CompetencyWorks FINAL PAPER

Fit for Purpose:

Taking the Long View on Systems Change and Policy to Support Competency Education

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iNACOL

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About *Competency*Works

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

About iNACOL

The mission of 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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I. Introduction

The purpose of this paper is to explore and reflect on the ideas that state policy needs to address in the long-term to support a transformation to competency-based education systems. Personalized, competency-based education, designed to ensure equity, holds promise to prepare all students for success in college, career and civic life. We will explore some ways that state policy could approach tackling *threshold concepts* as part of a long-game strategy.

We developed this paper as a "thought leadership" piece for the attendees of the National Summit for K-12 Competency-Based Education, publishing a working draft in June 2017. The intent of this paper is to spark conversation and provoke thought about core concepts that policy will need to address to achieve sustainable systems transformation for student-centered learning. This paper is not meant to provide specific action steps that policymakers can take. We will address specific state policy recommendations for getting from the current state to the future state of education policy in the forthcoming iNACOL report, *Current to Future State: Issues and Action Steps for State Policy to Support Personalized, Competency-Based Learning*.

Our challenge is to catalyze the creation of a new, transformational theory of change for state policy to work toward in the long term. In doing so, we need to identify the things that we don't even know we don't know, that stand in the way of a system that is fit for purpose.

Our intent is to push current thinking beyond the assumptions that perpetuate root causes of inequity and the structural issues that perpetuate injustice. We are focusing on a strategy for policy to support systems change over the long haul toward competency-based systems that ensure mastery for all students and equity for all.

There is a growing realization that the traditional, time-based American K-12 education system is failing to adequately prepare students for the future. It is time to build a system on the core principle that all students can succeed and be ready for the next step in their learning, the workforce and life.

Today, educators are beginning to build new competency-based learning models in which students actively engage in their learning while mastering the habits and skills necessary to fulfill their dreams. These new learning models are competency-based, learner-centered, and highly personalized. They hold all students to the same high standards and high expectations, provide targeted supports, and emphasize continuous growth toward successful outcomes. With a focus on competency, high-quality supports and sufficient resources, all students can learn and succeed.

In the traditional model of education, schools batch students by age, and move them through the same content and courses at the same pace. Traditional schooling ranks and sorts students based on the assumption that they cannot all reach the same outcomes. This creates winners and losers, and perpetuates patterns of inequality in society. Education systems must transform to align with the needs of learners and the skills and dispositions they will need to succeed beyond secondary school.

According to the Organisation of Economic Cooperation and Development (OECD):

> *"In the past, education was about teaching people something. Now, it is about making sure that individuals develop a reliable compass and the navigation skills to find their own way through an increasingly uncertain, volatile and ambiguous world. It will often be the mistakes and failures, when properly understood, that create the context for learning and growth. Today, schools need to prepare students for more rapid economic and social change than ever before, for jobs that have not yet been created, to use technologies that have not yet been invented, and to solve social problems that we do not yet know will arise."*[1]

Even with U.S. high school graduation rates at an all-time national high of 82%, 37% of high school graduates are entering college requiring remediation in math and reading – thus, unprepared for the rigor of higher education.[2] Graduates who enter the world of work directly after high school fare no better, with 62% of employers in one study indicating that "high schools aren't doing enough to prepare their graduates to meet the expectations of the work place."[3] Students are not fully prepared for civic engagement to ensure a functioning democracy. For example, the World Values Survey found that only 30% of individuals surveyed in the U.S. who were born after 1980 believe it is "essential" to live in a country that is governed democratically.[4] With such discouraging academic, workforce and civic readiness outcomes, it is clear that it is time to engage in a public dialog with communities and states around what the goal and role of our K-12 education system should be. The imperative for our education system has changed, but its design has not. Policymakers should be asking: are K-12 education systems fit for purpose?

II. Threshold Concepts: Key Issues for Policy to Tackle for the Long-Term

With this paper, we hope to inspire new ideas and launch dialogue among communities and state policy leaders. Threshold concepts are "core concepts, that once understood, are needed to transform a given subject."[5] They can help us think differently about what is possible in an equitable future education system where all students succeed, and how to address deep-seated systems design flaws across K-12 education.

In this section, we discuss our thinking around the core concepts that state policymakers might think about addressing for a long-term, sustainable shift to personalized, competency-based learning. The threshold concepts which we will discuss here are:

- Certifying learning;
- Assessment literacy;
- Pedagogical innovations based on learning sciences; and
- Meeting students where they are.

As we discuss the threshold concepts, we will also introduce some issues to tackle: ideas that state policymakers could be thinking about as part of a long game for transformation to student-centered learning. We will present some specific examples from policy, with the caveat that different approaches will work best in different contexts, and that true, broad application of these concepts in policy will only become possible if state policymakers begin to think long term.

Threshold Concept: Certifying Learning

How is it possible that our education system still graduates many students who lack basic reading and math skills when they hold a high school diploma? Unpacking what a diploma means and how we might re-envision this qualification is crucial to inform short-term policy conversations. The United States has made significant progress in improving high school graduation rates over the past decade. However, far less attention has been given to what the diploma signifies. Today, the only thing we can know for sure about a high school graduate in most U.S. school districts is that they have put in the required seat time in the requisite courses and obtained a passing grade based on highly variable judgment and criteria. Education systems do a grave disservice to students by passing them along and graduating them with major gaps in skills and knowledge. Sadly, we are not being honest with our high school graduates when we tell them that their diploma means they are ready for the next step. Students who require remediation in college courses are less likely to persist and graduate. Those who directly enter the workforce and lack the basic communication, problem solving, collaboration skills and habits of learning, may face unemployment.

How could the high school diploma align to a more comprehensive definition of success? A concept that has taken root in global education systems is curriculum redesign. It is about asking the question, "What do our students need to know and be able to do?" – especially with respect to a more holistic notion of student success for the future. Whether a community conversation or a state conversation, the idea of engaging communities and families in conversations around what is different, and around what students need to know and be able to do is increasingly important.

What do we need to think differently about a broader set of outcomes? These would include considerations for academic knowledge and skills, and competencies such as learning how to learn, lifelong learning which includes how to set goals personally, academically and professionally and attain them, and learning important social emotional skills, empathy, compassion, cultural responsiveness and understanding. Lastly, it includes navigating an increasingly complex world with problem-solving, communication and self-efficacy skills to actively engage in civil society and democracy.

Conversations in policy in the United States around what students need to be prepared are happening around standards and graduation requirements; however, they are based on limited definitions of success centered around seat time and passing grades in basic content skills. States can begin to engage districts and communities around what students need to master for true preparedness, and the implications for rethinking outdated accountability models. We need to think about redesigning education with new models of active, inquiry-based pedagogy to move forward with more holistic, learner-centered, competency-based learning models that help students gain the knowledge and skills they need to thrive after high school graduation. Once local communities have a shared understanding of what student success looks like, they can drive state-level understanding of curriculum redesign and the implications for new accountability models, new designs for assessments, new school models and building systems capacity (and better coherence).

Issue to Tackle: Redefining Success

A core concept in need of further development is examining the current limited definitions of student success. We must put greater emphasis on engaging our communities in the conversations around new definitions of success and what is necessary for redefining student success to include academic competencies, social emotional competencies, skills and dispositions with a holistic focus for the whole child, a well-rounded education and the future of our communities.

An important concept for policymakers to consider, as they build a vision for K-12 education systems, is how to redefine success. With clear, comprehensive definitions of success, states can begin to transform their education systems, and do so in a coherent manner so that everyone is working together to help students succeed.

In countries with high-performing education systems, *curriculum* is a broader concept that encompasses much more than academic content standards,[6] reflecting knowledge and skills in higher order thinking, academics, and lifelong learning. It may also be linked to qualifications frameworks, which define the competencies necessary for success in career pathways.

States are beginning to embrace this concept. For example, in Virginia, a series of community, local and state conversations around whether students are adequately prepared with transferable skills, employability skills and college readiness with value to the learner, workplace and community, led to a new initiative to examine future directions in the high school diploma, known as the *Profile of a Virginia Graduate*.

