iNACOL

Current to Future State:

Issues and Action Steps for State Policy to Support Personalized, Competency-Based Learning

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JANUARY 2018

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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.

This report is based on research funded by the Bill & Melinda Gates Foundation, Carnegie Corporation of New York, and Barr Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation, Carnegie Corporation of New York, or Barr Foundation.

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Introduction

This paper provides a roadmap for state policymakers to take action to catalyze transformational change in K-12 education toward a long-range vision for systems that help all students succeed.

Its purpose is to inspire state policymakers, including governors, state legislators, state boards of education, state school chiefs and state policy staff, with this vision for the long term and to provide specific action steps, policy strategies and recommendations to make it a reality.

CATALYZING TRANSFORMATION TO STUDENT-CENTERED LEARNING

Transforming K-12 education systems to be truly student-centered requires a shift in expectations and assumptions about what schools, teaching and 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.

If we want to see major improvements in outcomes for students, educators must be empowered and supported to fundamentally change the way they and their students use their time and the learning models in which they operate. Otherwise, we will only see marginal improvements, at best.

Often, state policy agendas for education focus on short-term, marginal changes, programs or initiatives. These short-term efforts can be very valuable, beginning the process of transformation in education systems. However, without a broader, long-range vision of education systems that prepare all students for success, they often fail to lead to systemic improvements, benefitting only a small group of students.

State policy agendas also change regularly due to the turnover of state leadership, leading to a lack of clarity in direction for a state's education system. Realizing a vision for K-12 education systems that prepare all students to succeed will require sustained focus, support and leadership. Effective commitment to a long-range vision requires engagement from stakeholders and groups outside of state leadership, such as education associations, business groups, philanthropic organizations and other stakeholder groups, where turnover is less of an issue.

It is time to build K-12 education systems based on the core principle that all students can succeed and be ready for the next step in their learning, the workforce and life.

State policymakers can catalyze this transformational change by:

- Partnering with stakeholders to craft a vision for the purpose and future of their education systems;
- Creating space and supports for competency-based, personalized learning models designed with equity in mind; and

- Building capacity within educators and school leaders to transform learning environments to meet the needs of every student.

All three of these elements, addressed in a coherent manner, are essential to maintain continuous improvement over time.

State leaders should partner and collaborate with local stakeholders to create and sustain this vision of transformation to student-centered learning because stakeholders have:

- The best understanding of what their communities need;
- The biggest stake in the success of the vision; and
- The responsibility of implementing the required changes and reforms.

The success of the long-range vision of transformation to personalized, competency-based learning so all students can be successful, will largely be determined by the amount of buy-in from local stakeholders, including teachers, students, parents, families, school leaders, community leaders, civil rights groups, philanthropic groups and business groups. It is particularly important that the views and perspectives of organizations looking out for students from marginalized groups - those students who have been least well served by the traditional education system - be included and respected in this vision of transformation to student-centered learning.

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VISION FOR AN EDUCATION SYSTEM THAT HELPS ALL STUDENTS SUCCEED

What are the essential elements of a system capable of preparing all students to succeed in higher education, flourish in a 21st century workplace and participate effectively as citizens?

In January 2018, iNACOL published the draft paper *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education* for participants of the National Summit on K-12 Competency-Based Education. The paper examines four threshold concepts — "core concepts, that once understood, are needed to transform a given subject."[1] Threshold concepts are important for policymakers to understand to embrace a vision of personalized, competency-based learning. These threshold concepts can help us to 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.

The following summarizes these four threshold concepts:

Certifying Learning

How is it possible that our education system still graduates many students who lack basic reading, writing, and math skills? Today, the only thing we can know for sure about a high school diploma in most U.S. school districts is that its holder has put in the required seat time in the requisite courses. When schools are passing students along and graduating them with major gaps in skills and knowledge, we are doing them a disservice.

Not only do diplomas need to certify mastery of academic competencies, but they also need to be more meaningful by certifying mastery of a comprehensive set of skills, knowledge and dispositions students need to succeed after high school. More meaningful qualifications could promote more holistic, learner-centered models to ensure students gain the knowledge and skills they need to thrive after high school.

Assessment Literacy

Addressing the lack of assessment literacy across the system is critical to helping all students succeed. Assessment literacy is "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."[2]

Students are learning all the time and everywhere; education does not only occur within the walls of a school building. Educators need a solid foundation in assessment literacy in order to monitor student understanding, and effectively and consistently certify student knowledge acquired from a widely varying set of experiences and learning opportunities. As education systems move away from seat-time as the basis for awarding credits and degrees, to systems based on mastery, assessment literacy becomes critical for educators to rigorously ensure comparability across learning environments and different types of evidence of student work.

In addition, educators, policymakers and stakeholders ought to understand the roles that different types of assessments can play in student learning, how assessment and moderation can be used to comparatively and fairly judge student mastery and how the information generated by assessments could power a cycle of continuous improvement in teaching and learning.

We need to build significant capacity for assessment literacy to advance new, competency-based approaches and address tough issues in our current system.

Pedagogical Innovations Based on Learning Sciences

Learning models should be rooted in research about how students learn best (the learning sciences), with any redesign putting student success at the center. We need to align pedagogical approaches with research on student motivation and engagement. We should meet students where they are, in their zone

of proximal development,[3] to ensure they find school much more engaging, fair and meaningful. We must ensure we design for equity using research on how students learn best, youth development theory and evidence-based approaches.

Meeting Students Where They Are

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. We know that when students are able to address prior gaps in their learning, they can accelerate their learning dramatically.

Meeting students where they are requires a shift of the learning environment to become learner-centered. This requires 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. 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.

ENVISIONING THE FUTURE STATE OF EDUCATION

Understanding and internalizing the threshold concepts helps us to more clearly envision a future state of education that leverages personalized, competency-based education to prepare every student for success.

Equity is at the forefront of the future system, ensuring no student falls through the cracks because of circumstance or background. The goal is to help every student to become a self-directed, lifelong learner possessing all necessary academic, critical thinking, communication, collaboration and problem-solving skills, empowering and supporting them to thrive and succeed.

In the future state of K-12 education, we envision a system that:

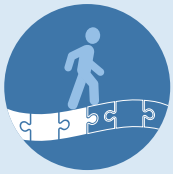
- Is based on a shared belief that every student can and will succeed, reaching high standards, when systems are student-centered, providing the right supports, at the right time, personalized to each student's unique interests, needs and strengths;
- Creates instructional systems based on the learning sciences research on how students learn best;
- Empowers educators to build personalized, competency-based learning environments, including assessment literacy to exercise professional judgement of student work to consistent high standards;
- Certifies qualifications, degrees and credentials that are meaningful, awarded based on mastery of the core competencies required to succeed; and
- Is based on a growth mindset, with systems that are purpose-built for continuous improvement of student learning, educator practice and supports.

This is the vision for the future state of education, designed for equity and capable of preparing every student for success.

WHAT IS COMPETENCY-BASED EDUCATION AND HOW DOES IT DIFFER FROM THE TRADITIONAL SYSTEM OF EDUCATION?

A core element of the future state of education is competency-based education. In 2011, one hundred innovators in competency-based education came together where they fine-tuned a working definition (below in bold) of high-quality, competency-based education with the following five elements.

Competency-based education is a system where:

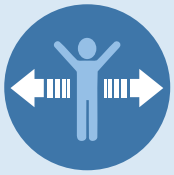


Students advance upon demonstrated mastery — By advancing upon demonstrated mastery rather than on seat time, students are more engaged and motivated and educators can direct their efforts to where students need the most help.

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

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

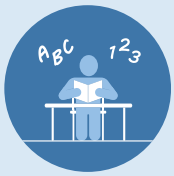
Students receive timely, differentiated supports based on their individual learning needs — When students struggle with a concept, they receive timely, personalized supports. Often, schools with personalized, competency-based learning environments provide flexible time during the day for students to receive additional instructional support in the area where they need it.



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

10 FLAWS IN THE TRADITIONAL EDUCATION SYSTEM

The traditional system is simply not designed to produce the goals we have set for it, or that our children, communities and nation so desperately need and deserve. There are ten primary flaws in the traditional system that can be corrected by redesigning it around the goal of student mastery. These flaws include that the traditional system:



Is focused on a narrow set of academic outcomes and fails to recognize that student success is dependent on a full range of foundational skills, including social-emotional skills, and the application of skills. Competency-based education is designed to help students learn academic knowledge, the skills to apply it and lifelong learning skills that are needed to be fully prepared for college, career and life.

Is time-based. Schools batch students by age and move them through the same content and courses at the same pace. Students advance to the next grade level after a year of schooling regardless of what they actually learned.[4] Competency-based education is based on learning: students must demonstrate mastery of learning, with schools monitoring pace and offering additional supports to meet time-bound targets.

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

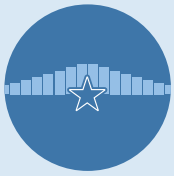
Relies on a bureaucratic, hierarchical system that perpetuates traditional roles, cultural norms and inequitable power dynamics. Competency-based education seeks to create an empowering, responsive system that is designed to build trust and challenge inequity.

Is built on a fixed mindset — the notion that people's "abilities are carved in stone." In contrast, a competency-based education system is built upon a growth mindset with a belief that all children can learn with the right mix of challenges and supports.[5]

Depends on extrinsic motivation. Competency-based education fosters intrinsic motivation by activating student agency and providing multiple pathways for learning to the same high standards.

Emphasizes covering the curriculum and fails to reflect the learning sciences about what we know about how children learn. In competency-based education, everything should be rooted in what we know is best for students in terms of engagement, motivation and learning.

Is organized to efficiently deliver curriculum and assess students' proficiency at low levels such as memorization and comprehension of content knowledge rather than applied learning and mastery. Competency-based education is organized to personalize learning and support the development of higher order skills such as analysis, evaluation and problem-solving.



Has high variability in how teachers determine proficiency. Competency-based systems build educator capacity to make judgements of student mastery to the same high standards and calibrated for consistency with other teachers.

Ranks and sorts students creating "winners" and "losers" and perpetuating patterns of inequality in society. Competency-based education meets students where they are to ensure that each one can be successful to the same high college- and career-ready standards.

Issues to Tackle

How can policymakers support a vision of transformation to personalized, competency-based education to help all students to succeed? What are the policy issues to tackle to make this vision a reality?

The paper, *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education*, highlights five issues to tackle for a long-range vision and strategy for transformation to personalized, competency-based learning systems:

- Redefining success;
- Meaningful qualifications;
- Accountability as continuous improvement;
- Developing educator capacity; and
- Building capacity to lead change.

This report will explore each issue to tackle and identify the action steps policymakers can take to address the issue. Together, these action steps constitute a roadmap for state policymakers to catalyze transformational change in K-12 education towards a future state where each student has the knowledge and skills necessary to succeed in higher education, the workplace and civic life.

Redefining Success

ORGANIZING EDUCATION SYSTEMS AROUND THE KNOWLEDGE AND SKILLS STUDENTS NEED FOR SUCCESS IN COLLEGE, CAREER AND CIVIC LIFE

Basic skills in reading, writing and mathematics are important, but they are not enough to adequately prepare students for successful futures. Unfortunately, the current system of education is simply leaving too many students behind. Across the United States, schools are graduating high school students at higher rates than ever (83%),[6] yet by varying estimates, 37% of first-year college students require remediation.[7]

Under the Every Student Succeeds Act (ESSA), states have an unprecedented opportunity to transform K-12 education systems to advance equity and help every student succeed with a new definition of success. As an important first step, states can engage with stakeholders to identify the knowledge and skills students will need to succeed in college, careers and civic life.

Since the passage of ESSA, states and local communities have been charged with rethinking their aspirations for public education and creating new definitions of student success for K-12 education to better prepare students for their futures. It is an important time for policymakers at the local and state level to take action and engage stakeholders in conversations around the strategic design of a graduate profile — a description of what students should know and be able to do upon graduating from high school.

This section will explore the importance of creating a holistic definition of student success to drive policy and outcomes, engaging education stakeholders in conversations for defining a shared vision for student success, and using next generation learning models to prepare all students to achieve success in K-12 education and beyond.

WHY REDEFINING STUDENT SUCCESS IS IMPORTANT

Readiness for college, career and life is one of the central purposes of education at all levels. Further, the economy is shifting focus from an industrial age to one which will require our future workforce to hone in on intellectual and creative capacities to problem solve in an increasingly complex world.

States and communities can help better prepare students for future success in careers and postsecondary education by rethinking what a high school credential should mean.

Today's youth must be prepared to take on jobs that never existed before and tackle challenges in a more complex society. Students will need skills to problem-solve, think critically and ensure they are creative, dynamic designers of their futures. There is a need to define success for students more holistically to focus on 21st century skills as well as a strong foundation in knowledge and decision making to achieve success. The emphasis for future readiness will shift to a combination of applied knowledge and higher order skills.

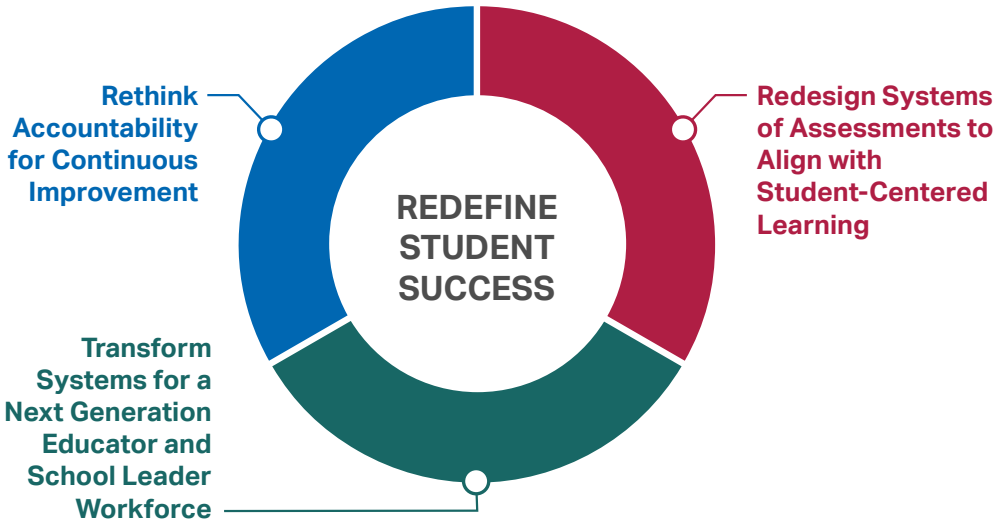
States and local communities have an opportunity to rethink student success goals and set a vision for what students should know and be able to do upon graduation to succeed in college and the workforce. With clear, comprehensive definitions of student success, states can begin to transform statewide education systems to prepare students with what they need to know and be able to do. An important concept for policymakers to consider is how a new definition of success could be used to drive system coherence. In other words, the state's vision for student success can align curriculum, instruction and systems of assessments around shared goals and an understanding of what students need to know and be able to do to graduate ready for postsecondary success.

