CompetencyWorks FINAL PAPER

Meeting Students Where They Are

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reDesign

iNACOL

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In 2017, the National Summit for K-12 Competency-Based Education brought together 100 leaders in competency-based education to provide insight on emerging issues in the field of competency education. As a result of the Summit, *Competency*Works released *Quality and Equity by Design: Charting the Course for the Next Phase in Competency-Based Education* that summarizes strategies to advance K-12 competency education along four key issues: quality, equity, meeting students where they are, and policy. Each of these four key issues are described in more detail in a series of individual papers that build upon the discussion from the Summit. Descriptions, graphics and text may be reproduced while looking at concepts through different lenses. This paper is a revision of *Meeting Students Where They Are (June 2017)* that incorporates the discussions with Summit participants.

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, Sarah Hakani, 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, Antonia Rudenstine, Blair Rush, Sydney Schaef, Andrea Stewart, Dixie Bacallao, Jon Vander Els, Brenda Vogds, Jennifer Wolfe, Mike Wolking.

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About reDesign

reDesign is a woman-owned and led education design and coaching organization with deep pedagogical and change leadership expertise, a highly diverse team, and a social justice mission. reDesign partners with educators who are engaged in creating learner-centered communities for young people and adults. Together we create, launch, and share designs and practices that imagine and enact transformative learning communities. We believe that all young people can become independent, passionate learners who are prepared to pursue empowering postsecondary pathways. To this end, we are committed to dismantling the current hegemonic structures that systematically maintain racial, economic, gender and other inequities.

About *Competency*Works

*Competency*Works is a collaborative initiative dedicated to advancing personalized, competency-based education in K-12 and higher education. iNACOL is the lead organization with project management facilitated by MetisNet. We are deeply grateful for the leadership and support of our advisory board and the partners who helped to launch *Competency*Works: American Youth Policy Forum, Jobs for the Future, and the National Governors Association. Their vision and creative partnership have been instrumental in the development of *Competency*Works. Most of all, we thank the tremendous educators across the nation 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 iNACOL is to drive the transformation of education systems and accelerate the advancement of breakthrough policies and practices to ensure high-quality learning for all.

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INTRODUCTION

At the heart of a mature competency-based learning system lies a fundamental commitment to meeting 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.

Competency-based learning is at an exciting evolutionary moment. For the past decade states, districts and schools have taken on the work of setting new policy, creating new school models, designing original competency sets and reorienting assessment strategies. Communities have benefitted from incredible innovation, tireless effort and creative thinking. Early adopters — which this paper describes as first generation models — have created models that educators and educational stakeholders can learn much from. As we move toward the design of second generation competency-based models — models that can stand on the shoulders of the early adopters — there are new opportunities to further deconstruct the structures in the traditional education system that limit competency-based education: age-based cohorts, annualized courses and crediting, high-stakes tests as measures of college- and career-readiness, tying credit to attendance, measuring school effectiveness by 4-year graduation rates and more.

Meeting all students where they are is a commitment that requires that we reconfigure our old systems, 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 model.

The development of second generation competency-based models provides the 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.

This monograph explores three driving questions that open the door to a discussion of the relational, pedagogical and structural dimensions of meeting students where they are:

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

Our purpose is to provide district- and school-level educators with access to current research, new paradigms, and emerging best practices — all of which are still in nascent stages of development. In the final section of this paper, "Charting the Course," we offer a discussion of the implications for systemic changes that must be addressed if we are to transform the system from one of sorting and labeling, to one where deep learning and discovery are available to all students.

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BACKGROUND

Why this 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 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 citizenry, 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 for different domains of their learning — 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 various trajectories, 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 learn what they need, or what interests them, 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): the zone where we can undertake learning with assistance.

For example, the "reading" ZPD for an 11-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 required by a district or school. 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.

To add further complexity, the ZPD is continually in flux, shifting as students learn (or struggle), as they redefine their self-image based on external and internal feedback and as their brains and bodies develop. If the 11-year-old struggling with decoding decides she isn't a "reader," the small or large building blocks of reading fluency that were inside of her ZPD, transition outside of the zone. Smith describes this as 'learn[ing] to erect solid and immovable walls where flexible boundaries should exist" between what we know, what we can learn with help and what we can't yet do or understand.[2]

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 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 they increase their competency across domains, that can be learned at many ages.

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

1 Vygotsky, L. (1997). *Interaction Between Learning and Development. Readings on the Development of Children*. New York: W. H. Freeman. Retrieved from http://www.psy.cmu.edu/~siegler/vygotsky78.pdf.

2 Smith, F. (1998). *The Book of Learning and Forgetting*. Teachers College Press.

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.

A. Exploring Key Assumptions

The first assumption to be challenged is that understanding content knowledge is an adequate way to define student success. Student achievement has historically been defined in terms of student acquisition of broad content knowledge[3] 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[4] 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[5] 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[6]), and this severely limits students' capacity to prepare for the workload of college,[7] at great cost to families and students.[8] 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[9] 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 at the same time seems greatly out of touch with what we know about how to optimize student engagement in school.

3 Schaef, S. (2016). What IS the Difference Between Competencies and Standards? reDesign. Retrieved from www.redesignu.org/what-difference-between-competencies-and-standards.

4 Carnevale, P. A., et al. *Recovery: Job Growth and Education Requirements Through 2020 Executive Summary*. Center on Education and the Workforce, Georgetown Public Policy Institute, Georgetown University. Retrieved from https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.ES_.Web_.pdf.

5 Monbiot, G. (2017). In An Age of Robots, Schools Are Teaching Our Children to be redundant. *The Guardian*. Retrieved from https://www.theguardian.com/commentisfree/2017/feb/15/robots-schools-teaching-children-redundant-testing-learn-future.

6 For an overview of Bloom's Taxonomy, see Armstrong, P. CFT Teaching Guide: Bloom's Taxonomy. Center for Teaching, Vanderbilt University. Retrieved from https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/.

7 Rudenstine, A. (2016). #College Ready? Designing Projects for Historically Underserved Students. reDesign. Retrieved from http://www.redesignu.org/college-ready-designing-projects-historically-underserved-students.

8 Barry, M. & Dannenberg, M. (2016). *Out of Pocket: The High Cost of Inadequate High Schools and High School Student Achievement on College Affordability*. Education Reform Now. Retrieved from https://edreformnow.org/wp-content/uploads/2016/04/EdReformNow-O-O-P-Embargoed-Final.pdf.

9 Toshalis, E. & Nakkula, J. M. (2012). *Motivation, Engagement, and Student Voice*. Jobs for the Future. http://studentsatthecenterhub.org/wp-content/uploads/2012/04/Motivation-Engagement-Student-Voice-Students-at-the-Center-1.pdf.

- *Brain research has identified powerful interconnections between emotion and cognition, noting that cognitive processes may rely on the same neural mechanisms as emotional regulation.*[10] For schools, the research implications are significant, placing the need to view competency in the social and emotional realms as of equal or greater importance than measures of academic success. Education models that assume content knowledge can be learned in a social and emotional vacuum, divorced from previous experience, self-conception and real-time emotional responses are missing an essential opportunity to meet students where they are, with the opportunity to both deepen and accelerate their learning.

This is not to say that academic content is not important. The point is that schools need to think about how academic content is taught so that it is aligned with the learning sciences and that students learn how to use academic content, not just memorize it.

A second key assumption is that 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 pathways informed by the learning sciences that support students in achieving the outcomes associated with the standards.[11,12] Rather than coupling the standards with specific ages or grade levels, they would be coupled with learning progressions[13] that provide guidance to students within their zone of proximal development, regardless of their age.[14]

The "jaggedness" of each learner's profile demands that we approach each moment in a student's learning as comprised of a unique, highly individualized set of variables that we may or may not understand, but which we can respond to positively, with support, as we collaborate with students on their learning journey. Learning continua 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 power of the performance levels described in these continua will be optimized when the continua can be decoupled from traditional age-based grade levels. At this point, the continua become the kind of flexible, adaptable heuristics we need, rather than bright-lined, linear highways that limit student opportunities and agency.

The good news is that the field now has a set of thoughtfully crafted prototypes (current standards) 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 continua 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.

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10 Bell, M.A. & Wolfe, C. (2004). Emotion and Cognition: An Intricately Bound Developmental Process. *Child Development*. 75(2).

11 Bransford, J., Brown, A. & Rodney, C. (2011). *How people learn: Brain, Mind, Experience, and School*. National Academy Press: 2000.

12 Daro, P., Mosher, F., & Corcoran, T. (2011). *Learning trajectories in mathematics: A foundation for standards, curriculum, assessment, and instruction*. CPRE Research Report #RR-68. Philadelphia: Consortium for Policy Research in Education. DOI: 10.12698/cpre.2011.rr68.

13 *The Role of Learning Progressions in Competency-based Pathways*. (2015). Achieve. Retrieved from https://www.achieve.org/files/Achieve-LearningProgressionsinCBP.pdf.

14 Todd Rose's book, The End of Average: How We Succeed in a World That Values Sameness (Penguin Books, 2016), describes this as "jagged" development": we won't all develop the same skills at the same time and we shouldn't need to. The key is to constantly be developing critical skills, at our fastest rate, in the way that best works for us.

The third key assumption is that academic learning and social emotional learning are distinct, and learned as separate practices. Research has found that "learning results from the interplay of emotion, motivation and cognition."[15] Thus, social and emotional development and growth intertwines and is interdependent with academic or cognitive learning. As the field begins to develop second generation personalized, competency-based models, there is an opportunity to explore the potential of social and emotional learning, framing it as the development of parts of an individual that enable introspection, healthy relationships and positive decision-making skills.[16]

To date, the industrial school model constructs social and emotional learning as primarily utilitarian and transactional: students need to learn Habits of Work in order to function in the postsecondary world of college and careers. While this is accurate as a generalization, the construct is too narrow, all too often resulting in the articulation of Habits of Work that reflect habits solely associated with industrial-age work: staying "on-task," passing from class to class efficiently (so that we are not "tardy" for the next class), participating on-demand, minimizing conversation, leaving personal lives at the door, managing strong emotions, and more. Current neuroscience research,[17] coupled with educational theorists — Dewey, Montessori, Reggio Emilia, Papert, Piaget and more — suggest that this framing of development and learning will always fall short of the opportunity to truly understand where students are. While there are still relatively few contemporary school models that have adopted a holistic, integrated framework, we can learn much from those that are at the vanguard of this work.