Virginia's new initiative on the Profile of a Graduate "describes the knowledge, skills, experiences and attributes that students must attain to be successful in college and/or the workforce and to be 'life ready' in an economy and a world characterized by rapid change."[7]

The *Profile of a Virginia Graduate* provides a north star to educators and leaders in the state to ensure a coherent approach to systems change, including redesign of the Virginia Standards of Learning, school accreditation requirements, accountability, systems of assessments, and high school graduation requirements. In the Profile of a Graduate, a "life ready" Virginia graduate must:

- Achieve and apply appropriate academic and technical knowledge (content knowledge);
- Demonstrate productive workplace skills, qualities and behaviors (workplace skills);
- Build connections and value interactions with others as a responsible and responsive citizen (community engagement and civic responsibility); and
- Align knowledge, skills and personal interests with career opportunities (career exploration).

These requirements were established by the State Board of Education based on a new law passed by the state legislature. The law was passed by the legislature in response to calls from local stakeholders to redefine student success more holistically for students' needs in the new economy. Local leaders and educators are actively engaging in systems redesign around the Profile of a Virginia Graduate. This is an example of policymakers engaging with and listening to stakeholders to define what graduates should know and be able to do, and working together to begin to build system coherence.

QUALIFICATIONS FRAMEWORKS

There are alternatives to the American system of time-based credits and transcripts. Internationally, at least 47 countries (not including the U.S.)[8] have developed a national qualifications framework,[9] or a system of competency-based qualifications that form linkages between K-12, higher education, and the needs of the future workforce.[10] Qualifications systems provide flexible pathways for learning and offer accountability with evidence.

TACKLING MEANINGFUL QUALIFICATIONS IN POLICY: EXAMINING THE HIGH SCHOOL DIPLOMA

State policymakers might consider how the high school diploma could become a meaningful representation of students' readiness for the future; it should reflect success in rigorous academics, and signify that its holder has mastered the knowledge, skills and habits of success needed in the new economy. It is exciting to think about how many more students would be ready for success if the high school diploma were aligned with a comprehensive Profile of a Graduate, and students advanced upon demonstrated mastery, not seat time. This could open up new ways of thinking about multiple pathways with formal and informal learning, targeted supports to ensure each student's future goals and successes, and rich learning experiences that spark creativity and a passion for lifelong learning.

High school graduation requirements in the U.S. are generally determined by states, with varying degrees of local authority to interpret the requirements and award a diploma. Diplomas are typically based on high school transcripts which record how many academic seat-time units students have earned in the required subjects.

PROFICIENCY-BASED DIPLOMAS

In the United States, the idea of addressing what a high school graduate should know and be able to do based on demonstrated mastery, is starting to take hold in a few states, which are considering and adopting policies around the proficiency-based diploma. This is beginning to happen in state-level policy conversations and holds potential to support a competency-based approach to earning a high school qualification.

International Example: The New Zealand Qualifications Framework

The New Zealand Qualifications Framework is aligned across K-12 education, higher education and the workforce certifications. While a Level One qualification is based on attaining demonstrated mastery on literacy and numeracy, it is only attained when a student actually achieves the proficiency and mastery of the reading, writing and mathematics levels (not age dependent) with the evidence in support of the learning. It might happen at age 12 or age 14. A Level Two qualification involves a broader set of academic competencies and skills within the national curriculum framework and this is aligned across K-12 education into attainment of the diploma equivalents that extend into tertiary education and the workforce competencies (again, each of the qualifications are earned within an aligned system of K-12, higher education, and the workforce organizations/professional competencies identified as students earn level 2-8 and so on into their higher education degrees and professional certifications).

High school diploma requirements are within the domain of state policymakers (such as a governor, legislative body, state board of education or state department of education). Across the country, state leaders are asking how they can help to develop a framework for rethinking public education systems to ensure the qualifications for high school are meaningful for each student. Because education in many states is locally controlled, communities may be engaging in deep conversations around what a student should know and be able to do. In competency-based systems, the concept of each student having a personalized learning plan (and student profile) lends itself to providing the evidence of a student's demonstrated mastery toward a proficiency-based diploma. This concept is central and very important.

A focus on proficiency-based diplomas has the potential to change the way we think about what the high school diploma represents. However, when it comes to using records of proficiency for college admissions, proficiency-based diplomas and transcripts alone won't meet their promise without other requisite shifts in systems. An increasing number of higher education institutions have developed the capacity to translate standards-based, course-based, and competency-based transcripts. Therefore, the proficiency-based diploma as a transfer document may not be necessary. Policymakers could focus on the potential of proficiency-based diplomas to credential proficiency, change learning pedagogy, and determine what students should know and be able to do when they graduate.

There is another risk with proficiency-based diplomas being layered onto the traditional model, where content is king. In states getting started with a shift toward proficiency-based diplomas, the policy often emphasizes credit by examination. As policymakers think about how a proficiency-based diploma could align with a comprehensive profile of a graduate, the limitations of credit-by-end-of-course-exam are laid bare (so long as end-of-course exams continue to measure only content mastery). Policymakers might consider how a proficiency-based diploma could better align to a culture of active pedagogy and improved pedagogical practices focused on using learning evidence, providing immediate supports and expanding learning opportunities with multiple pathways.

Threshold Concept: Assessment Literacy

"Student assessment is essential to measure the progress and performance of individual students, plan further steps for the improvement of teaching and learning, and share information with relevant stakeholders." – OECD, 2013

Assessment literacy is important for practitioners but it is also important for policymakers and stakeholders throughout the system to understand the roles that different types of assessments play in student learning, how assessment and moderation are used to comparatively and fairly judge student mastery, and how the information generated by assessments can be used toward a cycle of continuous improvement in teaching and learning. Significant capacity for assessment literacy is needed to advance new competency-based approaches and address tough issues in our current system.

An important concept in assessment today is related to the concept of 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 determinations.[11] This involves documenting the reliability of judgments and not assuming that comparability is stable over time or invariant across multiple subgroups.

There are unique circumstances in the U.S. education system that have driven the need for much greater degrees of comparability than is true in most other nations. When the federal government became involved in K-12 education with the Elementary and Secondary Education Act of 1965, it was in direct response to deep inequities that have remained in the wake of desegregation. Because of the history of disparity in educational offerings among student groups, concerns for equity are much greater than in many other countries. This drives, to a significant extent, a greater level of care for standard, highly comparable measures of student academic performance at the individual, school and district levels.[12]

Practitioners working deeply in competency-based learning models realize quickly how K-12 education systems lack systems for calibrating the quality of student work, so we know that fundamentally there is significant inconsistency across schools and systems. As much of a systems challenge as this would appear across the states in the U.S. today, building professional educator capacity and policymakers' understanding of assessment literacy is fundamental to shifting to personalized, competency-based systems at scale and focusing on equity.

A common misconception about assessment literacy is that it is only about how to interpret standardized test results. In contrast, assessment literacy is a much broader and more significant concept. For example, the New Zealand Ministry of Education defines assessment literacy as: "The possession of knowledge about the basic principles of sound assessment practice, including its terminology, the development and use of assessment methodologies and techniques, and familiarity with standards of quality in assessment. The primary purpose of assessment is to improve students' learning, as both student and teacher respond to the information that it provides. Information is needed about what knowledge, understanding, or skills students need. By finding out what students currently know, understand, and can do, any gap between the two can be made apparent. Assessment is the process of gaining information about the gap, and learning is about attempts to reduce the gap."[13]

Personalized, competency-based learning requires us to reorganize systems around doing what it takes to ensure every student is attaining mastery, rather than by ranking and sorting students through variable A-F grading practices. Next generation educational systems will need to build educator capacity to make valid and reliable comparisons of students' progress against outcomes using evidence of learning and common rubrics.

This process of developing clear expectations for common proficiency levels is a key part of a "calibration." Calibration is a process that allows two or more things to be compared via a common standard (e.g., a weight in the physical sciences or commonly scored papers in an education system). The purpose of common performance tasks across different schools and districts is to serve as a "calibration weight": a way to compare the way one school or district scores students on the common task, with the way other schools and districts score those same students' work.[14] In order to use the common performance tasks as calibration weights, districts need to re-score other districts' common performance tasks. Calibrating expectations as well as grading and scoring processes for learning goals is very important in competency-

based learning systems. Calibration may involve groups of educators who collaborate and develop consensus around rubrics for scoring student work. The calibration process makes scoring student work consistent and more aligned to the standards upon which rubrics and scoring criteria are based, as well as creating reflective processes focused on improving student learning.

In addition to calibration processes for consistently and accurately evaluating student work, assessment literacy also includes knowing which assessments are appropriate for what purpose (e.g., formative, progress monitoring, or summative). This idea of common expectations, and evaluating evidence against common standards and rubrics to build and evaluate comparability across schools and systems, requires careful moderation of assessment practices across the system and perhaps across the state level. Professional development of educators to assess student evidence using calibration processes and developing rubrics with scales for evaluating performance tasks against criteria are essential in a competency-based education system. A competency-based learning system that offers personalized pathways for students to meet high standards of success must rely on multiple forms of evidence against common standards and expectations.

