a personalized learning trajectory as they build instructional strategies to support higher-order skills and student agency, personalized classroom management and deeper domain-specific instructional strategies. Adult learning is driven by student needs, which are used to define school- or district-wide improvement goals, as well as personalized goals for every educator. Districts and schools put in place the systems for educators to be supported in developing the mindsets and skills consistent with a culture of learning and inclusivity including addressing bias.

Key Characteristics

- **Shared definition of professional competency.** Districts and schools articulate shared definitions of professional competence: the knowledge, skills and mindsets that educators need to support student success in a competency-based system.

- **Teaching as learning.** Educators model growth mindset and continuous improvement in their practice. They take risks, learn through failure and reflect with their students.

- **Personalized development.** Educators have access to opportunities for growth and learning that meet their individual needs and help them achieve professional goals.

- **Collaborative practice.** Educators have opportunities to work together: they collaborate around instructional design and continuous improvement practice. Educators share responsibility for student success and for one another's development.

- **Cultural competency.** Districts and schools support educators through the processes of investigating their own racial and cultural identities, identifying and addressing bias and developing skill sets for culturally responsive relationship and instruction.

- **Aligned evaluation.** Educator evaluation is aligned with culture of competency-based education and the pedagogical philosophy. This includes meeting teachers where they are, feedback and supports in response to mistakes and incentives for growth.

How Is Investing in Adult Mindsets, Knowledge and Skills Related to Quality?

" We are growing mastery at all levels, supporting adults in the system as respectfully and as meaningfully as we support our learners in the K12 system."

Rebecca Midles, formerly Performance Based Learning Specialist, Lindsay Unified School District, CA and currently Executive Director of Performance-Based Systems, District 51, CO, 2015[125]

The importance of the principle that educators need to be supported as learners is very simple: for each and every student to learn to high expectations, each and every adult needs time and support to build their professional competency. There will be some teachers already familiar with many of the practices used in personalized, competency-based school. For others, competency education will demand learning new mindsets, new knowledge and new skills. Adult learning reflects the same beliefs about learning that are held for students: it is based upon the learning sciences and seeks to meet teachers where they are. [#6 Learning Sciences]

As a result, districts and schools will want to have frameworks for effective professional practice and offer meaningful opportunities for personal development accordingly. For those districts that begin by clarifying the principles of teaching and learning upfront, it is simply a next step to then define the necessary competencies. For those districts and schools that begin with structural changes and then discover their pedagogical principles through the process of alignment, it will be more likely an ongoing process of refinement.

Professional Practice and Educator Competencies

" Administrators at the district and school level worked shoulder to shoulder with teachers as we became a competency-based district. Our students have benefited as well as our teachers. We have developed a cadre of teachers who are always seeking to build their expertise in instruction, assessment, grading, and technology. We are drawing on the collective expertise across the district as we constantly improve our ability to support our students."

Ellen Hume-Howard, Curriculum Director, Sanborn Regional School District, NH, 2015[126]

In *Educator Competencies for Personalized, Learner-Centered Teaching*, the Council of Chief State School Officers and Jobs for the Future provide a helpful overview of the landscape of what teachers need to know and be able to do. Figure 5 introduces the four domains with the competencies listed below.

Cognitive Domain / Need to Know: the academic content and knowledge of brain and human development that personalized, learner-centered educators need to know to foster students' cognitive and metacognitive development.

- Utilize in-depth understanding of content and learning progressions to engage learners and lead individual learners toward mastery.

- Have knowledge of the sub-skills involved in effective communication and apply it to instructional strategies that develop learners into effective.

- Communicators understand and employ techniques for developing students' skills of metacognition, self-regulation and perseverance.

Figure 5. The Four Domains of Educator Competencies for Personalized, Learner-Centered Teaching
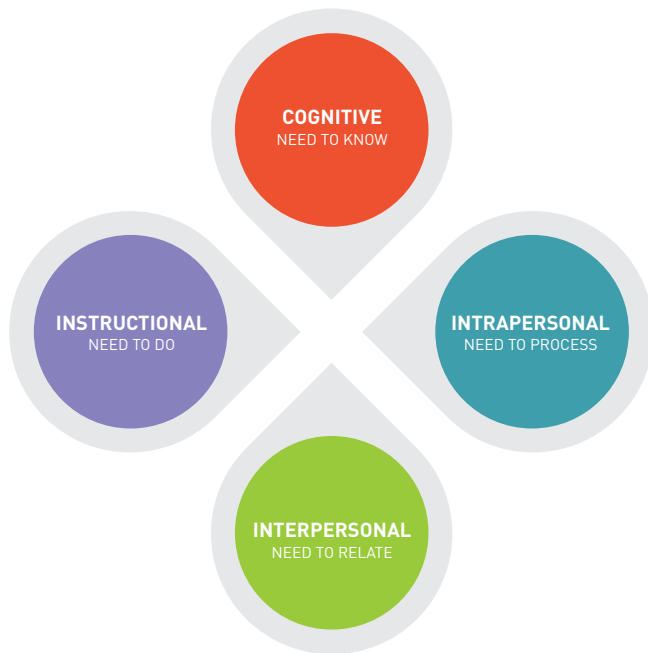
From The Educator Competencies for Personalized, Learner-Centered Teaching produced by the Council of Chief State School Officers and Jobs for the Future

Intrapersonal Domain / Need to Process: the set of "internal" skills and habits of mind that personalized, learner-centered educators need to process, such as a growth mindset, high expectations for students and inquiry-based approaches to the teaching profession.

- Convey a dedication to all learners—especially those historically marginalized and/or least served by public higher education—reaching college, career and civic readiness.

- Demonstrate an orientation toward and commitment to a personalized, learner-centered vision for teaching and learning.

- Engage in deliberate practices of adapting and modeling persistence and a growth mindset.

- Facilitate and prioritize shifting to and maintaining a learner-centered culture.

- Demonstrate an orientation toward and commitment to lifelong professional learning.

- Analyze evidence to improve personal practices.

Interpersonal Domain / Need to Relate: the social, personal, and leadership skills educators need to relate with students, colleagues, and the greater community, particularly in multicultural, inclusive and linguistically diverse classrooms.

- Design, strengthen and participate in positive learning environments (i.e., school and classroom culture) that support individual and collaborative learning.

- Build strong relationships that contribute to individual and collective success.

- Contribute to college and career access and success for all learners, particularly those historically marginalized and/or least served by public higher education due to differences in background, demographics, learning style, or culture.

- Seek appropriate individual or shared leadership roles to continue professional growth, advancement, and increasing responsibility for student learning and advancement.

Instructional Domain / Need to Do: the pedagogical techniques that educators use—what they need to do—to sustain a personalized, learner-centered environment for all students.

- Use a mastery approach to learning.
- Use assessment and data as tools for learning.
- Customize the learning experience.
- Promote student agency and ownership with regard to learning.
- Provide opportunities for anytime/anywhere and real-world learning tied to learning objectives and standards.
- Develop and facilitate project-based learning experiences.
- Use collaborative group work.
- Use technology in service of learning.

Districts and schools will set priorities for building capacity based on what they have already put into place, their roll-out strategies, and what is most important to respond to their student population. Many start with introduction of classroom management practices that create a culture of learning and student ownership of their learning. Some schools prioritize laying a foundation of the growth mindset and building capacity around social and emotional learning. Others with a strong focus on equity have emphasized introducing cultural responsiveness and building the capacity to challenge bias as a critical step in improving instruction and enhancing the culture of inclusivity. Teachers may well have many of these competencies developed in their years in the classroom. Some may be new to them or their school. It is unlikely any teacher is going to become an expert in all of these areas quickly. Thus, schools may want to begin to think of assessing and investing in collective organizational expertise with the assumption that teachers will draw from each other's knowledge as needed.