Unfortunately, many students have significantly limited access to the protective, nurturing and stimulating conditions (both inside and outside of school) that support healthy social and emotional development. From an equity standpoint, these especially vulnerable students deserve and require careful, adaptable, and explicit nurturing and teaching of the habits and skills that allow for self-awareness, self-direction and self-regulation. The challenge is to develop approaches that are culturally responsive, reflective of contemporary postsecondary life and professional habits and grounded in an unswerving belief that when students lack skills such as self-regulation, this is a developmental issue, not a moral, behavioral or attitudinal failure.

Learning designs that seamlessly integrate social and emotional development with academic learning

WATCH: Denmark's Hellerup School
Denmark's Hellerup School is redesigning learning spaces to create nurturing and stimulating conditions to support agency and learning.

WATCH: Denmark's Ordrup School
Denmark's Ordrup School is focused on meeting students where they are and creating an environment to teach students learn how to learn for adaptability.

15 Dumont, H., Istance, D. & Benavides, F. (2010). *The Nature of Learning: Using Research to Inspire Practice*. OECD. Retreived from https://www.keepeek.com//Digital-Asset-Management/oecd/education/the-nature-of-learning_9789264086487-en#page4.

16 American Institutes for Research. (2016-2017). A podcast and two videos on Social Emotional Learning. Retrieved from http://www.air.org/resource/it-s-not-academic-social-emotional-learning.

17 Dumont, H., Istance, D. & Benavides, F. (2010). *The Nature of Learning: Using Research to Inspire Practice*. OECD. Retreived from https://www.keepeek.com//Digital-Asset-Management/oecd/education/the-nature-of-learning_9789264086487-en#page4.

Across the field there is currently considerable attention on this work and initial research is promising. For example, the California Office of Reform Education (CORE)[18] has undertaken robust pilot work, confirming strong correlations between middle school students' self-management skills and scores in ELA and Math tests, coupled with correlations between the lack of self-management skills and increased absenteeism and suspensions.[19]

B. Learning Where Students Are

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 two structural, relational and pedagogical shifts, that are essential to identifying where students are in a learner-centered, equity-oriented model.

- Designing the equity-oriented structures
- Enacting an ethic of care

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 five structural changes described here are systems-level changes, although many schools operating with autonomy may be positioned to enact some or all of these changes:

- Focus the goals
- Decouple performance levels from age-based grade-levels
- Personalize the path
- Build adult-learner relationship continuity
- Reposition learners as co-creators of their learning pathway

FOCUS THE GOALS: The first key structural change required for meaningfully identifying where students are is to hone the indicators and measures for student learning. This means distilling 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, social and emotional development, particularly in younger children). Each competency is accompanied by a student-facing learning continuum that articulates what proficiency looks like at each performance level on the path to mastery. These skill-based continua become central tools to

18 CORE is a collaborative of 9 California urban districts serving over 1 million students. http://coredistricts.org/.

19 West, M. (2016). Should Non-cognitive Skills Be Included in School Accountability Systems? Preliminary Evidence from California's CORE Districts. *Evidence Speaks Reports, (1)13*. Retrieved from https://www.brookings.edu/research/should-non-cognitive-skills-be-included-in-school-accountability-systems-preliminary-evidence-from-californias-core-districts/.

support instruction, inform student feedback, guide student self-monitoring and help identify when students are ready to advance to the next level. The Learning What Matters Model, developed as a collaboration between the School District of Philadelphia and Building 21, offers one such example of student-facing learning continuum.

The shift from a content focus to a competency focus was a "lightbulb moment" for KAPPA International,[20] 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" allowing them to begin explicitly gathering data about, and supporting, the social and emotional capacities of students within the academic context.

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[21] is grounded in this belief and Parker Varney Elementary School uses multi-age bands and is seeing achievement gains. Chicago's West Belden K-8 school[22] 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 and build the specific skills 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: A third structural change is that student pathways need to be personalized, reflecting their unique needs, strengths, goals and pace. At Memorial Elementary in Sanborn,[23] 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. A personalized pathway accommodates and appropriately honors and supports the jaggedness of all of our learning profiles.

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20 Sturgis, C. (2016). KAPPA International: The Story of Angelica. *Competency*Works. Retrieved from http://www.competencyworks.org/case-study/kappa-international-the-story-of-angelica/.

21 Anderson, P. (2011). Three-Year Multi-Age Grouping in the Montessori Classroom. Ideas & Insights, Montessori Services. Retrieved from http://www.montessoriservices.com/ideas-insights/three-year-multi-age-grouping.

22 Sturgis, C. (2017). Personalized Learning at West Belden. *Competency*Works. http://www.competencyworks.org/case-study/personalizing-learning-at-west-belden/.

23 Sturgis, C. (2014). Addressing Root Causes at Memorial Elementary School. *Competency*Works. Retrieved from http://www.competencyworks.org/understanding-competency-education/addressing-root-causes-at-memorial-elementary-school/.

BUILD ADULT-LEARNER RELATIONSHIP CONTINUITY: In order to strengthen adult-learner relationships, districts and schools need to rethink the structures that are currently in place that undermine relationship building. In a sense, teacher turnover is embedded into traditional systems — not because teachers leave the school, but because students leave the teacher[24] as they advance to the next grade. In high schools, sustained relationships are often only supported through a "homeroom" or advisory model[25] (though even the composition of these groups can be changed year to year). At Noble High School,[26] 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, across both academic and social-emotional domains.

REPOSITION LEARNERS AS CO-CREATORS OF THEIR LEARNING PATHWAY, WITH ACCESS TO THEIR OWN DATA. Create conditions for students to act as full participants in assessing needs and progress, articulating goals and making regular decisions about their learning. This is a radical departure from traditional models in which teachers and administrators are the primary "owners" of learning progressions and student data making unilateral decisions about how to move students along, when to share access to particular data and when to initiate an intervention. 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.[27]

For more discussion on how to develop an equitable competency-based system see *Designing for Equity: Leveraging Competency Based Education to Ensure All Students Succeed*.[28]

2. Knowing Where Our Students Are and Enacting an Ethic of Care

If educators are to help all students engage deeply in their learning, and progress at their optimal pace, then knowing who their 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 learning is not strictly a cognitive process; it is a profoundly socially and culturally mediated one.[29] This multidimensionality of learning has several major implications for the daily work of practitioners.

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24 Ullman, E. (2005). Looping Leads to Long-Term Connections with Students. *Edutopia*. Retrieved from https://www.edutopia.org/familiarity-breeds-content.

25 Vander Ark, T. (2015). "The Role of Advisory in Personalizing the Secondary Experience." Getting Smart. Retreived from http://www.gettingsmart.com/2015/04/the-role-of-advisory-in-personalizing-the-secondary-experience/.

26 Sturgis, C. (2015). Noble High School: Creating Timely, Differentiated Supports. *Competency*Works. Retrieved from http://www.competencyworks.org/case-study/noble-high-school-creating-timely-differentiated-supports/.

27 See United States Dept. of Health and Human Services, Administration for Children and Families, Family and Youth Services Bureau, National Clearinghouse on Families & Youth. *Putting Positive Youth Development Into Practice: A Resource Guide*. Feb., 2007; Nakkula & Toshalis, op cit.; Greenberg, M., et al. "Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning." *American Psychologist*, vol. 58, no. 6/7, 2003, pp. 466-474.

28 Sturgis, C., & Casey, K. (2018). *Designing for Equity: Leveraging Competency Based Education to Ensure All Students Succeed*. *Competency*Works.

29 Gauvain, M. (2001). *The Social Context of Cognitive Development*. The Guildford Series on Social and Emotional Development.

First, educators must work to create learning experiences that are grounded in a deep understanding of, and appreciation for, the dynamic contexts that impact the lives and daily experiences of students both inside and outside of school. Culturally responsive education is an example of this appreciative approach to integrating students' culturally developed frames, artifacts, and tools into learning. Equitable, competency-based learning environments that effectively serve all children require educators to deepen awareness and understanding of the impacts, for example, of race and racial stress,[30] as well as poverty[31] and immigration,[32] as they are experienced by learners and adults.[33] Knowing students well means working to deepen 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, educators must develop relationships with students that are characterized by an "ethic of care,"[34] receptive and attentive to their needs. This moves the work of identifying where students are beyond a purely diagnostic practice so that educators 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,[35] 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 example of schools that reflect a deeply held commitment to knowing who their students are and embedding strong and consistent relationships that support students over the course of their entire learning journey into the core of their model.

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30 Gregory, A., & Ripski, M. (2008). Adolescent Trust in Teachers: Implications for Behavior in the High School Classroom. *School Psychology Review*. 37(3). Retrieved from http://www.nasponline.org/publications/periodicals/spr/volume-37/volume-37-issue-3/adolescent-trust-in-teachers-implications-for-behavior-in-the-high-school-classroom.

31 Thompson, M. (2015). How Does the 'Toxic Stress' of Poverty Hurt the Developing Brain?. *PBS Newshour*. Retrieved from http://www.pbs.org/newshour/bb/toxic-stress-poverty-hurt-developing-brain/.

32 Murphey, D. (2014). The Academic Achievement of English Language Learners: Data for the U.S. and Each of the States." *Child Trends Research Brief*. Retrieved from https://www.childtrends.org/wp-content/uploads/2015/07/2014-62AcademicAchievementEnglish.pdf.

33 A recent study found that the one of the most significant predictors of black students' sense of belonging in school, which is directly tied to student engagement and motivation (Toshalis & Nakkula, op cit.), is the frequency of racial discrimination they experience (see Stevenson, Howard C. & Edith G. Arrington. "Racial-ethnic socialization mediates perceived racism and the racial identity of African American adolescents." *Cultural Diversity and Ethnic Minority Psychology*, vol. 15, no. 2, 209, pp. 125-136).

34 Noddings, N. (2005). *The Challenge to Care in Schools: An Alternative Approach to Education*. Teachers College Press. Advances in Contemporary Educational Thought Series.