TACKLING ASSESSMENT LITERACY IN POLICY: BALANCED SYSTEMS OF ASSESSMENTS

Assessment is integral to the process of teaching and learning. Teachers are constantly checking for their students' understanding in formal and informal ways. They are checking for understanding with formative assessment, tracking progress with interim assessment, and checking mastery of standards with summative assessment. And yet, "assessment" today in the United States is often used as a shorthand term for, or conflated to mean, "statewide accountability test."

To be clear, though intricately linked to each other in today's policy context, accountability and assessment are two separate concepts. We should examine our approach to policy regarding assessment. We can be very clear about the need to measure student learning and growth in valid, reliable and comparable ways, while also opening up new approaches to assessment that support, rather than disrupt, the learning process. Reflecting on where we are in the United States, if assessment is conflated with accountability today, it is because our policies have been structured to do just that. Counter to some of the narratives that are dominating policy conversations today, assessment and learning need not be at odds with each other. Policy can and should help to drive coherence of K-12 education systems by ensuring that assessment, teaching and learning are complementary and supportive of one another.

To start, policymakers could begin to think about assessment in terms of systems of assessments that serve multiple purposes for multiple stakeholders, rather than in terms of a single assessment that is designed to be used solely for accountability and has the end result of driving teaching and learning toward limited outcomes.

Differentiating Between Assessment and Accountability

It is common today in U.S. education policy to see the terms ***assessment*** and ***accountability*** used interchangeably. This conflates a broad set of tools that generate information about student learning (assessments) with policy initiatives designed to incent desired behaviors, or disincent undesired behaviors in order to reach specific goals (accountability). Of course, accountability and assessment are linked concepts, to the extent that assessment provides data that can be used for accountability. However, problems arise when the goals in the accountability system are too narrowly defined and the incentives or disincentives are too limiting or too punitive. No Child Left Behind tied a single assessment (the end of year summative state test) to multiple high stakes (identifying schools for intervention, diverting their federal funds into proscribed uses, and, with the changes brought about under the Elementary and Secondary Education Act waivers and Race to the Top, teacher evaluations sometimes used to make human resources decisions). So, it is understandable why accountability and assessment have become confused with each other. A critical shift in thinking needs to happen around accountability and assessment, including with systems that move the focus from performance on a single test, to multiple measures aligned with the profile of a graduate and accountability that balances incentives/disincentives with supports.

BALANCED SYSTEMS OF ASSESSMENTS

Chattergoon and Marion (2016)[15] argue that as states redesign their approaches to assessment, they should pursue balanced systems of assessments that meet the following three criteria:

- ***Coherent systems:*** "The assessments in a system must be compatible with the models of how students learn content and skills over time;" and "curriculum, instruction and assessment must be aligned to ensure that the entire system is working toward a common set of learning goals;"
- A well-articulated ***theory of action*** that explains how each part of the system relates to the others. In other words, what purpose does the system as a whole serve, what different needs does it meet for different stakeholders and how does it meet them? "A set of assessments, even if they cohere, will not fulfill the intended purposes if the information never reaches the intended user;" and
- Assessment ***efficiency*** means that systems are providing stakeholders with the full range of information that it is intended to provide. "For example, if a state wants to give educators information to help them adjust instruction, its assessments must be tied to the curriculum that is being used. These assessments should in turn yield timely, detailed information about the knowledge and skills being assessed at the local level."

States could take a leadership role working with districts and schools to set conditions for more balanced systems of assessments, with multiple measures, aligned to student-centered learning, to identify what specific data the state needs for accountability. There are states beginning to move in this direction and further along with this work in new systems of assessments, such as in the Assessment for Learning project, that provide examples of pathways in state policy and systems "advancing our understanding of assessments' essential roles in the learning process, as learning models become more personalized, less cohort-restricted, more competency-based and student-centered."[16]

Perhaps the best example of a statewide approach has been underway for more than two decades. In New Hampshire, the Performance Assessment for Competency Education (PACE) system is currently being piloted in a subset of districts across the state and offers a more comprehensive state system of assessments that the New Hampshire Department of Education describes as: "A learning system designed to capitalize on the latest advances in understanding of how people learn. The goal is to structure learning opportunities that allow students to grapple with gaining meaningful knowledge and skills at a depth of understanding that they can transfer to new real-world situations. As a coherent system, NH PACE is designed to foster positive organizational learning and change by supporting the internally-driven motivation of educators instead of the all-too-common top-down accountability approaches where the goals and methods of the accountability system are defined at the state or federal levels and districts are simply expected to comply."[17]

As this description shows, New Hampshire is taking a future-focused approach to assessment, thinking about it as an integral support for teaching, learning and building local and teacher capacity.

NEW OPPORTUNITIES TO RETHINK ASSESSMENT UNDER ESSA

The Every Student Succeeds Act (ESSA) opens up some significant new opportunities for states to rethink assessment. States now have much more flexibility to redesign state systems of assessments to better align to student-centered learning, allowing educators to focus on meeting students where they are so all can succeed.

States can now include a variety of assessment and item types in their new systems of assessments, including:

- Adaptive assessments to pinpoint more accurately where students are in their learning progressions;
- Formative assessments to determine if students are ready to demonstrate mastery on interim or summative assessments;
- Interim assessments to measure individual student growth and knowledge gained over a given period of time;
- Summative assessments to provide a determination or certification of learning; and
- Performance assessments to measure complex demonstrations of mastery and integrate multiple points of learning evidence.

These distinct elements can work in concert within systems of assessments to provide both transparency on student learning and support teaching and learning.

While some states are beginning to take advantage of the flexibility in ESSA around their systems of assessments, many others may face capacity challenges or the political will to do so. It is important to note that state policymakers may ask the U.S. Department of Education at any time for permission to amend their ESSA state plans.

There is also an opportunity for states to begin partnering with local districts leading the way with innovative assessments that support student-centered learning, under Section 1204 of ESSA, the Innovative Accountability and Assessment Demonstration Authority.

The Innovative Accountability and Assessment Demonstration Authority allows states to ask for permission to pilot innovative systems of assessments in a subset of districts. States and districts participating in the pilot would be able to use determinations from these new systems of assessments for accountability purposes. This pilot offers an opportunity for states to intentionally focus on building next generation systems of assessments. It facilitates this by allowing states to pilot new systems of assessments in a subset of districts to eventually scale across districts statewide. States participating in the demonstration authority could pilot performance assessments, developing educator capacity for assessment literacy and moderation practices. Consortia of districts could work together to catalyze state leadership to move forward with innovative models of assessments within their state and nation-wide.

Issue to Tackle: Accountability as Continuous Improvement

How could we balance quality assurance, accountability, transparency, validity and equity with responsive learner-centered designs? How do we make significant changes for continuous improvement over time that will build capacity at all levels? Are we building educator capacity and professionalism? How do we manage local and community needs? How do we think about designing for every student's success and build consensus among all stakeholders? How do we improve transparency of outcomes with holistic approaches?

High-quality competency-based systems rely upon transparent accountability systems that support and empower rapid and constant improvements in learning and student growth toward success for college, career and life. Policy could catalyze accountability systems for all schools that ensure all educators and schools can give students the supports they need to master the knowledge and skills necessary for success.

An additional major core concept is the fundamental need to build capacity, trust and professionalism toward a powerful idea of reciprocal accountability.

In *Bridging the Gap Between Standards and Achievement*, Harvard Professor Richard Elmore explains: "Accountability must be a reciprocal process. For every increment of performance I demand from you, I have an equal responsibility to provide you with the capacity to meet that expectation. Likewise, for every investment you make in my skill and knowledge, I have a reciprocal responsibility to demonstrate some new increment in performance. This is the principle of "reciprocity of accountability for capacity."[18]

New approaches to reciprocal accountability could better foster trust. Typical state accountability systems group students by age cohorts at each grade level to ensure data quality and comparability against the same test. But the unintended consequences resulting from this time-based model of accountability may inhibit educators from using evidence-based practices to meet students where they are. If we are not constantly assessing where students are, meeting them where they are and addressing gaps to provide supports and accelerate learning at high levels, will we ever begin to advance true equity across the system or be able to provide responsive pedagogical approaches?