Inquiry-Based and Personalized Professional Learning

66 This is professional development at its best. It's not one-shot PD, it's deep conversations with colleagues, sometimes one-to-one and sometimes in groups talking about expectations, assessments, and instruction. It was beneficial that we had also begun the shift toward more inquiry-based learning, as we needed to have a shared understanding of pedagogy to make decisions."

Andrew Clayman, Assistant Principal, Flushing International High School, New York City Department of Education, 2016

In a competency-based system, educators model the process of learning for students as they engage in their own development. While districts and schools will develop different approaches to professional learning based on their own contexts, they share certain attributes. Professional learning is inquiry-based and collaborative, as professional learning communities study data and student work to deepen understanding of student learning and adjust practice. Professional learning is personalized so that each teacher can build their skills in the context of their own practice. And, professional learning is growth-oriented; it expects and even encourages learning from failure.

Development, Growth, and Evaluation

Most districts and schools find themselves on a journey of intense learning and discovery in the first years of converting to competency-based education. Teachers frequently reflect that their first year in a competency-based context was their hardest year of teaching and their most meaningful. Because these shifts can be so monumental and challenging, it is important to view growth developmentally. Dramatic changes to professional practice will not happen overnight. These changes are likely to require corresponding changes in beliefs, assumptions and mindsets for some teachers. Changing beliefs will require dialogue and opportunities to test assumptions. Some teachers will have a harder time than others when asked to let go of the idea that talent alone determines achievement (i.e. a fixed mindset) and from their experiences in traditional school.

Professional growth happens optimally when evaluation, incentives and reward structures are aligned with the purpose, values and culture of competency-based education. It is harder for teachers to fully commit and put forth the effort to try new practices in their classrooms when they worry that they will be penalized for it in evaluations. Thus, leaders will want to align evaluation, pay, and have other structures to reinforce the growth mindset in which failures are anticipated and taken advantage of to further learning.

" It's not that teachers are going to be replaced by technology. We need them more than ever. Their jobs are changing to become more challenging and more meaningful. Teachers are increasingly embracing a growth mindset for themselves so that they truly believe they can learn to teach students higher order skills, coach students in the habits of work, and deeply know their disciplines. Our job at the district and for principals is to create the conditions for teachers to grow."

John Duval, former Director of Model Redesign Team in the Office of Postsecondary Readiness, New York City Department of Education, NY 2016[127]

Policies and Practices to Look For

- Teachers are supported in building the necessary knowledge and skills well before the new knowledge and skills are integrated into high-stakes professional evaluations.

- There are frequent opportunities for educators to meet, plan and learn together. Professional learning communities are valued, resourced and nurtured.

- Teachers have opportunities to collaboratively pilot new approaches.

- Student data and student work is used to inform professional learning.

- Teachers support each other in identifying and eliminating bias and inequitable practices. Leadership is responsive when teachers bring forward examples of inequitable systemic policies and practices.

- Educators are supported in their learning and taking risks at a level they feel comfortable. For some, this means jumping into personalized classroom management, and for others it means trying one new practice at a time.

- Professional development has been personalized so that educators are accessing coaching and training based on their prior knowledge and goals for improving instructional skills.

- Teachers are able to explain what they are learning and what it took for them to learn new knowledge, skills and practices.

Examples of Red Flags

⚑ **Introducing personalized, competency-based education without time for educators to meet, learn or plan together.** Too many times, schools start down the path toward competency-based education without first laying the groundwork for educators to become learners. Schools need to create schedules that have adequate time for teachers to plan, collaborate, review student data and learn. Robust professional learning communities or similar structures are a non-negotiable.

⚑ **Integrating new knowledge and skills into teacher evaluation systems without providing opportunities for personalized growth.** With the impetus to fully align structures, districts may begin to revise the teacher evaluation system too soon. Teachers may not feel comfortable taking risks to learn new practices if they believe it will have consequences if they fail. It is important to sequence building a system of support to teachers to build the new knowledge and skills well before the day they are evaluated. More advanced competency-based districts find they need to rethink teacher evaluation to be consistent with the organizational culture and guiding beliefs about learning and motivation. There are likely to be inconsistencies between the values and beliefs undergirding the personalized, competency-based approach and those informing the state teacher evaluation systems and state professional teaching standards. These are opportunities for the school community to recommit to the shared purpose as well as engage state leadership in understanding ways they can create policies that are fit for the purpose of ensuring every student successfully reaches readiness for college, career and life.

#14 Increase Organizational Flexibility

" From day one, I have always shared with our staff that we can approach and reach our mission and vision a thousand different ways, but we can not have a thousand different mission and visions...we will always have one. We are all committed to our mission and vision, and it's just the way that we do business. However, we can have a thousand ways to get there. We are always innovating, and with that comes new approaches to supporting learning and building opportunities for our students."

James Murray, Principal, Waukesha STEM Academy, Waukesha School District, WI, 2017[128]

Description

Schools require autonomy to be responsive and flexible to meet student needs. Once we know where students are in their learning, it is incumbent upon a competency-based system to respond in ways that will engage, motivate and provide the needed instructional support. This adaptability requires a flexible structure. The organization of districts and schools enables educators to respond to students with personalized and differentiated strategies. Resources are flexible—learning spaces, materials, modalities, support, time and technology are used strategically to ensure each student has what they need to succeed. Instructional strategies are also flexible and may call for direct instruction, small groups or project-based learning. Teachers have autonomy to organize tools and resources, including hands-on and online instructional strategies.

School leaders value organizational agility and use distributed leadership so that decisions can be made by people closest to students. Districts provide schools with autonomy to manage budgets and resources so that they can be responsive to students and have the freedom for improvement and innovation.

Key Characteristics

- **Strategic resources and practices.** Learning resources, including time, space, materials, people and money, can be used flexibly to best support students' unique motivations and learning needs.

- **Decision-making clarity.** There are clear frameworks for decision-making to ensure that flexibility has guardrails and to support collaborative responses to students and emerging implementation issues.

- **Autonomy.** To be responsive, empowerment and autonomy is needed. Schools have autonomy to manage resources and teachers have ample autonomy to select instructional practices to meet student needs.

- **Timely differentiated supports.** Schools are organized to provide flexibility so that students can have access and teachers can provide supports in a timely manner.

- **Equity.** While resources are flexible and used to support every student, they are also levers for equity. Among the many considerations that drive how resources are utilized, teachers and leaders prioritize ensuring that students who have been marginalized or who need more supports can access them. Decisions are made as much as possible around ensuring a growth rate of one or more performance levels per year.

- **Responsive systems.** Districts and schools have high-functioning systems that can manage and accommodate flexible practice. They strike the right balance of managing autonomous practice within established parameters, and promoting flexibility through proactive, customized approaches to support. Some refer to this as a "customer service" orientation; districts and schools do not set out to enforce classroom practice, but rather to ensure that teachers and students have what they need to succeed while operating with the bounds of shared agreements.

- **What's best for kids.** There is ongoing questioning of the habits, routines and practices of the traditional system to understand the underlying beliefs, rationale and implications for students and learning. Decisions are made as much as possible based on what's best for students. Leaders then navigate these decisions within their current policy context, modeling creative leadership rather than a compliance mentality.

