CompetencyWorks reDesign

National Summit on K-12 Competency-Based Education

Meeting Students Where They Are

Prepared for the National Summit on K-12 Competency-Based Education.

WRITTEN BY:
Antonia Rudenstine
Sydney Schaef
Dixie Bacallao

iNACOL

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Please consider this paper a draft. A final version will be prepared and published based on input from the participants at the Summit.

June 2017

This paper has been a collaborative effort informed by the expertise, insights and experiences of: Amy Allen, Sharyl Allen, Mandi Bozarth, Michelle Bishop, Colleen Broderick, Michael Burde, Harvey Chism, Randy Dehoff, Pat Fitzsimmons, Cynthia Freyberger, Michael Klein, Tim Kubik, Christine Landwehrle, Diana Lebeaux, Paul Leather, Kathleen McClaskey,Christine McMillen,Caroline Messenger, Fritz Moser, Nikolaus Namba, Shawn Parkhurst, Alfonso Paz, Karla Esparza-Phillips, Blair Rush, Sydney Schaef, Andrea Stewart, Dixie Tremblay, Jon Vander Els, Brenda Vogds, Jennifer Wolfe, Mike Wolking.

We want to take this opportunity to thank the generosity and leadership of our funders. The support and partnership of the Nellie Mae Education Foundation, Carnegie Corporation of New York, Barr Foundation, Donnell-Kay Foundation, and Chan Zuckerberg Initiative are invaluable.

About *Competency*Works

*Competency*Works is a collaborative initiative dedicated to advancing personalized, competency-based education in K-12 and higher education. The International Association for K–12 Online Learning (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 that are transforming state policy, district operations and schools that are willing to open their doors and share their insights.

About iNACOL

The mission of the International Association for K-12 Online Learning (iNACOL) is to catalyze the transformation of K-12 education policy and practice to advance powerful, personalized, learner-centered experiences through competency-based, blended and online learning. iNACOL is a non-profit organization focusing on research, developing policy for student-centered education to ensure equity and access, developing quality standards for emerging learning models using competency-based, blended and online education, and supporting the ongoing professional development of school and district leaders for new learning models.

National Summit on K-12 Competency-Based Education

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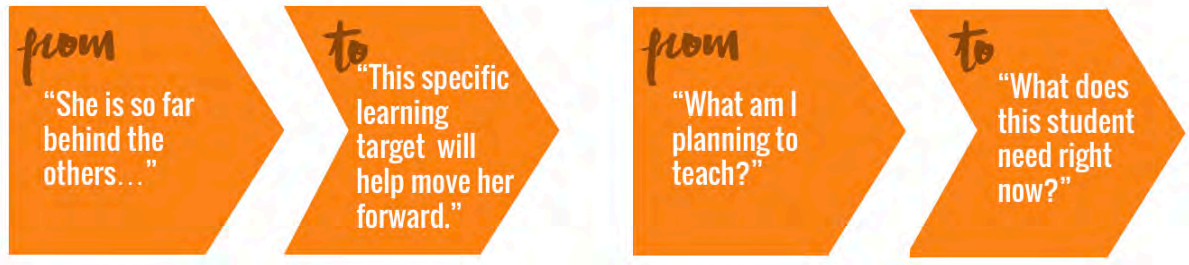
INTRODUCTION

In this paper, we provide school and district leaders with an in-depth exploration of the relational, pedagogical, and structural dimensions of meeting students where they are. It is organized around three driving questions:

- How do we know where students are?
- What do we do, once we know?
- Which strategies help us navigate systemic constraints?

In the final section, Charting the Course, we offer a discussion on the implications for systemic changes that must be addressed to fully support schools and educators in meeting students where they are. Throughout the paper, we draw on critical insights from the learning sciences to formulate our responses to these questions in practical and actionable terms. This research is referenced in footnotes, with key resources included on the final pages.

As we move toward the design of second generation competency-based models, there is an opportunity to anchor student learning and achievement in expansive, adaptable, and developmentally "appropriate" learning and development trajectories informed by the learning sciences. If we are to meet all students where they are, then our commitment must be not only to an uncompromising vision for high achievement - and in practical terms, this means college and career readiness - but also to the daily work of responding to students' individual needs in a way that fosters optimal growth:



This work is not about meeting the demands of an efficiency-oriented accountability system for its own sake; it's about ensuring all learners have equitable access to learning opportunities that foster agency and prepare them for life in the world. This is the orientation of learner-centered models, and it is indeed a radical departure from the industrial-age school model that dominates most schools today.

BACKGROUND

At the heart of a mature competency-based learning system lies a fundamental commitment to meet all students where they are. To many practitioners, this sounds equal parts right and radical. Right, because nothing in our lived experience suggests that learners are best served when they are advanced through a system that turns a blind eye to their unmet needs. Radical, because we know it requires that we begin with a commitment to know our students in profound ways - academically, cognitively, culturally, emotionally, linguistically, physically, behaviorally - and not where a grade-based standard or a district-mandated course sequence suggests they should be.

Meeting all students where they are is a commitment that requires that we reconfigure our old systems and practices and paradigms; that we place the individual learner at the center of the learning process; and that the learning process - what actually happens cognitively, neurologically, and developmentally as children learn - be placed at the center of the pedagogical model.

Why this massive redesign of our learning systems? First, the commitment to meet all students where they are is a moral one; we must do this because we now know from decades of cross-disciplinary research that it is the only effective way to optimize learning and growth for all children. This commitment is a pedagogical one; this change must involve a radical shift in our practitioner stance from "teacher" to researcher, designer, diagnostician, and expert facilitator of constructive learning experiences. It's a political commitment, too. We must do this because we recognize that our country's economic, political, and civic engines depend upon a strong, adaptive, and capable collective, and that our schools play a central, democratic function toward this end.

Let's name the elephant in the room: the notion of being on, above, or below "grade level" is an old paradigm that serves, not the learner, but a system designed to efficiently sort and "batch process" students. All students are somewhere on their learning and development trajectory - or multiple trajectories - toward developing the skills, knowledge, and dispositions that are essential for the transition to adulthood. Where each student is, at any moment, on their learning trajectory is just as much a function of their complex needs today as it is about the degree to which those needs have been met in previous years of life and schooling, and in other contexts of learning. The challenge for all of us is to identify where individual students are on the trajectory, and address their needs, passions, and interests in "real time." In the traditional education system, most students can only access one small segment of the skills or knowledge of a trajectory at a given moment in time, based on their age: for example, Algebra in eighth or ninth grade, Native American studies in second or third grade,

literacy in pre-K through second grade. There is ample evidence that under these circumstances, the odds are stacked against significant numbers of students being able to access and master what they need when they need it because the learning experiences available to students may - but often do not - fall inside their zone of proximal development[1] (ZPD). For example, the "reading" ZPD for an eleven year old who struggles with decoding is radically different from one who is flying through a Shakespearean play. Yet, they might both be in a sixth grade ELA class which is focused on summarizing a sixth grade text. In this way, their efforts to develop as readers becomes artificially constrained by the classroom learning experiences available to them: neither the student who needs to "reach back" to learn missed skills or content, nor the student who can "reach forward" due to already-mastered skills and knowledge, have access to the support they need within their ZPD.

While this may sound like a familiar refrain, the implications for competency- based models are profound: they underscore the importance of challenging the practice of advancing students based on age-based cohorts; age-based design of, and access to, learning experiences; and age-based benchmarks for performance (such as end-of-year exams, age-based high-stakes tests). These are artificial constructs designed to serve efficiency and external accountability needs as ends in themselves. As a result, they run at direct cross-purposes to meeting students where they are as students work to master competencies that can be learned at many ages.

The next section explores how we can learn where students are beyond the most commonly used indicators.

PART 1: HOW DO WE KNOW WHERE STUDENTS ARE?

We cannot begin to answer the question, "How do we know where students are?" without first addressing the inherent assumptions that we bring to this very important question. Where students are. In relation to what, exactly? With younger students, we tend to look at gross and fine motor skill development, social-emotional development, and literacy and numeracy development. As students move into late childhood - eight or nine years of age - most systems begin the transition to content exploration, while continuing to support skill development. By the time students are 'tweens and teens, the system's priority is content coverage.

Exploring Key Assumptions

Student achievement has historically been defined in terms of student acquisition of broad content knowledge[2] along a time-bound sequence that begins when children are eight or nine. The assumption that content knowledge is an appropriate measure of learning - after core literacy and numeracy is taught in the early grades - or that it is sufficient to prepare learners for the 21st century workforce is problematic for a number of reasons:

- **The economy is changing rapidly[3] and the jobs of the future require skills and aptitudes that are largely absent from content-focused curricula.** If we're serious about public education as an equity driver in this nation, we have to make sure all students have the opportunity to successfully pursue a college degree, technical or career certification, or mastery in a trade; and beyond that, gain essential skills, mindsets, and practices that will not be rendered redundant[4] in the near future.

- **Broad content coverage undermines our ability to support deep thinking, skill development, and conceptual understanding.** Instructional models that emphasize content coverage privilege speed, memorization, and basic understanding (Bloom's lower levels of thinking[5]), and this severely limits students' capacity to prepare for the workload of college,[6] at great cost to families and students.[7] In contrast, deep study of ideas, issues, problems, and concepts supports students in developing analytic skills and academic practices that learning science suggests will allow them to successfully tackle challenging college and career tasks.

- **Student motivation and engagement literature[8] asserts that meaningful opportunities for choice, interest-driven, and culturally relevant learning help strengthen learner engagement**. With this in mind, our system's tight grip on content focus and content sequencing with every student covering the same content seems greatly out of touch with what we know about how to optimize student engagement in school.