35 Rudenstine, A. & Schaef, S (2016). *Bronx Arena High School: Multimedia Monograph*. Retrieved from https://issuu.com/antoniarudenstine/docs/bronx_arena_high_school_monograph_a.

Positive Youth Development at Bronx Arena High School

WATCH: Learning in the Arena
Learning in the Arena shows Bronx Arena's commitment to immediately responding to students needs

WATCH: Teaching to One at Bronx Arena
Teaching to One at Bronx Arena High School highlights their positive youth development approach.

At EL Education schools,[36] every student is part of a Crew:[37] 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,[38] cultural relevance[39] and "funds of knowledge"[40] 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 individual students must sit at the heart of competency-based models and practice.

In a paradigm in which social and emotional skills are learned, as one moves toward competency, students who are "not yet" competent would not be labeled, punished and excluded from the learning community (as this disproportionately occurs with Black and Latinx students who struggle with self regulation). But rather, would be warmly embraced and supported as they actively developed these essential skills. Concurrently, programs would be carefully examining the interventions, strategies, policies and explicit and hidden curriculum in place to address these skills, on the alert for bias that assumes a hegemonic vision of competency.

36 For more information about EL Education's approach, see https://eleducation.org/.

37 Purposes of Crew. (2015). EL Education. Retrieved from https://eleducation.org/uploads/downloads/ELED-PurposesOfCrew-0815.pdf.

38 *Promoting Educators' Cultural Competence to Better Serve Culturally Diverse Students: An NEA Policy Brief.* (2008). National Education Association, NEA Human and Civil Rights Department, Center for Great Public Schools. Retrieved from http://www.nea.org/assets/docs/PB13_CulturalCompetence08.pdf.

39 Ladson-Billings, G. (2009). *The Dreamkeepers: Successful Teachers of African American Children*, 2nd ed. Jossey-Bass.

40 Moll, L.C. et al. (1992). Funds of Knowledge for Teaching: Using a Qualitative Approach to Connect Homes and Classrooms. *Theory into Practice, (31)*2. Retrieved from https://www.csun.edu/~sb4310/Lessondesigncourse/funds%20of%20knowledge.pdf.

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, a prototypical framework is offered that is 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 that teachers 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, educators cannot ignore the significant range of learner difference in executive function and self-regulation skills[41] such as the ability to sustain focus on a task, rein in impulsive behavior, prioritize activities, recognize when it's time to ask for help, or course-correct.

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 metacognitive, behavioral and motivational attributes of engaged, autonomous and adaptive learners.[42] In short, the architecture of competency-based structures places student agency as the capstone and every element of the design exists to support it. A personalized approach places the students in the driver seat,[43] and positions them as developing experts.[44]

A. Learner-Centered Pedagogical Practices Support Equity, Agency and Adaptability

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. The following pages describe three key features of a personalized approach to learning:

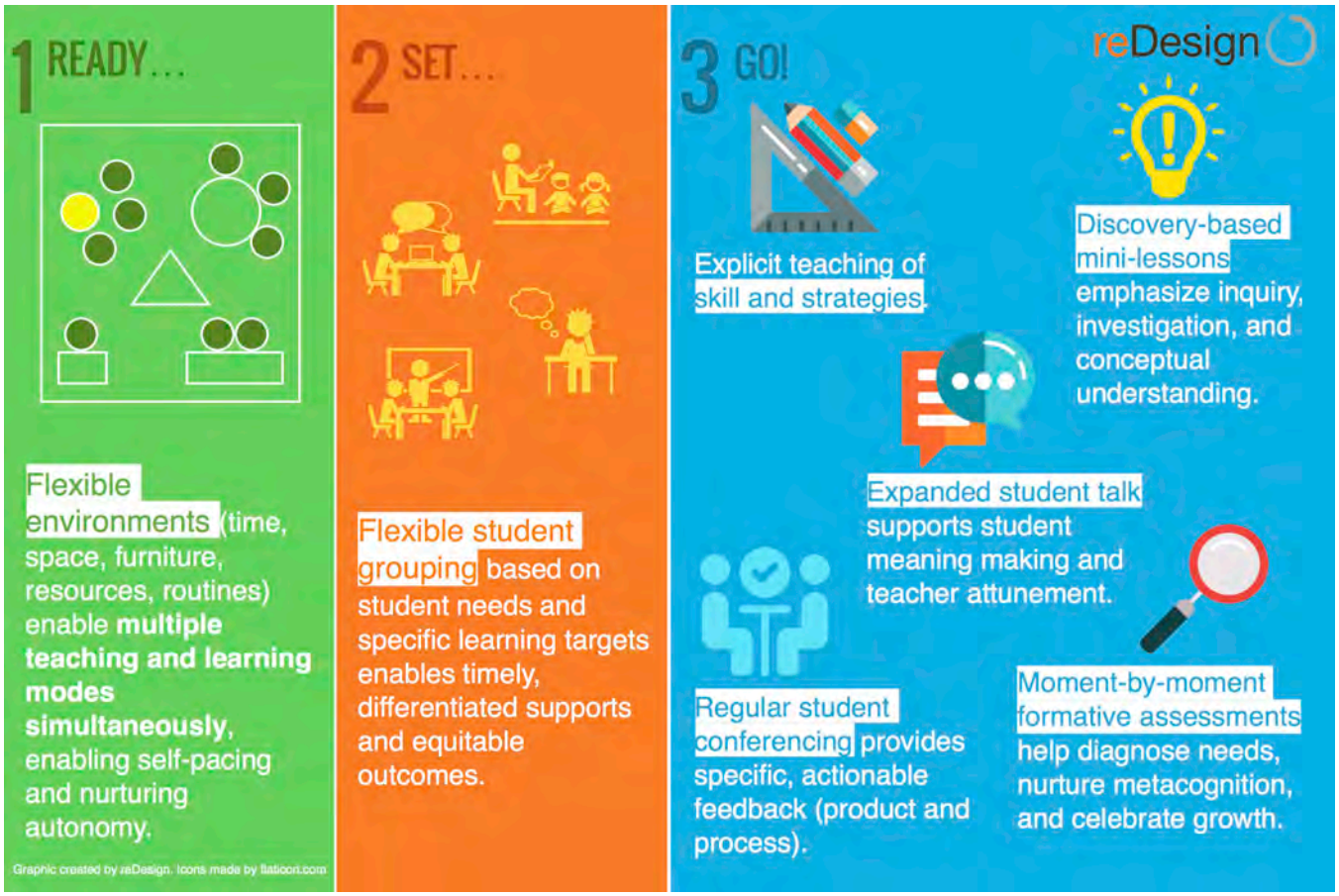
- Pedagogy tapping into multiple modalities
- Responsive facilitation of learning in action
- Learning experiences that foster access, engagement and deep learning.

41 For an overview of executive functioning and self-regulation, see this article by the Center on the Developing Child at Harvard University: http://developingchild.harvard.edu/science/key-concepts/executive-function/.

42 Zimmerman, B., & Schunk, H. D. (2011). *Handbook of Self-Regulation of Learning and Performance*. Taylor & Francis. Educational Psychology Handbook Series.

43 Bray, B. & McClaskey, K. (2017). *How to Personalize Learning: A Practical Guide for Getting Started and Going Deeper*. Corwin. Retrieved from http://www.personalizelearning.com/2013/03/new-personalization-vs-differentiation.html.

44 Ericsson, A. & Pool, R. (2016). Peak: *Secrets from the New Sciences of Expertise*. Mariner Press.



1. LEARNER-CENTERED CLASSROOMS SUPPORT MULTIPLE MODALITIES

To support personalized learning, learning spaces are often 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 personalized learning is the purposeful use of multiple teaching and learning "modes"[45] or modalities that enable individualized instruction, self-pacing and flexible grouping.

In mature personalized 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 learners 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.

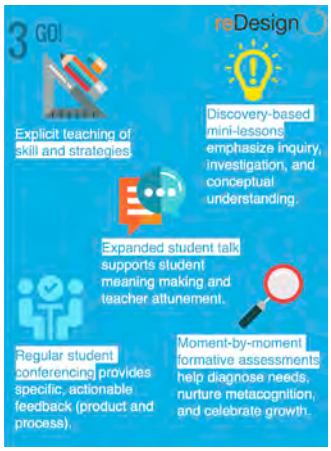
45 For a look at how Bronx Arena High School uses a range of teacher facilitation modes, see this video: https://youtu.be/C-xHF9ZV720.

Teachers and students new to this approach often take time to introduce these practices one at a time. 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[46] in Philadelphia, the model design explicitly names this process by offering students four possible pathways for each course:[47] 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.

2. LEARNER-CENTERED CLASSROOMS CONTINUALLY SHIFT STUDENT GROUPINGS, BASED ON NEEDS, INTERESTS AND STRENGTHS

The design of the learning space and the role of technology in competency-based models are, importantly, not intended to maximize student time on computers, but to maximize student agency by providing access to the full sequence of learning experiences, 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[48] 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,[49] 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,[50] 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."[51]



3. LEARNER-CENTERED PEDAGOGY IS ABOUT RESPONSIVE FACILITATION

Personalized, competency-based classrooms rely on a few foundational pedagogical practices, all of which rely on the teacher conceptualizing her role as a responsive facilitator: someone paying attention to the learning needs and interests of the community, looking for ways to respond to these needs in a personalized way, based on specific knowledge and understanding of each member of the community. The following five pedagogical practices are hallmarks of classrooms with responsive facilitators:

- Discovery-based mini-lessons
- Explicit teaching of skills and strategies
- On-your-feet formative assessment
- Expanded student talk
- Student conferences

46 For more information about the U School's model, see http://www.uschool.org/.

47 Lizier, J. & Brown, L. (2017). Competency-Based Learning Centers. *Competency*Works. Retrieved from http://www.competencyworks.org/page/9/.

48 For an example, see https://docs.google.com/spreadsheets/d/1Z1ytNUe0enJPRKxMeVgvbWDnBlaoXiDpR_te9BXYbmw/edit?usp=sharing.