Trust between the levels of governance in education (federal, state and local) is also an important concept. ESSA shifts significantly more power to state governments in education, diminishing the federal role. States have the opportunity to put forth a new vision for K-12 education with a new definition of success, and to lead the design of policy environments that support competency-based learning. States also have a critical opportunity to take a step back to listen and support the capacity challenges that local leaders are seeing as they lead education redesign for student-centered learning in their districts.

TACKLING ACCOUNTABILITY AS CONTINUOUS IMPROVEMENT IN POLICY: NEXT GENERATION ACCOUNTABILITY MODELS

The idea of accountability in American education has become synonymous with end-of-year, statewide, summative tests that are tied to high stakes outcomes for teachers and schools. The *intent* of No Child Left Behind (NCLB) was to advance equity for historically underserved sub-groups of students.[19] One of the *effects* of NCLB's strategy to increase equity in education through a singular focus on grade-level proficiency tests tied to sanctions was to conflate the concept of equity with administering the same test, on the same day, of only grade-level proficiency on reading and math. As stakeholders and policymakers debated the provisions of ESSA prior to its 2015 passage, the prevailing conversations referencing "equity" were based on an outdated assumption that accountability required data from testing students on single, end-of-year, summative, grade-level assessments.

Measuring students' learning based on one point of proficiency at one point in time is insufficient to capture the depth and breadth of student learning. It is also insufficient data to provide the ongoing support and scaffolds students need. New systems of assessments and accountability measure students' learning over time and provide transparency of data with student proficiency every day as well as each student's growth over time. With better data and the requisite investments in educator capacity, states could evaluate proficiency, achievement gaps, rate of progress and also understand growth based on individual student growth over time.

Next generation accountability models require a reframing of the concept of accountability as a tool for transparency that supports and empowers rapid and constant improvement in student learning toward a more comprehensive definition of success. Time-bound, comparable information about student proficiency is important, but only a small piece of the "equity guardrails" puzzle.

Education systems should reflect families' and communities' hopes for student success in school, work, life and society. Accountability systems could empower stakeholders with the information they need to help students succeed, providing the right information to the right stakeholders at the right time.

Communities in and around schools could be bolstered to have more input on student learning and shared ownership of student outcomes. In other words, accountability systems could be "fit for purpose" to support student-centered, competency-based learning. Policy could catalyze the creation of accountability systems built around ensuring all educators and schools can give students the supports they need to master the knowledge and skills necessary for success.

There are a number of important considerations that policymakers might keep in mind as they think long term about accountability redesign. These include:

- Engaging diverse local and state stakeholders to redefine success and ensure that the goals, measures and systems are all working together to support each student's success;
- Identifying how each level of the system can share in accountability so that it is reciprocal and so that it encourages collaboration;
- Considering school quality reviews and interventions as part of a process of continuous improvement;
- Thinking about systems as dynamic and responsive to stakeholders. Under ESSA, states can request the U.S. Department of Education to amend their accountability plans at any time. As states learn what works, or doesn't work, they may make changes in the spirit of continuous improvement;
- Providing timely information to the right stakeholders, at the right levels, at the right time and recognizing that the same data can be aggregated or disaggregated to meet different needs;
- Considering how to present multiple measures of student learning and school quality with advanced data visualization, to provide families with rich, easy to understand information;
- Embedding professional learning into quality improvement processes;
- Considering the inputs, processes and outcomes that reflect a relentless and multi-faceted pursuit of equity for students;
- Building systems capacity for "resource literacy" — to empower educators and leaders at each level to understand the roles each can play in resource allocation — including, for example, use of time, budgets, materials and equipment — to maximize equity;
- In considering student learning outcomes, thinking differently about the concepts of "proficiency" and "growth" and how we can monitor student learning in real-time, so that educators can intervene quickly to fill in gaps or meet other needs as they arise; and,
- Investing in the requisite educator and leader capacity to design, improve and engage in next generation accountability systems that support student-centered learning.

Under ESSA, states have an opportunity to rethink accountability systems and move from measuring one point of proficiency at one point in time, to understanding the transparency of data on student proficiency in real time, in addition to on each student's growth toward high standards over time. With better data, data literacy and the requisite investments in educator capacity, states, districts and schools could evaluate proficiency, achievement gaps, rate of progress and also understand growth based on individual student growth over time; states could also look across cohorts of students and disaggregate data by sub-group to ensure equity and transparency with a depth not possible today.

Threshold Concept: Pedagogical Innovations Based on Learning Sciences

The learning sciences are an important reference point in designing instructional models for equity where all students can succeed. Learning sciences study how students learn best, and what feeds intrinsic motivation and the experience of personal success. A school redesign informed by learning sciences puts student success at its center. It incorporates youth development theory, culturally responsive teaching and evidence-based approaches.

Policy does not (and should not) dictate pedagogy; however, policymakers should understand the importance of the learning sciences and how the research is transforming student learning with innovative new models. Policymakers should consider how current accountability, assessment and teacher development systems might hinder the development of new learning models and innovative pedagogies that are based in the learning sciences.

One way to design a system based on learning sciences research is to consider how educators are engaged in teaching as inquiry where "inquiry is the state of identifying student learning problems, hypothesizing on causes, investigating and testing causal links and acting on the findings to improve outcomes," according to Dr. Linda Bendikson.[20]

Using research and evidence as a foundation for inquiry allows actors at all levels of the system to examine what is working in student learning and the roles educators can play that are central to systems improvement. It is important for educators to question how they are using an inquiry approach to improve culturally responsive teaching, as well.

In competency-based systems, we must engage in tough conversations around outdated pedagogical approaches. It is time to critically analyze how the current time-based models may be barriers to addressing learner needs. We should examine how we assess learning and determine whether our assessment strategies are consistent with the learning sciences research on how students learn best. Educators need capacity to determine if pedagogical approaches align with research on student motivation and learning trajectories, and whether the learning strategies employed are truly fit for purpose. We must ensure we are designing for equity using research on how students learn best, youth development theory and evidence-based approaches.

Threshold Concept: Meeting Students Where They Are

David Hood's "Paradigm of One" describes how the current model focuses on "one teacher, teaching one subject, to one class of one age, using one [textbook], at one pace, in one classroom, for one hour," and describes this rut in which the traditional system is stuck.[21] In a time-based factory-model education system, students move through grade levels with varying amounts of learning with recorded grades of A-F without ensuring mastery. This all but guarantees that students will have significant gaps in core knowledge when they move from one grade level to the next. These disparities grow

over time. When different levels of expectations are held for different students, the disparities grow larger, wider and deeper.

New, personalized learning environments that are competency-based and student-centered help teachers identify the strengths of individual students and help meet students where they are in their learning.

In our current, traditional educational system, there is a significant focus on old pedagogical models for delivering a one-size-fits-all lesson of grade-level content each day. The retrograde effects of accountability systems are perhaps most apparent in the challenges educators face across the United States to truly try to meet students where they are.

The research on how students learn examines how important it is to meet a student within their zone of proximal development, allow for productive struggle and design progressions effectively – where learning hinges on successful prior learning. A student's zone of proximal development is defined as the difference between what a learner can do without help and what he or she can do with help.[22] We know that when students are able to address prior gaps in their learning, they can accelerate their learning dramatically. As such, educators need to be able to scaffold instruction at the appropriate level as well as offer the supports and resources depending on student needs when delivering instruction. If our old pedagogical approaches force content to be delivered within age-based grade levels and at the same pace for all students, we are not truly meeting them where they are. How do we advance equity in a system that approaches it with sameness in pedagogy? Is it fundamental to create equity through a foundation that is competency-based to ensure every student reaches mastery?

Meeting students where they are requires a true fundamental shift of the learning environment to become learner-centered and to be organized around mastery-based learning progressions across a continuum over time with opportunities for in-depth teaching and learning based on each student's goals and needs and providing extended learning opportunities and supports with flexibility. And, most importantly, competency-based systems require knowing where every student is academically and holistically and then making sure each student receives the instruction and support they need to build confidence, lifelong learning habits, knowledge, skills and competencies to be successful.

Advancing competency-based systems means meeting students where they are every day and engaging in a cycle of supporting learning academically, socially, emotionally and holistically. There are major challenges when students have moved through a time-based system with decent grades to find out when entering a competency-based educational model that they are several grade levels behind. How do we address these issues in the traditional system that leave students with major gaps in knowledge, skills and abilities and a lack of preparedness based on the system's focus on moving students forward with time-based (not learning-based) progressions?