A second key assumption is that our age-based approaches are fair and valid. It is promising to see standards emerge - such as Common Core Learning Standards, Next Generation Science Standards, and the C3 Framework for Social Studies - that prioritize the development of essential disciplinary and transdisciplinary skills and practices. The research basis of the standards provide critical clarity and transparency around the skills required for college readiness. The trick to meeting students where they are is to create learning science-informed pathways that support students in achieving the outcomes associated with the standards.[9] Rather than coupling the standards with specific ages or grades, they would be coupled with learning progressions[10] that provide guidance to students within their zone of proximal development, regardless of their age.[11]

> Progressions can serve as powerful tools for identifying where students are, clarifying learning targets, and charting a student's unique developmental path toward college and career readiness. However, the performance levels described in these progressions must be decoupled from traditional age-based grade levels.

The good news is that the field now has a set of thoughtfully crafted prototypes that describe how skills and practices develop toward college readiness. This is a profound opportunity for the field's continued learning in our new paradigm of "meeting students where they are." The bad news is that we will continue to set students up for failure if we attach these skill progressions to age-based grade levels and then penalize students with different needs, strengths, and learning processes when they don't reach the arbitrarily set age-based bar - or if they meet it too early and are faced with little opportunity to accelerate.

The third key assumption is that teachers (and systems) are the "owners" of learning progressions, and solely responsible for using student performance data to make decisions about a student's needs or next steps. In other words, it is teachers and administrators who must know where students are and make unilateral decisions about how to move students along. This notion is being challenged by practitioners in exciting ways, such that students are able to see and understand where they are in their own learning pathway, be involved in the planning of their pathway, and take ownership of daily and weekly decisions about their goals and priorities. This learner-centered approach, which prioritizes the development of key metacognitive and decision-making skill sets, aligns with research that underscores the importance of a sense of power and competence to the positive development of children and youth.[12]

In critically examining these key assumptions of the old-paradigm accountability system, new opportunities emerge for designing truly learner-centered systems that identify where students are on their developmental path. In the section that follows, we describe a range of structural, pedagogical, and relational shifts that are essential to identifying where students are in a learner-centered, equity-oriented model. We organize these shifts around three domains: first, creating the equity-oriented structures that enable educators to know where students are; second, internalizing and enacting a strengths-based, culturally responsive, and relationship-centered approach to knowing and caring for our students; and third, implementing a set of key instructional practices that enable teachers-as-researchers to generate a rich, actionable stream of data to help them engage their students about where they are and how to advance their learning. (See In Pursuit of Equality: A Framework for Equity Strategies in Competency-Based Education.)

Domain 1. Designing Equity-Oriented Structures for Knowing Where Students Are

As previously discussed, our traditional system is crowded by curriculum, assessments, and instructional approaches that emphasize broad content knowledge and accountability. A critical step toward re-orienting our learning systems is to build new structures that serve to create the conditions for deep, purposeful, and preparatory learning that is accessible to all learners. The four structural changes described below are systems-level changes, although many schools operating with autonomy may be positioned to enact some or all of these changes.

Focus the goals

Detach ages from performance level expectations

Personalize the path

Build adult-learner relationship continuity

Focus the goals

The first key structural change required for meaningfully identifying where students are is to hone our indicators and measures for student learning. This means distilling our academic goals to a set of essential academic and lifelong learning competencies (in many schools and districts, these are coupled with developmental benchmarks or competencies to track physical and emotional development, particularly in younger children). Each competency is accompanied by a student-facing learning progression that articulates what proficiency looks like at each performance level on the path to mastery. These skill-based progressions or continua become central tools to support instruction, inform student feedback, guide student self-monitoring, and help identify when students are ready to advance to the next level. The shift from a content focus to a competency focus was a "lightbulb moment" for KAPPA International,[13] whose leadership team recognized that shifting their focus from credit acquisition to helping students build the "skills and knowledge to be successful after they leave here" was a much greater service to their students. Their efforts led them to a critical discovery about the powerful connection between learning and "work habits."

Detach ages from performance level expectations

A second critical shift is to decouple performance levels from age-based grade levels. In some schools this takes the form of multi-age "performance bands" (multiple years within which students can become competent in identified content and skills) as a way to organize capacity to meets students where they are. Schools all over the world have implemented these "stage, not age" approaches, but the United States struggles due to policy that assumes age-based groupings. Despite this, the practice exists: The Montessori model[14] is grounded in this belief, and Parker Varney Elementary School uses multi-age bands as is seeing achievement gains. Chicago's W. Belden k-8 school[15] is another example of a successful multi-age model. At the other end of the developmental arc are alternative high schools, where learning cohorts are typically multi-age in order to allow students to take the specific courses they need (to address past failure) in order to advance toward graduation as rapidly as possible. Rural schools also create multi-age learning cohorts in order to address economic realities due to low enrollment numbers.

Personalize the path

Third, student pathways need to be personalized, reflecting their unique needs, strengths, goals, and pace. At Memorial Elementary in Sanborn,[16] learning targets and progress goals are set for the individual student, not relative to other students. This is not an attempt to "lower" or eliminate standards, but rather to acknowledge that learners enter classrooms with a range of skills, and that learning itself is not a linear process: while one child learns to read at age four and another at age eight, these are not reliable predictors about how well these children will be able to read by the time they are ten (though poverty, mother's educational levels, race, and other variables do have clear impacts on students' progress[17]). A personalized pathway accommodates and appropriately supports the "jaggedness" of all of our learning profiles.

Build adult-learner relationship continuity

Fourth, we need to re-think the structures currently in place that undermine strong relationship-building between learners and adults. In a sense, teacher turnover is embedded into our traditional systems - not because teachers leave the school, but because students leave the teacher[18] as they advance to the next grade. In high schools, sustained relationships are often only supported through a "homeroom" or advisory model[19] (though even the composition of these groups can be changed year to year). At Noble High School,[20] a human capital strategy is purposefully designed to support long-term relationship building as part of their academic model. Specifically, interdisciplinary teaching teams stay with the same student cohort throughout their entire high school experience, a structure that they have designed to optimize their ability to provide timely, differentiated supports to all students.

Domain 2. Knowing Who Our Students Are, and Enacting an Ethic of Care

If we are to help all students engage deeply in their learning and progress at their optimal pace, then knowing who our students are, in the context of a supportive and caring relationship, is arguably just as essential as knowing where they are. Positive adult-learner relationships are of central importance because we know learning is not strictly a cognitive process; it is a profoundly socially and culturally mediated one.[21] This multidimensionality of learning has several major implications for our daily work as practitioners.

First, our work as educators must involve an effort to create learning experiences that are grounded in a deep understanding of, and appreciation for, the dynamic contexts that mediate the lives and daily experiences of our students both inside and outside of school. Culturally responsive education is an example of this appreciative approach to integrating our students' culturally developed frames, artifacts, and tools into learning. If we are serious about equitable, competency-based learning environments for all children, then we must work to deepen our awareness and understanding of the impacts, for example, of race and racial stress,[22] as well as poverty[23] and immigration,[24] as they are experienced by learners and adults.[25] Knowing our students means working to deepen our awareness of these complex factors and constructing learning experiences and communities that meet students where they are, at the intersection of their complex identities and contexts.

Second, our work as educators must involve relationships with students who are characterized by an "ethic of care"[26] that is receptive and attentive to their needs. This moves the work of identifying where students are beyond a purely diagnostic practice so that we also notice, acknowledge, and respond positively to students' feelings and desires.

This ethic of care is particularly critical in competency-based models, and even more so in programs that serve students who are "off-track." In a conventional program the existence of a D, or even a C, creates a safety net for students: while they may not have learned much, it may be enough to pass a class, achieve promotion, or reach graduation, even in the most hostile of school environments. While this doesn't prepare them for post-secondary life, it does create a sense of forward movement toward some sort of future. In competency- based models, where proficiency is required, students who find themselves unable to proceed in the face of their own confusion can find tremendous success in programs with a strong ethic of care, buttressed by significant emotional, social, cultural, and academic supports.

There are exciting school models that place an ethic of care and a strengths-based approach at the center of the work. At Bronx Arena,[27] learning is understood to be predicated on students' sense of belonging and wellness, and the human capital strategy is designed to ensure optimal human connection and support for learners. Specifically, a generalist teacher, who spends four hours in an "Arena" learning block (a self-paced, student-managed learning period) with the same twenty-plus students each day, is partnered with a youth development "Advocate- Counselor" who co-facilitates, providing ongoing social-emotional support by addressing needs and obstacles as they arise - quite literally in real-time. This is but one of many different models that reflect a deeply held commitment to knowing who their students are and embedding into the model strong and consistent relationships that support students over the course of their entire learning journey.

Positive Youth Development at Bronx Arena High School

WATCH: Learning in the Arena

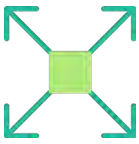
WATCH: Teaching to One at Bronx Arena

At Casco Bay High School, an EL Education[28] model, every student is part of a Crew:[29] a small community whose motto is "We are crew, not passengers." The role of crew is to provide students with a consistent, multi-year, supportive community that will see them through challenging and positive times. Crew creates a place for academic monitoring and support, but also team-building, celebration, character education, and problem-solving.

At the heart of this essential relational work is asserting the primacy of a strengths-based perspective and approach with regard to cultural competence,[30] cultural relevance,[31] and "funds of knowledge"[32] in relation to working with and in marginalized communities, whether rural or urban. While cultural, social, and economic challenges are real, casting long shadows, the strength of communities and the strengths of the our individual students must sit at the heart of our thinking with regard to competency-based models and pedagogical practice.