According to the World Economic Forum, the top ten skills required by employers in the year 2020 will include:

1. Complex problem solving
2. Critical thinking
3. Creativity
4. People management
5. Coordinating with others
6. Emotional intelligence
7. Judgement and decision making
8. Service orientation
9. Negotiation
10. Cognitive flexibility

Source: Future of Jobs Report, World Economic Forum

REDEFINING STUDENT SUCCESS: DRIVING COHERENCE IN EDUCATION TRANSFORMATION



With a shared, statewide vision for student success, states could begin to build coherent systems in which every function and individual has a clear role to play in helping all students succeed. Standards and competencies can be aligned to the state vision for student success around what students should know and be able to do upon graduation. Systems of assessments could provide timely feedback and allow students to demonstrate mastery and advance when ready. Chattergoon and Marion (2016)[8] explain that, "the assessments in the state must become 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."

Next generation accountability models can provide transparency and inform where students are from the goal of student success as well as support and improve schools toward reaching this vision over time. Diverse stakeholders in pre-K workforce systems including state education agencies, higher education, businesses, workforce development agencies and communities, families and students could share the goals and values in a new definition of student success and create policy for the long term. Finally, systems for building educator and leader capacity could emphasize mastery of the skills needed to build personalized, competency-based learning environments.

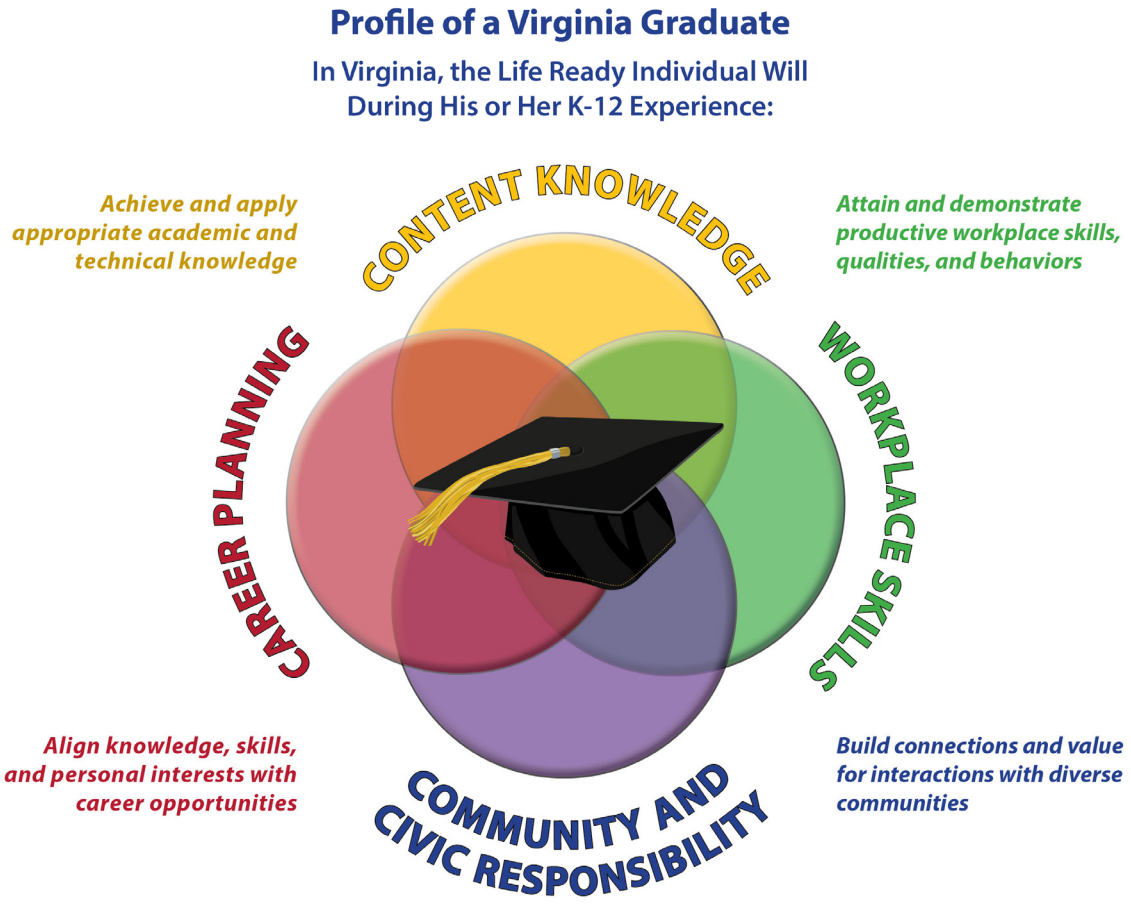
Along with redefining student success, states may want to consider how the current methods for credentialing high school diplomas can effectively signal to students, higher education institutions and employers what skills, competencies and qualifications students should have upon graduation.

Profile of a Graduate

One action states can take is to begin developing a vision for student success through creating a "Profile of a Graduate." A graduate profile specifies the knowledge and skills — including the cognitive, personal and interpersonal competencies — that students need to have by the time they graduate from the K-12 education system. Co-created with input from key stakeholders, states, districts and schools can use this profile as a clear framework of priority goals for teaching and learning that can be easily communicated to students, parents, faculty and staff.

VIRGINIA

In Virginia, a new initiative to examine future directions for the high school diploma led to the creation of the "Profile of a Virginia Graduate." This initiative was born from a series of public conversations around whether students are adequately prepared with transferable skills, employability skills and college readiness with value to the learner, workplace and community. These conversations originated from the local level; it 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. From across the state, a common vision emerged which is now adopted in a Profile of a Virginia Graduate policy for the state, districts and schools.



Source: Virginia Department of Education

The Profile of a Virginia Graduate[9] "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." In the Profile, 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).

Local leaders and educators in Virginia are actively engaging in systems redesign around the Profile of a Virginia Graduate. For instance, the Virginia State Board of Education proposed changes to the state graduation requirements and accountability system to align with the Profile of a Virginia Graduate.[10] Further, under the state's ESSA State Plan, school counselors will be trained to assist students with individualized academic and career plans that align to the vision of college and career readiness under the Profile.[11]

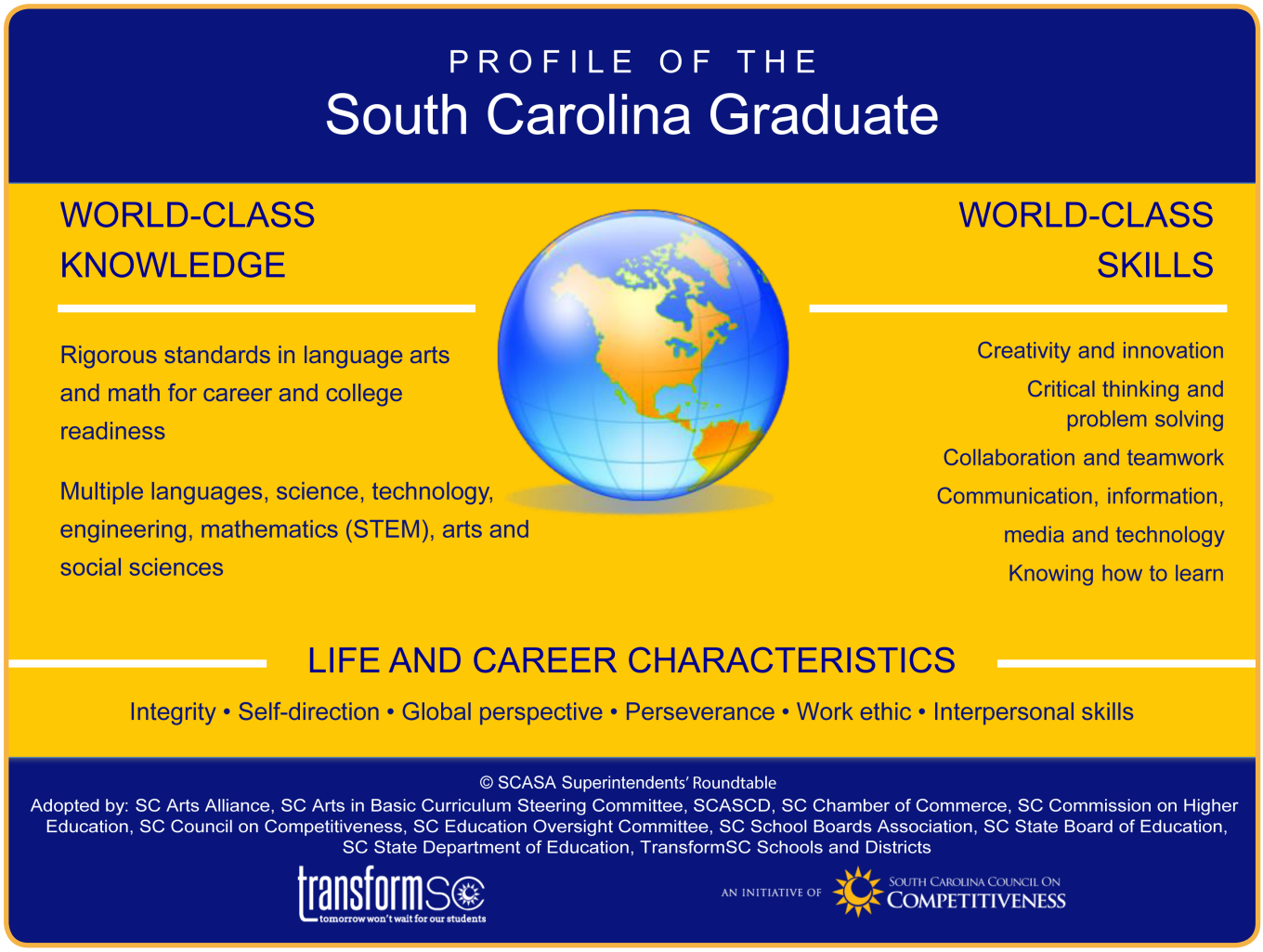
SOUTH CAROLINA

In South Carolina, conversations around new definitions of student success also began at the local level. Superintendents in the state drove conversations with local communities around the skills and knowledge students should have upon graduating high school. Other state education stakeholders, including parents, students, the business community and community members, were engaged in rethinking new definitions of success for students leaving the K-12 education system in the state.

The coalition of education and business leaders organized as "TransformSC" under the South Carolina Council on Competitiveness in 2012 created the Profile of the South Carolina Graduate. A network of 37 schools adopted the Profile as a shared mission in 2013 and are piloting the delivery and measurement of learning by implementing the following practices:[12]

- **Real-world learning:** Students are engaged in content relevant to them while also learning skills and characteristics like problem solving, critical thinking and teamwork;
- **Anytime-anywhere instruction:** Digital content adapts to students where they are in their learning, allowing teachers the flexibility to design instruction for individual students;
- **Real-time information:** With full integration of technology in the classroom, teachers, parents and students have the ability to continuously assess student progress; and
- **Students advance when ready:** The combination of real-time information and the flexibility of digital content means that students can progress based on competency.

Through broad state and district partnerships that include business communities, curriculum committees, and the state superintendent's roundtable, South Carolina adopted the Profile of the South Carolina Graduate in 2015 highlighting three areas of the knowledge, skills and characteristics high school graduates should know and be able to do. The South Carolina State Board of Education, Chamber of Commerce, and Association of School Administrators worked to align the Profile to their mission and work.



Source: South Carolina Department of Education

Having a joint focus on what high school graduates need to know to be ready for college, career and citizenship means stakeholders from, for example, the State Board of Education, Legislature and district superintendents, have a shared understanding and goal of preparing all students for success in these three areas: world-class knowledge, world-class skills and life and career characteristics.

STATE POLICY ACTION STEPS TO REDEFINE SUCCESS

A new definition of success is crucial to drive coherent K-12 education system improvements that are built on shared goals for all students to succeed and thrive in college, career and civic life. States can begin to engage districts and communities around what students need to master for true preparedness.

States can consider the following action steps to work with communities and stakeholders to redefine success for all students in the state:

- **Action Step #1**: Adopt a statewide vision by convening diverse stakeholders to redefine student success and create a comprehensive Profile of a Graduate based on the knowledge and skills that students need for college, career and civic life;
- **Action Step #2**: Create a working group on meaningful qualifications to study other states' and countries' efforts to align credentials to comprehensive definitions of success;
- **Action Step #3**: Consider opportunities in the state to improve K-12, higher education and workforce alignment of knowledge, competencies and skills; and
- **Action Step #4**: Adopt proficiency-based diplomas and support implementation by creating resources for school districts to effectively implement. For example, recognize the need for developing statewide processes for calibrating and moderating judgements using evidence across schools and districts to ensure consistency in grading and quality of proficiency-based diplomas.

RESULTS OF K-12 EDUCATION SYSTEMS WITH COMPREHENSIVE DEFINITIONS OF STUDENT SUCCESS

Redefining student success can drive coherence in state K-12 education systems and lead to:

- Clear communication and expectations with students, parents, community members and stakeholders on what students should know and be able to do to graduate from the K-12 education system;
- Empowered students with clear goals and outcomes from pre-kindergarten through graduation;
- High school credentials that are meaningful;
- Increased coherence across education systems; and
- Aligned state education and workforce systems under a shared vision for student success.

Through redefining student success, everyone — students, parents, educators and policymakers — can understand what students should know and be able to do upon graduation. District and community stakeholders can be engaged in conversations on the values and outcomes for student learning. States can set the foundation for next generation education systems that prepare all students for success. A statewide vision and mission for student success can create alignment and coherence between state education systems and support the shift to competency-based education models that ensures all students graduate ready to succeed during and beyond K-12 education.

Meaningful Qualifications

How is it possible that our education system still has many students who lack basic reading and math skills when they hold a high school diploma?

Let's examine what a diploma means and how we might re-envision this qualification.

Currently, high school diplomas are based on transcripts which award credit for academic subjects based on meeting minimum seat-time requirements and a passing grade, which may or may not signify mastery of the content. There is wide variability in grading practices and in the knowledge attained in given subjects, which is evidenced by high remediation rates in entry-level college courses. College faculty often cite the underpreparedness of high school graduates for the rigor of college courses. A high school diploma only certifies, in most U.S. school districts, that graduates have put in the required seat time in the requisite courses. When schools are passing students along and graduating them with major gaps in skills and knowledge, they are doing students a disservice.