- **Improvement.** Systems need to understand the relationship between resources, practices and outcomes. Districts and schools have systems to examine how resources are used and to observe correlations between their usage and student success. These data are used to improve resource allocation in the future.

How Is Increasing Organizational Flexibility Related to Quality?

> " We are challenging everything except for state-required credits and the concept of courses. Courses end up being helpful ways of organizing learning. But they don't all have to run the same period of time. We use seminars that are four to six weeks and shorter one to two week workshops to organize learning as well."

Kevin Erickson, Director of KM Perform, Kettle Moraine School District, WI, 2017[129]

In competency-based systems, schools and teachers are able to respond to student needs: to engage, motivate and provide them with the resources and support they need to succeed. This adaptability requires flexibility—schools and teachers cannot respond to students if they have no wiggle room in a bureaucratic, top down system. Earlier we describe this as an element of culture and clarify how leaders create systems and structures that encourage teachers and students to take leadership over their learning and professional practice. [#5 Empowering & Distributed Leadership] Here, we look at a similar principle from a structural lens. For individuals to take leadership, they must operate in a system that has the adaptive capability to support flexible practice.

Shared Purpose, Decision-Making Clarity & Autonomy

Creating an agile organization begins with a shared purpose [#1 Purpose Driven]. Many districts reduce this to the powerful mantra "What's Best for Kids?" that renews the commitment to why districts and schools turned to competency-based education in the first place. An agile organization has shared criteria for decision-making that enables distributed leadership strategies. The strategic plan or guiding principles are often placed on the wall in a conference room where team meetings are held, not hidden in a notebook on a shelf, to be considered in making decisions. Autonomy is negotiated so that boundaries are clear. Schools need autonomy to deploy resources and teachers need autonomy to use their professional judgment to provide what is best for students.

Learner Continuum

Once the learning framework is developed, some districts that are fiercely dedicated to meeting students where they are turn to a learner continuum rather than relying only on grade-level learning objectives as defined by state standards. The difference between the two is that the learner continuum is student-centered and shows the span of performance levels and standards the students are working on. Thus, one learner's continuum may span three performance levels as they perform at level 8 in math, 7 in reading and writing and 6 in science. However, many districts are finding it difficult to shift away from frameworks that are organized solely around grade-level standards. This is due to three dynamics: federal and state accountability policies that drive statewide assessment based on the age/grade of students, information management systems for tracking student learning that are organized around course and grade and teacher preparation that has trained teachers for delivery of grade-level curriculum rather than instructional strategies that meet students where they are.

Planning for Not Yet

> ❝ I have to be creative with the budget. We monitor how students are doing so we can anticipate the numbers that will be in school in summer. Last year, I put aside funding for the 'not yet' students."

Juan Carlos Ocón, Principal, Benito Juarez Community Academy, Chicago Public Schools, IL, 2017 [130]

The phrase "factory model" is often used to describe the traditional education system because of its rigidity. Students enter a time-based system that passes them along regardless of whether they learned what was expected of them. The system rarely slows down or adjusts to students' needs. Students graduate with tragically inadequate skills, or do not graduate at all. It is paradoxical that federal accountability policies that exposed gaping achievement gaps in the traditional education system have also reinforced some of the practices that produce those very same gaps by requiring grade level assessments that inform accountability but do not contribute to student learning. [See Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education[131] for alternative approaches to accountability.]

In contrast, competency-based districts and schools are organized around the assumption that at some point every student is going to encounter challenges in their learning, and that those challenges will require additional instruction, support and time. In other words, they plan for students to be "not yet proficient." It is a common misconception that competency-based education is self-paced. It would be better thought of as "responsively paced," as schools persevere to figure out what is needed to help students succeed. Structurally, this includes budgeting for additional instructional support; scheduling for extra support during the day, after school, on the weekends, or even for a few days after the semester and through the summer. Additionally, this includes investing in capacity to build

and manage relationships with community partners to develop real-world experiences and problems to solve, and deploying staff flexibly so that students below or above grade level are well served.

Investing in Professional Judgment

Professional judgment is highly valued in competency-based systems. A culture of distributed leadership develops processes to ensure that teachers—the people who are closest to students—can make optimal decisions in support of student learning. The shared pedagogical philosophy developed by districts and schools provide common guardrails or boundaries within which teachers build their capacity for a variety of instructional strategies. Most important, teachers are fully supported in building their knowledge and skills to better support students in their learning journey. [#13 Educators as Learners]

Challenging the Habits and Practices of the Traditional Model

Once educators begin to deconstruct the traditional education model, a door swings open to question many of the policies and practices that shape what we have known as school. In addition to replacing completion of a semester or a course as a proxy of achievement with demonstration of learning, districts and schools begin to question grading, what makes effective curriculum, grading and staffing patterns. Many districts are turning to new structures designed to build stronger relationships:

- Introducing multi-age bands has helped teachers learn to focus on meeting students where they are rather than covering the curriculum.

- Ninth-grade academies allow a small group of teachers to take responsibility for ensuring students are fully prepared for the transition to high school with attention to repairing gaps and strengthening the building blocks of learning so students are ready to take more ownership of their learning.

- Micro-schools or programs of 75-150 students create ease in adjusting to students based on their progress.

Districts and schools are also adjusting the calendar and schedules to offer "courses" that run for different periods of time, opportunities for students to put all their attention to robust projects and creating time for students to pursue inquiry-based research or capstones.

Policies and Practices to Look For

- Policies, operations and resource deployment strategies ensure that every student has access to timely, differentiated instruction and supports.

- Time is flexible to ensure students can master content without having to repeat courses or grades. Competency-based schools provide flex time during the day for students to receive additional instructional support.

- Schools have a high level of control over their budgets and hiring to increase agility to respond to student needs, interests, changing demographics and opportunities.

- Scheduling is designed to offer frequent support for students who are struggling and opportunities for teachers to work within professional learning communities.

- Districts and schools support teachers in creating high-quality learning experiences and building the professional judgment of teachers.

- Summer school is arranged for students to focus on specific learning objectives based on students' learner continua, not repeat courses.

- Schools and teachers seek out information about the learner continua of entering students or students that will be in their classes so that they can prepare to continue to support students are in their learning journey.

Examples of Red Flags

- ⚑ **The school schedule only provides a flex time for individual support once a week or not at all.** Students are going to begin to disconnect from their learning if they have to wait several days or weeks before getting the help they need. And in some classes it might mean

that students have to endure not understanding new content because they didn't get the chance to fully learn the prerequisite skills. Competency-based districts and schools often create "flex time" during the school day. Some schools use lunch or after school for extra support but these are not sustainable strategies and may create inequity for those students that have after school responsibilities. It may take moral courage and creativity to create a schedule that values providing timely support if there are state policies that are rooted in archaic time based policies such as not considering support provided to students as instruction.

- ⚑ **Students repeat courses and go to summer school for "retake."** Having students sit through an entire course rather than receive targeted instruction based on their individual needs is an inefficient use of resources and can lead to boredom if students already know some of the material. Furthermore, students that may be performing at a lower grade level or have gaps should be able to participate in summer school not because they failed a course but because they need time and support to accelerate their learning so that they can get on track to graduation.

> ❝ Our community doesn't want a fully online experience for their kids. They are wary of too much screen time. So we are looking for ways that technology can enhance the experience and enhance the personalization."