49 For an overview of New Classroom's approach, see https://www.newclassrooms.org/a-new-approach/.

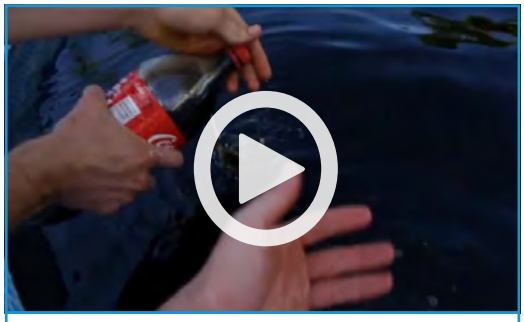
50 West Belden can be found online at http://www.cicswestbelden.org/.

51 Sturgis, C. (2017). Personalizing Learning at West Belden. *Competency*Works. Retrieved from http://www.competencyworks.org/case-study/personalizing-learning-at-west-belden/.

DISCOVERY-BASED MINI-LESSONS are, in effect, what direct instruction looks like in an inquiry-based or problem-based learning model. In order to create effective mini-lessons, three instructional shifts are required. The first shift is in length: instead of 45-60 minute teacher-driven lectures, we shift toward shorter, tighter, interactive "launches" into new material 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 meaningful investigation. 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.

This inquiry-based approach is also exemplified by the Japanese model of math instruction,[52] 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.[53] 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. This approach is used at all levels of math instruction, including with young children: "learning the basic skills of numeracy" is not a prerequisite to exploring math conceptually and symbolically.

Two examples of discovery, in the math context:



EXPLORE: 101 Questions
How many bottles of coke does it take to fill up a pool? Coca-cola Pool asks students to investigate on their own.

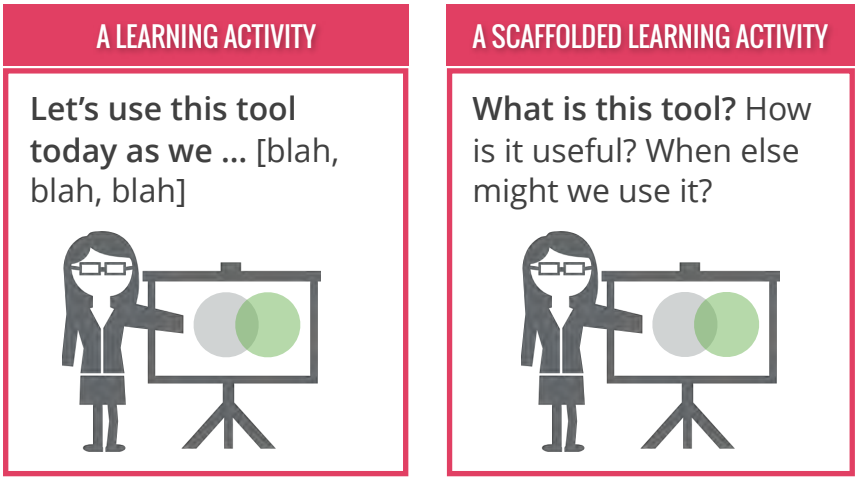
WATCH: Pythagorean Theorem Inquiry
Pythagorean Theorem Inquiry involves students in a scaffolded exploration of a complex concept.

52 Green, E. (2014). Why Do Americans Stink at Math? *New York Times Magazine*. Retrieved from https://www.nytimes.com/2014/07/27/magazine/why-do-americans-stink-at-math.html.

53 See Abdi, A. "The Effect of Inquiry-based Learning Method on Students' Academic Achievement in Science Course." (2014). *Universal Journal of Educational Research*, (2)1. ERIC, http://files.eric.ed.gov/fulltext/EJ1053967.pdf; Sweetland, J. & Towns, R. (2008).Inspired Issue Brief: Inquiry-Based Teaching. *Center for Inspired Teaching*. Retrieved from http://inspiredteaching.org/wp-content/uploads/impact-research-briefs-inquiry-based-teaching.pdf.

THE EXPLICIT TEACHING OF SKILLS is a powerful approach to helping students develop the capacity to transfer learning from one context to another. By modeling[54] and thinking aloud,[55] teachers break down the processes and strategies embedded in analyzing, evaluating and synthesizing, to help students develop effective schema. Put another way, this approach 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.[56] A teacher at Young Women's Leadership Academy in New York City[57] exemplifies this deliberate teaching of skills and comprehension strategies in order to help struggling readers engage with key academic texts.

In practice, this approach is 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.



In this example, the teacher's ultimate goal is not completing the activity for its own sake, but rather, to help students understand 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 lays the groundwork for student autonomy in learning. If students 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 wood-working and web-design, to Physics and Latin.

Ultimately, one of the potentials of competency-based learning is the chance to move away from the notion that we can choose to learn skills or content. Instead, it's about learning critical skills that empower learners to seek out and engage with content more deeply, meaningfully and productively.

54 Teacher Modeling Important for Student Engagement. Educational Research Newsletters and Webinars. Retrieved from https://www.ernweb.com/educational-research-articles/teacher-modeling-important-for-student-engagement/.

55 Teaching Strategies: Think-Alouds. TeachHUB.com. Retrieved from http://www.teachhub.com/teaching-strategies-think-alouds.

56 Fernández, M., Wegerif, R., Mercer, N. & Rojas-Drummond, S. (2002) Re-conceptualizing "Scaffolding" and the Zone of Proximal Development in the Context of Symmetrical Collaborative Learning. *The Journal of Classroom Interaction*. (36/37)2/1.

57 Sturgis, C. (2016). Meeting Students Where They Are: Academic Domains (Part 2). *Competency*Works. Retrieved from http://www.competencyworks.org/reflections/meeting-students-where-they-are-academic-domains-part-2/.

ON-YOUR-FEET FORMATIVE ASSESSMENTS are 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.[58] Technology-enabled formats play a helpful role 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.[59]

EXPANDED STUDENT TALK: In learner-centered classrooms, educators expand opportunities for student discourse in the classroom. Expanded student talk creates a context in which students are the primary actors: making meaning of texts and concepts, investigating their questions and perspectives, synthesizing new learning and learning to communicate in an academic context.

From an equity perspective, classrooms that foster student interactions are places where students from oral/aural traditions are most comfortable, English language learners have increased opportunities to strengthen language skills, students reading far below grade level begin to hear and use academic terms and concepts they may not have access to in written texts, and struggling writers have the chance to work through their ideas verbally before putting pen to paper.

At the same time, expanded student talk provides teachers with an often overlooked stream of formative assessment data. The more teachers can listen in on how students are making meaning of new information, making connections to their existing schema[60] and identifying gaps or misconceptions, the more promptly they can seize the opportunity for providing responsive, tailored supports.

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. The power of feedback is beautifully exemplified in one of EL Education's well-known videos:

58 Paul, A.M. (2015). Researchers Find That Frequent Tests Can Boost Learning. *Scientific American*, Retrieved from https://www.scientificamerican.com/article/researchers-find-that-frequent-tests-can-boost-learning/.

59 For more about feedback, assessment, and data use, see any of Susan Brookhart's excellent books, all published by the Association for Supervision and Curriculum Development: *How to Give Effective Feedback to Your Students*, 2008; *Formative Assessment Strategies for Every Classroom: An ASCD Action Tool*, 2010; *How to Assess Higher-Order Thinking Skills in Your Classroom*, 2010; *How to Make Decisions with Different Kinds of Student Assessment Data*, 2015.

60 See Anderson, C. (2007). *How's It Going?: A Practical Guide to Conferring with Student Writers*. Heinemann, (2000); Serravallo, Jennifer and Gravity Goldberg. *Conferring with Readers: Supporting Each Student's Growth and Independence*. Heinemann.

Here, EL Education'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.

WATCH: Austin's Butterfly
Austin's Butterfly portrays powerful feedback supporting incredible student work.

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.

WATCH: Kindergartener Trinity's student-led conference
Trinity's Student-led conference portrays how even young children can learn to describe their learning in detail.

In learner-centered classrooms, conferences 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.

As John Dewey reminds us, "We do not learn from experience. We learn from reflecting on experience."[61] One of the critical tools that supports students in becoming independent, self-regulating learners, is the development of metacognitive skills: the capacity to monitor their learning, identify the limits of their knowledge or ability, and identify and use strategies and tools to expand their capacity.[62] 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.

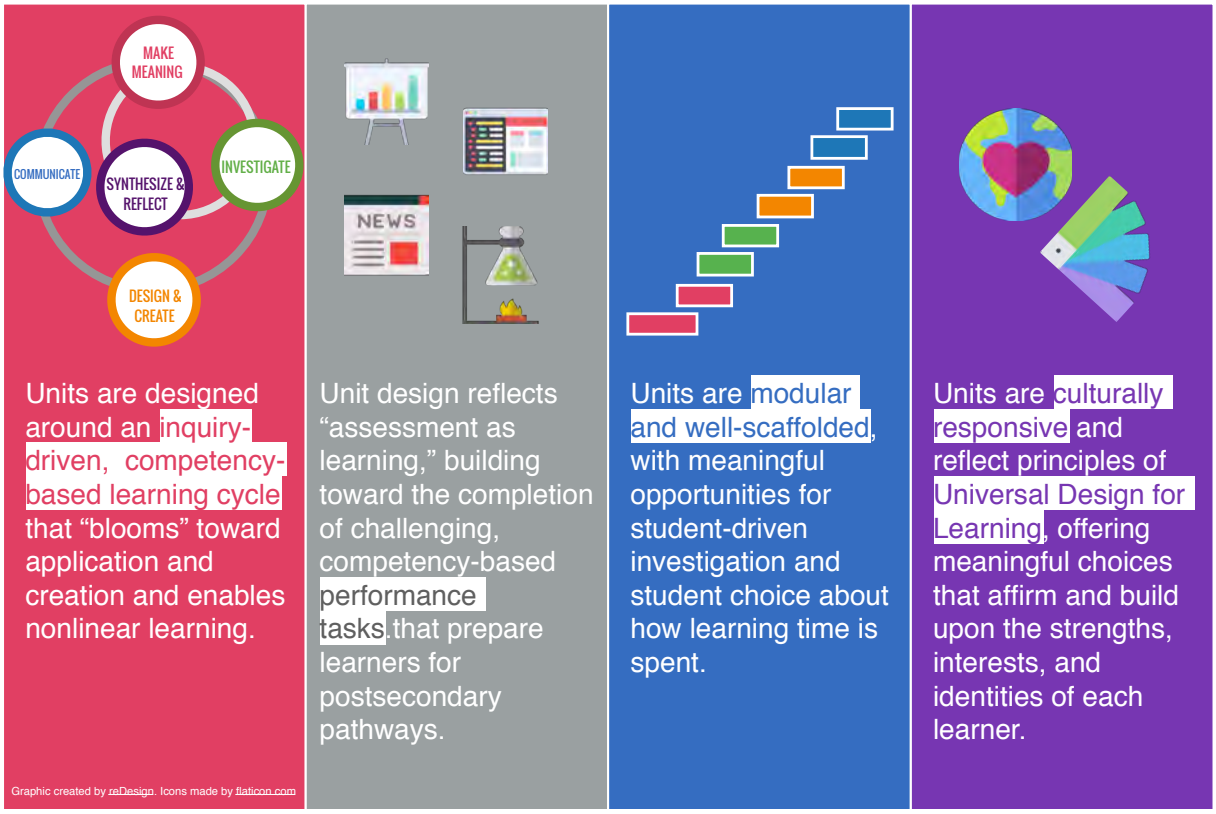
These pedagogical shifts begin the work of creating personalized learning spaces in which both teachers and students are collaborating in the work of becoming competent.