The concept of *meeting students where they are* is holistic and honestly addresses where students are in their learning progression. In a competency-based education system, it is important to develop the competence and confidence of each learner through teaching and learning strategies that build on individual needs and offer extended learning opportunities. Learning environments are learner-centered to accommodate different paces and styles of learning. Students build their own capacity and have to "learn to learn" lessons, thus becoming literate in the learning sciences and more knowledgeable about their own assessment literacy across the curriculum as well.

Competency-based education systems offer choice (every day) in order to engage and respect students' breadth of study and personal relevance with clear pathways through the system toward goals. These are more scaffolded in earlier levels of development and student agency is developed from early years with growing independent learning opportunities

over time. The learning targets are consistent and set high goals for all students. The ethos is focused on student needs and provides student agency and voice in schools through a focus on data and continuous improvement, too. Knowing where every student is every day focuses on a whole new level of transparency for students, parents, educators, principals, schools and communities. It offers a chance for deep conversations about data every day.

Meeting students where they are will catalyze new, sometimes radical approaches to organizing learning environments that challenge traditional schedules, course structures and grade-levels. Learning is organized around mastery-based progressions and rooted in research on how students learn. Accelerated options are available and students can move on when ready. There are opportunities for deeper learning for every student.

Competency-based approaches which meet students where they are provide learning opportunities beyond the classroom to best fit their needs and spark future interests. Communities, local institutions, social services, health providers, museums and the arts are supporting schools to drive forward progress of students — for example, through extended learning opportunities within community-based institutions. Voice and choice are about engaging students in their own learning and shaping the provision of loosely networked educational opportunities, where students can partner to do internships or projects that matter in their communities and then schools will credential learning that occurs outside of the classroom. This will allow students to work toward developing their talents and building competence aligned with their future goals.

New systems of education to support competency-based approaches will begin to expand into networks of learning spaces and hubs – across programs, schools and institutions, where there is collaboration and knowledge building. This will require clarity of concepts for meeting students where they are and common language including the understanding of new pedagogical models, tools, evidence-based practices, personalized learning and competency-based learning among professionals. Core to this work is the development of capacity for new models of assessments including authentic assessments, performance assessments, digital portfolios as well as the development of pedagogical innovations and better learning strategies. We also need to begin to incorporate valid and reliable judgments based on a variety of different evidence to truly create learning that is owned by students.

Issue to Tackle: Building Teacher Professional Judgment

Most teachers in our public schools today did not complete their own K-12 education in a competency-based system. In order to prepare educators to teach students in a competency-based environment, it will be important to build opportunities to experience it firsthand. A high-quality system designed for equity also has implications for teacher recruitment in pre-service training and in the workforce. All of this implies a dramatic change in how we think about teacher pre-service training, licensure and professional learning.

If we fail to invest in the capacity of educators – the people who can make the greatest difference in students' learning – we will do both teachers and students a grave disservice. We need to make a shift in how we think about teacher pre-service training and professional learning. It is not enough to rely on teachers' love of teaching, enjoyment of working with children or subject expertise, particularly when they often must work in high-stakes, low-pay and low-trust conditions. A passion for teaching is an important prerequisite, but it is not enough. Teachers in the U.S. are being trained and credentialed to deliver academic content with the goal of student proficiency on academic standards. More often than not, teachers are not gaining

the skills to establish supportive learning environments with their students and engage students in the learning process before they get to the classroom. Building professional capacity in the educator workforce is the best thing we can do in the long term to ensure success for every student.

We need to be mindful of how we might consider building capacity in leaders and educators to lead the system transformation toward competency-based education. We should be driving toward a system that trusts teachers to exercise professional judgement about student learning, in which teachers are empowered and have the professional expertise and systemic supports to make valid and reliable determinations of student mastery. How would we redesign a system to foster better relationships across student, parent, family, community and state, and provide the data, transparency and reciprocal accountability to hold each other responsible? What role will teachers play in the development and implementation of new systems of assessments that actively support student learning?

TACKLING BUILDING TEACHER PROFESSIONAL JUDGMENT IN POLICY: TRANSFORMING SYSTEMS TO BUILD EDUCATOR CAPACITY

Transformation of K-12 education systems will also require transformation of educator preparation and development systems to themselves become personalized and competency-based. These new approaches to educator preparation and development will enable teachers to take on new roles as they work individually and collectively to design customized pathways to graduation for every student. To fully transform K-12 education systems to student-centered learning, we need to rethink the way we build educator capacity.

Rather than our nation's siloed systems of educator pre-service preparation, certification, professional development and evaluation, a competency-based system would provide a seamless continuum in which aspiring educators build and master instructional competencies, and upon entering the profession, access customized professional development and evaluation opportunities to ensure continuous improvement throughout their careers.

Ongoing, job-embedded, competency-based and personalized professional learning must be at the heart of any system redesign. Pre-service training and professional learning cannot be siloed from new learning model designs, innovative pedagogical practices, personalized learning, systems of assessments or accountability in a competency-based education system. A report from the New Hampshire Department of Education about the Performance Assessment for Competency Education (PACE) system[23] examines balanced systems of assessments and illustrates how coherent systems of assessments are as much about building capacity for teacher professional judgment and assessment literacy as they are for student learning. In doing so, New Hampshire is recognizing that teacher capacity, student capacity and student learning are inextricably linked. Teachers from the PACE pilot districts collaborate to develop the performance tasks that will be a part of the systems of assessments at statewide Quality Performance Assessment Institutes. Teacher teams score and moderate student work on the performance tasks, participating in a statewide Comparability Workshop to ensure that scores of student work are consistent across reviewers from different school districts.

Following are some issues that policymakers could be thinking about as they consider ways to develop systems that support teacher capacity and build trust that gives teachers space to exercise professional judgment.

System Coherence Around Clear, Specific Educator and School Leader Competencies

In competency-based, personalized education, educators often take on new roles as they work individually and collectively to design customized pathways to graduation for every student. Before a state can transform its pre-service preparation, certification, professional development and evaluation programs to ensure educators have the support and resources to make this transition, educators need to know what they need to know and be able to do to succeed in student-centered

learning environments.

State policymakers might think about how they can support educators, school leaders, institutions of higher education and experts in the fields of competency-based education to collaboratively design and adopt these competencies. They will need to outline the skills educators need to implement personalized learning strategies to meet the needs of every student and to exercise professional judgment on student mastery. For school leaders, they will need to outline the skills for change management and creating positive cultures of learning within their schools, in addition to instructional leadership.

One example of an effort to define clear educator competencies was led by the Council of Chief State School Officers (CCSSO) and Jobs for the Future (JFF). CCSSO and JFF created a set of educator competencies based on four domains: cognitive (need to know), intrapersonal (need to process), interpersonal (need to relate) and instructional (need to do). These competencies represent some of the knowledge, habits, mindsets and skills educators need to possess in order to foster personalized, student-centered learning.[24]

Clear definitions of what educators need to know and be able to do run parallel to the idea of a Profile of a Graduate for students, in the sense that the competencies should emphasize knowledge, skills and dispositions that will lead to lifelong career success. This learner-centered, competency-based approach to building skills for adults and educators with different roles across the system could be a powerful tool to drive coherence in the systems that build the educator leadership, educator workforce, professional learning and student success outcomes, including pre-service training, credentialing requirements, induction, professional development, evaluation and career pathways.

Certification and Licensure Requirements, and Educator Pre-Service Preparation

Traditional educator certification and licensure requirements based on one-size-fits-all schooling models can make it difficult for states and districts to build a workforce prepared for leading, designing and implementing competency-based learning environments. Most educator credentialing requirements currently focus on traditional roles and skills that do not reflect the methods, strategies and dynamics within a competency-based learning system. Educator preparation programs focus on the nuts and bolts of state licensure and credentialing requirements, which is one reason why we are not seeing a rapid increase in the shift to the more innovative pedagogical approaches in next generation learning taking hold in pre-service educator preparation programs.

Two notable exceptions to this rule are Western Governors University and Southern New Hampshire University, which take a competency-based approach in their educator pre-service programs. Educators who come from these programs are more likely to be comfortable teaching in a competency-based learning environment because they have experienced it during their pre-service training.

In addition, certain school networks have created new pathways to certification and graduate degrees, to train teachers to succeed in their innovative learning models. High Tech High, for example, created an Intern Program and an Induction Program to create pathways to certification that align with the school network's emphasis on project-based learning. High Tech High then created a graduate school of education to teach experienced educators innovative learning strategies and how to apply these strategies in their schools and classrooms.