Domain 3. Recognizing Where Students Are and Co-Constructing a Path Forward

How do teachers identify where students are, and what happens once they do? In this stage, we discuss three important pedagogical practices of learner-centered models: a positive youth development approach, a commitment to cultural responsiveness, and action research. If we assume a commitment to building on learner strengths and integrating cultural knowledge and assets into our approach (as discussed above), the key that unlocks the emergent opportunities to identify where students are and what they need is to engage in a daily form of practitioner research, in which educators assume an inquiry stance in their work with students.[33] Practitioner research involves constantly posing questions about where students are, what strengths to build upon, and how to most effectively identify and respond to needs. Educators reframe roadblocks to students' understanding, thinking of the times students struggle not as unfortunate hindrances, but as "puzzling moments" that can generate new connections and new insights to inform learning opportunities.[34] On a daily basis, educators put into practice the following pedagogical strategies designed to help identify where students are.

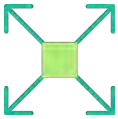


Expand formative assessments

Increase opportunities for academic discourse

Unlock student access to data, progressions, and planning processes

Nurture student metacognition and reflection



Expand formative assessments

In learner-centered classrooms, educators think much more broadly about the frequency, structures, focus, and role of formative assessment in learning. Mature competency-based programs approach assessment as a learning experience: an opportunity to take stock of what one has learned, synthesize ideas, and apply them to new contexts. For practitioners engaged in meeting students where they are, formative assessment is a robust, essential tool. Educators who are highly attuned to their students approach formative assessments as daily, moment-by- moment occurrences: conferences, peer feedback, observations, and self-reporting cues, as well as other oral or written forms. This is often coupled with more formal formative assessment opportunities, which provide students with additional learning moments and provide both teachers and students with critical data about student understanding.[35]

Technology-enabled formats can play a helpful role, too, by providing teachers with the benefit of streamlined data aggregation and analysis, and also opening up new channels for delivering real-time feedback to students even when off-campus.[36]

Increase opportunities for academic discourse

In learner-centered classrooms, educators expand opportunities for student discourse in the classroom, generating an often overlooked rich data stream for diagnosing student needs and gauging understanding in real time. The more teachers can listen in on how students are making meaning of new information, making connections to their existing schema,[37] and identifying gaps or misconceptions, the more promptly they can seize the opportunity for providing responsive, tailored supports. Expanded student talk also reduces barriers that struggling writers often face when asked to provide written responses to show their thinking or ability to synthesize ideas.

Unlock student access to data, progressions, and planning processes

In learner-centered classrooms, educators engage students in identifying where they are, and in shaping the path ahead, fostering student ownership over their own learning journey. As previously mentioned, students should have the opportunity to access their data in real time, participate fully in the planning and decision-making process for their learning pathway, and be encouraged to reflect on past decisions and outcomes to further the learning and metacognition to inform future decisions.

Nurture student metacognition and reflection

In learner-centered classrooms, educators create ongoing metacognitive and reflective experiences for learners in order to position them as developing experts. As John Dewey reminds us, "We do not learn from experience. We learn from reflecting on experience."[38] One of the critical tools that supports students in becoming independent, self-regulating learners is the development of metacognitive skills: the capacity

WATCH: Kindergartner Trinity's Student-Led Conference

to monitor their learning, identify the limits of their knowledge or ability, and identify and use strategies and tools to expand their capacity.[39] This is one of the critical distinctions between novice and expert learners. The stronger students' metacognitive skills are, the stronger their capacity to "know where they are" without depending on teachers or others for this information. These pedagogical shifts begin the work of creating learning spaces in which both teachers and students know "where they are" and can make informed decisions about how to move forward.

Finally, learner-centered classrooms have retired the label "failing students," replacing it with terms that describe students' skills (rather than their character). Students' skills and knowledge are described as "emerging," "proficient," "college-ready," etc. as reference points for where students are. In a true competency-based system, students cannot fail. In some models, "Fs" are replaced with "Not yet."[40] In other models, such as the competency model shared by Building 21[41] and The U School[42] in Philadelphia, students are able to locate themselves on a continuum toward mastery, with emphasis squarely on growth and the specific feedback that can help them advance along the progression toward college-readiness. For struggling students, this "failure" label directly undermines what we know about the importance of expectancy from the literature on student motivation; specifically, that students need to feel a sense of possibility about their own achievement in order to willingly engage in challenging tasks.

PART 2: WHAT DO WE DO, ONCE WE KNOW?

The only way to truly meet students where they are is for competency-based models to adopt a personalized approach to learning: an approach that accounts for students' differing zones of proximal development with regards to specific cognitive skills, as well as within the physical, emotional, metacognitive, and other domains. In this section, we offer a prototypical framework designed to help practitioners operationalize a personalized approach in the academic realm.

At first glance, the notion of "meeting students where they are" might seem daunting, as it demands we attend to the unique, ever-evolving needs of each learner, every day. What about the eight year old student who struggles to decode? The new immigrant who didn't learn to read in her native language? The teenager without an understanding of proportional thinking? What about the student in the same cohort who is ready for more "advanced" tasks or materials? Beyond the complex challenges related to academic skills and knowledge, we cannot ignore the significant range of learner difference in executive function and self-regulation skills,[43] such as the ability to sustain focus on a task, rein in impulsive behavior, prioritize activities, or recognize when it's time to ask for help or course-correct.

For many reasons the field is in the nascent stages of defining, in a concrete and comprehensive way, the distinguishing pedagogical practices of a personalized, approach.

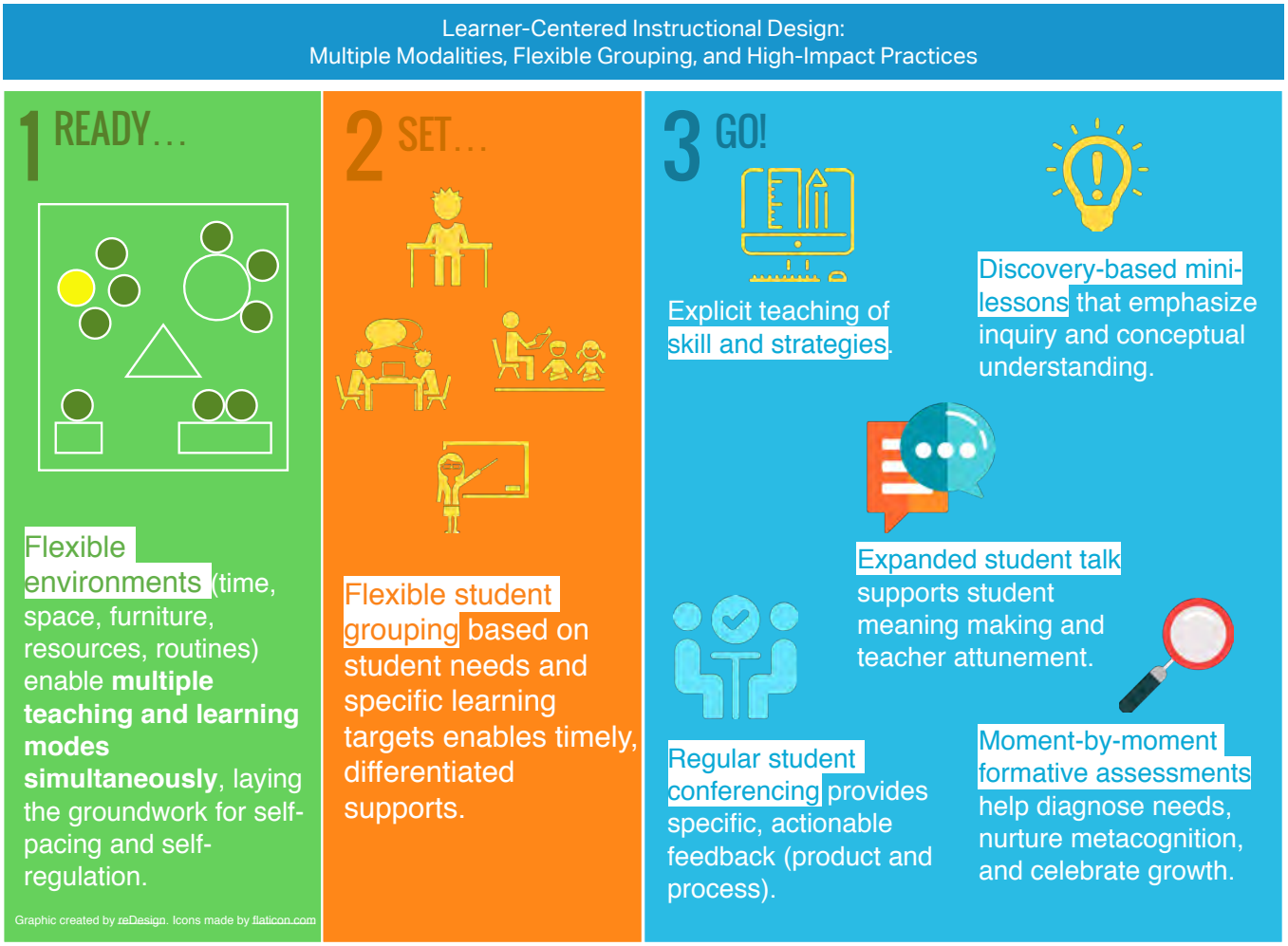
> What fundamentally distinguishes a personalized approach to learning is that it positions learners as developing experts.[44]

In mature competency-based learning spaces, learners are active co-constructors of knowledge, rather than passive consumers of content. Learning is visibly and authentically connected to meaningful and important outcomes. Inquiry drives the learning process, as it does in the world beyond school. And finally, learning environments and experiences are purposefully designed to nurture the meta-cognitive, behavioral, and motivational attributes of engaged, autonomous, and adaptive learners.[45] In short, the architecture of competency-based structures places student agency as the capstone, and every element of the design exists to support it. In this way, a personalized approach is a differentiated or individualized approach, BUT, its deep commitment to student agency is the significant distinguisher: while differentiation and individualization are also approaches to meet student needs, these needs and the strategies to address them are identified by the teacher. A personalized approach places the students in the driver seat.[46]

In this section, we explore the pedagogy, learning experiences, and classroom uses of time, space, and routines that support a personalized approach to learning that will allow students and teachers to work together to meet students where they are.