Karen Perry, Special Projects Coordinator, Henry County School District, GA, 2016[132]

#15 Develop Processes for Ongoing Continuous Improvement and Organizational Learning

66 We aren't done innovating until 100 percent of our students are graduating."

Ty Cesene, Principal, Bronx Arena, New York City Department of Education, NY, 2014[133]

Description

Quality systems model the same learning orientation and growth mindset that they seek to foster in students. They continuously innovate and improve to overcome challenges and optimize systems in service of equitable student outcomes. At the classroom level, teachers are able to respond to student learning and adjust practice to monitor pace, progress and growth. At the organizational level, districts and schools are agile enough to adjust systems and structures based on student data. As they adjust one piece of the system, they are mindful to modify adjacent or interdependent pieces to maintain coherence. Continuous improvement helps overcome bias and inequitable practices, redirect resources toward students who need support, and test new ideas that can improve overall learning and school performance.

Key Characteristics

- **Growth-oriented.** Improvement is approached as a learning process where failure is an opportunity for reflection and learning.

- **Mutual accountability.** Educators, students and families take collective responsibility for student learning and commit to improving so that all students succeed.

Accountability is balanced with systems of support for improvement, growth and development.

- **Courageous conversations.** Continuous improvement efforts are rooted in strong, trusting relationships and the skills for dialogue around uncomfortable discussions about inequity and bias.

- **Robust data systems.** Data systems provide valid, reliable, timely data to support continuous improvement practice. Districts seek to have data on student growth and rate of learning based on learner continua, not just grade-level standards.

- **Robust data practice.** Districts and school have regular, collaborative and rigorous data practices in place.

- **Multiple measures.** Districts and school use multiple measure of quantitative and qualitative data. Multiple measures (formative, summative, diagnostic and looking at student work) are used to understand trends and patterns in student growth and achievement. Multiple measure also include social and emotional data points to understand students holistic development.

- **Agile operations.** District and school operations have the flexibility to be adapted as continuous improvement processes reveal the need for new practices, systems and supports.

How Is Continuous Improvement and Organizational Learning Related to Quality?

66 We have to be courageous to confront activities that aren't moving kids in their learning. We can't be afraid to confront the truth. If a process isn't working, either refine it or scrap it."

Virgel Hammonds, former Superintendent of RSU2, ME and currently Chief Learning Officer, KnowledgeWorks 2014[134]

Creating an intentional and aligned system requires continuous improvement to monitor processes and continue to build organizational knowledge needed for fidelity in implementation. Furthermore, creating an

equitable education system demands that we reduce the predictive value of race, gender, class and disability in the classroom. Instead of pointing to external policies or children and their families as the problem when students aren't successfully learning, competency-based education engages in continuous improvement to revisit school designs, culture, structure and pedagogy. The fundamental belief at the core of continuous improvement practice is this: *all students can learn at high levels when provided the right experiences and supports in the right environment, and it is our job—we, the educators and leaders, in partnership with students and families—to continue to learn and improve until we have provided them these things.*

Competency-based education is learning-centered. Students continue to learn until they reach mastery. Leaders and educators continue to learn about instructional strengths and weaknesses, negative impact of bias and institutional policies, and how to provide the right mix of supports to students until all students succeed. To make this possible, improvement practices balance learning and accountability. Learning processes focus on continual progress toward desired outcomes, while accountability practices focus on providing feedback to leaders and teachers on their effectiveness in supporting students. Learning and accountability structures are embedded into the system through transparency and sophisticated data-driven continuous improvement processes. Competency-based schools – in their commitment to one hundred percent of students succeeding – constantly engage in reflection, learning and adjusting culture, structures, policies and instructional and assessment practices. [#12 Transparency]

The power of data cannot be underestimated in seeking out pockets of inequitable practices and spotlighting areas where educators, schools, and districts can learn and grow. Within the traditional, top-down systems, data is often considered something that you send on to the next higher level of governance rather than an action. In competency-based education, data is a tool to test new strategies, change practices and reduce bias.

Continual improvement starts with questions to guide action-based research. Inquiries posed and studied surface evidence-based insights. This process generates ideas for future action, which in turn leads to hypotheses that can be tested, outcomes that can be evaluated and changes in practice. Districts and schools use different protocols to inform their continuous improvement. What matters most is the quality of their questions, hypotheses and tests; the consistency and rigor of their process; the degree to which their learning is collaborative, reflective, and trust-building; and the strength of their ability to implement changes in practice that emerge from their inquiry.

Questions that educators and leaders may want to ask include the following.

- What patterns do we see about students who are struggling and those that are thriving? What may be contributing to these patterns? What contributing factors result from our own practice?

- What patterns do we see about student's mastery of specific content and skills? At what point in a process are students disengaging or struggling to master these skills and strategies? What might we infer about the content and skills themselves? How might our own practice be strengthened to help students master these concepts?

- Which strategies are most effective in supporting students with prior knowledge significantly less than grade level expectations? What strategies are most effective in repairing the gaps on the path toward mastering the grade level content?

Multiple sources of data, including qualitative interviews and surveys, can help identify where inequity may be undermining programming and/or where stronger equity strategies are needed.

Valuable data is not only based on the academic content students know. It also needs to consider how well students are developing the skills to learn. Districts and schools also empower students as self-directed learners to engage in continuous improvement. Like educators and leaders, they engage in cycles of inquiry about their learning processes to improve their own outcomes.

> 66 We expect students to revise and revise and we ourselves are in a constant process of revision. How can we deepen the learning? How can we better engage students? How can we offer them even better learning experiences? There isn't a perfect mastery-based system. It's a process of continually improving."

Allison Persad, Principal, The Young Women's Leadership School in Astoria, NY, 2016 [135]

Policies and Practices to Look For

- Data is available and used to identify and respond to individual students not making adequate progress in terms of academic growth and grade-level proficiency, development of transferable skills, and lifelong learning skills.

- Schools know what students know and can do based on a broad learner continuua and monitor the repair of gaps in learning.

- Data is available and used to support evidence-based instructional strategies, monitor effectiveness of support and intervention strategies, inform personalized professional learning for educators and catalyze continuous improvement to improve effectiveness of instruction, assessment, services and school design.

- Districts and schools develop and use management reports to monitor pace, progress and ensure students are building the full range of skills. Management reports are designed to help identify exceptional situations in which students are not progressing and when students are advancing rapidly to better understand effective processes.

- Teachers, paraprofessionals and case managers have opportunity for collaboration, learning and planning.

- Schools and educators have autonomy to respond to the changing strengths and needs of students and to tailor learning experiences to needs of students.

- Districts and schools have the autonomy to use school finances and resources flexibly in response to student assets and needs.

- Resources are distributed to maximize the number of students who gain one or more performance levels per year and to ensure that those students who are two or more performance levels behind their grade levels are prioritized for additional targeted support.

Examples of Red Flags

- **Districts and schools engage in data-driven continuous improvements but fail to seek out root causes.** It is always easier to add something new than it is to seek out the root causes of a problem or deconstruct the flawed policies, processes and practices of the traditional system. Districts and schools may be thoughtful about identifying a problem or trend but try to address it through additional programs or services rather than engaging in the complex challenges of changing the culture or structure. To deconstruct the barriers to learning embedded in the traditional system it is important to take the time to search out the root causes and address them.

- **District policy does not provide autonomy to schools to use funds flexibly.** Too often districts retain control over allocating the school budget and exactly how the budget can be spent. This limits responsiveness to students and innovation. Schools need to be able to manage budgets so that they can direct resources toward those students that need more instructional support and time to repair gaps and accelerate their learning. This may include deploying staff before school starts, after school or weekends or extended support during intersessions and the summer.

