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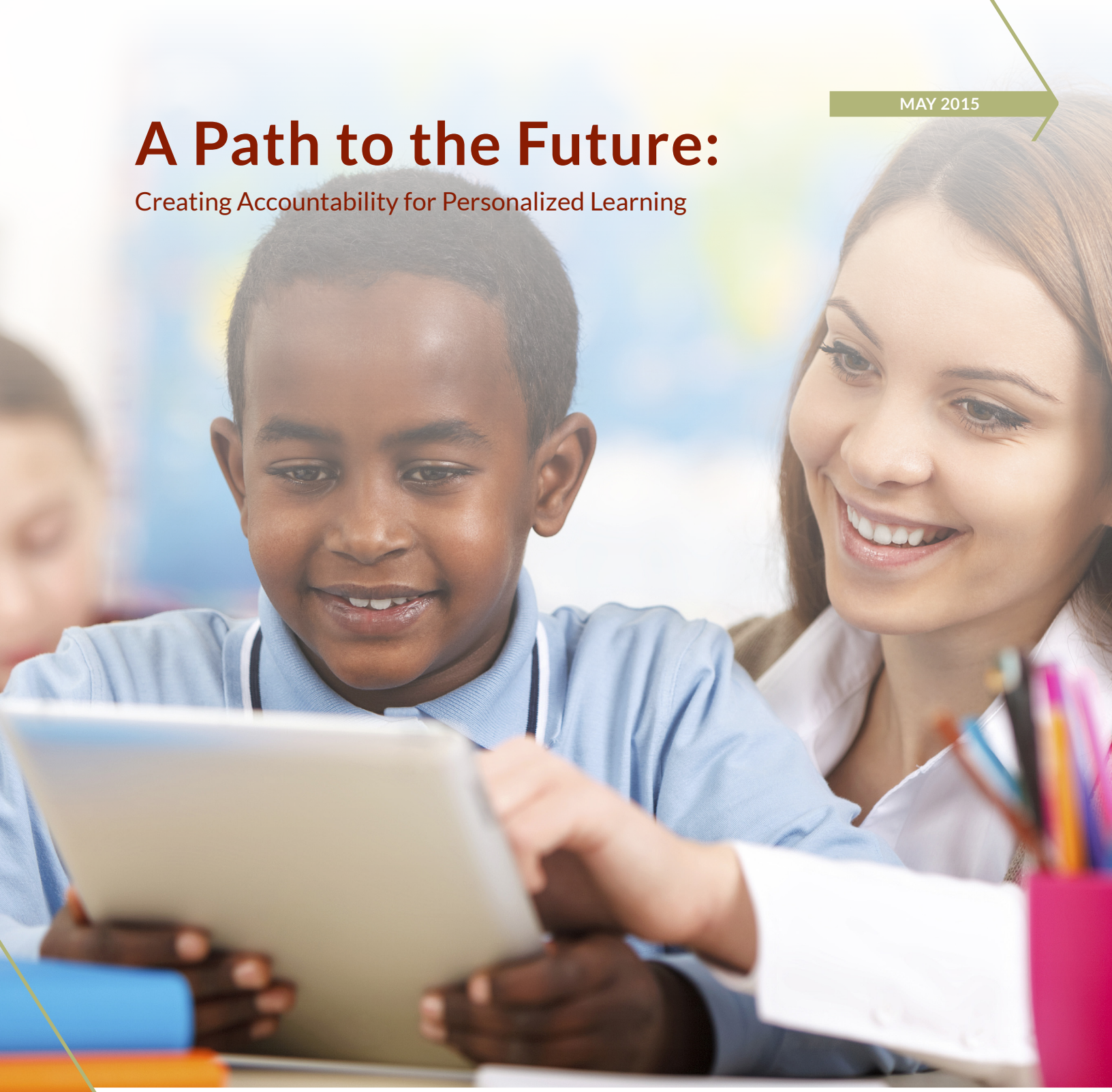
A Path to the Future:

Creating Accountability for Personalized Learning



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Executive Summary

A small but growing number of schools and districts across the country are experimenting with personalized learning, an innovation that customizes students' experiences to their individual needs and strengths. Through new kinds of environments, technologies, and ways to demonstrate their knowledge, personalized learning aims to meet students where they are and allows them to advance to more challenging material whenever they are ready.

Personalized learning is rooted in the expectation that students should progress through content based on demonstrated learning instead of seat time. By contrast, standards-based accountability centers its ideas about what students should know, and when, on grade-level expectations and pacing. The result is that, as personalized learning models become more widespread, practitioners are increasingly encountering tensions between personalized learning and state and federal accountability structures. Common pain points include year-end summative assessments that focus exclusively on grade-level content, limited end-of-year testing windows, and rating systems that measure school performance based on student proficiency against grade-level standards rather than growth over time. Policymakers at all levels of government appear ill equipped to handle these issues, choosing to avoid the looming conflicts and shying away from existing tools that could be deployed to ease the tensions.

This is a missed opportunity. Most personalized learning models are nascent and evolving. They need strong accountability to validate whether they work and enable the best—and only the best—to scale. And personalized learning models could help more schools meet accountability goals, by providing customized learning experiences that fill gaps in students' foundational knowledge and accelerate learning for those who are far behind grade level. The challenge for policymakers is to protect the progress made under the old accountability system while creating space for new educational models to flourish under the next iteration of school accountability.

This paper seeks to help policymakers enable smart innovation while also safeguarding the key functions of accountability systems. Understanding the development of personalized learning and accountability—as well as the emerging tensions between them—will help policymakers create accountability policies that complement and support personalized learning approaches rather than work against them.

Tensions Between Accountability and Personalized Learning

Personalized learning and standards-based accountability both seek to enable more students to reach college and career readiness, but they take two vastly different approaches to get there.