How can the high school diploma align to a more comprehensive definition of success and be more transparent about achievement? This is one area where state policymakers and communities can take action. Whether a community conversation or a state conversation, the idea of engaging communities and families in conversations around what is different in the 21st century, and around what students need to know and be able to do, is increasingly important. A more meaningful high school credential would focus on the knowledge, skills and competencies a student has earned based on evidence of mastery.

A conversation on creating meaningful qualifications could help states and communities to answer the following questions:

- What innovative approaches could we take to create a more meaningful high school diploma?
- How can we create multiple pathways for students to engage in learning, including in the community, in museums, in internships and in place-based learning, with formal and informal learning opportunities inside and beyond classrooms?
- How would a meaningful qualification, with a comprehensive e-portfolio, be valued and useful for entry to the next level of education, career pathway and lifelong learning?
- How would this shift the focus toward ensuring students have targeted supports to reach future goals and success?
- How would this expand rich learning experiences that spark creativity and a thirst for lifelong learning?

There are alternatives to the American system of time-based credits and transcripts.

Internationally, at least 47 countries (not including the U.S.) have developed national qualifications frameworks, formalized structures in which learning level descriptors and qualifications are used in order to understand learning outcomes for different credentials.[13]

Qualifications frameworks facilitate competency-based qualifications that form linkages between K-12, higher education and the needs of the future workforce.

In this section, we will explore action steps state policymakers could take to make K-12 qualifications much more meaningful. We will explore the concepts of qualifications frameworks and proficiency-based graduation requirements and provide policy recommendations.

WHY MEANINGFUL QUALIFICATIONS ARE IMPORTANT

Coherent education systems designed around meaningful qualifications hold promise to:

- Motivate students to learn by clearly linking their studies with tangible outcomes;
- Improve college persistence and graduation rates by reducing the need for remediation;
- Reduce retraining costs for employers; and
- Promote lifelong learning.

The following section highlights New Zealand as an example of an education system that effectively uses qualifications frameworks to make credentials more meaningful to students, educational institutions and employers. The section after that highlights how proficiency-based graduation requirements could lend more meaning to credentials in the United States.

The New Zealand Qualifications Framework (NZQF)

The New Zealand Qualifications Framework (NZQF) is aligned across primary and secondary education, higher education and workforce certifications. According to the New Zealand Qualifications Authority, this "is the heart of New Zealand's education system. All qualifications…come with an assurance of quality that is recognised and trusted worldwide… This allows [students] to benchmark [their] level of skill and knowledge on the NZQF and makes it easier for countries and regions to compare qualifications. For employers it makes explicit what graduates can 'do, be and know' on completion of the qualification. And for all parties it lays out pathways to further education, employment and/or a contribution to their community."[14]

The NZQF is structured into 10 levels. As students earn certificates and progress up the levels, they begin to specialize in their knowledge and earn diplomas and degrees.[15]

The following chart articulates the knowledge and skills needed to advance to higher levels in the qualifications framework. Level 1 is based on attaining general foundational knowledge, mastery of 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 evidence in support of the learning.

A Level 2 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. Each of the qualifications are earned within an aligned system of K-12, higher education and the workforce organizations/professional competencies identified as students progress in their levels and higher education degrees and professional certifications.

Levels 8-10 involve increasingly advanced understandings of a discipline or practice, ending with an individual demonstrating knowledge at the most advanced frontier of a particular professional practice or field of study.

Level	Knowledge
1	Basic general and/or foundation knowledge
2	Basic factual and/or operational knowledge of a field of work or study
3	Some operational and theoretical knowledge of a field of work or study
4	Broad operational and theoretical knowledge of a field of work or study
5	Broad operational or technical and theoretical knowledge within a specific field of work or study
6	Specialized technical or theoretical knowledge with depth in a field of work or study
7	Specialized technical or theoretical knowledge with depth in one or more fields of work or study
8	Advanced technical and/or theoretical knowledge in a discipline or practice, involving a critical understanding of the underpinning key principles
9	HIghly specialized knowledge, some of which is at the forefront of knowledge, and a critical awareness of issues in a field of study or practice
10	Knowledge at the most advanced frontier of a field of study or professional practice

Source: http://www.nzqa.govt.nz/studying-in-new-zealand/understand-nz-quals/

All specific competencies and standards for students to advance in a particular field of study are created collaboratively with practitioners and researchers in a particular field of study. This creates alignment and coherence in New Zealand's educational system enabling New Zealand to more effectively prepare all students for success.

HOW PROFICIENCY-BASED GRADUATION REQUIREMENTS COULD MAKE HIGH SCHOOL DIPLOMAS MORE MEANINGFUL

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. 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 states adopting policies around proficiency-based graduation requirements. These requirements are a promising policy to move systems toward qualifications systems that are meaningful to students, educational institutions and employers.

Vermont's Proficiency-Based Graduation Requirements

Vermont, for example, has defined proficiency-based graduation requirements as "the locally-delineated set of content knowledge and skills that have been determined to qualify a student for earning a high school diploma." These requirements are meant to "assure that when students show mastery in the essential skills and knowledge of diverse content areas and consequently receive a high-school diploma, they are prepared for the college, career and citizenship opportunities ahead."[16]

Vermont's Education Quality Standards were approved by the Vermont State Board of Education in 2013, and require schools to have proficiency-based graduation requirements for students graduating in 2020 and for each subsequent graduating class. The state allows students to demonstrate mastery through multiple means, including teacher-designed assessments, papers, presentations, portfolios, or projects. Local school districts may adopt their own specific graduation requirements but must adhere to state standards in the following curriculum areas:

- Literacy;
- Mathematical content and practices;
- Scientific inquiry and content knowledge;
- Global citizenship;
- Physical education;
- Health education;
- Artistic expression; and
- Transferable skills, including communication, collaboration, creativity, innovation, inquiry, problem solving and the use of technology.[17]

Proficiency-based graduation requirements are one way to facilitate qualifications in K-12 education that are much more meaningful to students, educational institutions and employers. Policymakers might also 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.

STATE POLICY ACTION STEPS TO MAKE QUALIFICATIONS MEANINGFUL

The following are action steps for state policymakers to make qualifications more meaningful to students, institutions and employers:

- **Action Step #1:** Create a working group on meaningful qualifications to study other states' and countries' qualification frameworks; consider opportunities in the state to align and improve K-12, higher education and workforce qualifications;
- **Action Step #2:** Convene stakeholders to redefine student success with a comprehensive Profile of a Graduate based on the knowledge and skills that students need for success in college, career and civic life;
- **Action Step #3:** Create proficiency-based graduation requirements and support their implementation by:
  - Aligning the requirements with a comprehensive profile of a graduate;
  - Creating resources and supports for school districts to effectively implement proficiency-based diplomas; and
  - Facilitating a process of moderation[18] across districts to ensure that districts maintain the same high standards in the awarding of proficiency-based diplomas.

RESULTS OF A K-12 EDUCATION SYSTEM USING MEANINGFUL QUALIFICATIONS

With meaningful qualifications in K-12 education, students will understand exactly what they need to know and be able to do to graduate ready to succeed after high school, fostering internal motivation in students and reducing remediation costs across education systems.

A future state of education, in which all students are prepared for success, will provide much more meaningful qualifications, resulting in:

- Creating better transparency through more accurate high school transcripts of what students know and can do with evidence and e-portfolios;
- Motivating students by clearly linking their studies with tangible outcomes;
- Improving college persistence and graduation rates by reducing the need for remediation;
- Reducing retraining costs to employers;
- Promoting lifelong learning; and
- Increasing coherence across education systems.

Accountability as Continuous Improvement

MOVING FROM COMPLIANCE TO CONTINUOUS IMPROVEMENT

Education systems should be rooted in a core value that every student, with the right supports, can learn and achieve to the same high standards and rigor. Accountability as continuous improvement recognizes that each student, teacher and school is in a different place on their path to meeting high expectations and that each one has room to improve. It is necessary to meet students, educators and schools where they are in their respective development so that they have what they need to accelerate achievement and close gaps.

This section on accountability will explore what it means to move from compliance to continuous improvement in K-12 education and how policymakers can begin to think about redesigning accountability systems in order to:

- Support students to reach new definitions of success with personalized, competency-based learning;
- Drive continuous improvement at every level of the system;
- Provide transparency on multiple measures aligned to comprehensive student success outcomes; and
- Ensure that students have the supports they need, when they need them, to master the knowledge, skills and dispositions necessary for success in college, career and civic life.

What does it mean to move from compliance to continuous improvement?

The prevailing approach in state education systems of accountability is based on compliance. Compliance-based accountability is about narrow, time-based metrics of student achievement, benchmarks for cohorts of students, after-the-fact use of data, and a one-size-fits-all approach to school improvement. Compliance-based accountability goes hand-in-hand with a top-down bureaucratic culture and management rather than distributed leadership that engages and empowers educators, leaders and communities. Compliance-based accountability is about collecting, reporting and using information because it is required by laws and regulations, rather than because it supports student success.

In contrast, next generation accountability systems focused on continuous improvement are about having benchmarks for every student and a focus on equity that examines progress against the same high standards of rigor and provides students with the supports they need to achieve them. Continuously improving education systems use evidence-based practices to improve learning and monitor progress of schools and systems in real-time. In response to ongoing feedback and data, they evolve their practice, culture and structures to ensure that students get the supports they need, when they need them.

An accountability system based on continuous improvement requires:

- Creating a new, more holistic definition of student success that reflects the comprehensive range of knowledge, skills and dispositions students will need to succeed in higher education, the workforce and civic life;
- Benchmarking using multiple metrics for the new definition of student success;
- Providing transparency around mastery, gaps and depth of student learning so educators can ensure that learning gaps are filled and all students have the opportunity to learn at deeper levels of knowledge;
- Monitoring student pacing and employing evidence of what works best to improve student learning; and
- Tracking both student proficiency in relation to time-bound targets[19], evaluating progress on the trajectory of growth along learning progressions towards the next level of proficiency and monitoring the relative performance on these metrics between student subgroups.

Opportunity to Move from Constraints of NCLB to Opportunities Under ESSA

Under No Child Left Behind (NCLB), accountability was based on a limited definition of student success. Specifically, states were required to base school interventions only on the percentage of students who were grade-level proficient on end-of-year, summative statewide tests in math and reading/English language arts. Importantly, NCLB required for the first time that this information be disaggregated and reported by student subgroup and transparently reported to the federal government. This was significant and a needed development in education policy to shine a light on persistent achievement gaps among underserved subgroups and motivated education stakeholders to pay greater attention to the achievement of students with disabilities, English language learners, students belonging to racial and ethnic minority groups and students living in poverty.

Under NCLB, schools were required to make "Adequate Yearly Progress" (AYP) toward a goal of 100% proficiency (in every subject and subgroup) by 2014. Schools were subject to increasingly punitive sanctions for each year that they did not make AYP. While this initially drove a needed focus on underserved students, an unintended consequence of NCLB was a narrowing of the definition of student success, resulting in schools focusing on the "bubble" students — those who were most likely to meet grade level proficiency with targeted test preparation.

The new federal education law passed in December 2015, the Every Student Succeeds Act (ESSA), provides new flexibility on defining student success toward broader purposes and educational goals, including how to measure school and student success. States now have greater flexibility with their accountability systems to report multiple measures that reflect more comprehensive definitions of success, and to show where students are in their learning and growth. ESSA requires states to measure four academic indicators and a fifth "indicator of school quality" for determining school performance. Under ESSA, the opportunity is there for states to provide greater transparency on student learning and expand definitions of success.

States can purposefully design systems that are dynamic and responsive to stakeholders. As states learn what works, or does not work, they may make changes in the spirit of innovations for equity and continuous improvement. States have the opportunity under ESSA to open meaningful, two-way lines of communication with local communities to create a clear vision for education in the state under a shared understanding of the results schools should deliver for all students. In fact, states may submit a request to the U. S. Department of Education to amend their accountability plans at any time.

Reciprocal Accountability

A core concept in next generation accountability systems is building capacity, trust, and professionalism toward the 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."*[20]

In reciprocal accountability, "Each level of the system — from federal and state governments to districts and schools — should be accountable for the contributions it must make to produce high-quality learning opportunities for each and every child. States and districts must be accountable for providing the resources, supports and incentives that result in well-staffed, effective schools. Schools must be accountable for using these resources wisely and enabling strong teaching. Educators must be accountable for teaching the standards in ways that respond to their students' needs. Everyone must be accountable for continuous learning."[21]

Reciprocal accountability recognizes the critical contributions that educators, communities and stakeholders provide to school effectiveness. The goal of reciprocal accountability is to create an environment in which all participants recognize their obligations and commitments in relation to each other and to students, in the state and in communities. For example, state educational agencies (SEAs) are responsible for identifying schools that are in need of support and intervention; but, with reciprocal accountability, SEAs would also deliver on the promise of supporting schools with the capacity and resources required to ensure that every student can realize their full potential.

With reciprocal accountability, accountability does not fall disproportionately on the shoulders of any one stakeholder group, and collaboration is prioritized. As a first step, states can begin to engage with diverse stakeholders at different levels of the system, thinking about how reciprocal accountability designs can increase equity and improve outcomes for every student.

WHY NEXT GENERATION ACCOUNTABILITY FOR CONTINUOUS IMPROVEMENT IS IMPORTANT

State and local education systems need to focus on supporting an accountability system that continuously improves to meet the needs of a changing society, economy and student populations.

Policymakers, school leaders, teachers, parents and communities want systems that are transparent and aligned to improving teaching and learning over time. Next generation accountability systems can serve this purpose by providing the appropriate information to the appropriate stakeholders. Further, next generation accountability can be an effective tool to inform capacity-building in schools aimed at supporting teaching and learning in a student-centered, competency-based education system.

Next generation accountability focuses on designing systems that are adaptive and iterative toward continuous improvement. It focuses on distributing responsibility across the education system's stakeholders toward reciprocal accountability. Through multiple measures, accountability systems can provide data contributing to greater transparency for all stakeholders and for informing and enabling school improvement.

CONSIDERATIONS FOR NEXT GENERATION ACCOUNTABILITY SYSTEMS

As policymakers think long term about accountability redesign, an important first step in the development of a next generation accountability system is to create a clear vision of student success with diverse internal and external stakeholders. A shared vision for student success can clarify the purpose of the state's K-12 education system and drive coherent policies across the education system to make that vision a reality. One way states can create a shared statewide vision that reflect a new definition of success is through the creation of graduate profiles.

Policymakers can also consider how multiple measures of student learning and school quality can be used in next generation accountability systems to provide stakeholders with rich, easy to understand information. Next generation accountability systems must also both provide schools with useful information for their own improvement decisions and address the needs for state policymakers to identify and support schools in need of improvement.