- **When students are not progressing or are not motivated, students or families are seen as problems rather than schools and educators reflecting on how the school culture, instruction or assessment may be contributing.** In a system that has a fixed mindset culture, it is easy for adults to shirk their responsibility for helping students to learn and say that "students didn't learn because of something wrong with them or

their family." In competency-based schools cultivating a growth mindset, adults and students share responsibility to understand challenges and find solutions. Schools know that the areas in which students struggle also provide feedback about where educators can strengthen instructional skills. But the root cause may also lay elsewhere, such as the need for more timely support, strengthening the building blocks for learning such as social and emotional skills or deepening the relationship with the student and their family.

#16 Advance Upon Demonstrated Mastery

❝ Mastery is about knowing something like the back of your hand. You can use it again and again."

Student, Cleveland School District[136]

Description

When students advance upon demonstrated mastery instead of seat time, educators direct their efforts to where students require the most help and make sure they learn the skills needed for more advanced studies. Consistency in determining proficiency ensures that students are not passed along with gaps in knowledge.

Key features of mastery-based advancement are consistent with research on motivation, engagement and learning. Students are more engaged and motivated when grading provides feedback that helps them focus on where they need to focus their attention. With feedback and opportunities for practice, students spend more time working in areas that are most difficult for them. They may even advance beyond grade level in some academic domains, while taking more time in those that are more

challenging. Policies and processes organized around student advancement based on demonstration of mastery include: investing in the building blocks of learning that enable students to manage their learning, targeted and timely instruction, coaching that supports students as they strive for the next level of mastery, transparent feedback and grading practices, multiple opportunities to demonstrate learning and monitoring pace and progress.

Key Characteristics

- **Transparency and pace.** Teachers and students are both aware of learning targets, milestones and the pace that students are and should be making toward mastery based on their learner path.

- **Timely differentiated support.** Students receive "just in time supports" to help them keep on pace to achieve mastery. As they become self-directed learners, students will begin to independently identify and seek the supports they need.

- **Assessment for learning.** Assessment practices promote learning. Diagnostic assessments identify and anticipate knowledge and skill gaps before learning commences. Formative and summative assessments (i.e., demonstrations, products, tests) are authentic: they support application and transfer of key ideas to drive deeper learning. Students have choice about how they demonstrate mastery.

- **Multiple opportunities.** Students have multiple opportunities to demonstrate mastery. There is no penalty for unsuccessful attempts at demonstrating mastery; these attempts generate feedback that support reflection, revision and improvement. Students continue learning until they are successful, but they do not simply "redo" or "retake" the same content or assessment. Rather, they use feedback to adjust strategies and target necessary supports with each iteration.

- **Flexibility.** Resources including time, learning supports and staff are all flexibly deployed to help students on their path to mastery.

- **Consistency in credentialing proficiency.** There are clear and calibrated expectations for demonstrations of mastery. These are transparent to students, their families

and to teachers, and teachers work collaboratively to "tune" their calibration. Consistency is vital to ensure mastery is meaningful.

How Is Advancing Upon Demonstrated Mastery Related to Quality?

❝ The mastery-based grading helps me understand what I need to learn or do differently. In the old way, when I got a number, I wouldn't know what to do differently. With the learning targets, I can make better choices and revise things."

Student, Young Women's Leadership Academy[137]

Advancement upon mastery is a catalytic notion in that it challenges many of the habits, policies and practices of the traditional system. It demands that student readiness is taken into consideration across the academic domains even if it means working at different grade levels in different domains. Thus, a 10-year-old student may be doing fourth-grade math but reading at the eighth grade level. A high school student may be taking algebra while completing advanced online courses in college-level literature and history, earning dual-enrollment credits. Thus, advancement upon mastery means organizing around stage not age.

Students advancing upon demonstrated mastery is the ultimate goal of competency-based education. It is a culmination of all the other design principles. When the other 15 design principles are in place, a robust personalized competency-based system can enable every student to master knowledge and skills so that they are fully prepared to make the transition to college, careers and life. As aspirational as this may seem, districts and schools are already implementing many of these principles. They are seeing positive school cultures blossom, attendance increasing, discipline issues reducing, and in those districts strengthening their instruction achievement is improving. Thus, creating a competency-based system in

which students advance upon mastery is developmental. Rather than seeking to determine if a district or school is competency-based or not, it is more helpful to ask *in what way is your district or school competency-based (and in what ways isn't it)? What are the next steps toward creating a high-quality competency-based approach?*

In creating a system that advances students upon demonstrated mastery, districts and schools draw upon all the other design principles. Mastery-based advancement ensures that:

- Each and every student is expected to reach proficiency with gaps in knowledge repaired;
- Students receive targeted instructional support that is provided until students reach proficiency;
- Knowledge and skills are transferred to new contexts so that students demonstrate their competency; and
- There is consistency in credentialing learning.

A system organized around mastery begins with a foundation based upon the science of learning. In order for students to take ownership of their learning they will need to be coached in the building blocks of learning including growth mindset, metacognition, self-regulation and the habits of success. This set of skills and mindsets are all tightly linked to academic mastery. A strong culture of learning and inclusivity creates the safety and sense of purpose for students to take risks. Strong relationships and opportunity to discover interests will motivate students to put forward their best effort forward. [#6 Learning Sciences; #7 Student Agency & Ownership; and #3 Culture of Learning & Inclusivity]

A balanced system of assessment includes including applied learning opportunities and performance-based assessments to ensure students have the opportunity to demonstrate their learning. Transparency and consistency in determining proficiency are important as they build a shared understanding of what it means to be proficient among teachers and students thereby enabling student ownership of their learning and building trust. No longer will students be passed on with lower expectations. Responsiveness is essential to designing instructional

strategies that meet students where they are and ensuring they receive timely and differentiated supports. Schools are agile in responding to student needs. [#8 Rigorous Higher-Level Skills; #5 Empowering & Distributed Leadership; #9 Responsiveness; #12 Transparency; #11 Consistency & Reliability; and #14 Organizational Flexibility]

Finally, everyone is learning in a competency-based school. Schools and teachers use data on student learning to inform professional learning and improvement. [#8 Rigorous Higher-Level Skills; #13 Educators as Learners; and #15 Continuous Improvement]

Advancement upon mastery requires transparency of growth in student learning with districts and schools monitoring pace closely. Too often, it is misinterpreted as referring to self-paced which understandably brings fear of students being left further and further behind. When all the other design principles are in place, however, districts, schools and teachers will be able to fully engage students in mastering the building blocks for learning such as perseverance and self-regulation, inspire students to apply their best effort to learning and provide targeted instructional support as needed. Thus, when districts and schools have all the design principles in place failure is no longer an option. When a high-quality personalized, competency-based system is in place, failure is only a step in the journey of learning. Success is the only option.

Finally, advancing upon mastery is the linchpin in ensuring that personalization results in equity and not greater inequity. Using the architectural metaphor once again, advancing students without mastery is the same as building a weak foundation that one knows is not going to hold the house up. Or if one wants to return to the metaphor of the factory with which the traditional system is often compared, it is the same as producing a product that you know will be flawed in some way. As Salman Khan[138] has pointed out, advancing without demonstrating mastery harms even the highest achieving students that may have received an "A" because of strong memorization skills but may not actually know how to apply trigonometry to building their own house. Thus, advancing upon

demonstrated mastery is a core aspect of quality and equity.