Feature 1. Learner-Centered Classrooms Support Multiple Modalities

Learner-centered classrooms start by re-designing learning configurations (spaces, learner modes) and implementing high-impact instructional practices that nurture student learning, engagement, and metacognition.



Learning spaces are restructured to support multiple modes of learning simultaneously, enabling flexible-pacing, fostering student autonomy, and creating opportunities for students to learn and create from "wherever" they are. One of the hallmarks of competency-based learning is the purposeful use of multiple teaching and learning "modes"[47] or modalities that enable individualized instruction, self-pacing, and flexible grouping.

In mature competency-based classrooms, there is no "front of the room." Furniture is arranged to support different modalities of learning simultaneously, such as small group mini-lessons, one-on-one conferencing, peer-to-peer discussions, and independent work. Because students have on-demand access to the full sequence of modules, units, and courses at all times, and strong classroom routines and norms are in place, everyone is engaged in learning. The powerful discovery here? As students develop the skills to take more ownership of their learning, adults have more time and space *to meet kids where they are* by individualizing instruction, opening up room for students to pursue their own passions and interests, and responding to specific needs in real time.

For teachers and students new to this approach, the beginning can be a bit rough, as the paradigm shift requires a mindset change, with new habits, norms, and practices that allow power to be shared between adults and young people who often have little experience in this realm. At the U School[48] in Philadelphia, the model design explicitly names this process by offering students four possible pathways for each course:[49] a teacher-directed course, a well-scaffolded teacher-supported option, a semi-autonomous class, or a fully autonomous course, where students are primarily working independently. Students work with advisors to identify the pathway that will be a "doable stretch," and every ten weeks they reassess the situation, making adjustments on a course-by-course and student-by-student basis.

The design of the learning space and the role of technology in competency-based models is, importantly, not intended to maximize student time on computers, but to maximize student agency by providing access to the full sequence of modules, units, and courses, a steady stream of formative data, and summative information about student progress toward competency. In experienced programs, this is tightly coupled with human connection through powerful, purposeful interactions between adults and students, and amongst students, creating opportunities for rich discussion, feedback, collaborative problem-solving, and tailored learner supports.

At Bronx Arena, teachers use a weekly facilitation planning tool[51] to determine which students should be grouped together for a mini-lesson or who should participate in a one-on-one conference; in both cases, specific learning targets are defined for the time. Flexible grouping can take place in an impromptu manner based on teacher observations in the middle of learning time; however, for planning purposes, a weekly interval for planning was what Bronx Arena determined as the appropriate stretch of time. At New Classrooms,[51] technology is used to facilitate daily grouping of students based on their progress on clearly defined skill-based learning progressions for mathematics. At Chicago's West Belden K-8,[52] students are able to work with the teacher who is best suited to address their needs, as they are identified: "a third grade student needing help with phonics may go to the first grade teacher."[53]

Feature 2. Responsive Facilitation of Learning in Action

The five learner-centered instructional practices that we've highlighted in the graphic above are high-leverage practices for competency-based, learner-centered instruction. Three of the practices are described above (explicit teaching of skills and strategies, expanded student talk, on-your-feet formative assessments); two practices need additional detailing: regular student conferencing, and discovery-based mini-lessons. *Student conferencing* is dedicated time for dialogue and the provision of specific, actionable feedback, including feedback on work products and work processes, as well as metacognitive feedback and feedback about the individual's overall development.[54]

The power of feedback is beautifully exemplified in one of EL Education's well-known videos, Austin's Butterfly.[55] Here, EL's Chief Academic Officer, Ron Berger, describes how a first grade student, Austin, was able to produce an amazing butterfly drawing with the support of concrete, actionable feedback. The video also touches on a number of additional principles that lie at the heart of competency-based education: teaching explicit disciplinary skills and strategies (e.g., "Think like a scientist"), emphasizing strengths and growth (e.g., "Not yet"), creating opportunities for specific feedback and multiple revisions, positioning learners as developing experts, and facilitating robust discussions and "expanded talk" that allow students to think, process, share, and co-construct learning.

Discovery-based mini-lessons are, in effect, what direct instruction looks like in an inquiry-based or problem-based learning model. The first shift is in length: instead of 45-60 minute teacher-driven lectures, we shift toward shorter, tighter, interactive "mini-lessons" that have a specific learning target and that are followed by learning activities, discussion, or other modes of learning. The second shift is in purpose: rather than aimed at delivering content, the lesson is intended to activate prior knowledge, create space for students to generate their own questions, and facilitate a learning experience that unfolds in such a way that learning happens through discovery. The final shift is in design: a carefully crafted set of information, student prompts, and responsive facilitation techniques are used to help students arrive at conceptual understanding.

Two strong video examples in the math context:

Watch: Inquiry into the Pythagorean Theorem

EXPLORE: 3-Act Math

This inquiry-based approach is also exemplified by the Japanese model of math instruction,[56] which inverts the traditional "I do, We do, You do" model to a "You do, Ya'll do, We do" approach. Rather than the teacher explaining a concept or skill and then walking students through guided and independent practice, a problem is posed that challenges students to take the lead in their learning.[57] Students engage in productive struggle on their own, then engage in vibrant academic discourse with their fellow classmates ("expand student talk") while the teacher circulates, listens, poses additional questions, and again listens carefully to diagnose both conceptual and procedural confusions and understandings. Finally, the teacher steps in to work through a few key problems with students, using their specific insights and challenges to bring sharper clarity to the mathematical concept or concepts being explored in the lesson.

Feature 3. Learning Experiences that Foster Engagement, Access, and Rigor

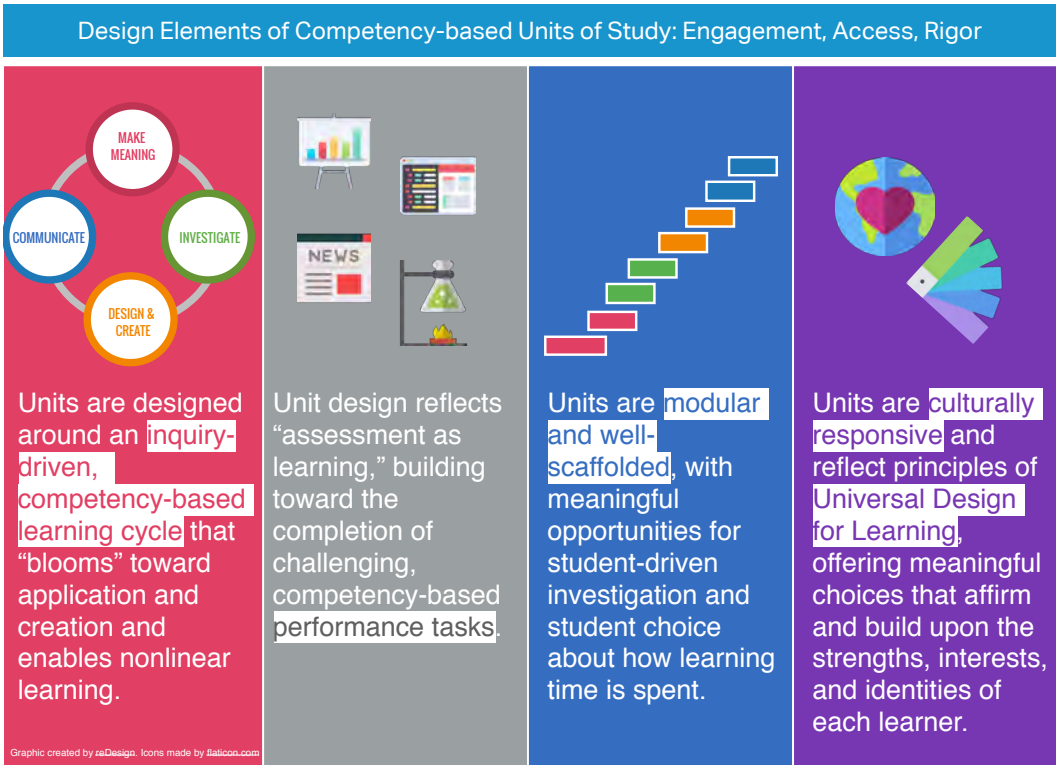
In learner-centered models that meet students where they are, the touchstones that guide the design of learning experiences foster curiosity, agency, and competence for all learners. We offer four design features:

Learning experiences reflect a commitment to addressing the needs, passions, and experiences of all learners. In second generation CBE, schools will be informed by the principles of Universal Design, cultural responsiveness, and student agency.

- Universal Design[58] refers to the concept that educators and schools should be actively engaged in designing tools, learning experiences, and approaches to lower or eliminate the barriers students face.[59] With a deep grounding in brain research, Universal Design for Learning (UDL) provides guidance on the design of learning opportunities that will allow learners with a broad range of strengths and gaps to engage with learning in deep and meaningful ways.