Transparent Data with Multiple Measures Reporting

Next generation accountability systems can provide multiple measures of student learning and school quality that are aligned to graduate profiles. They can be designed to provide greater transparency, a key purpose of accountability. High-quality accountability systems should be designed for transparency and usability by students, parents, teachers, principals and district leaders. With the appropriate data available at the appropriate levels, accountability systems could empower stakeholders with actionable, timely information on student learning and school quality.

Thinking Differently About Growth and Proficiency Metrics in Accountability

As we consider student learning outcomes, it will be important to think differently about the concepts of "proficiency" and "growth" and how we can monitor student learning in real-time, so educators can intervene quickly to fill in gaps or meet other needs as they arise. We need to move from thinking about measuring one point of proficiency at one point in time, to understanding the transparency of data with student proficiency every day as well as each student's growth over time. There is a need for more advanced quality assurance, evaluation and assessment approaches to provide ongoing transparency of student progress. With better data, data literacy and the requisite investments in educator capacity, it would be possible to evaluate proficiency, achievement gaps, rate of progress and also understand growth based on individual student growth over time; we could also look across cohorts of students and disaggregate data by sub-group to ensure equity and transparency with a depth not possible today.

Better accountability systems based on multiple measures could address the different information needs of states, localities, schools and communities. They can also drive more meaningful decisions on school supports and improvement, professional learning communities and offer needed supports for educators, or interventions to build capacity, in order to ensure that every student can succeed. In designing next generation accountability systems, states should consider how multiple measures of student learning and school quality could be clearly presented with advanced data visualization to provide families and communities with rich, easy to understand information and supports for educators. Additionally, policymakers should consider how accountability systems could provide timely information to the appropriate stakeholders for equity and transparency, ensuring the data can be aggregated or disaggregated to meet different needs.

Transparency in next generation accountability systems is about providing a comprehensive understanding of student readiness and progress toward future success in college, career and civic life. Next generation accountability systems can support educators in meeting students where they are by knowing where students are in their learning regardless of grade level and inform timely allocation of effort and resources so that educators are always able to give students what they need and when they need it, in order to succeed. New systems can provide a multi-faceted understanding of how students are progressing toward success on graduate profiles. For more information about multiple measures reporting in Vermont and California, see the Appendix.

Policymakers designing new accountability models should give ample consideration to supports that will be required to build the capacity of educators and leaders to access, interpret and use data to support student success in personalized, competency-based educational environments.

Accountability for Continuous Improvement in Vermont

Under Vermont's ESSA State Plan, the state will include multiple measures on school performance through five state priorities: safe, healthy schools; high-quality staffing; investment priorities; academic proficiency; and personalization.[22] These priorities are aligned to Vermont's Education Quality Standards, a series of policy guidelines requiring all schools to provide "educational opportunities which are substantially equal in quality, ensure continuous improvement in student performance...and annually report to the community."[23]

For each of the five measures, the Vermont Agency of Education provides a series of guiding accountability questions and proposed reporting measures. The Agency will use a rating system from "near target" to "on target" to weight each measure against the state's five core priorities.[24]

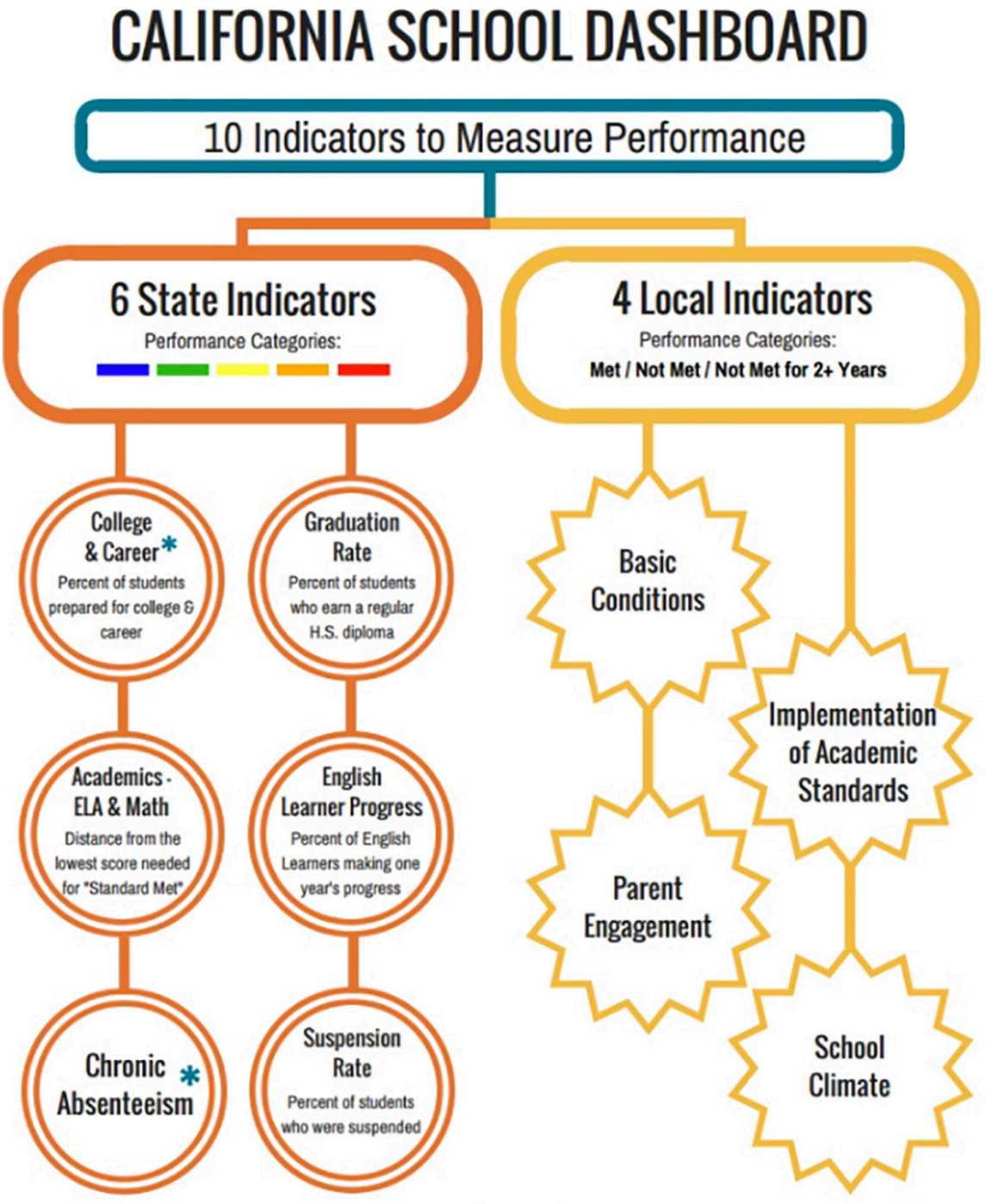
ESSA requires all states to identify the lowest performing five percent of schools in a state for comprehensive school support (i.e., school improvement or turnaround). Vermont will use its rating system to identify its low-performing schools if they are performing "off-target" on a three-year cycle on the state's first priority, academic outcomes.[25]

Vermont's rating system encourages a culture of continuous improvement. School leaders and educators are provided with guidance on how they can move closer to achieving the outcome target for their school and students. Vermont's school rating system — while keeping with the letter of the law to identify the lowest performing schools for improvement — stands in contrast to models of accountability that rely on a single, summative rating of school performance.

For further information on Vermont's approach to accountability under ESSA, refer to the Appendix.

Multiple Measures Accountability Dashboards in California

California's School Dashboard is an example of establishing a balance in state and local roles in monitoring different school performance measures. The graphic below illustrates how districts will monitor four local indicators to determine if they have "met, not met, or not met for two or more years."[26] This information is gathered into a local dashboard, allowing district leaders to focus their efforts on evaluating and building school-level performance and capacity. The six state indicators are performance categories the state monitors as common measures of student performance outcomes. This approach allows the state to monitor the progress on the six indicators as they are reported through a statewide dashboard, in order to identify schools for comprehensive and targeted support.



California Accountability Model & School Dashboard from the California Department of Education. For a closer look at California's multiple measures dashboard and reporting system, refer to the Appendix.

Source: California Department of Education

SUPPORTS FOR IMPROVEMENT IN TEACHING AND LEARNING

As states consider accountability systems redesign, models for school interventions and supports need to be part of the conversation around continuous improvement. States can consider how school improvement could be a vehicle for innovation with an equity frame to better support teaching and learning.

At the heart of the federal policy on accountability in education is the idea that states need to monitor school performance with student achievement data that are disaggregated by subgroup, and intervene to turn around and improve schools when they are not adequately serving students. The NCLB policy on school improvement required states to select from a limited menu of highly prescriptive turnaround models that did not always work best in the local context. Under ESSA, states now have more flexibility than before to design school improvement models and to help build networked professional learning communities.

Comprehensive school improvement is the process required in ESSA for states to intervene in the lowest-performing five percent of schools in the state. Targeted support is required for schools where subgroups of students are not meeting benchmarks. All school improvement models and plans must be responsive to a school's needs assessment, and be evidence-based. One way this can be achieved is through school quality reviews.[27] Policymakers can support the development of school redesign and improvement models that are competency-based. They can do so by defining criteria for improvement models that align to student-centered learning, and by examining barriers and opportunities in state policy to build competency-based systems (see section "Putting the Pieces Together: A Continuum of State Policies to Support Competency-Based Education Systems").

As policymakers identify new models for school improvement, they need to consider investing in the requisite educator and leader capacity and embedding professional learning into quality improvement processes.

The capacity of educators and leaders to effectively lead school redesign is an essential consideration for policymakers. Educators need the opportunity to develop the skills required for next generation learning environments, while leaders at all levels need capacity to lead the transformation of school models. As policymakers identify new models for school improvement, they need to consider investing in the requisite educator and leader capacity and embedding professional learning into quality improvement processes. Policymakers can build educator capacity with the skills they need for student-centered learning through (see the section on building educator capacity):

- Identifying clear, specific educator competencies needed for personalized learning environments, student-centered models and competency-based education structures;
- Creating multiple, high-quality pathways to educator credentials and development;
- Developing educator capacity and professional judgement; and
- Building an understanding of assessment literacy.

Tennessee's Approach to School Redesign Under ESSA

In Tennessee's ESSA State Plan, the state will prioritize continuous improvement for schools and districts by customizing improvement strategies based on district needs and supporting local innovation. The state will provide continuous support and differentiated technical assistance to districts and schools by "work[ing] directly with districts and schools on assessing the needs, conducting a readiness review, developing a plan for improvement and supporting and monitoring progress."[28]

In addition, Tennessee will empower schools and districts by providing:

- Access to accurate and timely data linked to clear action steps;
- Decision-making supports for districts – communicating and prioritizing choice points, options, and flexibility for various initiatives;
- Coaching and support;
- Earned autonomy for high-performing districts;
- Pilot opportunities and space for districts to innovate; and
- Access to strong networks of learning and opportunities to contribute to decision-making around statewide initiatives.[29]

Tennessee also encourages local continuous improvement and innovation efforts with Innovation Zones and supports Networked Improvement Communities, which are "a colleagueship of expertise building on the hard work and creativity of many."[30] The Innovation Zone model "is designed to provide greater autonomy and flexibility to schools served within the Zone and remove barriers to success and innovation."[31] Tennessee schools that have been identified for support may apply to participate in the Innovation Zone as part of their school improvement plan. Districts can participate in the Networked Improvement Community to share tools, resources, and build cross-district capacity to problem-solve barriers to school improvement with special attention to local context and needs.

STATE POLICY ACTION STEPS TO DESIGN ACCOUNTABILITY SYSTEMS FOR CONTINUOUS IMPROVEMENT

The opportunity is here for states to rethink accountability with models that provide transparency across multiple measures, drive continuous improvement at each level of the system and empower stakeholders with the information and supports they need to meet students where they are in their learning with timely supports. Some actions state policymakers could take to create accountability systems for continuous improvement include:

- **Action Step #1**: Convene diverse stakeholders to redefine student success. The definition should reflect the knowledge and skills that all students will need to succeed in college, career and civic life;
- **Action Step #2**: Determine the measures the state will use for accountability purposes. The multiple measures should be aligned to the state's vision for student success, provide transparency with timely data and empower stakeholders to drive continuous improvement, identify schools for improvement and target supports and resources where they are needed most;
- **Action Step #3**: Engage with education stakeholders to develop or support professional learning communities across schools and districts and create a culture of continuous improvement where educators and leaders from across the state can learn and grow;

- **Action Step #4**: Empower communities and build trust by developing a framework for reciprocal accountability, to ensure that resources and supports are responsive to the needs of local communities, districts and schools; and
- **Action Step #5**: Identify school improvement models to support student-centered learning with personalized, competency-based education and to advance equity. States have the flexibility under ESSA to empower communities to determine school improvement models that work best for them as opposed to prescriptive models under No Child Left Behind.

As states begin to consider and design next generation accountability systems that are dynamic and responsive to stakeholders, they should remember they can submit a request to the U.S. Department of Education to amend their state accountability plans at any time.

RESULTS OF ACTION STEPS: RETHINKING ACCOUNTABILITY TO SUPPORT CONTINUOUS IMPROVEMENT OF STUDENT LEARNING AND SCHOOL QUALITY

Next generation accountability has the potential to transform K-12 education to student-centered learning, and result in:

- Creating more equitable education systems that provide students with the support they need, when they need it, to reach success in higher education, employment and civic life;
- Providing greater transparency about student learning through data reporting systems and dashboards that empower stakeholders with the information they need to support student success;
- Moving beyond one-size-fits-all accountability based on grade level proficiency in reading and math and a limited menu of school turnaround options, to school quality reviews and turnaround strategies that examine multiple measures aligned to graduate profiles and local needs;
- Supporting district and school capacity to analyze and continuously improve on their practice;
- Encouraging growth and improvement amongst all schools through networked professional learning communities, rather than only those identified for improvement under the old accountability models;
- Cultivating meaningful collaboration with experts and practitioners to implement and improve on innovative school improvement models that advance student-centered learning;
- Fostering more evidence-based practices rooted in learning sciences;
- Building trust across the state education system under shared goals and responsibilities for all students in communities across the state with reciprocal accountability; and
- Driving coherence of K-12 education systems by ensuring that assessments, teaching and learning are complementary and supportive of each other with accountability systems providing appropriate supports and opportunities for continuous improvement.

In a fully developed competency-based education system, everyone is a learner; students, educators and school leaders have room to develop mastery in their learning or professional goals, and schools adapt over time to meet the evolving needs of students and communities. State and local education systems are responsive to those needs and provide the appropriate supports.

Developing Educator Capacity for Competency-Based Education: Modernizing Educator Preparation and Development Systems to Create the Future Educator Workforce

To support transformation at scale to personalized, competency-based learning for students, there is an urgent need to modernize and align educator preparation and leadership development.