61 Dewey, J. (1997). *Experience and Education*. Simon & Schuster.

62 Zimmerman, Barry J. & Schunk, H. D. eds. (2011). *Handbook of Self-Regulation of Learning and Performance*. Taylor & Francis. Educational Psychology Handbook Series.

B. Learning Experiences Foster Engagement, Access and Rigor

In learner-centered models that meet students where they are, learning experiences foster curiosity, agency, and competence for all learners. Arguably, standardized curriculum is not designed to help teachers achieve these aims. For this reason, redesigning curriculum is a critical enabler of learner-centered models. Specifically, high-quality, learner-centered curriculum is built with these four cornerstones:



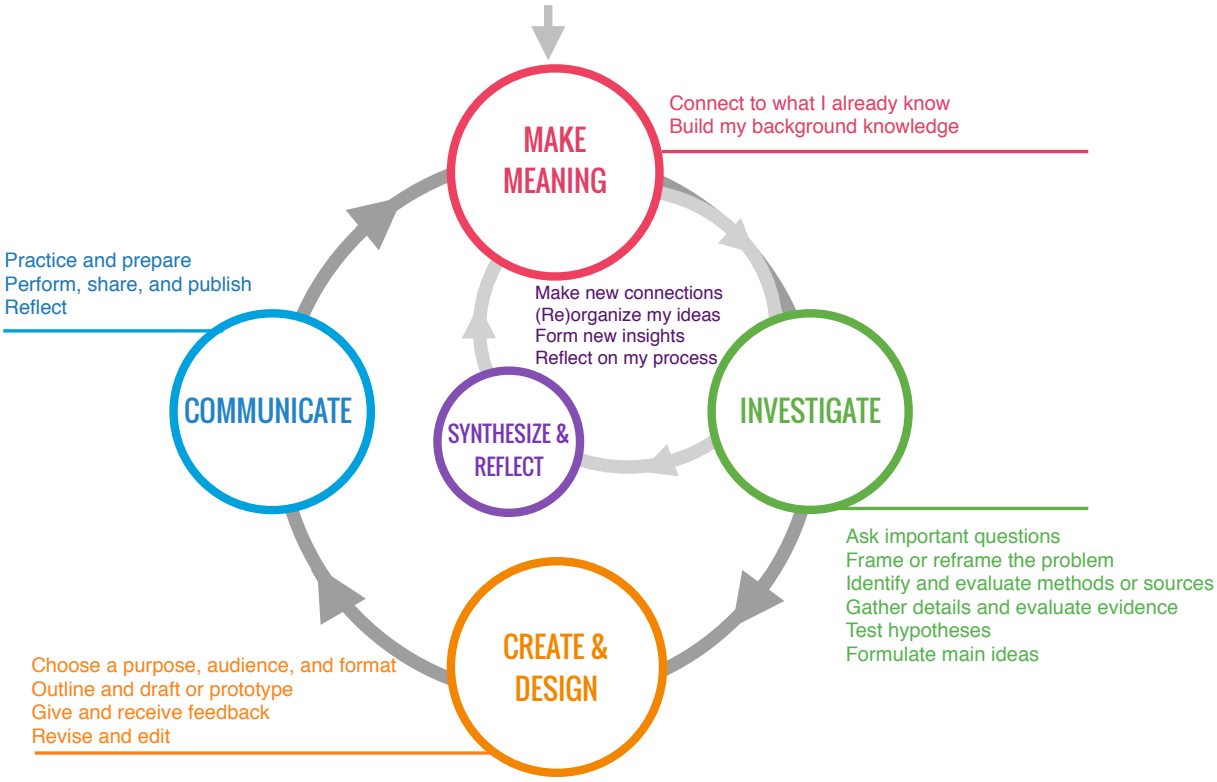
1. UNITS ARE DESIGNED AROUND AN INQUIRY-DRIVEN, PROBLEM-BASED LEARNING CYCLE, GROUNDED IN THE LEARNING SCIENCES AND IN CHILD AND YOUTH DEVELOPMENT RESEARCH

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 process of phonic study and number recognition.

In the model above, 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.[63]

Learning Cycle Example



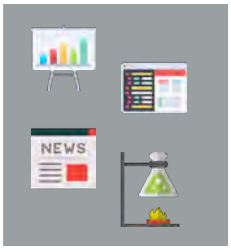
In the Make Meaning stage, students activate prior knowledge, build new background knowledge, ask new questions and make meaning of foundational concepts and ideas as they begin to explore an overarching question or problem frame. Making Meaning is the work of asking new questions, launching into new learning and beginning to understanding new concepts and skills - the lowest levels of Bloom's Taxonomy.

In the Investigate stage, students explore their questions. 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 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 that are grounded in a singular perspective. On Bloom's Taxonomy, application, analysis and evaluation occurs during the Investigate stage.

63 Palincsar, A., & Brown, A. (1984). *Reciprocal Teaching of Comprehension-Fostering and Comprehension-Monitoring Activities. In Cognition and Instruction*. I (2) 117-175.
Scardamalia, M.,& Bereiter, C. (2006). "Knowledge building: Theory, Pedagogy, and Technology." In K. Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences* (pp. 97-118). New York: Cambridge University Press.

An integral (but often overlooked) element of the Make Meaning and Investigate stages is the process of Synthesis and Reflection. At the highest level 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.

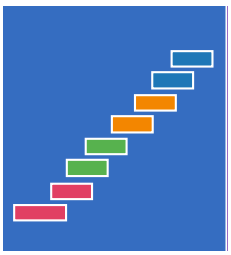
At each stage of the learning cycle — and in all of the spaces in between — teachers are working with students to meet them where they are as they learn to make meaning, investigate, and synthesize. The assumption is that all students — even young ones, and older students who cannot not easily access content — can and should have frequent opportunities to undertake significant work that mirrors that which college students, artisans and professionals engage in.



2. UNIT DESIGN REFLECTS "ASSESSMENT AS LEARNING," BUILDING TOWARD COMPETENCY-BASED PERFORMANCE TASKS

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 assessment is in service of learning:

- Provide 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"[64] or at their request, when they are ready to demonstrate proficiency.
- Ensure assessments are 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,[65] 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%. A similar process was used to persuade the school board to move away from styrofoam use in the cafeteria.[66]



3. UNITS ARE MODULAR AND WELL-SCAFFOLDED

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. In essence, modules become scaffolding for each other, and this scaffolding is personalized for each student, based on their needs: 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 she can learn the two, side-by-side, as she strengthens her overall math competency.

64 Growth Engineering. What Is Just-In-Time Learning? *Online Learning Glossary*, n.d. Retrieved from http://www.growthengineering.co.uk/what-is-just-in-time-learning/.

65 *Putting Kids at the Center: Building Parker-Varney's Future of Learning*. (2015). Manchester (NH) School District, Parker-Varney Elementary School.

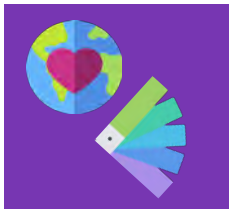
66 Sturgis, C. (2016). Parker-Varney Elementary: Keepers of the Bar. *Competency*Works. Retrieved from http://www.competencyworks.org/case-study/parker-varney-elementary-keepers-of-the-bar/.

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 were unable to 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. Few of these students will need to learn the full Algebra course, however in most schools they would be forced to re-enroll, waiting for the moment in the year when the specific material they need is accessible to them. Modularity allows for content, concepts and skills to be studied in their "appropriate" moment and context based on "where students are."

This notion of units as scaffolding, is atypical. In many instances, scaffolding is understood to mean the breaking down of content into small, bite-sized, and easily digestible parts, i.e, 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, scaffolding should be viewed as temporary but critical structures put in place to support a developmental process. Ultimately they are removed when no longer needed.

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.



4. UNITS ARE CULTURALLY RESPONSIVE, FOSTER AGENCY AND REFLECT PRINCIPLES OF UNIVERSAL DESIGN FOR LEARNING

Units, also referred to as learning experiences, should reflect a commitment to addressing the needs, passions and experiences of all learners. To ensure that all students are effectively served in personalized, competency-based systems, it is important to be guided by Universal Design for Learning, cultural responsiveness and student agency.

- Universal Design for Learning[67] 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.[68] 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.

67 A term first used in architecture by Ronald Mace. In this, his last speech, Mace provides his perspective on universal design: https://www.ncsu.edu/ncsu/design/cud/about_us/usronmacespeech.htm.

68 Originally--and still--used in reference to design for those with physical challenges, it's applicability to learning environments was pioneered by CAST in the 1980's. Over three decades, David Rose and Anne Meyer have been at the forefront of using technology to offer learning "options for diverse learner needs."