- Culturally responsive teaching is the practice of "using the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them. It is a means for improving achievement by teaching diverse students through their own cultural filters. "Curriculum that does not explicitly acknowledge the cultural [frames it draws upon] perpetuates the marginalization of students due to implicit and explicit bias - both individual and institutional."[60]

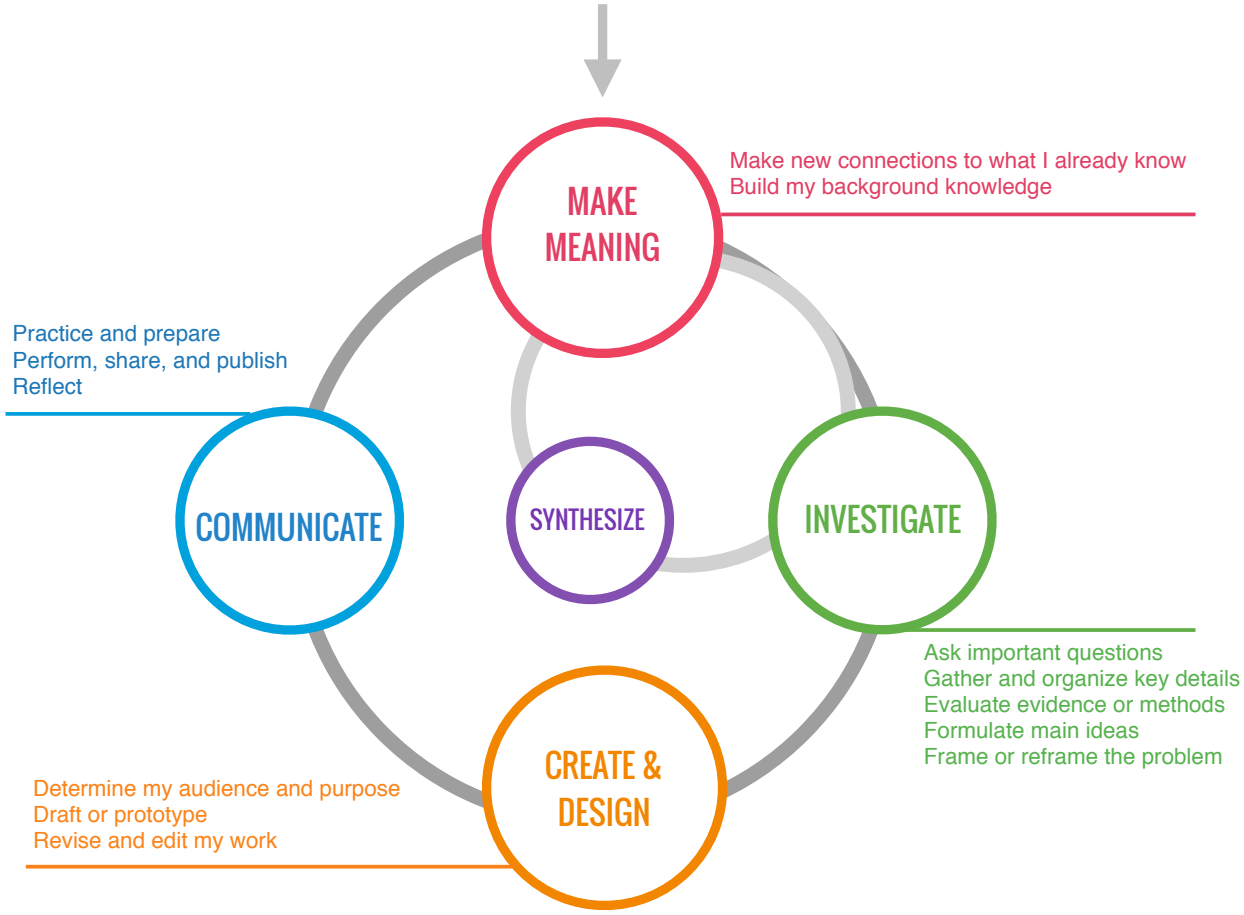
- "Agency is the capacity and propensity to take purposeful initiative - the opposite of helplessness. Young people with high levels of agency do not respond passively to their circumstances; they tend to seek meaning and act with purpose to achieve the conditions they desire in their own and other's lives."[61] There are a set of teacher behaviors that measurably boost student agency, and others that "dampen" it - even when the teacher intends to be helpful and supportive. The trick is to achieve a balance between the supports provided to students and the expectations asked of them: too many supports without high enough expectations for effort and production tend to diminish students' agency and their personal orientation toward mastery.



#1. Learning experiences are under-girded by an inquiry-driven learning cycle grounded in the learning sciences and in child and youth development research. A learning cycle is a powerful anchor and can be developed at any level of the system: an isolated teacher organizing around competencies may have to create her own; more commonly, a school or district would take the lead so there is careful alignment between the competencies and the learning cycle.

The learning cycle example that follows is an appropriate guide for the design of learning experiences at any age, even young elementary students learning the skills of reading, writing, and early numeracy. While the work of learning the alphabet or counting is often framed as purely procedural (practice and apply this learning in order to achieve fluency), this work has the potential to live right at the intersection of skill-mastery and inquiry. In many classrooms, four, five, and six year olds use invented spelling as they write their first "books." They engage in letter- and word-study as part of learning to read, and they work with both manipulatives and numbers to explore math as a symbolic and conceptual language. Some students learn to "read" both numbers and letters through processes that look mysterious to us: rapidly recognizing what these symbols represent and using them to communicate. Other students engage in a (more laborious) process of phonic study and number recognition.

Learning Cycle Example



In the model on the previous page, learning experiences are designed to support students in moving through a four-stage process (outer circle) while students are synthesizing new information and expanding their existing schema on a continuous basis (inner circle). In each stage, we expand student choice and nurture a metacognitive approach to learning that is fundamentally important to nurturing student agency.[62]

In the Make Meaning stage, students activate prior knowledge, build new background knowledge, and make meaning of foundational concepts and ideas as they begin to explore the overarching question or problem frame (e.g., How safe is my tap water?). Without this critical step, struggling students with gaps in background knowledge, concepts, or academic vocabulary will likely be left behind. Importantly, as students develop greater autonomy in their learning, they themselves can be defining the topic of exploration and their pathway through it, making choices about which competencies they will demonstrate through their culminating work product or performance based on, for example, the portfolio requirements they are working to fulfill. Making Meaning is the work of remembering and understanding - the lowest levels of Bloom's Taxonomy - new concepts and skills from a range of materials, models, and resources.

In the Investigate stage, students explore relevant questions and generate questions of their own based on their interests and curiosities about the issue. This stage is essential to ensuring all students have access to learning experiences that involve deep, analytical thinking, such as through exploring multiple perspectives on an issue or multiple approaches to a solution, evaluating claims and evidence, and developing conceptual frameworks to ground one's thinking and understanding. This stage represents a powerful opportunity to challenge hegemonic learning assets and to problematize learning resources - whether a news article, textbook chapter, blog post, or some other asset - that are grounded in a singular perspective. On Bloom's Taxonomy, application, analysis, and evaluation occurs during the Investigate stage.

An integral (but often overlooked) element of the Make Meaning and Investigate stages is the process of Synthesis: One of the highest levels of thinking on Bloom's Taxonomy, synthesis is the work of creating new schema that aid in understanding and making connections between disparate pieces of information and skills. In the Create stage, students apply new knowledge and skills as they construct and organize a new, personally meaningful, and coherent "product" or performance. Here, students demonstrate their learning through rigorous, engaging performance tasks. In the Communicate stage, students share, publish, or perform their work for authentic audiences.

At both ends of this continuum - and in all of the spaces in between - teachers are working with students to meet them where they are as they learn to make meaning, investigate, and synthesize. Ultimately, the act of writing and problem-solving is an act of creation, and eventually, there should be a forum for communicating this learning to a broader audience: In the EL Learning example of Austin's Butterfly discussed above, first grader Austin is drawing a butterfly for a card he is designing that will be shared in the broader community. In the process of drafting it, he is working on developing his fine-motor skills as well as his capacity to represent objects with precision (and many other skills and concepts): it is a *both-and* learning experience: neither just procedural/skill learning, nor purely conceptual exploration.

Often, students who end up "far behind" or "off-track" are students whose learning effectively halted in elementary school. They may struggle to make meaning of texts or to understand proportional thinking (represented by fractions, decimals, and percents) despite practicing these concepts for years. Clearly, practicing, while necessary, is not sufficient for many - if not most - students, even at the youngest ages. This becomes more clear if a learning cycle is guiding the work that teachers undertake with students: practice with an eye toward gaining fluency is an essential part of the work of meaning-making, which includes building background knowledge and skills. But ultimately, this must be followed by a version of investigation and synthesis, which provide an opportunity for skills to be applied to similar and new contexts, while questions are raised to address both curiosity and confusion, establishing new schema[63] to help with efficient consolidation of new learning.[64]

The assumption is that all students - even young ones, as well as those who cannot not easily access content - can and should have frequent opportunities to undertake significant work that mirrors that which college students, artisans, and professionals engage in. The Reggio Emilia approach to early education provides wonderful insight into the powerful use of a learning cycle with young children.[65]

#2. Assessment is in service of learning, not the other way around. Performance Tasks are the driver. A commitment to meeting students where they are means a significant reconstruction of our assessment strategies and models. This involves moving away from traditional examinations that are often strictly for the purpose of evaluation to work products that are performance-based and that have meaning and importance beyond school. A cornerstone of competency-based models, performance tasks ensure that students are engaging in tasks that will help prepare them for postsecondary life, inclusive of but not limited to, college and career. In addition to embedding performance-based assessment in our learning models, there are several other key considerations to ensuring our assessment is in service of learning:

We need to adopt a tiered assessment strategy that involves a coordinated effort across a school or district, ideally, or departments and student cohort teams, minimally. A "tiered" strategy distinguishes between age-bound assessments (e.g., annual state assessments, SAT exams), and a set of assessments that are flexible and responsive, available to students "just-in-time"[66] or at their request when they are ready to demonstrate proficiency.