The vision is for competency-based pathways through coherent and aligned preparation and development systems designed to enable educators to build and master the skills, competencies and knowledge needed to thrive in modern, student-centered learning environments. It is time to take action to move beyond outdated, siloed state systems of educator pre-service preparation, certification, professional development and evaluation to transition to a coherent, competency-based, educator professional learning system.

Why It Is Important to Transform Educator Workforce Systems

In order to transform K-12 education to personalized, student-centered learning systems, policymakers need to also modernize educator preparation and development systems to become learner-centered, personalized and competency-based.

Few educator preparation programs focus on the competencies and roles needed in learner-centered models. More often than not, teachers trained and credentialed in U.S. teacher preparation programs are exposed to strategies and methods with a heavy focus on delivering academic content within traditional seat-time learning models.

It is important to transform educator preparation and development systems to:

- Provide educators with opportunities to experience personalized, competency-based learning first-hand;
- Explore global best practices in contemporary theories of learning, evidence-based approaches, competency-based models, balanced systems of assessments and innovative instructional approaches for increasing learner agency and personalizing learning;
- Prepare educators with the specific knowledge and skills they need to design and implement student-centered learning environments that meet the needs of every student, including a deep understanding of performance assessments and assessment literacy; and
- Increase diversity and representation within the teaching workforce to reflect the diversity of students and communities and to dismantle institutional bias against vulnerable subgroups of students.

Educator capacity is critical and professional learning on contemporary learning theory must be addressed in educator preparation and ongoing professional learning. The focus on content and knowledge acquisition are certainly important and they must be complemented with the other skills and competencies needed for educators to thrive in competency-based education systems.

There is a dearth of training in assessment literacy. Professional learning to build capacity for calibration and moderation to improve reliability and consistency in grading performance assessments — central to competency-based education — is limited or non-existent.

This section will highlight and explain the following strategies for states and school districts to transform educator workforce systems to prepare educators with the skills they need for student-centered learning:

- Identifying clear, specific educator competencies needed for personalized learning environments, student-centered models and competency-based education structures;
- Creating multiple, high-quality pathways to educator credentials and development;
- Developing educator capacity and professional judgement; and
- Building an understanding of assessment literacy.

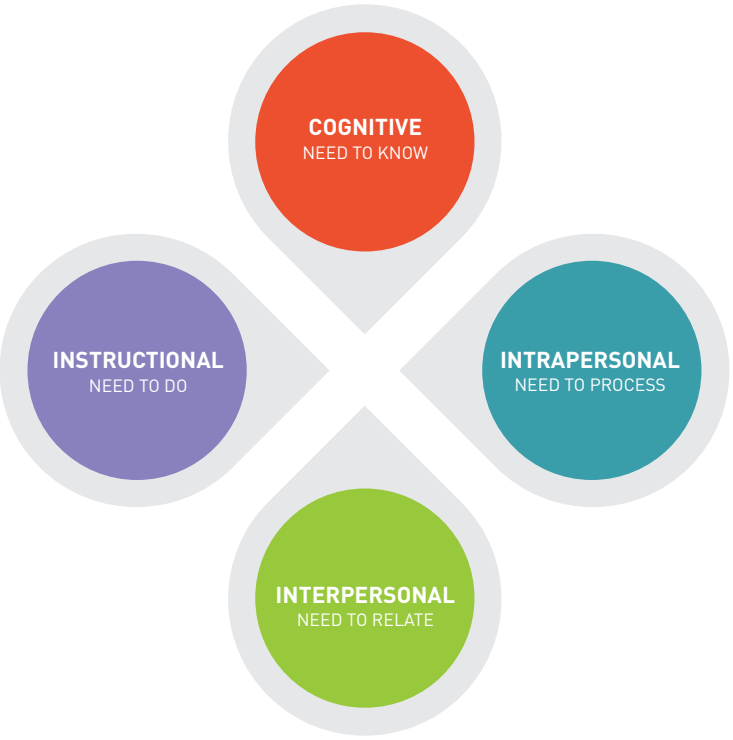
IDENTIFYING CLEAR, SPECIFIC EDUCATOR COMPETENCIES FOR PERSONALIZED, COMPETENCY-BASED LEARNING ENVIRONMENTS

A competency-based system of educator preparation and development would provide a seamless continuum in which aspiring educators:

- Build and master instructional competencies through pre-service preparation;
- Earn credentials and licensure upon demonstrated mastery of these competencies; and
- Access customized professional development and evaluation opportunities to ensure continuous improvement throughout their careers.

States could build coherent and aligned systems around what educators need to know and be able to do to succeed in student-centered learning environments. Clear, specific educator competencies, developed collaboratively with education stakeholders, can be a powerful tool to drive coherence in pre-service training, credentialing requirements, recruitment, induction, professional development, evaluation and career pathways along a continuum of professional growth.

One example of an effort to define educator competencies for student-centered learning was led by the Council of Chief State School Officers (CCSSO) and Jobs for the Future (JFF). These educator competencies are based on four domains, as depicted in the following graphic:



Source: http://www.ccsso.org/Documents/Educator-Competencies-081015-FINAL.pdf

These competencies represent some of the knowledge, habits, mindsets and skills educators need to possess in order to foster personalized, competency-based learning.[32]

The instructional competencies CCSSO and JFF highlight include:

- Using a mastery approach to learning;
- Using assessments for learning;
- Customizing the learning experience;
- Promoting student agency and ownership with regard to learning;
- Providing opportunities for anytime/anywhere and real-world learning tied to learning objectives and standards;
- Developing and facilitating project-based learning experiences;
- Using collaborative group work; and
- Using data and technology in service of supporting student learning.

Examples of competencies from the other three domains (cognitive, intrapersonal and interpersonal), include:

- Conveying a dedication to all learners — especially those historically marginalized and/or least served by public higher education — reaching college, career and civic readiness;
- Engaging in deliberate practices of adapting and modeling persistence and a growth mindset;
- Analyzing evidence to improve practice; and
- Designing, strengthening and participating in positive learning environments (i.e., school and classroom culture) that support individual and collaborative learning.[33]

Additionally, Margaret Heritage outlines some of the knowledge and skills teachers need for effective formative assessment — an important tool to determine where students are in their learning and how to help them progress — in her research, "Formative Assessment: What Do Teachers Need to Know and Do?"

These include:

- **Domain knowledge**: "Teachers must know the concepts, knowledge, and skills to be taught within a domain, the precursors necessary for students to acquire them and what a successful performance in each looks like. With this knowledge they are able to define a learning progression of subgoals toward the desired learning that will act as the framework to guide assessment and instruction";
- **Pedagogical content knowledge**: "To effectively adapt instruction to student learning, teachers' pedagogical content knowledge must include familiarity with multiple models of teaching for student achievement in a specific domain and knowledge of which model of teaching is appropriate for what purpose";
- **Students' previous learning**: "If teachers are to build on students' previous learning, they need to know what that previous learning is"; and
- **Assessment knowledge**: "Teachers must know about the range of formative assessment strategies so that they can maximize the opportunities for gathering evidence."[34]

Heritage continues, "Teachers need the skills to translate their interpretations of the assessment results into instructional actions that are matched to the learning needs of their students. This involves selecting the learning experiences that will place appropriate demands on the student and ordering these experiences so that each successive element leads the student toward realizing the desired outcome."[35]

Today, in our current educator preparation and development systems, very few teacher education preparation programs provide adequate understanding of assessment literacy. Thus, few American educators receive sufficient training in assessment literacy and are prepared to apply the knowledge and skills needed for effective implementation of performance tasks and assessments for learning. Heritage states, "If formative assessment is to be an integral part of professional practice, there needs to be a major investment made in teachers. This investment must begin with changes in preservice training. No teacher should exit a professional training program without the knowledge to assess student learning."[36]

These are only a few of the skills and competencies educators need to successfully implement future education systems designed with equity in mind. State policymakers could host a task force or commission to collaborate with educators, school and local leaders, institutions of higher education and experts in the field of competency-based education to identify educator competencies for student-centered learning to drive coherence and alignment in their state's educator preparation and development systems. Designating an appropriate group of educators to identify the educator competencies needed for modern learning environments is crucial and an important first step.

"If formative assessment is to be an integral part of professional practice, there needs to be a major investment made in teachers. This investment must begin with changes in preservice training. No teacher should exit a professional training program without the knowledge to assess student learning."
– Margaret Heritage

CREATING MULTIPLE, HIGH-QUALITY PATHWAYS TO EDUCATOR CREDENTIALS AND DEVELOPMENT

In a competency-based system, students have multiple, high-quality pathways to high school graduation, higher education and the workplace. In the same way, educators could have multiple, high-quality competency-based pathways throughout their careers to access programs to earn credentials and micro-credentials to support building capacity, career advancement and professional development.

For pre-service training, teaching candidates can experience personalized learning opportunities to build self-regulation and efficacy skills, moving ahead through competency-based progressions with evidence of their learning. They may engage in work-based learning, internships and community-based experiences to gain the range of competencies and skills they need to meet the needs of all students. These pathways would focus on the skills required for student-centered learning models.

Teacher professional development should also be personalized and job-embedded, leveraging mentorships and positive relationships with other educators. Just like students, educators need an array of high-quality pathways to meet their unique professional learning needs.

In addition, competency-based learning can enable new staffing models and teaching roles. New roles are emerging which create expanded professional opportunities and career pathways including personalized learning coaches, learning sciences researchers, specialized learning designers (such as makerspace and STEM roles), community-connected learning coordinators and other leadership roles. Educators are taking on new roles in the design and management of student-centered learning. Policymakers, district, network and school leaders should keep these opportunities in mind as they design and implement multiple, high-quality pathways for educators.

Micro-Credentials

One promising strategy for competency-based professional learning is micro-credentials. Micro-credentials are processes and tools for assessing, recognizing and credentialing key competencies. Educators can build and stack recognized micro-credentials (with evidence of their learning), enabling educator preparation, development and hiring systems to become more flexible, competency-based and relevant to systems' and teachers' needs.

According to Digital Promise,[37] micro-credentials are:

- **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 enable multiple, high-quality pathways for educators toward licensure and credentialing, rethinking the continuum of teacher professional learning and building capacity in educators to transform teaching and learning environments to meet the needs of every student.

DEVELOPING EDUCATOR PROFESSIONAL JUDGEMENT FOR STUDENT-CENTERED LEARNING

In competency-based education, it is crucial that educators be empowered and have the professional expertise with systemic supports to make valid and reliable determinations of student mastery. These determinations need to be consistent across classrooms, moderated across schools and evaluated across districts, requiring policymakers to build educator capacity and transform antiquated educator development models, structures and processes.

For students to experience powerful, personalized learning, competency-based systems are structured so that learning can occur at any time, anywhere, at a variable pace and through multiple pathways. These systems depend on valid and reliable professional judgements in assessing a range of evidence to measure deeper learning using performance assessments. Clear and meaningful learning targets with rubrics on what students should know and be able to do with exemplars of evidence are crucial. Effective educator professional judgement is not optional. It is central for change and transformation across the education system.

State and local education leaders need to invest in building educator capacity for assessments for learning and to exercise professional judgement in assessing student learning, effective use of data and the ability to assess a variety of evidence from learner-centered experiences in diverse environments. Building capacity for teacher professional judgement is a linchpin — a non-negotiable requirement — in the short-term and long-term, to ensure success for every student.

BUILDING ASSESSMENT LITERACY

There is a need to rethink the purpose and role of assessment in education systems. Assessment literacy, defined 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,"[38] is essential to advancing personalized, competency-based learning. It is critical for educators to develop the professional judgement to reliably and accurately evaluate and determine student mastery in student-centered learning environments.

Assessment literacy becomes essential as systems move away from singular, overly-narrow measures of proficiency, to assessing mastery based on multiple forms of evidence using student work. Increased assessment literacy throughout the system will increase trust, improve system quality and support new learning models that help all students succeed.

Practitioners working deeply in competency-based education quickly realize how traditional K-12 education systems lack mechanisms for calibrating the quality of judgements on proficiency levels of student work to ensure consistency across schools and systems. In competency-based education systems, calibration involves groups of educators collaborating to develop consensus around rubrics for scoring student work. The calibration process makes scoring consistent and more aligned to standards.

Professional development of educators to assess evidence of student learning, consistency developed through using moderation processes, and calibrated rubrics to evaluate performance tasks are central to transformation at scale with new systems of assessments that support personalized, competency-based education.

The New Hampshire Performance Assessment for Competency Education (PACE) pilot provides an example of state leadership to develop educator capacity for assessment literacy, consistency and reliability. Teachers from the PACE pilot districts collaborate to develop performance tasks that will be a part of the state's systems of assessments at statewide Quality Performance Assessment Institutes. Teacher teams score and moderate student work on performance tasks, participating in a statewide comparability workshop to ensure that scores of student work are consistent across reviewers from different school districts.[39]

Redesigning Systems of Assessments for Student-Centered Learning

Assessment is essential for understanding what students know and for providing transparency and fairness when it comes to certifying mastery of knowledge and skills. Assessment can provide timely feedback to educators on where students are in their learning and to inform the supports that they need to succeed. It also plays an important role for educational leaders to evaluate the effectiveness of learning models on achievement and for policymakers to understand the effectiveness of policies and use of public funding. In redesigning systems of assessments, state policymakers should consider what is needed to make assessment more meaningful and integrally-linked to student learning.

The challenge ahead for policymakers is to rethink assessment policies to enable student-centered teaching and learning. This will require creating balanced systems of assessments to:

- Support individual student learning and achievement outcomes that matter;
- Empower educators to facilitate student progress, deeper learning and growth toward new, more comprehensive definitions of student success;
- Provide feedback on depth and breadth of learning, as well as valid reporting on progress;
- Provide timely supports so that no student falls through the cracks;
- Support a personalized, competency-based system which recognizes that students can learn anytime and everywhere; and
- Serve as an equitable and transparent mechanism to certify student mastery of the knowledge and skills students need to succeed.

Opportunities for Redesigning Systems of Assessments

Thanks to the Every Student Succeeds Act (ESSA), 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 students can succeed.

States may 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 to include redesigned systems of assessments.