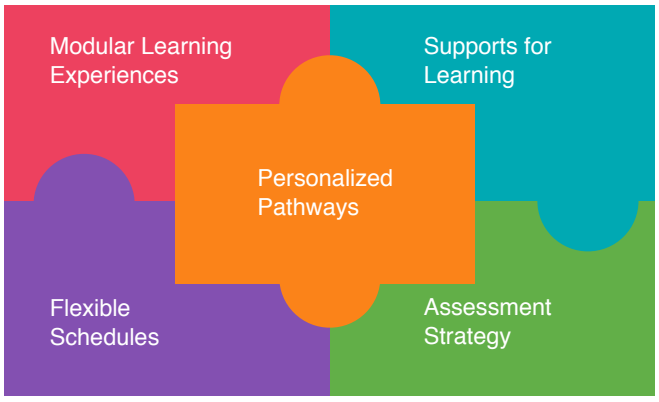
- Geneva Gay describes culturally responsive teaching as the practice of "using the cultural knowledge, prior experiences, frames of reference and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them. It is a means for improving achievement 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."[69]
- Ronald Ferguson defines "Agency [as] 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."[70] Ferguson's research into agency revealed that there are some teacher behaviors that measurably boost student agency, while there are 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. But the opposite is also true: expectations that are beyond a students' ZPD, without appropriate academic and social-emotional support are disempowering for most learners.

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 school models around the needs of the individual, rather than the efficiency of the system. There is something of an accountability paradox[71] at play in our educational system: 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:

- **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.



69 Gay, G. (2010). *Culturally Responsive Teaching: Theory, Research, and Practice*, 2nd ed. Teachers College Press, pp. 49-50. Multicultural Education Series.

70 Ferguson, R. et al. (2015). *The Influence of Teaching: Beyond Standardized Test Scores--Engagement, Mindsets, and Agency*. The Achievement Gap Initiative at Harvard University. Retrieved from http://www.agi.harvard.edu/projects/TeachingandAgency.pdf.

71 Sturgis, C. (2016). Meeting Students Where They Are: The Accountability Paradox (Part 1). *Competency*Works. Retrieved from http://www.competencyworks.org/reflections/meeting-students-where-they-are-accountability-paradox-part-1/.

- **Backwards-mapping the assessment strategy** 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.
- **Developing organizational supports for learning** that foster student agency, motivation and engagement in order to ensure that supports avoid becoming enablers, limiting student growth and progress.
- **Designing flexible schedules** that 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 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.[72]

A. 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, if we truly want to meet students where they are, students must be able to access a full range of skill- and content-based modules, as they are needed: a 16-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 11-year-old who has pursued a passion in geometric theorems shouldn't be asked to wait several years to access system-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, a gap in their previous learning or because it is part of an established benchmarking process or learning continua.

Second, while the number of available tech-based resources continues to grow almost exponentially, there are few if any resources that are inquiry-driven, culturally responsive, organized around research-based learning progressions,[73] 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.

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.

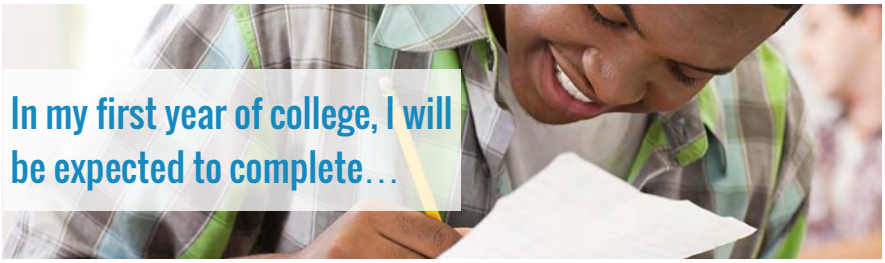
72 Glowa, E., & Goodell, J. *Student-Centered Learning: Functional Requirements for Integrated Systems to Optimize Learning*. Retrieved from http://www.inacol.org/resource/student-centered-learning-functional-requirements-for-integrated-systems-to-optimize-learning/.

73 Mosher, F. (2011). *The Role of Learning Progressions in Standards-based Education Reform*. CPRE Policy Brief #RB-52. Philadelphia: Consortium for Policy Research in Education. doi: 10.12698/cpre.2011.rb52.

B. Designing a College and Career Readiness Assessment Strategy

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. Current statewide accountability systems do not measure college and career readiness, instead using credits and seat-time as placeholders for readiness. Unfortunately, these have consistently proven to fall far short, as far too many students who graduate from United States high schools successfully complete postsecondary degrees, or secure careers that pay a living wage.

At any level of the system, from the classroom to the state, 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, reDesign 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 assign to first year students.



(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.[74] 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.

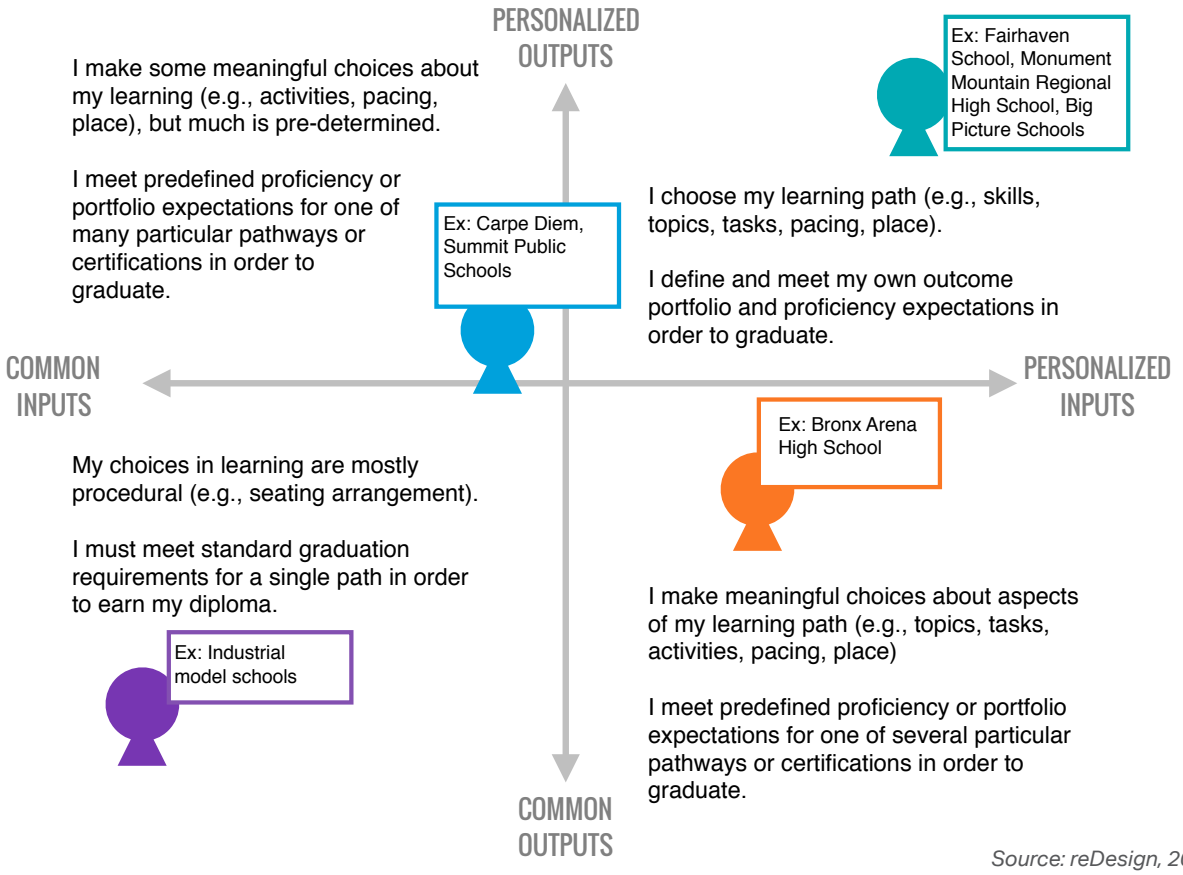
One of the hallmarks of effective competency-based assessment is that students have multiple opportunities to both practice and demonstrate competencies. This can be challenging to ensure, especially if one is planning backwards from college and career-readiness. For students who are struggling, one 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.

74 Rudenstine, A. (2016). #College Ready? Designing Projects for Historically Underserved Students. reDesign. Retrieved from http://www.redesignu.org/college-ready-designing-projects-historically-underserved-students.

C. 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 considering personalization, it is helpful to imagine a two-dimensional grid (below): there are choices related to the extent to which schools and districts allow for personalized and choice-driven learning experiences, and there are choices related to the extent to which they allow for the personalization of the outcomes.

Defining Graduation Pathways: Inputs and Outputs on a Continuum



Source: reDesign, 2016

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 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 as often found in Career and Technical Education programs. In the effort 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 that are pushing the boundaries of the industrialized model, but constrained or aligned in some critical ways. Unfortunately, most tech-oriented learning resources and learning management systems (LMS) 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 districts and schools move into the design of second generation models, it is anticipated that there will be a trend 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.[75]

D. 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.[76]

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,[77] the primary "building blocks" of the schedule are Interdisciplinary Academies and "KnightTime"[78] (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, it is essential to keep in mind, as has been mentioned above, that some supports actually dampen agency.[79]

75 Bray, B. & McClaskey, K. (2017). *How to Personalize Learning: A Practical Guide for Getting Started and Going Deeper*. Corwin.

76 Sturgis, C. & Shabulla, L. (2012). The Learning Edge: Supporting Student Success in a Competency-Based Learning Environment: http://www.competencyworks.org/wp-content/uploads/2012/12/iNACOL_CW_IssueBrief_LearningEdge_full.pdf.

77 Sturgis, C. (2015). Noble High School: Creating Timely, Differentiated Supports. *Competency*Works. Retrieved from http://www.competencyworks.org/case-study/noble-high-school-creating-timely-differentiated-supports/.

78 Noble High School's "KnightTime" schedule can be found at https://sites.google.com/a/msad60.org/knighttime-kt/home/about.