> ❝ We need to always know the purpose of assessment. It is to help students and the teacher understand what students know and what they don't know, and to provide insights into the steps that are needed to learn it. Too often, assessment is used as a hammer and a gateway. For us, we see it as a process of helping students get from don't know to knowing."
>
> *Doug Penn, District Principal, Chugach School District, AK 2015[139]*

Policies and Practices to Look For

- Mechanisms or processes within schools and across schools ensure consistency in determining proficiency such as moderation and calibration.

- Clear expectations for teachers to address gaps in skills, working with other staff as needed, so that students are not advancing with accumulated gaps in knowledge and skills.

- Schools are designed to meet students where they are using multiple instructional strategies to do this depending on where students are in their learning, the presence and size of their skills gap, the needs of other students in the class, the domain and the knowledge-based and instructional skills of the teacher. Districts and schools organize resources and schedules for organizational agility to respond to the needs and progress of students.

- Schools are designed and offer schedules to ensure students are able to receive additional support and time as needed to reach proficiency.

- Students know where they are in terms of performance levels on a learner continua and are able to work on learning objectives below or above grade level.

- Students have access to just-in-time assessments and have multiple opportunities to demonstrate proficiency.

- Leaders of instruction have up-to-date information about progressions of students, and regular (at least weekly) conversations with their teachers (as a group and individually) about optimizing progress, on all dimensions.

- Educators support students in learning the building blocks of learning and habits of work, as well as taking into account motivational strategies for students to put forward their best effort in pursuit of mastery.

" It was a huge pedagogical shift to only focus on mastery in a student's grade and to begin to work intentionally on building their work habits. We are seeking better and faster ways to help students develop their work habits because the connection between the habits and learning is so strong."

Andy Clayman, Assistant Principal, KAPPA International High School, New York City Department of Education, NY 2016[140]

Examples of Red Flags

⚑ **Schools retain students that do not complete all the standards in their grade level.** This red flag could be highlighting one or more issues. First, there is a difference between standards-driven and learner-centered. It is possible for a student to be growing at a rate of one performance level per year but still not be proficient at grade level. Second, when students don't master something it should result in more instruction, practice and learning based on what they specifically need, not retention that may result in repeating what they already know. Why retain a student that needs more help in reading but may be showing growth or is at grade-level proficiency in other domains? Furthermore, it doesn't make sense to repeat the same curriculum if it didn't work the first time. Instead, using the strategies of meeting students where they

are, educators would seek to understand what skills students have, where they need help and provide target instruction and opportunity to practice until proficiency and fluency would be reached. This could happen during the summer or in the beginning of the next school year.

⚑ **Students are not allowed to move forward at a faster rate of learning than their classmates.** Meeting students where they are means helping students at lower levels or with gaps to fully build the foundation of their learning for more advanced courses *and* allowing students to advance beyond grade level. When districts and schools fail to put the structures in place to allow students to access higher level studies they limit the ability to discover their potential. Furthermore, they undermine the shared understanding that students will advance based on demonstrated mastery.

⚑ **Schools are using standards-based grading but passing students on without fully meeting all standards.** Although most districts will use the term standards-based grading, they have actually implemented standards-referenced grading which creates transparency using standards as learning targets but passes students on without additional time and supports when they did not master the standards. This is often the case when students have significant gaps or may be performing at much lower skill levels. Schools are asking students to complete several performance levels within a year without providing instructional strategies to meet them where they are and accelerate their learning. Standards-based grading requires the commitment to equity and a highly responsive system so that all students are successfully learning and progressing.

⚑ **Teachers are complaining about the time it takes for re-assessment.** District and school leaders should pay close attention to the language and procedures used to describe what happens when a student doesn't reach proficiency at an expected point. Schools use a variety of terms including re-teaching, re-assessment, re-do and competency recovery, while others see it as a continued cycle of instruction that doesn't end until the student reaches proficiency. Some of the differences in terminology are based on whether teachers are giving

scheduled assessments, such as a test to the entire class all at the same time (thus some students may need to continue to work and demonstrate mastery on the learning objectives that they haven't yet reached), or if the classroom is more personalized with just-in-time assessment when students have shown evidence that they have reached proficiency.

66 We started to understand that there was a strong and often overlooked nuance between getting something done compared to mastering concepts and owning the ability to contextualize these skills. We realized that students could never get to mastery solely by using adaptive educational software. You simply can't do it all online. There are definitely powerful supplemental resources for students, but not the core instructional strategy. We never wanted these programs to supplant great instruction and varied modalities and, more importantly, the application of the skills being developed needed to be the keystone of this process."

James Murray, Principal, Waukesha STEM Academy, Waukesha School District, WI, 2017[141]

Conclusion

"What is unique here is that we are responding to student needs. Innovation comes from constantly responding to the staff and the students."

Alison Hramiec, Head of School, Boston Day and Evening Academy, MA, 2012[142]
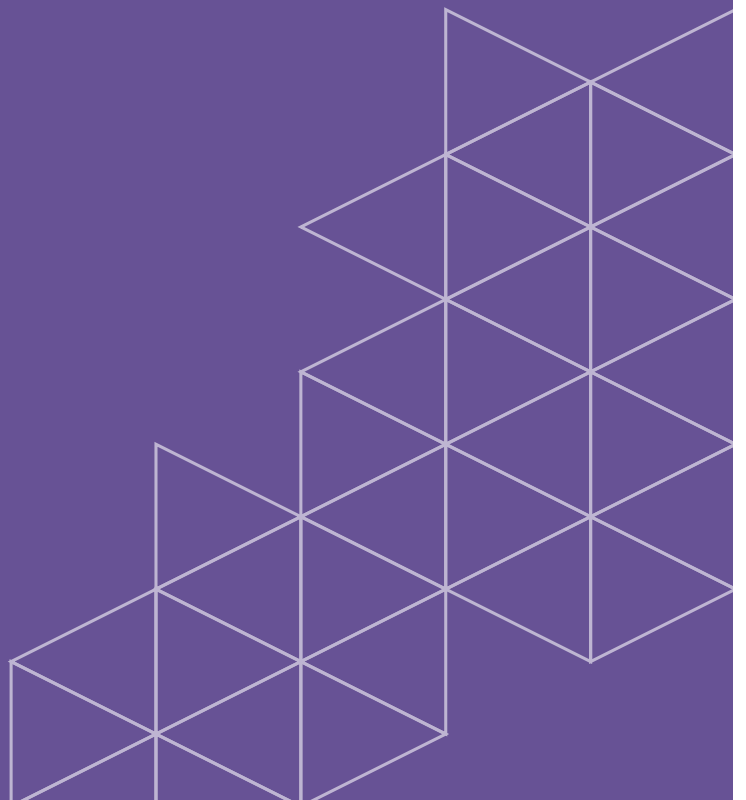
It is up to us, to all of us who believe in the promise of competency education, to commit ourselves to robust design, deep implementation and rigorous continuous improvement until we create the systems in which every student succeeds. To do otherwise risks failing students once again. To do otherwise risks competency education fading away except for a few shining district examples and a collection of innovative school models. We cannot develop high-quality competency-based systems through piecemeal design, poor implementation, turning our backs on the practices that we know will provide greater equity, failing to respond to the needs of students and continuing to rely on outdated policy structures. We need to become more skilled at understanding where districts and schools are on their journey to competency-based education so that we can differentiate between early stage implementation, weak design and fragile execution. These are not challenges for other people to take on—but for everyone within their roles, organizations and networks to actively pursue. We need to deepen our understanding, accelerate our knowledge building and develop collective responses to structural barriers that impair quality.