STATE POLICY ACTION STEPS FOR ALIGNING EDUCATOR WORKFORCE DEVELOPMENT SYSTEMS TO COMPETENCY-BASED EDUCATION

The following are action steps for state policymakers to consider to begin the transformation of educator workforce systems:

- **Action Step #1:** Support and engage with a 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 designed to advance equity and competency-based learning;
- **Action Step #2:** Learn about promising practices, programs and policies to transform the educator workforce in the state and around the country by engaging with experts, researchers and practitioners;
- **Action Step #3:** Learn how high-performing countries have incorporated the core concept of assessment literacy into their education systems by engaging with experts, researchers and practitioners, and/or through an international study tour;
- **Action Step #4:** Enumerate assessment literacy as a core principle to transform education to personalized, competency-based learning in certification, licensure and accreditation standards; and
- **Action Step #5:** Engage with diverse stakeholders to identify challenges and opportunities, and to define the goals for an effort to redesign the systems that build and certify educator capacity, including:
  - Defining and understanding the competencies educators need to design, implement and lead new personalized, competency-based learning models;
  - Addressing barriers to creating, scaling and accrediting innovative leadership and educator preparation models; and
  - Assessing implications for accreditation, licensure and certification standards and teacher quality or effectiveness metrics in state accountability systems.

RESULTS OF DEVELOPING EDUCATOR CAPACITY FOR COMPETENCY-BASED EDUCATION

By transforming educator preparation and development systems to become personalized, competency-based and focused on the skills educators need to create student-centered learning environments, policymakers will support transformation at scale for education systems that prepare every student for success in higher education, the modern workforce and as citizens. Developing educator capacity is critical to transforming the education system to student-centered learning.

EQUITY BY DESIGN IN THE EDUCATOR WORKFORCE

Diversity and inclusion within the educator workforce are essential for transformation to competency-based education systems designed for equity.

The *Competency*Works paper, *In Pursuit of Equality: A Framework for Equity Strategies in Personalized, Competency-Based Education*, introduces an equity framework and guiding principles that states, districts and schools can use to create and embed equity strategies within their personalized, competency-based systems.[40]

To enhance equity, educators within personalized, competency-based systems should be able to:

- Challenge implicit bias through a combination of personal responsibility for seeking out biases through collaborative teaching and calibration and using data to identify patterns of bias;
- Identify and seek ways to ameliorate systemic bias and structural inequities;
- Reflect the diversity of the student population and actively work toward attaining cultural competency;
- Build students' social capital through internships, mentorships and teaching students how to build powerful networks; and
- Foster positive school climates so students feel safe and respected, trust that educators fully believe in them and feel the system is fair.

Enhancing diversity and inclusion within the educator workforce will help personalized, competency-based education systems to address each of these issues. However, creating a more diverse educator workforce, with the requisite skillsets to meet the needs of every student, will not be easy or simple. It will require a dramatic change in educator pre-service training, licensure, professional development and evaluation systems. These systems must build capacity in educators to embed equity strategies into the learning designs of school systems. This can include school design, pedagogy, operations (including scheduling and calendars), grading practices and disciplinary policies.

State policymakers and local education leaders can chart a course of action to effectively attract and support diverse educators to meet student needs in competency-based education systems, including activating student voice to inform systems and build the next generation of educators.

Building Capacity to Lead Change

We need bold leadership in education systems and policy to transform K-12 education.

Moving toward a competency-based education model requires fundamental shifts in systems, structures and assumptions rooted in the traditional model of education. The requisite changes to policy and practice cannot be realized without investing in human capital to prepare leaders and educators to have the capacity to help scale personalized, competency-based education in the state.

There is a need to build collaborative and distributed leadership that engages and empowers others at all levels of the education system to lead the transformation of K-12 education to student-centered learning. A core requirement of leadership needs to be the belief that all students have the ability to succeed. Leaders should make decisions for students that are informed by the learning sciences and designed to help each student succeed. There is a lack of attention in state policy to modernizing teacher and leader credentialing systems, licensing, professional development, preparation programs, and ultimately, developing competency-based pathways for the next generation education workforce. States are missing an important opportunity to scale and implement student-centered learning environments that meet the needs of students and communities by investing in and supporting change leaders.

Leaders across the education system need the support, preparation, vision and ability to take risks to transform to next generation learning in the state. To scale and implement competency-based education takes new skills for leading and managing change, building capacity, and creating adaptive leadership systemwide. Educators, education leaders and state policymakers need to focus on building capacity and developing modern preparation programs to transition into teaching and leading in a personalized, competency-based learning environment.

We need bold leadership in education systems and policy to transform K-12 education.

WHY BUILDING CAPACITY TO LEAD CHANGE IS IMPORTANT

Leaders at every level are needed to help create, sustain and scale competency-based education systems that advance equity and ensure student success. It will take courage, vision, and a strong sense of purpose to challenge long-held assumptions about education and to inspire others to be a part of the change. Bold leadership focused on innovation for equity is needed across the education ecosystem, in schools, in districts and state educational agencies, in community organizations and in education research and advocacy organizations.

There needs to be an intentional process to identify, recruit and develop leaders in the field of personalized, competency-based education. Collaboration is needed to create competencies for education leadership and to design development and recruitment strategies that will attract and retain a diverse cohort to the next generation of education leaders. Policymakers can take up the mantle of change leader, and in doing so, can engage with students, parents and communities to collaboratively shape the vision for student success.

Developing a Pipeline of Change Leaders

Human capital is a critical element of transforming K-12 education systems for the long term. This transformation will require building a pipeline of change leaders to design and create the cultures and structures in a new competency-based education system. Change leadership is "the ability to influence and enthuse others through personal advocacy, vision and drive, and to access resources to build a solid platform for change."[41] Change leadership is important for disrupting outdated assumptions about what teaching and learning "should" look like, and to embrace the idea that we can help every student succeed if we do things differently to focus on supports toward mastery of knowledge, skills and abilities. At its heart, building capacity to lead change is about doing what's best for students, setting a culture of growth and continuous improvement and examining structures to ensure success is the only option.

School-level, local, and state leaders willing to take risks and challenge the traditional models of education as one-size-fits-all and where students are sorted with variability in learning are needed to champion the policy and implementation of transformation to student-centered learning. Leaders at all levels of the education system are needed to bring their experience and expertise to lead student-centered learning policy and practice and champion the shift away from traditional education to next generation learning models.

State policy can incentivize, engage, and support school and district leaders to provide training, expertise and experience in improving learning systems in the state. State policymakers are crucial in carrying forth a statewide vision for student success, providing enabling policy, guidance, flexibility, or frameworks and resources to allow districts to begin and continue scaling competency-based education. Local districts and school leaders who are leading the way in the development of personalized, competency-based education models have the potential to play a critical role in the creation of new leadership pipelines.

For example, states can begin to explore how leaders within and beyond schools can lead innovations and improvements from the current education model to a student-centered one. School leaders are needed to provide a vision, culture and climate for student-centered learning in the school as well as supporting educators and learners toward transitioning to a new learning environment. In their capacity, district leaders can champion the work of school-level leaders implementing innovative learning approaches

as well as provide the appropriate amount of support, accountability and transparency to parents, communities and state-level stakeholders. Additionally, local leaders are crucial in implementing any state policy and vision as well as provide cover.

Jobs for the Future and the Council of Chief State School Officers created a guide to identify the competencies that leaders need in creating student-centered learning.[42] These competencies can be used as a starting point to identify next steps in improving preparation programs, adjusting credentialing and licensure programs to allow competency-based pathways and alternative programs that will meet the needs of the field of next generation learning.

Policymakers could be thinking about their role in fostering the development of change agents and education leaders.

STATE POLICY ACTION STEPS TO BUILD CAPACITY TO LEAD CHANGE

State policymakers could consider ways to create a pipeline of change leaders to implement and scale student-centered learning models. States can begin this work by considering the following action steps:

- **Action Step #1:** Identify the competencies leaders need to transform to competency-based education systems;
- **Action Step #2:** Convene a working group to examine pre-service, training, licensure and certification issues and barriers for education leadership and what steps need to be taken to lead the shift to competency-based education;
- **Action Step #3:** Commit to ensuring that educational leadership development systems are designed to produce change leaders dedicated to advancing equity through transformation to next generation school models, and give consideration to recruiting and supporting diverse education change leaders;
- **Action Step #4:** Examine the challenges and opportunities for preparation programs to modernize their offerings to support competency-based systems;
- **Action Step #5:** Fund pilots for developing and scaling innovative leadership preparation models;
- **Action Step #6:** Create multiple pathways for licensure and certification that are competency-based; and
- **Action Step #7:** Work with the accrediting agencies to recognize new skills needed for competency-based education systems in the standards and accreditation process.

RESULTS FROM BUILDING CAPACITY TO LEAD CHANGE

By focusing on building the capacity to lead change in a student-centered learning system, state policymakers can create a pipeline of change leaders and affirm the local leaders working to transform learning for all students. State policymakers can help to enable all students to achieve mastery, preparing them to succeed in college, career and civic life.

Putting the Pieces Together: A Continuum of State Policies to Support Competency-Based Education Systems

The traditional, time-based K-12 education system is ill-equipped to prepare all students for success.

Data from the 2015 administration of the National Assessment of Educational Progress (NAEP) show that all student subgroups fall short of universal success, but some student subgroups lag significantly further behind. For example, 32% of White and 47% of Asian twelfth-grade students scored proficient on the mathematics portion of NAEP. This compares to only 7% of Black and 12% of Hispanic twelfth-grade students scoring proficient on mathematics on NAEP.[43] Those students who need the most help are usually those least well-served by the traditional educational system. It is time for a system, designed for equity, that provides students help and supports tailored to their needs, capable of helping every student succeed.

Competency-based education is a next generation learning model that focuses on all students achieving mastery, preparing them for success in college, career and civic life. It requires fundamental shifts in systems, structures and assumptions rooted in the traditional model of education.

WHY IT IS IMPORTANT TO SUPPORT COMPETENCY-BASED SYSTEMS

Compared to traditional education models, in personalized, competency-based learning environments students have a much greater degree of flexibility in their learning — both in terms of the pathways they take to mastery of the same rigorous standards, and the ways they use time. Student growth and achievement are not bound by grade level or whole-group content delivery that "teaches to the middle;" rather, students move along learning progressions that provide a strong foundation before moving on to the next level.

In competency-based models, teachers have the capacity to dynamically assess student learning and ensure they have engaging, relevant learning opportunities and supports to move students along individual learning pathways toward the highest standards possible.

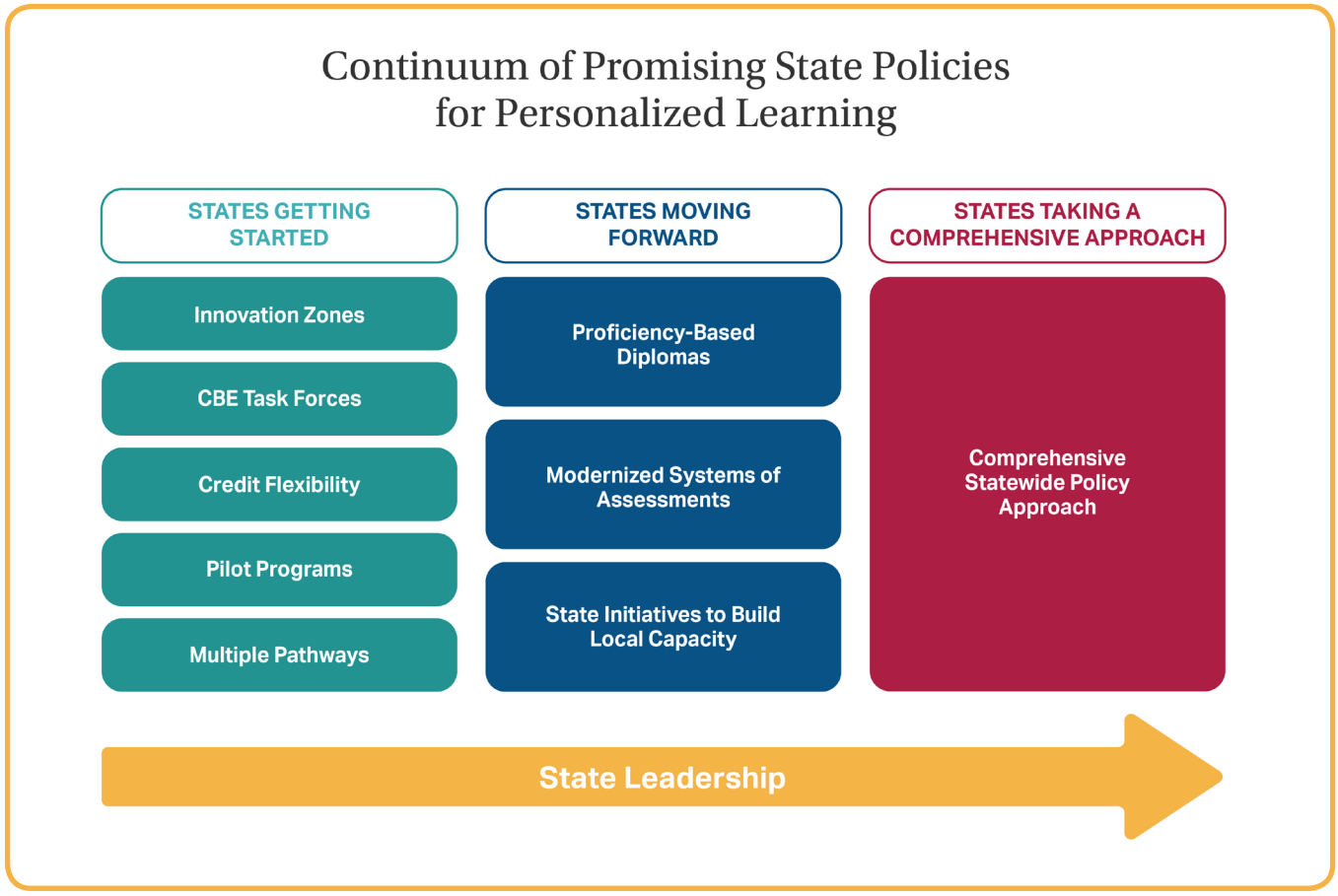
Competency-based education models can ensure all students are ready for a 21st century economy, prepared to succeed after high school.

CREATING ENABLING STATE POLICIES TO SUPPORT PERSONALIZED LEARNING

State leaders can support policy for K-12 personalized learning and competency-based education to help all students succeed.

Fully-developed, student-centered systems require significant shifts in policy and practice. They require the right balance of policies that create space for innovation and those that ensure equity with adequate supports and quality guardrails. No matter where a state is starting from, there are various entry points along a continuum for policymakers to support and build competency-based, K-12 education systems in their states.

States that do not yet have any enabling policies in place may wish to take incremental steps to create space for new learning models, while a state that already has made some progress may contemplate more comprehensive steps toward transformation. The graphic below summarizes the continuum of state policies to support personalized learning and competency-based education systems with varying levels of state leadership. It shows the different entry points where policymakers can catalyze transformation of K-12 education in their state:



States Getting Started: Creating Space for Competency-Based Systems

For states getting started, competency-based education task forces can help to identify policy barriers, advance the concept of competency-based education in the state and generate a feedback loop to state policymakers.