Assessments should be "meaningful and positive" experiences for students, involving tasks that have relevance and importance beyond school, and involving a supportive process of multiple opportunities to practice and apply new skills and knowledge, receive rich feedback, and undergo revision cycles. At Parker-Varney elementary school,[67] third grade students tackled school lunch with the aim to make it more appetizing. Students used math and research skills to compare the relative cost of outsourcing lunch preparation (the current model), and school preparation (their hoped-for result). They then developed their presentation skills to persuade the school board to change policy, which it did. As a result, school lunch consumption has increased 20 percent. A similar process was used to persuade the school board to move away from styrofoam use in the cafeteria.[68]

#3. Units are modular. Modular content is self-contained, manageable in scope, and follows a learning arc that culminates in some demonstration of readiness to advance to the next module. Modular content makes for easy management and measurement of progress, while also allowing flexibility for the timeline in which certain content is explored. The teenager who struggles with proportional thinking can quickly gain access to modules that explore these concepts while delaying deeper study into algebraic concepts, or learning the two side-by-side as she strengthens her overall math competency. Modular design is powerful because it enables students to come back to the specific modules they need when they need them, rather than be responsible for "re-doing" an entire course because they needed more time or didn't demonstrate proficiency of content and skills within a set period of time. Students can move through modules in ways that make sense for their learning profile: a student who failed Algebra last year at a different school might have mastered linear equations previously, but will need to work on quadratics, another student might be competent in both, others in neither.

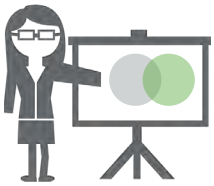
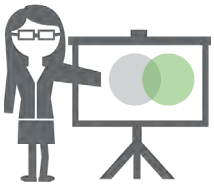
Modularity allows for content, concepts, and skills to be studied in their "appropriate" moment and context based on "where students are." Modularity also creates flexibility for practitioners, allowing for revisions and adaptations without contending with the locked-down effect that is present with interdependent course progressions. Breaking from the tradition of lengthy courses and prescribed scope with a tight age-based sequence is one of the highest-impact levers for supporting competency-based learning, but it requires that students have access to the full scope of K-12 modules so they can work on the specific competencies that meet their needs and interests.

#4. Modules are well-scaffolded. The notion of "scaffolding" has been mainstreamed in the education space for years, but its meaning varies greatly depending on the user. In many instances, we see the idea of "scaffolding" understood to mean the breaking down of content into small, bite-sized, and easily digestible parts - the simplification of complex content. However, simplifying content in one context does not enable students to work without the simplification in a later or different context. True to the origin of the architectural term, we refer to scaffolding as temporary but critical structures put in place to support a developmental process, which are ultimately removed when no longer needed.

Put another way, scaffolding helps students develop a toolkit of key learning strategies and skills that build their competence and nurture their autonomy as learners and thinkers. Once they have capacity as independent learners, they can begin to move quickly to address both gaps in their core understandings, while also having the capacity to pursue personal passions and interests.[69]

> Scaffolding is about breaking down ways of thinking and analyzing, making these transparent to students, and teaching the processes and strategies embedded in these ways of thinking explicitly and repeatedly until students have created effective schema.

Over the last two decades, disciplinary experts have generated expansive bodies of work that demonstrate the importance of explicit teaching of skills and strategies. Literacy experts advocate for teaching comprehension strategies explicitly: posing questions, making inferences, determining importance, synthesizing new information, and so on. These strategies were identified in the '80s, not by studying struggling students, but rather by researching the skills that sophisticated or "expert" readers use[70] when tackling challenging texts.[71] Math experts emphasize the importance of developing mathematical mindsets[72] and mathematical habits of mind[73] alongside building knowledge of mathematical concepts.[74] A teacher at Young Women's Leadership Academy in New York City[75] exemplifies this deliberate teaching of skills and comprehension strategies in order to help struggling readers engage with key academic texts.

A LEARNING ACTIVITY	A SCAFFOLDED LEARNING ACTIVITY
Let's use this tool today as we ... [blah, blah, blah]	**What is this tool?** How is it useful? When else might we use it?
	

In practice, this fine distinction is an important one. It's the difference between using a tool as an isolated "activity," as illustrated in the graphic below (left), and making explicit the tool's purpose, value, and relevance to the task at hand (right), so that it actually becomes a tool that can be used to support learning in many contexts. The key underpinning of effective scaffolding? Metacognition.

In the example above, the teacher's ultimate goal is not the activity itself, but rather to help students understand that that there are multiple ways to organize information and to visualize relationships, and this is one tool from a metaphorical toolkit that can be used to do so. This approach lays the groundwork for student autonomy in learning. If students both grasp that learning requires organizing ideas in increasingly complex ways AND they are equipped with the strategies and tools to do this, they are on the way to being able to learn anything, from woodworking and web design to Physics and Latin.

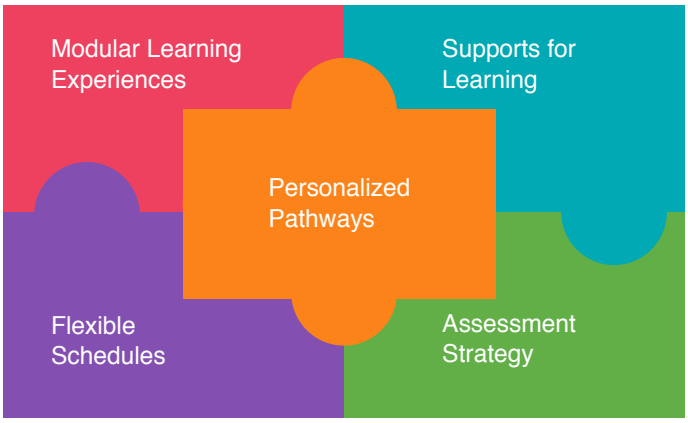
Content remains central: students will use new tools to dig deeply into important content, developing schema that will help them both remember and understand new content, and allow them to analyze and synthesize it in significant ways. At the same time, the focus does shift away from content coverage (a typically superficial exploration of the "what") toward process and skill development (the "how" of exploring complex concepts and ideas), while simultaneously making the thinking process and rationale behind it explicit (the "why").

This critical practice is fundamental to a positive child and youth development frame because it nurtures students' sense of competence and power in their learning, rather than just moving them along through a stream of unconnected learning activities. For young students and struggling learners, explicit teaching of skills and strategies is a lifeline to independent learning, and directly counters the false and harmful notion that teachers must "cover the basics" before students may access opportunities to think deeply and engage in analytical work.

> Competency-based learning is not about learning skills instead of content; it's about learning critical skills that empower learners to seek out and engage with content more deeply, meaningfully, and productively.

Part 3: WHICH STRATEGIES HELP US NAVIGATE SYSTEM CONSTRAINTS?

Meeting students where they are is a structural challenge and will involve the work of reimagining and redesigning our school models around the needs of the individual, rather than the efficiency of the system. There is something of an accountability paradox[76] at play in our educational system; namely, that the very accountability system that led to much greater transparency about the performance of the education system and its inequity is also holding the traditional system that produces inequity in place. Despite this, there are five critical, interlocking structures that will enable school models to become more effectively oriented around learner needs and outcomes rather than around operational efficiencies (without entirely ignoring the need for efficiencies in the system in order to respond to systemic constraints):



- **Modularizing learning experiences** and making them available to all students creates the opportunity for students to both "reach back" to address gaps in skills and knowledge, and to reach "over" or "forward" to pursue passions or deepen learning.

- **An assessment strategy** that is backwards-mapped from college-/career-readiness makes it possible for schools and systems to ensure that students have ample opportunities to practice and master core competencies.

- **Personalizing students' learning paths** allows both students and teachers to explore learning experiences in ways that meet students within their zone of proximal development, providing timely and differentiated supports as a matter of daily practice.

- **Organizational supports for learning** should foster student agency, motivation, and engagement in order to ensure that supports avoid becoming enablers, limiting student growth and progress.

- **Flexible schedules** support student choices about how to use their learning time, while also creating critical opportunities for teachers to provide interventions, feedback, and personalized learning experiences.

The connective tissue between these supports is a robust learning management and tracking system that provides young people, teachers, and families with real-time access to both learning experiences and rich data regarding progress.[77]

Strategy 1. Designing Modular Learning Experiences, Available to All

This is one of the weightiest challenges for competency-based programs, but the benefits of tackling it cannot be overstated. There are two specific challenges to be navigated: First, while the number of available tech-based resources is growing almost exponentially, there are few if any resources that are inquiry-driven, culturally responsive, organized around research-based learning progressions,[78] and organized around meaningful performance assessments. Even fewer are designed to meet the needs of students who are struggling or "off-track," or students with specific learning needs. This is a critical issue for the field to address as we move into the design of second generation competency-based models.