Design principles can help challenge the many customs and habits of the traditional system and push us beyond what we can now imagine for how we organize schools. Our hope is that the design principles, many of which are also principles that can lead to greater equity, can become a framework of common language. As a field, leaders and practitioners need to move from innovation, which to them, simply means "new," to jointly holding a commitment to continuous improvement. This can become more challenging as it requires us to become critical friends to each other, willing to question, critique, disagree and engage in inquiry together. Thus, it is important for the health of the field of competency-based education that we build common language that can help us push toward high-quality design and implementation.

With design principles providing a common language, educators can use the different lenses to reflect on how specific practices can be more powerful and better aligned. We need to search out those practices that are proving to be effective, understand how they contribute to creating a high-quality competency-based system and what is required to implement them with fidelity. Our hope is that additional tools and resources can be developed drawing from the design principles. The research community will be needed as partners to co-design initiatives that provide the type of feedback we need to ensure that the competency-based culture, structures and pedagogy are producing higher achievement and greater equity.

As a field, we also need to explore other ways to invest in and monitor the quality of competency-based schools. Perhaps this is through benchmarking by identifying those practices or sets of practices that produce the best results and introducing them as standards practices. We should consider developing mechanisms for peer-to-peer quality review too, as it helps to transfer knowledge and develop leadership through the very process of monitoring and providing feedback on quality.

Finally, it is critical as a field that we expedite the process of knowledge development and transfer so that high-quality approaches can bring a high-quality educational experience to more students. We must bring a sense of urgency to our work to better serve and educate students today and not postpone it until some future date. We simply cannot allow students to continue to be passed on year after year to the next grade without the skills they need to be successful.

Glossary

Assessment Literacy

Assessment literacy is the collection of knowledge and skills associated with appropriate assessment design, implementation, interpretation, and, most importantly, use. A critical aspect of assessment literacy is that educators and leaders know to create and/or select a variety of assessments to serve different purposes such as improving learning and teaching, grading, program evaluation, and accountability. However, the most important component of assessment literacy is the degree to which educators and others are able to appropriately interpret the data coming from assessments and then take defensible instructional or other actions.

Calibration

Calibration is a process of adjusting results based on a comparison with a known standard or "calibration weight" in order to allow defensible comparisons of student assessment results; for example, across different entities (e.g., schools, districts, states). In order to define a calibration weight, we need to have something in common, either the same students taking different assessments or different students taking the same assessments. The latter is generally more practical, so common performance tasks have been administered to students in different schools, and district performance assessments serve as a "calibration weight" to evaluate the extent to which teachers in different locales evaluate the quality of student work similarly.

Comparability

Comparability is defined as the degree to which the results of assessments intended to measure the same learning targets produce the same or similar results. This involves multiple levels of documentation and evaluation starting from the consistency with which teachers in the same schools evaluate student work similarly and consistently, to the degree to which teachers in different schools and districts evaluate student performances consistently and similarly, and finally the degree to which the results from students taking one set of assessments can be compared to students taking a different set of assessments (such as comparing pilot and non-pilot districts). A determination of "comparable enough" for any type of score linking

should be made based on clear documentation for how comparability is determined and that it is defensible.

Competency-Based Education

Competency education, also known as mastery-based, proficiency-based, or performance-based, is a school- or district-wide structure that replaces the traditional structure to create a system that is designed for students to be successful (as compared to sorted) and leads to continuous improvement. In 2011, 100 innovators in competency education came together for the first time. At that meeting, participants fine-tuned a working definition of high quality competency education, which includes five elements:

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

Continuum or Learning Continuum

A continuum refers to the set of standards or learning targets along a span of education (for example, K-12 or performance levels 9-12). It is the set of expectations for what students should know and be able to do. However, it does not imply that students need to learn all of the standards in a linear way or be taught them based on their age-based grade level. The student learning trajectory and research on learning progressions should inform instruction.

Curriculum

There are many definitions of curriculum in education. Internationally, the term curriculum or curriculum frameworks refers to the high level knowledge and skills students are expected to learn and describe (i.e.,

competencies). The curriculum framework may include student learning objectives or learning standards.

In the United States, the term curriculum also refers to the resources that teachers use when designing instruction and assessment to support student learning, including: the course syllabi, units and lessons that teachers teach; the assignments and projects given to students; the the materials (books, videos, presentations, activities) used in a course, module, or unit; and the assessments used to evaluate student learning and check for understanding.

*Competency*Works will use the term learning experiences to refer to the design of the learning process and the accompanying set of resources to support student learning.

Culturally Responsive Teaching

First coined by Gloria Ladson-Billings in 1994, culturally responsive teaching is the pedagogical practice of recognizing, exploring, and responding to students' cultural contexts, references, and experiences. Cultural responsiveness builds upon eight principles:

1. Communication of High Expectations

2. Active Teaching Methods

3. Practitioner as Facilitator

4. Inclusion of Culturally and Linguistically Diverse Students

5. Cultural Sensitivity

6. Reshaping the Curriculum or Delivery of Services

7. Student-Controlled Discourse

8. Small Group Instruction

The New York City Mastery Collaborative highlights that a competency-based approach can promote cultural responsiveness in the following ways:

- Transparency: path to success is clear and learning outcomes are relevant to students' lives and interests. Shared criteria reduce opportunity for implicit bias.

- Facilitation shifts: refocus the roles of students and teachers to include flexible pacing, inquiry-based, collaborative approach to learning. Students drive their own learning, and teachers coach them.

- Positive learning identity: growth mindset and active learning build agency and affirm students' identities as learners (academics, race, ethnicity, gender, sexual orientation, etc.).

Deeper Learning

The term deeper learning is often used to describe highly engaging learning experiences in which students apply skills and knowledge and build higher order skills. The Hewlett Foundation defines deeper learning as six competencies: master core academic content; think critically and solve complex problems; work collaboratively; communicate effectively; learn how to learn; and develop academic mindsets. Deeper learning intersects with competency-based education in multiple ways, including defining the learning outcomes; emphasis on lifelong learning skills such as academic mindset and learning how to learn; and importance of applying skills and knowledge to build competencies.

Educational Equity

There are many definitions of equity in education. *Competency*Works will use the definition from the National Equity Project:

> *Education equity means that each child receives what he or she needs to develop to his or her full academic and social potential. Working towards equity involves:*
>
> *1. Ensuring equally high outcomes for all participants in our educational system; removing the predictability for success or failures that currently correlates with any social or cultural factor;*
>
> *2. Interrupting inequitable practices, examining biases, and creating inclusive multicultural school environments for adults and children; and*
>
> *3. Discovering and cultivating the unique gifts, talents, and interests that every human possesses.*

Equality

Equality is related to the principles of fairness and justice. It refers to equal treatment and, in the past, has been used to refer to equal inputs. *Competency*Works uses the term equality as an aspirational goal of all students reaching their full potential.

Fixed Mindset (See Growth Mindset)

Carol Dweck's research suggests that students who have adopted a fixed mindset—the belief that they are either "smart" or "dumb" and there is no way to change this—may learn less than they could or learn at a slower rate, while also shying away from challenges (since poor performance might either confirm they can't learn, if they believe they are "dumb," or indicate that they are less intelligent than they think, if they believe they are "smart"). Dweck's findings also suggest that when students with fixed mindsets fail at something, as they inevitably will, they tend to tell themselves they can't or won't be able to do it ("I just can't learn Algebra"), or they make excuses to rationalize the failure ("I would have passed the test if I had had more time to study"). (Adapted from the Glossary of Education Reform edglossary.org.)