School leaders from Uncommon Schools, KIPP and Achievement First worked to develop the Relay Graduate School of Education program, which uses competency-based approaches for teachers and school leaders on how to develop the academic skills and character traits needed to succeed in college and life for all students.

Finally, the charter school management organization, Match Education, created the Sposato Graduate School of Education.

Sposato offers a self-described "third way" for teacher preparation, combining the classroom-based training of traditional pre-service with intensive, ongoing residencies that put aspiring teachers into the classroom immediately, as with alternative certification routes such as Teach for America. According to the program's website, what is different about the program is that residencies are exclusively in the highest performing charter schools that serve the most disadvantaged students, and that "training is hyper-prescriptive and detailed regarding the nuances of great teaching. Our year of training allows for extensive practice and coaching, to the point where subtle teaching moves become automatic."[25]

Policymakers might consider how they can work together with school and district leaders, institutions of higher education and teacher preparation programs to better meet the needs of future-focused, competency-based systems in K-12 education and align certification, teacher licensure and accreditation.

In the long term, there is a strong need to create an effective, coherent educator preparation system that prepares teachers for the realities of a competency-based system in K-12 education. States leading the way are beginning to encourage innovative approaches through pilots with competency-based districts and schools to design new program models that prepare teachers to meet the needs of all students. A final step will be to create pathways that are competency-based toward licensure and certification, then work with accrediting agencies to recognize these elements and promising practices for accrediting competency-based programs.

Creating Multiple, High-Quality Pathways to Educator Credentials and Development

In a competency-based system, students can access multiple, high-quality pathways to high school graduation, higher education and workforce. In the same way, educators need multiple, high-quality pathways to credentials, advancement and development.

For pre-service training, policymakers can consider ways to leverage micro-credentials and other avenues to certify knowledge already gained through a variety of learning pathways. Teaching candidates, through internships and residencies, could experience teaching hands-on, in controlled and supervised environments, with timely feedback to build their capacity to meet the needs of all students.

Teacher professional development should also be personalized and job-embedded, leveraging mentorships and positive relationships with other educators to create customized developmental pathways that are both meaningful to individual educators and that meet system needs.

Just like students, educators can benefit from an array of high-quality pathways to better meet their individual learning needs and to address the capacity challenges of school systems. Micro-credentials, discussed in the next section, hold great promise for assessing and credentialing key competencies for teachers in student-centered learning systems.

Facilitating Differentiated Roles for Educators

In student-centered learning models, educators often take on new roles as they collaborate to design customized pathways to success for every student. State teacher credentialing structures are based on grade and content areas and do not account for new personalized, competency-based learning models where educator roles and responsibilities are differentiated to create flexible, dynamic systems able to meet the needs of every student.

For example, New Hampshire encourages local school districts to adopt policies that encourage extended learning opportunities (ELO) for learning outside of the traditional classroom, including apprenticeships, community service, online

learning and internships.[26] To facilitate these extended learning opportunities, New Hampshire school districts have created a new ELO Coordinator role that is distinct from the roles of classroom teachers or facilitators. Other examples of expanded or differentiated roles and functions for educators include subject matter experts across grade levels (such as math specialists for learning progressions), personalized learning instructional coaches, team teaching, coordinating specialized learning spaces such as makerspaces, teaching across multiple grades and content areas and creating teacher leadership roles and pathways.

As policymakers seek to increase educator capacity to transform learning environments, they need to examine adult deployment strategies as well. Policymakers could collaborate with leading school leaders to identify those policy structures, like credentialing based on content area and grade, that can impede the proliferation of educator roles.

Micro-Credentials

For example, micro-credentials are a tool that hold potential to make educator preparation and development systems competency-based, personalized and relevant to systems' and teachers' needs. They hold great potential to build the knowledge, skills and abilities to transform the system toward competency-based learning.

Micro-credentials are related to badging and recognize demonstrated mastery of knowledge and skills — it helps to allow for modularity in the design of learning experiences to build educator capacity in a more flexible way and certify credit for the learning outcomes. States and districts are exploring personalized approaches to offering professional development that provide recognition of new knowledge, skills and abilities through micro-credentials and badging. Future-focused states might consider how to think differently about credentialing and licensure policies to become competency-based around recognizing what educators know and are able to do. Micro-credentials also add value to conversations that explore how to differentiate teacher roles, offering accessible pathways for educators to gain the competencies they need for their specific role.

According to Digital Promise,[27] there are four key characteristics of micro-credentials:

- Competency-Based: They require educators to demonstrate their competence in discrete skills in their practice — either inside or outside the classroom;
- Personalized: Teachers select micro-credentials to pursue — based on their own needs, their students' challenges and strengths, school goals, district priorities or instructional shifts;
- On-Demand: Educators can opt to explore new competencies or receive recognition for existing ones on their own time, using an agile online system to identify competencies, submit evidence and earn micro-credentials; and
- Shareable: Educators can share their micro-credentials across social media platforms, via email and on blogs and résumés.

Policymakers might begin to think about how micro-credentials could be used to transform the continuum of teacher professional learning, building capacity to transform learning environments to meet the needs of every student.

Cross-Cutting Policy Strategy: Building Capacity to Lead Change

As we have discussed, human capital is a critical element of transforming K-12 education systems for the long term. The vision for students in a competency-based education system is one of empowered individuals prepared to lead their own trajectories to success in college, career and life. At the same time, we will need to invest in human capital and preparing change leaders. Systems transformation will not happen overnight, nor will it happen by default. Indeed, the shift to personalized, competency-based K-12 education systems will require bold leadership.

We need leaders at all levels who can lead the change together. We need leaders in schools, districts and states, who are willing to challenge the status quo and provide the leadership and vision for educators and communities to move ahead with new models. Policymakers could be thinking about how the state can play a role in fostering the development of a new generation of change agents and educator leaders. Local districts who are leading the way in the advancement of personalized, competency education models have the potential to play a critical role in the creation of new leadership pipelines.

As we explore strategies to build capacity to lead change toward a more equitable system, diversifying the teacher and leader workforce must be a core priority. To transform education, we need new perspectives about how to best design systems to help all students succeed.

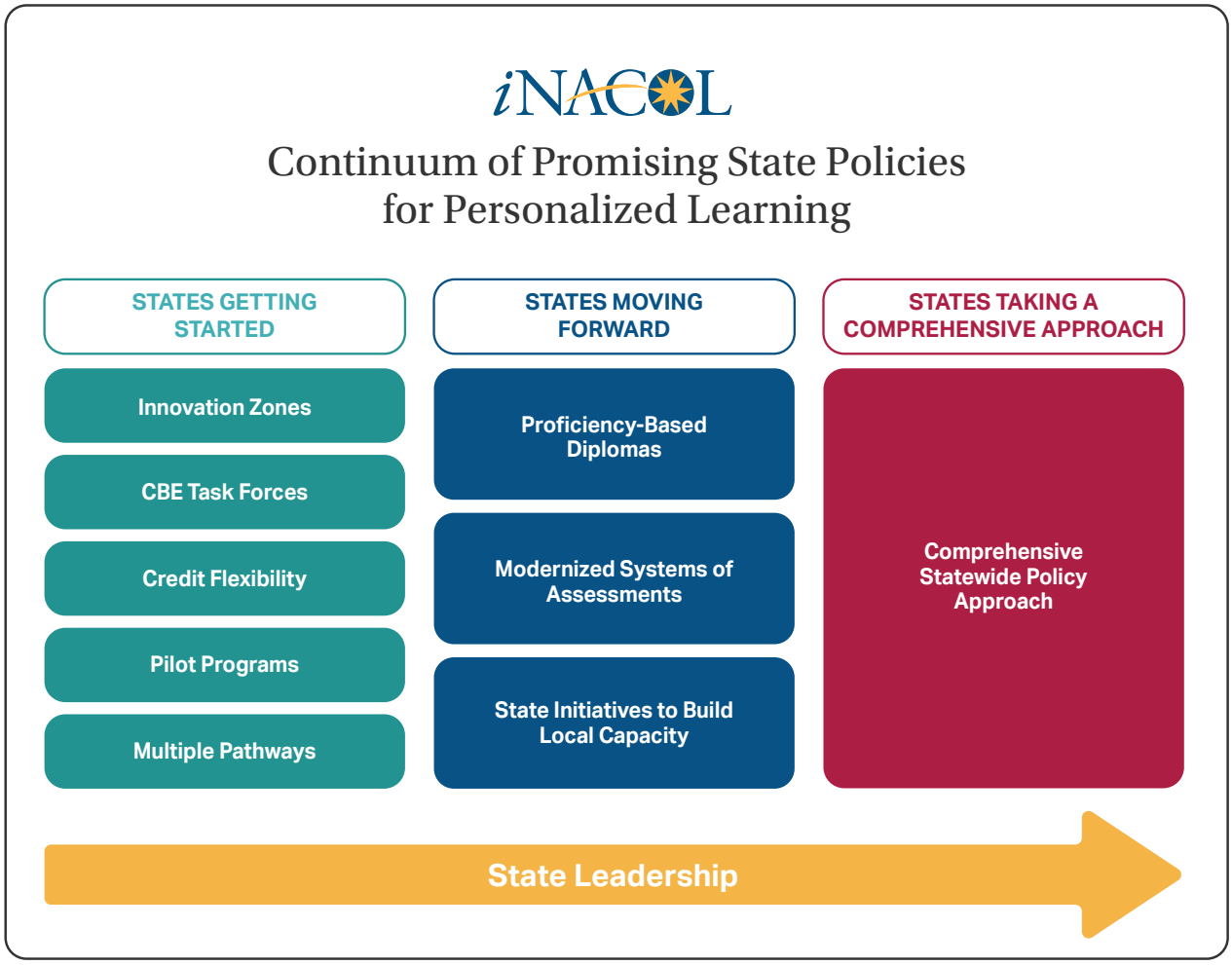
Moving from "What Are Threshold Concepts?" in Competency-Based Education System Design to "How to Create a Long-Term Strategy" to Support a Fully-Developed Competency-Based Education System