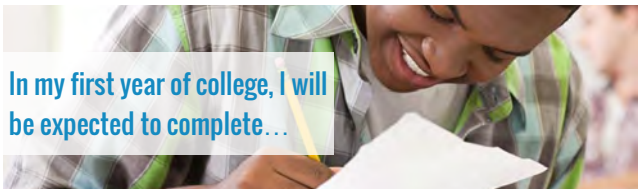
Second, if we truly want to meet students where they are, we must all be able to access a full range of skill- and content-based modules, as they are needed: a sixteen year old recent immigrant who did not learn to read in her native language must be able to access learning experiences that focus on learning to read and write. An eleven year old who has pursued a passion in geometric theorems shouldn't be asked to wait several years to access school-approved courses in order to "receive credit." And students of any age who have yet to learn how to read a map or distinguish between countries and continents should have a way to develop this competency at whatever moment makes sense: either because of a developing interest or passion, or because it is part of an established benchmarking process or learning progression.

At the classroom, school, or district level, the most significant challenge is either commissioning modules from experts or supporting practitioners as they develop the capacity to design modules that truly allow students to explore passions, develop agency, address gaps in skills and conceptual understanding, and develop college and career-oriented competencies. Beyond this, modules can be designed and hosted on an array of free and inexpensive platforms.

Strategy 2. Designing An Assessment Strategy for Competency-based Schools

Tightly linked to the design of competency-based modules is the establishment of an assessment model that is responsive to learner needs and demonstrations of readiness. Because of the inherent variability in student preparedness and learning rates, the strategy cannot be time-based. This is not to say that there shouldn't be benchmarks that support student forward movement; merely to make the case that most current time considerations are more about programmatic efficiency (it's much easier for an organization to hold a graduation ceremony once each year than to establish several graduation opportunities for students) than they are about meeting students needs, or celebrating their readiness, in real-time.

At the classroom, school, or district level, there are some concrete steps that can be taken to support students in becoming competent in both the skills and products required in college and careers. A few years ago, we surveyed the syllabi of core freshman courses at a number of colleges and universities (some were highly competitive: MIT; others, barely so: Alma College in Michigan). The goal was to deepen our understanding of the term "college-ready." Our theory was that if we understood what is required of college freshmen, we could map backwards to determine what strong preparation should entail, even for struggling students. What we learned: there is surprising similarity in the tasks that colleges will assign.



(IMAGE SOURCE/GETTY IMAGES)

5,000	PAGES OF READING	90-100	POLISHED ESSAY PAGES
12	POSITION PAPERS	6	PRESENTATIONS
8	EXAMINATIONS	75	TEXT-BASED DISCUSSIONS
6	LAB REPORTS	21	PROBLEM SETS

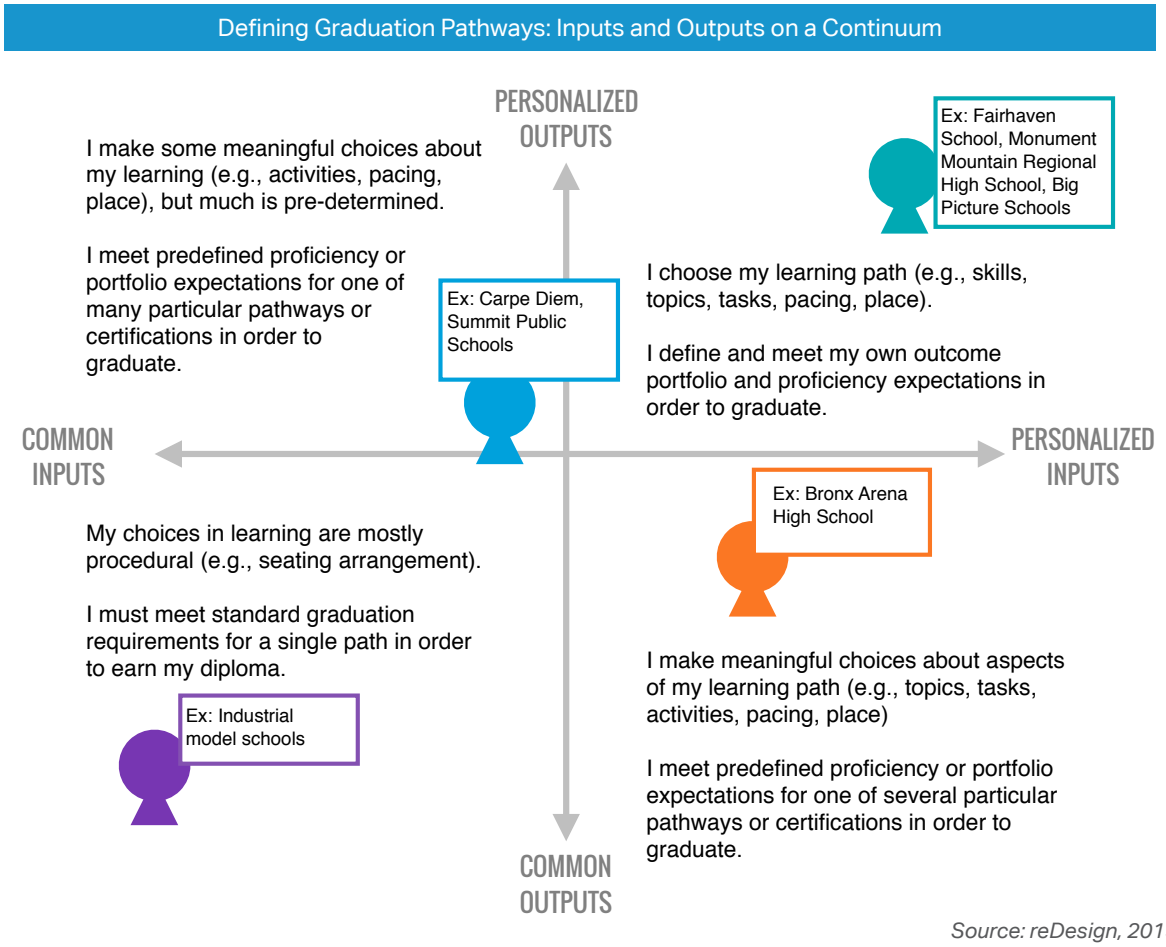
(reDesign, 2014)

"In effect, the projects of college require students to be able to read widely, deeply and rapidly, while producing a high volume of sophisticated, analytic work, more or less on demand."[79] If this is what many colleges expect, then one of the key ways to meet students' needs is to ensure that they are sufficiently prepared for the rigors of these tasks before they graduate.

One of the hallmarks of effective competency-based assessment is that students have multiple opportunities to both practice and demonstrate competencies. This can be challenging to ensure, especially if one is planning backwards from college/career-readiness. For students who are struggling, one of the most effective strategies is to focus performance tasks squarely on the few tasks they are guaranteed to face in college, and give them as many opportunities as possible to practice these so that their products are both strong AND generated rapidly. Assessment mapping is a highly strategic process that can support schools and districts in the work of ensuring that students have multiple opportunities, both within and across courses, to improve their competency on specific performance tasks over time.

Strategy 3. Personalizing the Path

Schools and districts that are able to develop a full scope of competency-based modules alongside a college/career-assessment strategy and opportunity map will be well positioned to begin personalizing the path toward graduation. When we think about personalization, it is helpful to imagine a two-dimensional grid: we have choices related to the extent to which we allow for personalized and choice-driven learning experiences, and we have choices related to the extent to which we allow for the personalization of the outcomes.



Source: reDesign, 2015

One of the powerful opportunities that emerges within competency-based structures is to shift from time-based course credits (the bottom left quadrant of the grid) to a more personalized approach. In a fully personalized approach (top right quadrant), students define both the learning pathway and the outcomes to some significant degree - though preferably with guidance from adults. In the lower right quadrant, a highly personalized system enables students to define important aspects of their learning pathway, but there are a fixed number of pathways with a predefined set of expectations for graduation (an approach often found in Career and Technical Education programs). In our efforts to build a more equitable education system, most schools will seek to find a balance between ensuring students build all the academic skills they need to open doors to college and careers while also providing opportunities for students to build skills and knowledge based on their interests and goals.

Nationally, the majority of existing schools and systems live in the lower left quadrant, where there is very little meaningful choice in the learning pathway and in the outcome. Most first generation competency-based models live in the top left or bottom right quadrants: pushing the boundaries of the industrialized model, but constrained or aligned in some critical ways. Unfortunately, most tech-oriented learning resources and LMSs maintain these constraints by offering tightly sequenced, standardized courses with little opportunity for students to explore, make substantive learning choices, or practice and track competency work across multiple learning experiences and contexts.

As we move into the design of second generation models, we hope to see the launching of programs that push toward a more robust embodiment of personalization, (the top right quadrant of the grid), though each school, district, and state will need to consider where it can effectively live on this intersecting continuum of personalization, given its particular context and attendant constraints. The work of Barbara Bray and Kathleen McClaskey has contributed greatly to articulating the qualities and components of personalized learning in this quadrant.[80]

Strategy 4. Organizing Timely, Differentiated Supports

Clearly, the focus of this paper is an articulation of the timely, differentiated academic supports that will allow students to be met where they are: from scaffolding to learner-centered pedagogical practices; from fully accessible learning experiences with modular units to assessment systems that provide multiple opportunities to practice; and organizing learning around both standards and research-based learning progressions to developing nuanced and continual ways to gather formative assessment data. Here, we briefly turn our attention to a few of the structural supports that can make it possible for adults to encourage students to take risks, seek help, and achieve or maintain pacing expectations.[81]

Effective competency-based programs have learned that in order to ensure that students truly become competent, it is crucial to allocate time in ways that assume variability in the pace at which students learn: if some students need material to be retaught, or if they need opportunities to address foundational skills and concept gaps, there must be dedicated time (and staff) in the day, week, and term where support can be accessed. At Noble High School,[82] the primary "building blocks" of the schedule are Interdisciplinary Academies and "KnightTime"[83] (a combination of advisory and intervention in which students meet with advisors to goal-set and determine how they will maximize their KnightTime for the rest of the week). Noble uses a block schedule for academies, and KnightTime is programmed for four forty-five minute periods per week. Students are organized into heterogeneous "academies" made up of students from various academic levels, genders, socioeconomic statuses, and other factors. Students remain with the same set of teachers throughout their entire high school experience.