79 Ferguson, R. et al. (2015). *The Influence of Teaching: Beyond Standardized Test Scores - Engagement, Mindsets, and Agency*. The Achievement Gap Initiative at Harvard University. Retrieved from http://www.agi.harvard.edu/projects/TeachingandAgency.pdf.

Some of the supports that nurture agency in competency-based models are typically characterized by a child and youth development orientation, one that assumes that student learning should occur within the context of supportive relationships, with attention to individual needs and interests, and tailored to the social and emotional developmental profile of the student:

Supports that Nurture 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 towards 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 (again, 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

Some critical challenges to meeting students where they are, are systemic policy constraints such as:

- 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."

It is important to always bring these types of constraints to the attention of local and state leadership including the local school board, state legislature, the Department of Education and/or the Board of Education to ensure they understand how local and state policy and regulations are inhibiting innovation.

E. 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 districts and schools to create more flexibilities in scheduling so that educators can respond to needs, goals and interests as they arise. The research on "flow"— the experience of being completely immersed in an experience[80]— suggests 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 time to pursue their interests and passions, in addition to addressing critical gaps in their understanding and skills.[81] Schools are beginning to think creatively about schedules, using approaches such as the flex-mod schedule,[82] 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.[83] 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.

80 Nakamura, Jeanne and Csikszentmihályi, Mihaly. "Flow Theory and Research". In C. R. Snyder Erik Wright, and Shane J. Lopez. *Handbook of Positive Psychology*. Oxford University Press, 20 December 2001. pp. 195–206; Cherry, Kendra. "What is Flow?". *Very Well, 6 May 2016*, https://www.verywell.com/what-is-flow-2794768.

81 Springpoint has a useful collection of resources for the design and implementation of new school models: http://www.springpointschools.org/resources/. See also, Diana Lebeaux's recent blog: *Flexible School Schedules--Old Problem, New Solutions*. CCE Blog: Feb. 2017.

82 This document, from the College and Career Academy Support Network at the University of California Berkeley, provides several examples of flexible modular ("flex-mod") scheduling: https://casn.berkeley.edu/wp-content/uploads/resource_files/Modular_Flex_Schedules_.pdf.

83 Rudenstine, A. & Schaef, S. (2016). Bronx Arena High School: Multimedia Monograph. Retrieved from https://issuu.com/antoniarudenstine/docs/bronx_arena_high_school_monograph_a.

CHARTING THE COURSE

Looking forward, there are several significant pieces of work to be tackled in an effort to find more effective ways to meet students where they are. This final section outlines recommendations for five challenges that are critically important to ensuring that districts and schools can fully meet students where they are and get them fully prepared for college, career and beyond.

A. Develop High-Quality Pathways to Strengthen Educator Capacity

Educators across the field need access to personalized, competency-based professional learning that allows them to build the skills they need to better support young people. Efforts to enable knowledge-building and knowledge-transfer, including the design of modules, would expedite the ability of districts to shift to personalized, competency-based professional learning.

RECOMMENDATIONS:

- Build knowledge on how personalized, competency-based professional learning can be designed by drawing upon the experiences of those innovative districts that have already begun to build this capacity.
- Create a network of learning facilitators, teacher leaders and coaches that are playing catalytic roles in districts to share strategies and practices as well as design new resources to support other districts making the transition to competency education.
- Convene teachers from competency-based districts and schools to build knowledge on how their mindsets have changed, how their practices have changed and the sets of expertise that teachers need in a competency-based, personalized school.
- Engage schools of education, competency-based districts and intermediaries that provide personalized learning to outline the skills that new teachers and master teachers' need in a competency-based, personalized system and recommend the core learning targets of personalized, competency-based teacher prep programs.
- Develop strategies for educators as well as students, administrators and policymakers to build assessment literacy beginning with an assessment of the current capacity for assessment literacy, including formative and performance-based assessments, within districts and providers of training.

B. Develop the Education Field's Capacity to Access and Use Research

There is substantial research on learning sciences, learning progressions, engagement, motivation, UDL and social-emotional learning that can inform school models, policy, pedagogy, and learning experience and assessment design. The entire field will benefit from becoming more familiar with research, engaging in conversations about the implications and learning to apply findings to the specific context of each school and district.

RECOMMENDATIONS:

- Develop resources that can help educators access information on the learning sciences and understand the implications. Clearly identify when there is limited or a lack of evidence on the practices.
- Establish common practices within the field of competency education to refer to the learning sciences upon which practices are based.

C. Create Research-Informed Learning Progressions for Social and Emotional Learning

There are several similar existing frameworks for social and emotional learning that are gaining traction within competency-based programs. Further research is needed In order to develop strategies that support the integration of social and emotional learning into the life of schools and classrooms.

RECOMMENDATIONS:

- Develop research that explores questions such as: What can neuroscience help us understand about the development of social and emotional competencies? What might the learning progressions look like for self-efficacy, self-management, self-advocacy, etc?
- Invest in efforts to explore the role of context — with particular attention to equity impediments such as trauma, poverty, implicit bias and systemic discrimination — on the learning of social and emotional skills, and which interventions mitigate the power of context.
- Ensure that social and emotional frameworks are developed by and fully reflect diversity (race, ethnicity, gender identity, class and sexual preference). Begin to unpack and reorient biases that may exist in current frameworks, and ensure that the social and emotional competencies students are encouraged to learn are appropriate for their experiences, passions, goals and context.

D. Monitor and Communicate Student Growth

The external accountability systems monitor student achievement based on grade-level cohorts, providing few insights on the growth of students who are two or more levels below grade level. Under ESSA, states have the option to use multiple measures to inform accountability, and should begin to balance the grade-level proficiency indicators with growth rates.

Policymakers at the state and federal levels should begin to seriously engage in discussions about the need to design policy that is not dependent on age and grade-level designations, but rather, emphasizes growth, across multiple domains, within broader performance levels pegged to research-based learning progressions. In order to support this work, the field needs to begin collaborating on both the design and monitoring of multiple measures.[84]

84 The work of CORE (9 large, urban districts in California who have come together to innovate, collect data, and share findings) provides a powerful example of how this has been undertaken in a non-competency-based system.

RECOMMENDATIONS:

- Develop a shared understanding of pacing and progress that recognizes that students do not start at the same point and that paths toward more advanced performance levels may vary.
- Create a research initiative that monitors student growth in those districts and schools that are strategically meeting students where they are including agency, engagement and academics.
- Launch an initiative that includes K-12 and higher education to review strategies for certifying learning, communicating growth and progress including competency-based report cards, transcripts and innovative diplomas.

See *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education*[85] for more discussion on developing policy to support competency-based education.

E. Build Capacity Within Districts to Offer Learning Experiences Across a Wide Range of Performance Levels

In the traditional system, teachers are expected to deliver the grade level coursework to every student, making some scaffolding adjustments. 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 modularized learning experiences 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.

RECOMMENDATIONS:

- Document strategies districts and schools are using to meet students where they are especially in the cases where there are a wide range of performance levels.
- Engage experts in academic domains and researchers in the academic learning progressions to discuss strategies for when students are in higher grade levels but have gaps in knowledge. Evidence-based strategies need to be available as resources to educators when students have gaps in foundational skills.
- Collaborate with researchers, experts and practitioners to create more knowledge about strategies when older students have not developed a growth mindset, habits of work, or social and emotional learning.

85 Patrick, S., Worthen, M., Truong, N. & Frost, D. (2018). *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education*. *Competency*Works. Retrieved from https://www.competencyworks.org/wp-content/uploads/2018/01/CWSummit-FitForPurpose.pdf.

F. Develop 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.

RECOMMENDATIONS:

- Develop knowledge about how districts and schools are using technology to support high-quality competency-based systems. Topics to explore may include perceived effectiveness of information management systems, capacity to provide holistic learner profiles,[86] metrics to monitor learning, growth and pace, continuous improvement strategies, management reports to guide decision-making and learning-centered systems for students and adults.
- Catalyze progress of vendors to develop student-centered information systems to monitor student growth and support continuous improvement by defining requirements, aggregating demand including international markets and convening vendors. Information management systems need functionality around student-centered continuums of learning that capture student growth over time, depth of learning, student evidence with portfolios and the ability to create management reports to support short-term response to students and longer-term continuous improvement.
- Launch a collaborative working group of edtech vendors and practitioners tasked with further articulating critical needs, use cases and functional requirements.

See iNACOL's report *Student-Centered Learning: Functional Requirements for Integrated Systems to Optimize Learning*.[87]

86 Avallone, A. (2017). Getting To Know You: Learner Profiles for Personalization. *Education Week*. Retrieved from http://blogs.edweek.org/edweek/next_gen_learning/2017/09/getting_to_know_you_learner_profiles_for_personalization.html.

87 Glowa, L., & Goodell, J. (2016) *Student-Centered Learning: Functional Requirements for Integrated Systems to Optimize Learning*. iNACOL. Retrieved from https://www.inacol.org/resource/student-centered-learning-functional-requirements-for-integrated-systems-to-optimize-learning/.

GLOSSARY

We find ourselves in a highly creative and visionary time of deconstruction and re-design. Terminology is changing, refining, and expanding. Identifying points of intersection lead us to deeper understanding of how concepts can be woven together. The innovations of practitioners lift our expectations and open new doors. Thus, we offer the following terminology to help us communicate with each other with the understanding that it is likely that many will use different terminology or assign different meaning.

Assessment Literacy

Assessment literacy is the collection of knowledge and skills associated with appropriate assessment design, implementation, interpretation, and, most importantly, use. A critical aspect of assessment literacy is that educators and leaders know to create and/or select a variety of assessments to serve different purposes such as improving learning and teaching, grading, program evaluation, and accountability. However, the most important component of assessment literacy is the degree to which educators and others are able to appropriately interpret the data coming from assessments and then take defensible instructional or other actions.

Calibration

Calibration is a process of adjusting results based on a comparison with a known standard or "calibration weight" in order to allow defensible comparisons of student assessment results; for example, across different entities (e.g., schools, districts, states). In order to define a calibration weight, we need to have something in common, either the same students taking different assessments or different students taking the same assessments. The latter is generally more practical, so common performance tasks have been administered to students in different schools, and district performance assessments serve as a "calibration weight" to evaluate the extent to which teachers in different locales evaluate the quality of student work similarly.