Many of the concepts outlined in the above section are still nascent today in competency-based education models in the United States. While innovators are beginning to develop more competency-based systems, many early practices and models are still rooted in traditional time-based systems and constrained by our short-term approaches, including incremental policy reforms and limited concepts of what is possible.

It is very important to recognize that innovators designing competency-based education models may get started within the current K-12 education policy environments, but in order to have a fully developed competency-based education system, the difficult areas of how to build a system designed for every child's success, with meaningful qualifications aligned across K-12, higher education and workforce systems and building trust and capacity across the system, must be addressed with a long-term theory of change and long-term strategies with significant state policy considerations.

III. Ways That States Are Beginning the Shift to Competency-Based Education

There are many different entry points for policymakers wishing to enable the shift to a more personalized, competency-based K-12 system in their state. States that do not yet have any enabling policies in place may wish to take one or two incremental, initial steps to create space for new learning models, while a state that already has made some progress may be contemplating some bolder, more comprehensive steps toward transformation. The graphic below summarizes the different entry points that policymakers could discuss to catalyze transformation of K-12 education in their state, with varying levels of state leadership:



We will not attempt to thoroughly discuss each entry point in this paper, however, we will highlight the promising policies most states are starting with in their journeys. The iNACOL report, *Promising State Policies for Personalized Learning,*[28] goes into each of these policy levers, with examples of specific policies and practices that are active in different states.

Innovation zones and competency-based education pilots are two promising entry points for states to create space for personalized, competency-based learning models.

INNOVATION ZONES

State policymakers can help to catalyze personalized, competency-based learning by creating innovation zones. This policy strategy creates room for districts and schools to develop new learning models by identifying state policy and regulatory barriers, and offering waivers and exemptions from certain administrative regulations and statutory provisions.

Innovation zones offer state education policy waivers in order to support practitioners in the process of developing and implementing new learning models. Innovation zones serve the state in providing a safe place to identify potential policy barriers to innovation and also serve the district well in having a method to quickly address and remove policy barriers to better serve students.

For example, in Arkansas, state law allows a school district to petition the State Board of Education for all or some of the same waivers granted to an open-enrollment public charter school. This is enabling innovative Arkansas district leaders to implement personalized, competency-based learning models.

COMPETENCY-BASED EDUCATION PILOTS

State policymakers can also consider launching pilots to help develop small-scale, short-term programs that localities use to determine how a larger program might work in practice and go to scale. While innovations in schools are taking hold across a state, it can be helpful for state leaders to support or facilitate collaboration across pilots to help bring together innovative practitioners and educators to build capacity, to share lessons learned, and to address the changes needed in instructional methods. Pilot programs are one way to connect and support innovators to plan, implement and ultimately scale high-quality competency-based education practices and systems.

Pilots are generally limited to a specified number of districts, and they are created to enable innovative educators to begin designing new learning models. A state educational agency may use pilots to identify which educators, leaders and localities are ready to move forward with personalized learning innovations. Pilots often help educators work through the planning stages, identify core design elements, communicate about what competency-based education systems look like and how they work, build educator capacity for assessing performance tasks as students create evidence of mastery and fine tune strategies that cohesively work together to create a true mastery-based system through exhibitions of student work.

State leaders are creating pilots for personalized learning and competency-based pathways to build capacity and support educators at the district and school levels for promoting student success. As a strategy to catalyze the development of new programs, states are shifting from a culture of compliance to one of cultivating innovation in an effort to support district and school leaders creating powerful, personalized learning experiences to meet each student's needs. Ohio, Utah and Idaho are a few of the states that have recently launched competency-based education pilots.

IV. Charting the Course

There is a need to approach state policy with a long view, to build a vision toward the future with coherent, student-centered systems and to cultivate ownership across the state and in communities for the transformation to competency-based education.

Creating policies that are student-centered and are fit for the purpose of an education system in which every student can succeed requires us to challenge commonly-held assumptions about what learning "should" look like. Continuously improving on the goals of the education system, including the role of teachers and students, the use of time, the purpose and nature of assessments, the allocation of resources, learning model designs and the role of schools within the broader context of the community, is necessary to achieve lasting change. To do this, state policy leaders will need to engage diverse stakeholders in meaningful ways to build a shared vision and set goals for student success and education systems. This will provide a strong foundation for states to develop a policy strategy for the actions that will be necessary to reach the long-term goals.

RECOMMENDED ACTION STEPS FOR BUILDING A VISION AND LONG-TERM PLAN FOR K-12 EDUCATION TRANSFORMATION TO COMPETENCY-BASED EDUCATION SYSTEMS

- Convene a taskforce of diverse stakeholders from across the state to create a vision for what a student-centered education system could look like, and to devise a long-term plan for policies to help transform from the current state to the future state;
- Create a new definition of success for student outcomes to address what students need to know and be able to do to thrive in college, career and civic life. This definition of success could drive coherence and sustainability of the long-term plan, guiding new designs for accountability, systems of assessments and strategies to build capacity in the educator workforce; and
- Examine competency-based education structures and systems as a school improvement and transformation strategy. Consider ways the state could facilitate, support or create space for professional learning communities to share resources and best practices for continuous improvement.

RECOMMENDED ACTION STEPS FOR POLICY TO SUPPORT BUILDING LEADER AND EDUCATOR WORKFORCE CAPACITY FOR COMPETENCY-BASED EDUCATION

- Convene or participate alongside a national working group composed of a diverse cross-section of educators, school leaders, district leaders, students, state leaders and experts working across the field of competency-based education to "define the space" for the capacity and supports that are needed for a next generation educator workforce. Implications for state policymakers could include accreditation, licensure and certification standards and teacher quality or effectiveness metrics in state accountability systems;

- Consider ways policy can support and create space for teacher preparation, leader preparation and induction programs that are personalized and competency-based, and prepare educators to be effective in student-centered learning environments. Important considerations include:
  - Defining and understanding competencies that leaders and educators need to lead the transformation from managing change to designing new personalized and competency-based models;
  - Addressing barriers to creating, scaling and accrediting innovative leadership and educator preparation models whether in colleges of education, alternative certification programs or professional development programs (including LEA-based, pre-service and induction models).

RECOMMENDED ACTION STEPS FOR POLICIES THAT SUPPORT BUILDING ASSESSMENT LITERACY

- Build understanding of assessment literacy as a core principle to transform education to personalized, competency-based learning by building educator capacity to understand where students are in their learning. For example, policymakers could examine how other countries (e.g., New Zealand) are building assessment literacy through the study of international exemplars.