One of the desired outcomes AND key ingredients of competency-based models is student agency. Competency in any domain rarely occurs without a sense of personal commitment and power pulling us toward a goal. In crafting supports for students, this is essential to keep in mind: as mentioned above, some supports actually dampen agency.[84] Some of the supports that nurture agency in competency-based models:

Support that Nurtures Agency	Timely Support Structures
Clear, challenging expectations	• Competencies and benchmarks • Personal and community goals • Pacing expectations • Rubrics for high quality work • Classroom protocols to support agency and self-regulation
Daily or weekly opportunities to set concrete and actionable goals with a supportive adult. Attendant opportunities to self-assess and receive feedback on progress toward goals	• In-class conferences • Sustained child and youth development-oriented groups such as advisory • Office hours • Regular celebrations of progress, such as weekly or quarterly community meetings • Transparent assessment data tagged to competencies
Opportunities to seek help that is "attuned" to the zone of proximal development in each learner for each learning experience	• Access to just-in-time resources, modules, and learning experiences • In-class conferences, small group sessions and mini-lessons to address passions, interests, and gaps) • Timely "pull-out' sessions for individuals and small groups on specific skills, concepts (for passions and interests, or gaps) • Regularly scheduled "open" blocks, when students (and/or teachers) determine which teachers or peers students want or need to work with in order to move forward (e.g., KnightTime) • Office hours • Extended learning opportunities (again, for passions and interests, or gaps)
Multiple opportunities to identify and pursue paths of inquiry; and to practice meaningful, challenging tasks	Student choice (some percentage of the time) about: • What learning to pursue • How and when to demonstrate competency • Extended Learning Opportunities • Regularly scheduled "open" blocks, when students (and/or teachers) determine which teachers or peers students want or need to work with in order to move forward

One critical challenge to meeting students where they are is systemic policy constraints: a high school with students with early literacy skills is challenged to hire a teacher with the appropriate training because of certification requirements. Schools who hope to use summer as an opportunity to close achievement gaps are limited by requirements for summer school course crediting and staffing contracts. Programs that hope to legitimate a rich array of extended learning opportunities are hindered by the need to organize around "teachers-of-record."

Strategy 5. Instituting Flexible Scheduling

Modular scheduling is the next piece of this puzzle: as learning experiences, assessment, and personalization become intertwined, practitioners and young people will require important adjustments to the organization of time: meeting students where they are requires us to create more flexibilities in our scheduling so that we can respond to needs, goals, and interests as they arise. The research on "flow" - the experience of being completely immersed in an experience[85] - reminds us that deep learning requires uninterrupted time and opportunities to explore ideas, following the threads of concepts into new domains of learning. The achievement of competency or mastery in any realm requires long periods of flow, wherever one is on a learning path. Traditional bell schedules inhibit flow, as students move from class to class and content area to content area, dipping into new learning briefly and quickly moving on to the next experience.

To meet students where they are requires thinking strategically about how the school day, week, and year are organized in order to ensure that students literally have the time to pursue their interests and passions, in addition to addressing critical gaps in their understanding and skills.[86] Schools are beginning to think creatively about schedules, using approaches such as the flex-mod schedule,[87] where the day is broken into short blocks (15, 20, or 30 minutes in length), and modules of varying lengths of time are constructed from these short blocks. Typically, students have time each day that is officially unscheduled, where they have the opportunity to make meaningful choices about the focus of their learning. At Bronx Arena High School, in New York City, each student is assigned to an Arena, co-facilitated by a teacher and a youth developer.[88] Arena blocks meet daily for four hours, and during this time, students make choices about which coursework to undertake. Students typically enroll themselves in one to three courses and move at their own pace through the coursework, guided by the school's generic pacing recommendation of five tasks per day.

Integrating these five strategies (accessible, modularized learning experiences; coherent assessment strategies that provide multiple opportunities to practice and demonstrate essential skills and deep understanding; personalized learning pathways; robust timely, differentiated supports; and flexible schedules that nurture students' flow experiences) is the systemic work needed to truly meet students where they are.

CHARTING THE COURSE

At the National Summit on K-12 Competency-Based Education, our hope is to focus the conversation using this paper as a launching point on two sets of questions:

1. **Anything Else to Add?** In this paper, Meeting Students Where They Are, an approach to organizing schools and reaching students based on their personal academic and developmental trajectory is explored.
   - Are there any important points to raise regarding the approach provided in the paper that are missing or need to be revised or strengthened?
   - Are there other approaches to meeting students where they are that should be included in the final paper?

2. **What Should Be Done?** What needs to change in the broader education system (accountability policies, systems of assessments, teacher pre-service, etc.) to enable schools and educators to better meet students where they are, and what actionable steps can be taken to expedite these changes?

In the following discussion, we offer some initial ideas for the second question with the expectation that they will be substantially enhanced at the Summit.

A. Educator Capacity

Teachers need access to personalized, competency-based professional learning that allows them to build the skills they need to better support students within their classrooms. This should include strategies for scaffolding, differentiation, knowledge of instruction in their academic domain, coaching in lifelong strategies, and knowledge of equity strategies. (See *In Pursuit of Equality: A Framework for Equity Strategies in Competency-Based Education*.)

Many districts are beginning to create modules and units on a range of different issues. An initiative that would enable knowledge-building and knowledge-transfer regarding these efforts and the design of their modules would expedite the ability of districts to shift to personalized, competency-based professional learning.

B. Develop Capacity of Education Field to Access and Use Research

There is substantial knowledge on learning sciences, learning progressions, engagement, motivation, UDL, and other strategies that can inform school design, instructional and assessment design, and policy. It is unacceptable to continue to educate students without using the very best of what we know about learning and teaching. The entire field of education will benefit from becoming more familiar with research, engaging in conversations about the implications, and learning how to use it effectively.

Furthermore, where there are gaps in knowledge, it would be helpful for funders and government to invest in research to ensure that we are building on the very best knowledge available.

C. Track Students Based on Growth

The external accountability systems monitor student achievement based on grade-level cohorts and does little to provide insights on the growth of students who are two or more levels below grade level. Under ESSA, states have the option for multiple measures to inform accountability and should balance the grade-level proficiency indicators with growth rates. Systems should be designed to monitor students on performance levels that can then easily indicate the percentage of students at proficiency-based on age or grade level. (See section on Pace and Progress in the *In Pursuit of Equality: A Framework for Equity Strategies in Competency-Based Education* and *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education*.)

In order to support states and districts to develop these multiple measures, an initiative should be developed that researches how districts and schools are monitoring growth and the types of "dashboards" or metrics that are being used, and then proposes options for states to include student growth rates over time (not as cohorts) as a method of informing and comparing district/school performance. Together with sub-group analysis of students at proficiency and above by grade-level, this provides a much richer understanding of the dynamics and performance of a school.

D. Build Capacity Within District to Offer Learning Experiences at Wider Set of Performance Levels

In the traditional system, teachers were expected to deliver the grade level coursework to every student with scaffolding. In a competency-based system, which assumes that educators are using strategies to meet students where they are, they will need to be familiar with instruction in the academic domain for at least three grade levels (above and below what they are teaching), and students will need access to units for the same.

Strategies and resources that can help students become fluent in applying skills to higher performance levels also need to be available to support educators and students when students have gaps in foundational skills.

E. Student-Centered Information Systems

Districts and schools need more sophisticated information management systems to monitor student performance levels in each domain, show growth based upon achievement of standards over time, and produce analytical reports that can both enable more rapid response to students who are struggling and identify potential patterns of inequity.

Three activities are needed to put pressure upon information management systems to upgrade their student information capacity. First, demand should be aggregated that includes both competency-based and personalized learning schools. Second, a survey to all competency-based and personalized learning districts and schools should collect information about the capacity and effectiveness of student information systems to support meeting students where they are. Third, a convening should take place in which districts and schools explain exactly what they want the student information systems to do (including the functional requirements and use cases) and vendors to explain what they can do or are planning to do to update or add to their systems. This information should then be shared publicly to help districts and schools select among vendors.

Glossary

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 U.S., 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 resources (books, materials, videos, presentations) 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 this "package" of resources used.

Culturally Responsive Teaching

First coined by Gloria Ladson-Billing in 1944, 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.)

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, for example — 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 to 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 U.S., 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."[89] 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.[90]

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 work, social & emotional skills, metacognitive skills, and higher order/deeper learning competencies.

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 where 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's 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, metacognition, social & emotional learning, and habits of work & learning) and establish practices that allow students to have choice, voice, opportunity for co-design and shape their learning trajectories.

Student Learning Trajectories

*Competency*Works refers to trajectories as the unique personalized paths 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.

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*Competency*Works

*Competency*Works is a collaborative initiative dedicated to advancing personalized, competency-based education in K-12 and higher education. The International Association for K–12 Online Learning (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 that are transforming state policy, district operations and schools that are willing to open their doors and share their insights.