Comparability

Comparability is defined as the degree to which the results of assessments intended to measure the same learning targets produce the same or similar results. This involves multiple levels of documentation and evaluation starting from the consistency with which teachers in the same schools evaluate student work similarly and consistently, to the degree to which teachers in different schools and districts evaluate student performances consistently and similarly, and finally the degree to which the results from students taking one set of assessments can be compared to students taking a different set of assessments (such as comparing pilot and non-pilot districts). A determination of "comparable enough" for any type of score linking should be made based on clear documentation for how comparability is determined and that it is defensible.

Competency-Based Education

Competency-based education, also known as mastery-based, proficiency-based, or performance-based, is a school- or district- wide structure that replaces the traditional structure to create a system that is designed for students to be successful (as compared to sorted) and leads to continuous improvement. In 2011, 100 innovators in competency education came together for the first time. At that meeting, participants fine-tuned a working definition of high quality competency education, which includes five elements:

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

Continuum or Learning Continuum

A continuum refers to the set of standards or learning targets along a span of education (for example, K-12 or performance levels 9-12). It is the set of expectations for what students should know and be able to do. However, it does not imply that students need to learn all of the standards in a linear way or be taught them based on their age-based grade level. The student learning trajectory and research on learning progressions should inform instruction.

Curriculum

There are many definitions of curriculum in education. Internationally, the term curriculum or curriculum frameworks refers to the high level knowledge and skills students are expected to learn and describe (i.e., competencies). The curriculum framework may include student learning objectives or learning standards.

In the United States, the term curriculum also refers to the resources that teachers use when designing instruction and assessment to support student learning, including: the course syllabi, units and lessons that teachers teach; the assignments and projects given to students; the the materials (books, videos, presentations, activities) used in a course, module, or unit; and the assessments used to evaluate student learning and check for understanding.

*Competency*Works will use the term learning experiences to refer to the design of the learning process and the accompanying set of resources to support student learning.

Culturally Responsive Teaching

First coined by Gloria Ladson-Billings in 1994, culturally responsive teaching is the pedagogical practice of recognizing, exploring, and responding to students' cultural contexts, references, and experiences. Cultural responsiveness builds upon eight principles:

1. Communication of High Expectations
2. Active Teaching Methods
3. Practitioner as Facilitator
4. Inclusion of Culturally and Linguistically Diverse Students
5. Cultural Sensitivity
6. Reshaping the Curriculum or Delivery of Services
7. Student-Controlled Discourse
8. Small Group Instruction

The New York City Mastery Collaborative highlights that a competency-based approach can promote cultural responsiveness in the following ways:

- *Transparency:* path to success is clear and learning outcomes are relevant to students' lives and interests. Shared criteria reduce opportunity for implicit bias.
- *Facilitation shifts:* refocus the roles of students and teachers to include flexible pacing, inquiry-based, collaborative approach to learning. Students drive their own learning, and teachers coach them.
- *Positive learning identity:* growth mindset and active learning build agency and affirm students' identities as learners (academics, race, ethnicity, gender, sexual orientation, etc.).

Deeper Learning

The term deeper learning is often used to describe highly engaging learning experiences in which students apply skills and knowledge and build higher order skills. The Hewlett Foundation defines deeper learning as six competencies:[88] master core academic content; think critically and solve complex problems; work collaboratively; communicate effectively; learn how to learn; and develop academic mindsets. Deeper learning intersects with competency-based education in multiple ways, including defining the learning outcomes; emphasis on lifelong learning skills such as academic mindset and learning how to learn; and importance of applying skills and knowledge to build competencies.

Educational Equity

There are many definitions of equity in education. *Competency*Works will use the definition from the National Equity Project:[89]

> *Education equity means that each child receives what he or she needs to develop to his or her full academic and social potential. Working towards equity involves:*
>
> 1. *Ensuring equally high outcomes for all participants in our educational system; removing the predictability for success or failures that currently correlates with any social or cultural factor;*
> 2. *Interrupting inequitable practices, examining biases, and creating inclusive multicultural school environments for adults and children; and*
> 3. *Discovering and cultivating the unique gifts, talents, and interests that every human possesses.*

Equality

Equality is related to the principles of fairness and justice. It refers to equal treatment and, in the past, has been used to refer to equal inputs. *Competency*Works uses the term equality as an aspirational goal of all students reaching their full potential.

Fixed Mindset (See Growth Mindset)

Carol Dweck's research suggests that students who have adopted a fixed mindset — the belief that they are either "smart" or "dumb" and there is no way to change this — may learn less than they could or learn at a slower rate, while also shying away from challenges (since poor performance might either confirm they can't learn, if they believe they are "dumb," or indicate that they are less intelligent than they think, if they believe they are "smart"). Dweck's findings also suggest that when students with fixed mindsets fail at something, as they inevitably will, they tend to tell themselves they can't or won't be able to do it ("I just can't learn Algebra"), or they make excuses to rationalize the failure ("I would have passed the test if I had had more time to study"). (Adapted from the Glossary of Education Reform[90])

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[91])

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88 Deeper Learning. William + Flora Hewlett Foundation. Retrieved from https://www.hewlett.org/strategy/deeper-learning/.

89 Why Equity. National Equity Project. Retrieved from http://nationalequityproject.org/about/equity.

90 Growth Mindset. (2013). The Glossary of Education Reform. Retrieved from http://edglossary.org/growth-mindset/.

91 Growth Mindset. (2013). The Glossary of Education Reform. Retrieved from http://edglossary.org/growth-mindset/.

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 (Referred to in this paper as Habits of Success)
Habits of work and habits of mind are directly related to the ability of students to take ownership of their learning and become self-directed learners. There are a variety of Habits of Work (specific practices or behaviors) and Habits of Mind (skills, perspectives, and orientation) that help students succeed in school or the workplace. Schools tend to focus on a few of the habits of work and mind to help students learn the skills they need to take ownership of their learning. See Learning and Leading with Habits of Mind.

Higher Order Skills/Deeper Learning Competencies
Higher order skills refer to skills needed to apply academic skills and knowledge to real-world problems. The term can refer to the higher levels on Bloom's or Webb's taxonomy or to a set of skills such as creativity, critical thinking, problem-solving, working collaboratively, communicating effectively, and an academic or growth mindset.

Learning Resources
The materials explored during a course, module, unit, or activity: videos, images, audio, texts, presentations, etc.

Learning Experiences
The term learning experiences is used to convey the process and activities that students engage in to learn skills and knowledge. The term refers to the package of outcomes and targets, activities, resources, assessments, and pedagogical strategies that are associated with a course, module, or unit. In the United States, this is generally referred to as curriculum. (See definition of Curriculum.)

Learning Progression
Learning progressions are research-based approaches and maps how students learn key concepts and skills as described in Achieve's briefing paper, 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.[92]" 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.[93]

92 International Society of the Learning Sciences. (2017). Retrieved from https://www.isls.org/.

93 Hoadley, C. & Haneghan, P. V. J. (2011). *The Learning Sciences: Where They Came From and What It Means for Instructional Designers*. Trends and Issues in Instructional Design and Technology (3rd ed., pp. 53-63). New York: Pearson.

Lifelong Learning Skills

In the paper *Lifelong Learning Skills for College and Career Readiness: Considerations for Education Policy*,[94] American Institute for Research describes lifelong learning skills as providing "the foundation for learning and working. They broadly support student thinking, self-management, and social interaction, enabling the pursuit of education and career goals." *Competency*Works uses the term to capture the skills that enable students to be successful in life, navigating new environments, and managing their own learning. This includes a growth mindset, habits of success, social and emotional skills, metacognitive skills, and higher order/ deeper learning competencies.

Moderation

Moderation is a process used to evaluate and improve comparability. The process involves having teachers (or others) work to develop a common understanding of varying levels of quality of student work. Moderation processes are often used as part of calibration, but moderation is a way to evaluate comparability while calibration is the adjustment based on these findings.

Personalized Approach to Learning or Personalized Learning

iNACOL defines personalized learning as "tailoring learning for each student's strengths, needs and interests – including enabling student voice and choice in what, how, when and where they learn – to provide flexibility and supports to ensure mastery of the highest standards possible." Personalized learning takes into account students' differing zones of proximal development with regards to academic and cognitive skills, as well as within the physical, emotional, metacognitive, and other domains.

Barbara Bray and Kathleen McClaskey explain in the PDI Chart that personalized learning is learner-centered, whereas the related approaches of differentiation and individualization are teacher-centered. Thus, teachers may use a personalized and differentiated approach to meet students where they are.

Social and Emotional Learning

According to CASEL,[95] "social and emotional learning (SEL) is the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions." They focus on the development of five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Student Agency

Student agency or student ownership of their education refers to the skills and the level of autonomy that a student has to shape their learning experiences. Schools that want to develop student agency will need strategies to coach students in the lifelong learning skills (growth mindset, meta-cognition, social and emotional learning, and habits of work and learning) and to establish practices that allow students to have choice, voice, opportunity for co-design, and the ability to shape their learning trajectories.

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94 McGarrah, W. M. (2015). *Lifelong Learning Skills for College and Career Readiness: Considerations for Education Policy*. College & Career Readiness & Success Center at American Institutes of Research. Retrieved from https://ccrscenter.org/sites/default/files/CCRS%20Lifelong%20Learning%20Skills%20Policy%20Considerations_0.pdf.

95 What is SEL? (2017). Collaborative for Academic, Social, and Emotional Learning. Retrieved from https://casel.org/what-is-sel/.

Student Learning Trajectories

*Competency*Works refers to trajectories as the unique personalized path each student travels to achieve learning goals on the way to graduation. Educators apply what is known about learning progressions toward helping students make progress on their trajectory.

Universal Design for Learning (UDL)

CAST[96] 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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96 About Universal Design for Learning. (2017). Center for Applied Special Technology. Retrieved from http://www.cast.org/our-work/about-udl.html#.WrooCYgbNEa.

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- *Quality and Equity by Design: Charting the Course for the Next Phase of Competency-Based Education*
- *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education*
- *Designing for Equity: Leveraging Competency Based Education to Ensure All Students Succeed*

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