RECOMMENDED ACTION STEPS FOR ALIGNING HIGHER EDUCATION TO K-12 COMPETENCY-BASED EDUCATION MODELS

- Convene diverse stakeholders across K-12, higher education and community and business leaders to identify opportunities and barriers to align the continuum of education and workforce development to a new definition of success. Key considerations for policy should include:
  - Developing a shared understanding of meaningful credentials that are competency-based to ensure seamless transitions between K-12 and higher education in which students are prepared for success at the next stage in their learning;
  - Addressing admissions practices with institutions of higher education in the state by facilitating a compact or commitment to evaluate and accept competency-based high school transcripts as documentation of student readiness to succeed in higher education without remediation; and
  - Modernizing teacher preparation pre-service programs in higher education to prepare educators with the skills required to implement personalized, competency-based learning environments.

V. Conclusion

The goal of this paper has been to identify threshold concepts for competency-based education and develop a better understanding of issues that need to be addressed in policy over a long-term strategy. Education systems need to be designed with coherence around what students will need to know and be able to do to succeed in postsecondary education, the workforce and civic life. Content delivery of basic skills such as reading, language arts and mathematics is necessary but no longer sufficient. Structures based on seat-time which result in awarding credit to students with minimum time exposed to content, rather than based on learning and mastery of the knowledge and skills necessary for postsecondary success and future career readiness or employability, are perpetuating entrenched inequities, harming the students that our education systems continue to leave behind. Changing structures to better enable competency-based education systems requires significant shifts in policy in the long term to support fully developed personalized, competency-based models. The policy focus needs to move beyond restricting or removing restrictions to enabling the change and innovation necessary to realize a personalized, competency-based system. The change to competency-based education systems is necessary to drive equity, transparency, the ability for meeting students where they are, ensuring they are learning how to learn and developing the knowledge, skills and abilities they will need for future success.

Just as we want our students to grow into lifelong learners, policymakers could approach this challenge with a growth mindset, and with curiosity around the research on how students learn best and how youths develop.

Central to all conversations around transformation of K-12 education systems should be a steadfast commitment to equity, addressing structures that perpetuate racism and other bias. We need to be thinking differently about the theory of action that drives pedagogy, grading, transcripts, strategies and methods. The design flaw at the heart of the traditional system is the idea that students must be compared against each other, rather than against the outcomes. Success needs to be seen as inevitable with the right supports, rather than as a privilege that must be rationed and hoarded by an elite few.

ESSA gives states an incredible opportunity to start to change the conversation around what is truly possible if we focus on learning and meet each student where they are. While it may not be possible to effect this transformation over the course of months or even a few years, keeping the long-game in mind with a commitment to coherence in planning short-term tactics, will be essential to getting there over time.

Resources

Accountability

- CIE and Stanford Center for Opportunity Policy in Education - *Accountability for College and Career Readiness Developing a New Paradigm (51st State Paper)*
- iNACOL - *Rethinking State Accountability to Support Personalized, Competency-Based Learning in K-12 Education*
- Learning Policy Institute - *Pathways to New Accountability Through the Every Student Succeeds Act*

Competency-Based Systems

- Jobs for the Future - Competency Education Can Address Readiness Gaps - But Not Alone
- *Competency*Works, iNACOL and CCSSO - *Cracking the Code: Synchronizing Policy and Practice for Performance-Based Learning*
- Jobs for the Future - *Equity in Competency Education: Realizing the Potential, Overcoming the Obstacles*
- National Governors Association - *Expanding Student Success: A Primer on Competency-Based Education from Kindergarten Through Higher Education*
- Nellie Mae Education Foundation - *Making Mastery Work: A Close Up View of Competency Education*
- Jobs for the Future - *The Past and the Promise: Today's Competency Education Movement*
- Foundation for Excellence in Education - *Policy, Pilots, and the Path to Competency-Based Education: A Tale of Three States*
- *Competency*Works - *Reaching the Tipping Point: Insights on Advancing Competency Education in New England*
- iNACOL - *Quality and Equity by Design: Charting the Course for the Next Phase of Competency-Based Education*
- iNACOL - *State Policy & K-12 Competency-Based Education*

Educator Preparation, Development and Leadership

- KnowledgeWorks and iNACOL - *Laying the Foundation for Competency-Based Education: A Policy Guide for the Next Generation Educator Workforce*
- Jobs for the Future - *Educator Competencies for Personalized, Learner-Centered Teaching*
- National Center for Innovation in Education - *Leadership for Learning: What is Leadership's Role in Supporting Success for Every Student?*

Every Student Succeeds Act

- U.S. Department of Education - Every Student Succeeds Act
- Chiefs for Change - *Expanding Equity: Leveraging the Every Student Succeeds Act to Provide Direct Student Services*
- iNACOL - *Meeting the Every Student Succeeds Act's Promise: State Policy to Support Personalized Learning*
- iNACOL - *Redefining Student Success: Profile of a Graduate*

Federal Policy

- *Competency*Works - *A K-12 Federal Policy Framework for Competency Education: Building Capacity for Systems Change*
- KnowledgeWorks - *Embracing the Opportunity: Recommendations for Scaling Personalized Learning Under a New Presidential Administration*

General

- KnowledgeWorks - *A State Policy Framework for Scaling Personalized Learning*
- Saxberg and Hess - *Breakthrough Leadership in the Digital Age: Using Learning Science to Reboot Schooling*
- Convergence - Education Reimagined
- Great Schools Partnership Resources
- iNACOL - *Innovation Zones: Creating Policy Flexibility for Personalized Learning*
- iNACOL - *Promising State Policies for Personalized Learning*
- Jobs for the Future - Students at the Center Hub
- Great School Partnership - The Glossary of Education Reform

International Perspective

- UNESCO - Rethinking Education
- OECD - *Schooling Redesigned: Towards Innovative Learning Systems*
- New Zealand Ministry of Education - The New Zealand Curriculum
- New Zealand Education Review Office

Stakeholder Engagement

- New Mexico Learning Alliance - *Every Student Succeeds Act New Mexico Stakeholder Input Toolkit*
- CCSSO - *Let's Get This Conversation Started: Strategies, Tools, Examples and Resources to Help States Engage with Stakeholders to Develop and Implement their ESSA Plans*
- Education Commission of the State - *Collaborative Stakeholder Engagement*

Systems of Assessments

- KnowledgeWorks and the Center for Assessment - *Ensuring and Evaluating Assessment Quality for Innovative Assessment and Accountability Systems*
- OECD - *Synergies for Better Learning: An International Perspective on Evaluation and Assessment*
- Performance Assessment for Competency-based Education (PACE), New Hampshire Department of Education Website
- National Center for the Improvement of Educational Assessment - *Comparability in Balanced Assessment Systems for State Accountability*
- KnowledgeWorks, National Center for the Improvement of Educational Assessment, and the Nellie Mae Education Foundation - *Addressing Accountability Issues Including Comparability in the Design and Implementation of an Innovative Assessment and Accountability System*
- Stanford Center for Assessment, Learning and Equity - Scoring and Evaluation
- Center on Innovation in Education (CIE) - Assessment for Learning Project
- iNACOL - *Redesigning Systems of Assessments for Student-Centered 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 and 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 districts performance assessments to 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 sorting) 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 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-Billing 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:[29] 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:[30]

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:

- 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;
- Interrupting inequitable practices, examining biases, and creating inclusive multicultural school environments for adults and children, and
- Discovering and cultivating the unique gifts, talents, and interests that every human possesses.

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[31])

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[32])

Competency education is grounded in the idea that all students can succeed with the right supports, including learning how to have a growth mindset.

Habits of Work/Habits of Mind

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

Higher Order Skills/Deeper Learning Competencies

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

Learning Resources

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

Learning Experiences

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

Learning Progression

Learning progressions are research-based approaches and maps how students learn key concepts and skills as described in Achieve's briefing *The Role of Learning Progressions in Competency-Based Pathways*.

Learning Sciences Research

The learning sciences are concerned with "the interdisciplinary empirical investigation of learning as it exists in real-world settings."[33] 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.[34]

Lifelong Learning Skills

In the paper *Lifelong Learning Skills for College and Career Readiness: Considerations for Education Policy*,[35] AIR describes lifelong learning skills as providing "the foundation for learning and working. They broadly support student thinking, self- management, and social interaction, enabling the pursuit of education and career goals." *Competency*Works uses the term to capture the skills that enable students to be successful in life, navigating new environments, and managing their own learning. This includes a growth mindset, habits of work, social 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,[36] "social and emotional learning (SEL) is the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions." They focus on the development of five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Student Agency

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

Student Learning Trajectories

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

Universal Design for Learning (UDL)

CAST[37] 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.

Endnotes

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