Credit flexibility policies can allow districts and schools to move away from seat time and to award credit for graduation based on demonstrated mastery.

Innovation zones provide pioneering school districts with flexibility from state policies and requirements in order to implement personalized, competency-based learning models.

Pilot programs support the examination of which strategies work in practice and lead to sharing and scaling of promising practices in other localities.

Policies that allow for multiple pathways to college and career readiness create opportunities for students to pursue their interests and gain real-world skills and experiences. These pathways could include: expanded learning opportunities, apprenticeships, community service, internships, independent study, online courses, community arts programs, private instruction, and career and technical and college-level coursework. Competency-based structures enable multiple pathways to enhance equity and maintain high standards and rigor for all students.

States Moving Forward: State-Led Strategies to Accelerate Systems Transformation

For states moving toward broader systems change, policymakers could establish policies on proficiency-based diplomas, which require students to demonstrate mastery of academic content standards before graduating. Proficiency-based diplomas can encourage the adoption of personalized, competency-based learning by stipulating that graduation decisions be based on students demonstrating mastery of college- and career-ready standards, rather than on seat-time credits.

The Every Student Succeeds Act (ESSA) provides additional space for states to redesign their systems of assessments to better support student-centered learning. Balanced, innovative systems of assessments can empower educators, students and other stakeholders with multiple forms of evidence and timely feedback on student growth, readiness, depth of learning and mastery of competencies. In competency-based education, assessment is a positive experience for students because it is part of the learning process. Innovative systems of assessments incorporate formative, interim and summative measures and forms of evidence of student work.

ESSA allows for states to consider developing innovative assessment pilots with a smaller number of districts to help support competency-based education. State leaders could partner with districts and schools for the pilot that are beginning to lead the way on competency-based learning.

ESSA also gives states the space to rethink accountability through multiple measures, continuous improvement and reciprocal accountability. States have the opportunity to move from top-down accountability models that base high-stakes decisions on a single indicator of grade-level proficiency, to next generation accountability models that drive toward student mastery of a more meaningful definition of success aligned to the knowledge and skills students truly need to succeed in college, career and civic society.

States are much more likely to see widespread implementation of personalized, competency-based learning environments if they are intentional about building capacity within school leaders and educators to do this work. State initiatives to build local capacity can include:

- Providing information to school districts to help them transform learning environments;
- Offering technical assistance;
- Creating specialized training and professional development programs;
- Facilitating peer learning networks; and
- Leveraging partnerships to increase local or state capacity to support personalized, competency-based learning.

As states begin to implement their ESSA plans, they may go back to the U.S. Department of Education for permission to amend their state plans. States can use the amendment process to continuously improve state systems of assessments and accountability to better meet the goals of equitable education systems that help all students succeed.

Comprehensive Statewide Policy Approach: Coherence Across Systems

Finally, states could take a comprehensive statewide policy approach with a combination of the aforementioned policies to build coherent, aligned systems built on shared goals for all students to succeed and thrive in college, career, and civic life with high-quality personalized, competency-based models and supports.

For example, Vermont has pursued a comprehensive statewide policy approach with proficiency-based graduation requirements, personalized learning plans, systems of assessments for learning, accountability for continuous improvement, flexible pathways and educator and school leader development initiatives. All of these components work together in a coherent manner to improve educational options and results for students.

RESULTS FROM POLICIES TO SUPPORT COMPETENCY-BASED SYSTEMS

By implementing thoughtful, well-designed state policy strategies, using several of the aforementioned policies, state policymakers can create the right conditions for personalized, competency-based learning to scale. These next generation learning models can enable all students to achieve mastery, preparing them to succeed in higher education, flourish in a 21st century workplace and participate effectively as citizens.

Conclusion

The vision articulated for the future of K-12 education is a system designed for equity and capable of preparing every student for success.

Getting from the current state to the future state will require sustained, focused and collaborative leadership. It will also require engagement between policymakers and local stakeholders toward a shared vision for student success. For state policymakers to lead the shift to K-12 education systems that prepare each and every student for success, they will need to create a long-game strategy for transforming today's systems to future systems that are fit for purpose.

The future system's goal will be to prepare students with the academic, critical thinking, communication, collaboration and problem-solving skills they need to thrive and succeed in higher education, the modern workplace and to participate effectively as citizens. To do that, the future system will find ways to meet students where they are so that they can be engaged in their own learning and success.

Equity must be at the core of a future system of education. We must reject outright the notion that any student, because of circumstance or background, is unable to or does not want to learn. We have to do better. The future state of K-12 education is founded on a growth mindset, knowing every student can and will succeed to high standards, and that educators, leaders and systems can grow and change with the right supports. Systems are student-centered, providing the right supports at the right time, personalized to each student's unique interests, needs and strengths. Instructional systems are designed based on research on how students learn best.

The future K-12 education system must empower educators with the knowledge, competencies and dispositions to create student-centered, personalized learning environments. Educator qualifications, degrees and credentials need to be meaningful, representing mastery of the core competencies and possession of the dispositions required to help all children succeed. Finally, the future state of education must be built on systems that are purpose-built for continuous improvement.

We have articulated action steps for state policymakers to begin to make this vision a reality. At the state level and working with local education systems, we are encouraged by the fact that state policymakers have the power and authority to make bold, systemic changes that lead to transformation of education systems.

We know that making the vision of a future state of education that serves all students well a reality is not an easy task. We also know that policy alone is not enough. True change will require local systems to set a vision for the future state of K-12 education with high-quality implementations, continuous improvement and timely feedback loops to make mid-course corrections in the learning models or even the policies that govern. However, it is imperative we do our best at this point in history to begin the shift toward transforming to student-centered learning and provide our students the opportunities and preparation they need in order to prosper and flourish.

We encourage state policymakers to collaborate closely and consistently with state and local stakeholders to forge a plan to move their state's education system from its current state to a future state beginning with the recommendations and resources presented in this report. Millions of students are depending on it.

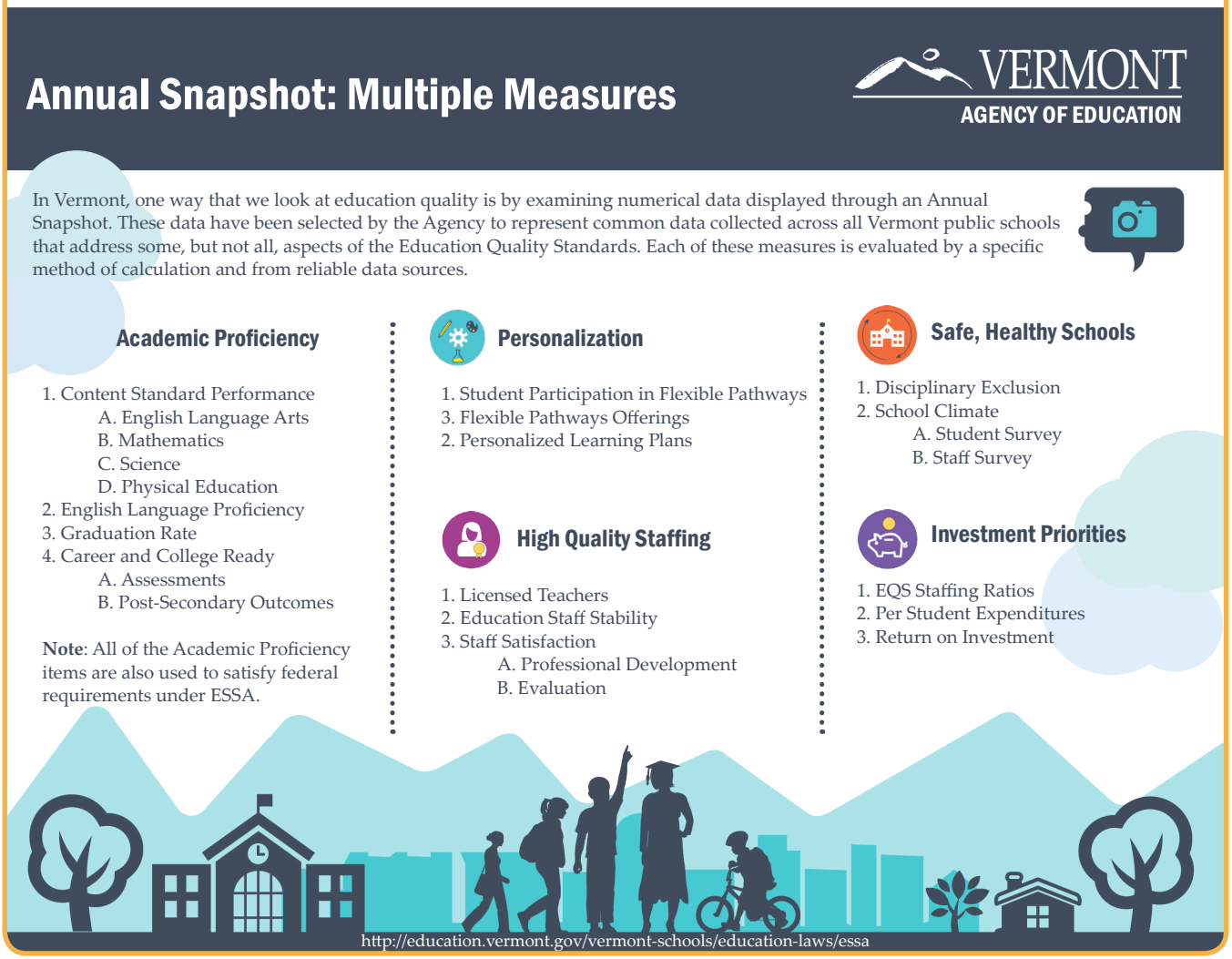
Appendix

Multiple Measures Dashboards from Vermont and California

The following graphics are examples of how states, such as Vermont and California, have developed multiple measures dashboards.

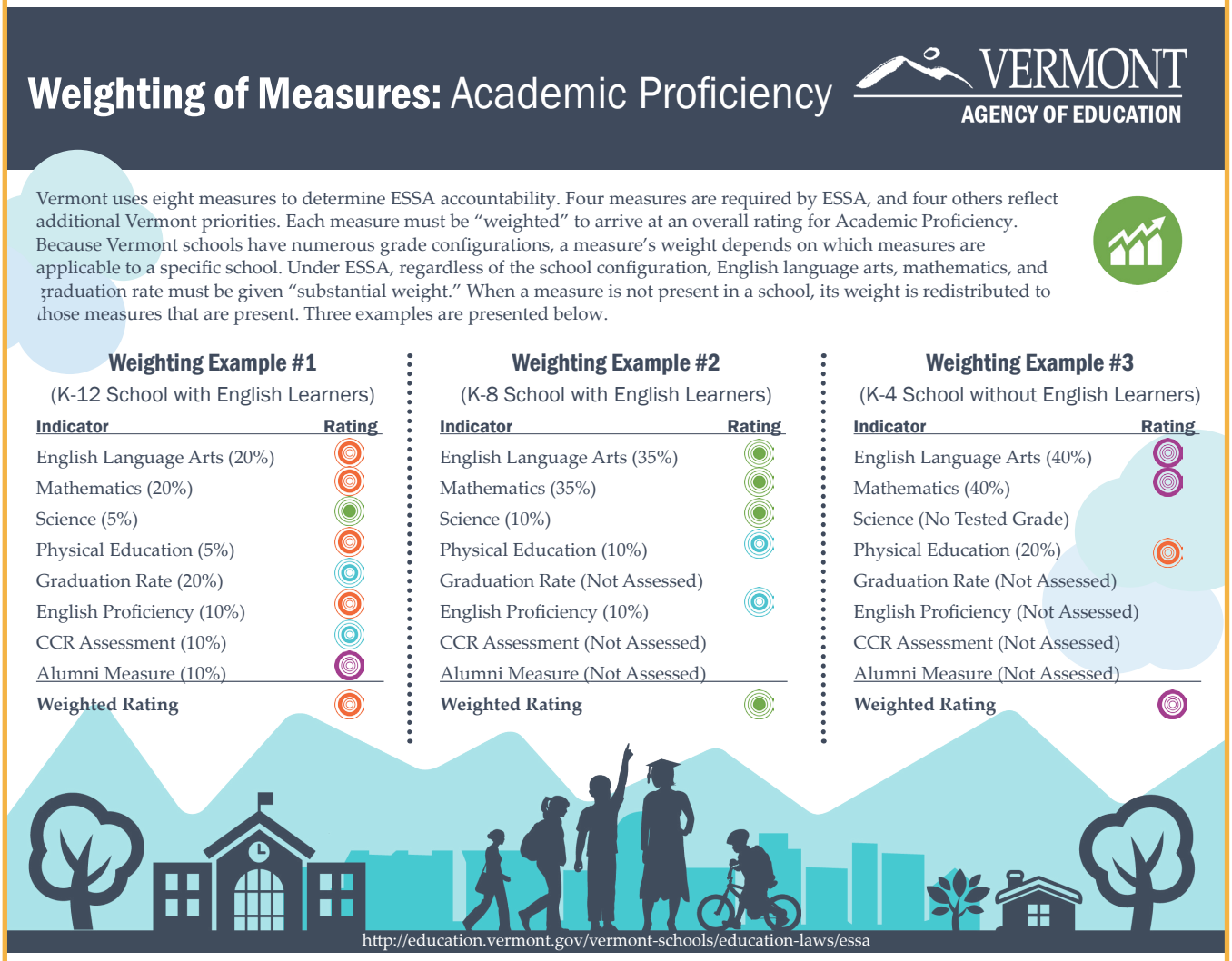
VERMONT

Annual Snapshot: Multiple Measures: This graphic illustrates Vermont's five core priorities and the indicators in which all schools in the state will collect data on. The Agency of Education in Vermont will use a rating system for these indicators that emphasizes continuous growth and improvement to meet all student outcomes at "on-target."



Source: Vermont Agency of Education

Weighting of Measures: Academic Proficiency: This graphic further breaks down how Vermont will weight each measure to arrive at an overall rating for each of the state's five core priorities. The example below takes into consideration measures for college and career readiness, graduation rates, and other post-secondary outcomes. Further, the weights vary slightly depending on specific school characteristics, such as student subgroups.



State Accountability: All Measures: The resource on the following page provides insight on how Vermont approaches thinking on each of its core accountability principles aligned to proposed reporting measures on student outcomes. The proposed reporting measures provide transparency of data collection and the key accountability questions can help to shape conversations between the state, district and school stakeholders on school progress on each measure.