The traditional system of education was developed based upon a fixed mindset and resulted in a belief that part of the K-12 system's function was to sort students.

Growth Mindset (See Fixed Mindset)

The concept of a growth mindset was developed by psychologist Carol Dweck and popularized in her book, Mindset: The New Psychology of Success. Students who embrace growth mindsets—the belief that they can learn more or become smarter if they work hard and persevere— may learn more, learn it more quickly, and view challenges and failures as opportunities to improve their learning and skills. Dweck's work has also shown that a "growth mindset" can be intentionally taught to students. (Adapted from the Glossary of Education Reform edglossary.org.)

Competency education is grounded in the idea that all students can succeed with the right supports, including learning how to have a growth mindset.

Habits of Work/Habits of Mind

Habits of work and habits of mind are directly related to the ability of students to take ownership of their learning and become self-directed learners. There are a variety of Habits of Work (specific practices or behaviors) and Habits of Mind (skills, perspectives, and orientation) that help students succeed in school or the workplace. Schools tend to focus on a few of the habits of work and mind to help students learn the skills they need to take ownership of their learning. See Learning and Leading with Habits of Mind.

Higher Order Skills/Deeper Learning Competencies

Higher order skills refer to skills needed to apply academic skills and knowledge to real-world problems. The term can refer to the higher levels on Bloom's or Webb's taxonomy or to a set of skills such as creativity, critical thinking, problem-solving, working collaboratively, communicating effectively, and an academic or growth mindset.

Learning Resources

The materials explored during a course, module, unit, or activity: videos, images, audio, texts, presentations, etc.

Learning Experiences

The term learning experiences is used to convey the process and activities that students engage in to learn skills and knowledge. The term refers to the package of outcomes and targets, activities, resources, assessments, and pedagogical strategies that are associated with a course, module, or unit. In the United States, this is generally referred to as curriculum. (See definition of Curriculum.)

Learning Progression

Learning progressions are research-based approaches and maps how students learn key concepts and skills as described in Achieve's briefing The Role of Learning Progressions in Competency-Based Pathways.

Learning Sciences Research

The learning sciences are concerned with "the interdisciplinary empirical investigation of learning as it exists in real-world settings." Core components of learning sciences research include:

- Research on thinking: including how the mind works to process, store, retrieve, and perceive information;

- Research on learning processes: including how people use "constellations of memories, skills, perceptions, and ideas" to think and solve problems, and the role that different types of literacies play in learning; and

- Research on learning environments: including how people learn in different contexts other than a direct instruction environment with a core principle of creating learner-centered learning environments.

Lifelong Learning Skills

In the paper Lifelong Learning Skills for College and Career Readiness: Considerations for Education Policy, AIR describes lifelong learning skills as providing "the foundation for learning and working. They broadly support student thinking, self-management, and social interaction, enabling the pursuit of education and career goals." *Competency*Works uses the term to capture the skills that enable students to be successful in life, navigating new environments, and managing their own learning. This includes a growth mindset, habits of success, social and emotional skills, metacognitive skills, and higher order/ deeper learning competencies.

Moderation

Moderation is a process used to evaluate and improve comparability. The process involves having teachers (or others) work to develop a common understanding of varying levels of quality of student work. Moderation processes are often used as part of calibration, but moderation is a way to evaluate comparability while calibration is the adjustment based on these findings.

Personalized Approach to Learning or Personalized Learning

iNACOL defines personalized learning as "tailoring learning for each student's strengths, needs and interests—including enabling student voice and choice in what, how, when and where they learn—to provide flexibility and supports to ensure mastery of the highest standards possible." Personalized learning takes into account students' differing zones of proximal development with regards to academic and cognitive skills, as well as within the physical, emotional, metacognitive, and other domains.

Barbara Bray and Kathleen McClaskey explain in the PDI Chart that personalized learning is learner-centered, whereas the related approaches of differentiation and individualization are teacher-centered. Thus, teachers may use a personalized and differentiated approach to meet students where they are.

Social and Emotional Learning

According to CASEL, "social and emotional learning (SEL) is the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions." They focus on the development of five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Student Agency

Student agency or student ownership of their education refers to the skills and the level of autonomy that a student has to shape their learning experiences. Schools that want to develop student agency will need strategies to coach students in the lifelong learning skills (growth mindset, meta-cognition, social and emotional learning, and habits of work and learning) and to establish practices that allow students to have choice, voice, opportunity for co-design, and the ability to shape their learning trajectories.

Student Learning Trajectories

*Competency*Works refers to trajectories as the unique personalized path each student travels to achieve learning goals on the way to graduation. Educators apply what is known about learning progressions toward helping students make progress on their trajectory.

Universal Design for Learning (UDL)

CAST defines Universal Design for Learning as "a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn." UDL guides the design of instructional goals, assessments, methods, and materials that can be customized and adjusted to meet individual needs.

Zone of Proximal Development (ZPD)

A term developed by psychologist Lev Vygotsky to refer to the moment(s) during the learning process that lives between what one can do on one's own and what one cannot do at all. It is the zone in which guidance and support is needed in order to become independently competent. A personalized approach to learning provides students with access to learning experiences attuned to students' individual ZPD—which sometimes overlaps with others', but frequently may not.

About the Authors

Chris Sturgis is principal of MetisNet, a consulting firm based in Santa Fe, NM, specializing in education, youth issues and community engagement. Chris's approach begins with drawing on local knowledge (metis) early in the design process. Chris is recognized for her leadership in competency-based education as a co-founder of *Competency*Works. She is a prolific writer and facilitator on competency-based education based on knowledge gained through visits to schools and interviews with leaders in the field. Prior to establishing *Competency*Works, Chris worked in philanthropy for more than a decade at the Mott Foundation, the Omidyar Network, and as a consultant to national and regional foundations. Chris was a co-founder of the Youth Transition Funders Group, a philanthropic network. She has also worked in state government, human service organizations, and political campaigns. Chris earned a master's in public policy from Harvard University's Kennedy School of Government.

Katherine Casey is founder and principal of Katherine Casey Consulting, an independent organization focused on in innovation, personalized and competency-based school design, and research and development. Katherine was a founding director of the Imaginarium Innovation Lab in Denver Public Schools, supporting a portfolio of almost 30 schools across Denver and spearheading the Lab's research and development activity. Katherine was a founding design team member at the Denver School of Innovation and Sustainable Design, Denver's first competency-based high school. Prior to her time in Denver, Katherine worked in leadership development, philanthropy, public affairs and higher education. She earned a bachelor's degree from Stanford University and a doctorate in education leadership from Harvard University. Her dissertation, titled "Innovation and Inclusion by Design; Re-imagining Learning, Remembering Brown," explored the intersection of school design and integration in Denver.

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For more information please go to www.greatschoolspartnership.org/proficiency-based-learning/college-admissions/ or the New England Board of Higher Education, http://www.nebhe.org/, which published *How Selective Colleges and Universities Evaluate Proficiency-Based High School Transcripts:Insights for Students and Schools,* http://www.nebhe.org/info/pdf/policy/Policy_Spotlight_How_Colleges_Evaluate_PB_HS_Transcripts_April_2016.pdf, in the *New England Journal of Higher Education* summarizing insights from a conversation on the topic with admissions leaders from highly selective colleges and universities in the region.

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