Source: Vermont Agency of Education

State Accountability: All Measures

VERMONT
AGENCY OF EDUCATION

Accountability Questions: Academic Proficiency	**Proposed Reporting Measure(s)**
How well are students performing in English language arts in grades 3-9?	**OUTCOME**: Average scale score (3-9) and Growth score (5-9).
How well are students performing in mathematics in grades 3-9?	**OUTCOME**: Average scale score (3-9) and Growth score (5-9).
How well are students performing in science in grades 5, 8, and 11?	**OUTCOME**: Average scale score in 5, 8, and 11.
How well are students performing in physical education? (grades to be determined)	**OUTCOME**: Percent of students meeting fitness target or achieving the improvement target.
How well are English Learners (EL) gaining English proficiency?	**OUTCOME**: Percent of EL students making appropriate progress (all grades); Percent of EL students attaining proficiency (all grades).
Are students staying in school until they graduate?	**OUTCOME**: Percent of 9th grade cohort graduating high school within 4 years; Percent of 9th grade cohort graduating high school within 6 years.
How well did seniors perform on career and college ready assessments?	**OUTCOME**: Percent of seniors with one or more tests that meet the career and college ready benchmark: SAT, ACT , AP, IB, CLEP, ASVAB (military), IRC/CTE Certification.
Are alumni pursuing career and college ready outcomes?	**OUTCOME**: Percent of graduates who, within 16 months following graduation, are enrolled in college or trade school, enlisted or working full time in a job that provides insurance.

Accountability Questions: Personalization	**Proposed Reporting Measure(s)**
Did seniors complete at least one non-traditional learning experience (Flexible Pathway)?	**OUTCOME**: Percentage of graduates who, in their high school years, have successfully completed at least two experiences in one of the following: A. Early College or Dual Enrollment B. CTE Course or Work-Based Learning C. Service Learning D. Virtual Learning
How many types of non-traditional learning (Flexible Pathway) experiences were offered to seniors?	**INPUT:** Count of the number of programs (see above) taken by seniors during their high school careers.
Are Personalized Learning Plans (PLP) being used to shape educational experiences for students?	**INPUT:** Percent of 7th- 12th graders with PLP created and revised within last year (will be more grades over time). **OUTCOME**: Percent of students agreeing with statements assessing the effectiveness of their PLPs (specific survey items under development).

Accountability Questions: Safe, Healthy Schools	**Proposed Reporting Measure(s)**
Are students excluded for disciplinary reasons?	**OUTCOME**: Per capita days of disciplinary exclusion
Is the school climate supportive of learning?	**OUTCOME**: Percent of positive staff and student responses to a validated school climate survey. (3-5 grade levels) A. 50% student survey B. 50% staff survey

Accountability Questions: High Quality Staffing	**Proposed Reporting Measure(s)**
Do students learn in schools where educators are appropriately licensed?	**INPUT:** Percent of course taught by teachers who have a Level 1 or Level 2 license that matches the course they are teaching
How stable is the education force?	**INPUT**: Index of teacher, principal and superintendent turnover.
Are teachers satisfied with their professional development?	**OUTCOME**: Percent of teachers agreeing with statements assessing the effectiveness of their professional development (specific survey items under development).
Are teachers satisfied with their evaluation system?	**OUTCOME:** Percent of teachers agreeing with statements assessing the effectiveness of their teacher evaluation systems (specific survey items under development).

Accountability Questions: Investment Priorities	**Proposed Reporting Measure(s)**
Is the school adequately staffed to meet EQS?	**INPUT**: Index that compiles the required staffing formulas in EQS.
What are we spending per student?	**INPUT:** A calculation of the state and federal dollars spent per average student.
What is the return on investment for the dollars spent on education?	**INPUT:** The overall performance of the school on the previous indicators divided by the spending per equalized pupil.

Source: Vermont Agency of Education

CALIFORNIA

Getting to Know the California School Dashboard: 10 Indicators of School Success: California's dashboard on multiple measures of school success provides schools and communities with information on how students are progressing on the state's 10 indicators of school success. Six of the indicators are common across the state and collected by the state to monitor school performance and outcomes. The other four indicators are designed and collected by local education agencies, and provide district and school leaders information on non-academic factors that could influence student learning outcomes and educator capacity that's valuable for purposes of school support, early intervention and building educator capacity.

The California School Dashboard illustrates a first step states can take to provide transparent data on multiple measures to different education stakeholders in the state; however, this dashboard was not specifically developed to support competency-based education or student-centered learning. States may want to consider how multiple measures dashboards could be developed as part of an iterative process to advance student-centered learning in the long term.

See graphics on the following pages.

Getting to Know the California School Dashboard

The California School Dashboard (www.caschooldashboard.org) is an online tool designed to help communities across the state access important information about K-12 districts and schools. The Dashboard features easy-to-read reports on multiple measures of school success. The Dashboard is just one step in a series of major shifts in public education, changes that have raised the bar for student learning, transformed testing, and increased the focus on equity.

10 Indicators of School Success

State Indicators

- ***SIX*** indicators allow for comparisons across schools and districts.
  - ★ High School Graduation Rate
  - ★ Academic Performance
  - ★ Suspension Rate
  - ★ English Learner Progress
  - ★ Preparation for College/Career
  - ★ Chronic Absenteeism
- Based on information collected statewide.
- Results for all districts, all schools, and all defined student groups (e.g., ethnic groups, low income, English learners) with more than 30 students.
- Schools and districts receive **one of five color-coded performance levels** on each of the six state indicators.

- The color and amount that the circle is filled are two ways of showing the performance level. For example, Green will always have four segments filled and Red will always have one segment filled.
- The overall performance level is based on how current performance (status) compares to past performance (change).

Local Indicators

- ***FOUR*** indicators based on information collected by school districts, county offices of education and charter schools.
  - ★ Basic Conditions
    - Teacher qualifications
    - Safe and clean buildings
    - Textbooks for all students
  - ★ Implementation of Academic Standards
  - ★ School Climate Surveys
  - ★ Parent Involvement and Engagement
- Districts receive **one of three performance levels** on the four local indicators based on whether they have collected and reported local data.
  - Met
  - Not met
  - Not met for two or more years
- School and student group information is not available for local indicators.

Source: California Department of Education

The California School Dashboard provides four different reports that allow custom views of school success. Users can also look at performance of all student groups on a single indicator by clicking on that indicator. Clicking on a single student group shows the performance of that student group across all six state indicators.

4 Reports Provide Custom Views of School Success

Equity Report | Status/Change Report | Detailed Reports | Student Group Report

Equity Report

- Shows:
  - The performance of all students on the state indicators
  - The total number of student groups for each state indicator
  - The number of student groups in the Red/Orange performance levels
  - Performance on local measures (school district level only)
- Allows selection of information by indicator

State Indicators	All Students Performance	Total Student Groups	Student Groups in Red/Orange
Chronic Absenteeism	N/A	N/A	N/A
Suspension Rate (K-12)		9	2
English Learner Progress (K-12)		1	0
Graduation Rate (9-12)		6	4
College/Career Available Fall 2017. Select for Grade 11 assessment results.		N/A	N/A
English Language Arts (3-8)		8	0
Mathematics (3-8)		8	1
Local Indicators	Ratings		
Basics (Teachers, Instructional Materials, Facilities)	Met		
Implementation of Academic Standards	Not Met		
Parent Engagement	Not Met for Two or More Years		
Local Climate Survey	Met		

State Indicators	All Students Performance	Status	Change
Chronic Absenteeism	N/A	N/A	N/A
Suspension Rate (K-12)		Low 2.2%	Increased +0.3%
English Learner Progress (K-12)		Very High 90.2%	Increased +2.7%
Graduation Rate (9-12)		High 93.1%	Declined -1.5%
College/Career Available Fall 2017. Select for Grade 11 assessment results.		N/A	N/A
English Language Arts (3-8)		Very High 49 points below level 3	Maintained +6.2 points
Mathematics (3-8)		High 31 points above level 3	Increased +6.5 points

Status/Change Report

- Shows for each state indicator:
  - All student performance
  - Status (Current Performance)
  - Change (Difference from Past Performance)

Detailed Reports

- Shows information about performance over time on state indicators
- Shows the locally collected performance information on the local indicators
- Organized into three categories:
  - Academic Performance
  - School Conditions and Climate
  - Academic Engagement

Student Group Report

- Shows the performance of all students and each student group on the state indicators
- Allows selection of student groups by performance level
  - Blue/Green (i.e., meeting standards)
  - Yellow
  - Red/Orange

More information at: www.caschooldashboard.org

Source: California Department of Education

Resources

Accountability

- OECD — *Evaluation and Assessment Frameworks for Improving School Outcomes: Common Policy Challenges*
- iNACOL — *Rethinking State Accountability to Support Personalized, Competency-Based Learning in K-12 Education*
- Stanford Center for Opportunity Policy in Education — *Accountability for College and Career Readiness: Developing a New Paradigm*

Building Educator Capacity

- CCSSO and JFF — *Educator Competencies for Personalized, Learner-Centered Teaching*
- iNACOL — Leadership in Student-Centered, Equitable Learning Environments
- KnowledgeWorks and iNACOL — *Laying the Foundation for Competency Education: A Policy Guide for Next Generation Educator Workforce*

Equity

- *Competency*Works — *In Pursuit of Equality: A Framework for Equity Strategies in Personalized, Competency-Based Education*
- *Competency*Works — *In Search of Efficacy: Defining the Elements of Quality in a Competency-Based Education System*

Qualifications Frameworks

- New Zealand Qualifications Authority — Understanding New Zealand Qualifications
- OECD — Qualifications Systems: Bridges to Lifelong Learning
- UNESCO — Qualifications Framework

Redefining Student Success

- KnowledgeWorks — *The Future of Learning: Redefining Readiness from the Inside Out*
- South Carolina Department of Education — Profile of a South Carolina Graduate
- Virginia Department of Education — Virginia: Profile of a Graduate
- iNACOL — *Redefining Student Success: Profile of a Graduate*

State Policy to Support Personalized, Competency-Based Education

- *Competency*Works — *Reaching the Tipping Point: Insights on Advancing Competency Education in New England*
- iNACOL — *Fit for Purpose: Taking the Long View on Systems Change and Policy to Support Competency Education*
- iNACOL — *State Policy & K-12 Competency-Based Education*
- iNACOL — *Meeting The Every Student Succeeds Act's Promise: State Policy to Support Personalized Learning*
- iNACOL — *Promising State Policies for Personalized Learning*
- KnowledgeWorks — *A State Policy Framework for Scaling Personalized Learning*
- NCSL — *No Time to Lose: How to Build a World-Class Education System State by State*

Systems of Assessments

- Center for Innovation in Education — Assessment for Learning Project
- iNACOL — *Redesigning Systems of Assessments for Student-Centered Learning*

Glossary

Assessment literacy

Assessment literacy is the collection of knowledge and skills associated with appropriate assessment design, implementation, interpretation, and, most importantly, use. A critical aspect of assessment literacy is that educators and leaders know 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.

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[44] deeper learning as six competencies: Master core academic content; Think critically and solve complex problems; Work collaboratively; Communicate effectively; Learn how to learn and Develop academic mindsets. Deeper learning intersects with competency-based education in multiple ways including defining the learning outcomes, emphasis on lifelong learning skills such as academic mindset and learning how to learn; and importance of applying skills and knowledge to build competencies.

Educational Equity

There are many definitions of equity in education. iNACOL will use the definition from the National Equity Project[45]:

Education equity means that each child receives what he or she needs to develop to his or her full academic and social potential. Working towards equity involves:

1. Ensuring equally high outcomes for all participants in our educational system; removing the predictability for success or failures that currently correlates with any social or cultural factor
2. Interrupting inequitable practices, examining biases, and creating inclusive multicultural school environments for adults and children and
3. Discovering and cultivating the unique gifts, talents, and interests that every human possesses.

Fixed Mindset (See Growth Mindset)

Carol Dweck's research suggests that students who have adopted a fixed mindset — the belief that they are either "smart" or "dumb" and there is no way to change this, for example — may learn less than they could or learn at a slower rate, while also shying away from challenges (since poor performance might either confirm they can't learn, if they believe they are "dumb," or indicate that they are less intelligent than they think, if they believe they are "smart"). Dweck's findings also suggest that when students with fixed mindsets fail at something, as they inevitably will, they tend to tell themselves they can't or won't be able to do it ("I just can't learn Algebra"), or they make excuses to rationalize the failure ("I would have passed the test if I had had more time to study"). (Adapted from the Glossary of Education Reform[46] edglossary.org.)

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[47] edglossary.org.)

Higher Order Skills/Deeper Learning Competencies

Higher order skills refer to skills needed to apply academic skills and knowledge to real-world problems. Although different organizations cluster the skills together in somewhat different configurations, most include a subset of the following skills: creativity, critical thinking, problem-solving, working collaboratively, communicating effectively, creativity and an academic or growth mindset.

Learning Sciences Research

The learning sciences are concerned with "the interdisciplinary empirical investigation of learning as it exists in real-world settings." Core components of learning sciences research include:

- Research on thinking: including how the mind works to process, store, retrieve, and perceive information;
- Research on learning processes: including how people use "constellations of memories, skills, perceptions, and ideas" to think and solve problems, and the role that different types of literacies play in learning; and
- Research on learning environments: including how people learn in different contexts other than a direct instruction environment with a core principle of creating learner-centered learning environments.

Lifelong Learning Skills

In the paper, *Lifelong Learning Skills for College and Career Readiness: Considerations for Education Policy*[48], the American Institutes for Research describes lifelong learning skills as providing "the foundation for learning and working. They broadly support student thinking, self-management, and social interaction, enabling the pursuit of education and career goals." *Competency*Works uses the term to capture the skills that enable students to be successful in life, navigating new environments, and managing their own learning. This includes a growth mindset, habits of work, social & 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.

Social and Emotional Learning

According to the Collaborative for Academic, Social, and Emotional Learning (CASEL)[49], "social and emotional learning (SEL) is the process through which children and adults acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions." They focus on the development of five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making.

Student Agency

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

Student-Centered Learning

The four key principles of Student-Centered Learning:

- Learning is personalized.
- Learning is competency-based.
- Learning takes place anytime, anywhere.
- Students have agency and ownership over their learning.[50]

Universal Design for Learning (UDL)

The Center for Applied Special Technology (CAST)[51] defines Universal Design for Learning (UDL) 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.

Acknowledgements

We are grateful to the trailblazing educators and policymakers leading the way by creating and enabling powerful, competency-based, personalized learning environments that prepare every student to succeed. You inspire us and illustrate how enormous the potential is to transform education toward student-centered systems. In particular, we are grateful to the participants of the National Summit on K-12 Competency-Based Education for helping to shape the ideas in this paper. Special thanks go to Natalie Abel and Ashley Jones of iNACOL and Chris Sturgis of MetisNet for their invaluable contributions to this report.

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