Personalized learning aims to change instruction in ways that customize students' experiences—and, ultimately, lead to *systemic changes* in how students are assessed and progress to more advanced content. Standards-based accountability aims to mold the K–12 system by creating common expectations for student performance—and, ultimately, incentives for *instructional changes* to help students achieve them. In other words, personalization and accountability meet in the middle, creating challenges for policymakers when the two appear to be in conflict.

Fundamental Tensions

To develop smart policies for personalized learning and accountability, policymakers must first recognize how the theories of action behind personalized learning and accountability differ, and where these differences create tension:

- **Equity:** Advocates for standards-based accountability are driven by particular concern for historically marginalized groups of students. They view standards and assessments as crucial to focus attention on the needs of historically underserved populations and drive improvement in under-performing schools. Conversely, personalized learning advocates have not framed their case primarily in terms of social justice. Instead, they emphasize opportunities to maximize learning for each individual student. Personalized learning advocates sometimes fail to address concerns that targeting instruction to students' current skills and knowledge levels could exacerbate inequities—either by reinforcing differing expectations for various groups of students, or by allowing students who are already ahead to make even more rapid progress.

- **Philosophy:** Advocates for standards-based reform focus on consistency and common standards as a necessary corrective to a long history of lower expectations for low-income and minority students. Personalized learning advocates, in contrast, often view consistency and uniformity as barriers to providing students what they need, rather than as tools of educational equity.
- **Risk:** Early adopters of personalized learning are by definition risk takers. They are willing to try out new approaches to education because they believe in their potential, even if there is a risk that these approaches may not work. Advocates for standards-based accountability tend to be more concerned about the risks that students will fall through the cracks of customized systems or will fail to attain the skills required for success after high school.

Despite these differences, most personalized learning advocates and standards-based reformers share a common goal: ensuring that students graduate with the skills, knowledge, and dispositions they need to be successful. That shared goal provides the foundation for reconciling tensions between accountability and personalized learning.

Policy Tensions

Most early adopters of personalized learning focus first on getting implementation right within their particular school or classroom and demonstrating that it works before taking on system-level changes like accountability. But as schools and districts move from initial adoption of personalized learning to systemic deployment, they often encounter policy challenges, including several related to standards-based accountability systems:

Academic Content Standards

- Existing state standards are based on grade-level expectations, which may be too rigid for schools implementing personalized learning when the goal is to meet students where they are, regardless of nominal grade level.
- State standards also may not be comprehensive enough to support personalized learning. Truly competency-based education requires not just grade-level standards, but also a clear articulation of specific competencies that students must master and apply, as well as a mapping of the potential sequences in which students can acquire these competencies as they progress along multiple pathways toward the end goal of college and career readiness.

Assessments and Other Performance Indicators

- State assessments are designed to measure student achievement against grade-level standards and are not administered to students whenever they are ready to demonstrate proficiency.
- Specific No Child Left Behind (NCLB) provisions limit states' ability to tailor assessments to students' skill levels, especially those well above or well below grade level.
- These provisions make it next to impossible for states to design or adopt the kinds of assessments that would best measure student learning growth in personalized environments.

Identification of Low-Performing Schools

- If proficiency rates on grade-level summative tests are the primary measures used to evaluate schools, then accountability systems may not accurately measure schools' personalized learning efforts, especially for schools that serve students who arrive struggling academically.

Interventions in Low-Performing Schools

- Low-performing schools are expected to make dramatic performance gains within three years. If they are placed in improvement as part of states' accountability systems, schools using personalized learning models may take several years to see significant increases in proficiency, even if students are making meaningful gains in the interim.
- Personalized learning may be a particularly risky improvement tactic in low-performing schools. Implementing personalized learning is hard work that requires significant capacity and strong leadership to change longstanding norms and practices—a tall order for low-performing schools.

Key Recommendations

Resolving these tensions will require both reforms to the overarching accountability system (umbrellas) and exemptions for schools or districts that meet certain criteria (waivers). Combining waivers and umbrellas will enable policymakers to support the development and expansion of personalized learning while maintaining key safeguards and features of accountability systems.

"Umbrella" policies that state and federal policymakers should consider:

- Move away from narrow end-of-year testing windows toward real-time testing within grade levels.
- Move toward assessing students whenever they are ready to demonstrate mastery, rather than only at the end of each grade.
- Allow states to use more fully adaptive tests for accountability.
- Increase the weight of individual student-growth measures in accountability systems.
- Include multiple measures of school quality in school rating systems.
- Add a domain for locally selected measures.
- Create appeals processes for schools adopting innovative models.
- Exempt personalized learning schools from receiving the lowest accountability rating (e.g., an F grade in an A–F system) during their first year of implementation.
- Designate personalized learning models with a positive track record of boosting student achievement as approved strategies for improving low-performing schools.

Personalized Learning Waivers

In addition to these umbrella reforms to the existing accountability system, federal policies should allow limited waivers of accountability policies for schools and districts seeking greater flexibility to implement innovative personalized learning models. States would apply on behalf of districts or schools for a federal waiver from NCLB provisions that they feel inhibit personalized learning. These waivers should be designed specifically to facilitate the growth and evaluation of innovative educational approaches. To do this, federal policymakers should set a high bar for granting waivers. They should also couple waivers with rigorous monitoring in order to evaluate student learning outcomes and identify lessons for other schools and districts.

In addition to adopting specific umbrella and waiver policies, policymakers seeking to balance accountability and personalized learning should adhere to the following principles:

1. Both accountability and personalized learning should be part of K–12 education systems going forward.
2. Common, agreed-upon metrics of student learning and outcomes, including student growth, are essential to driving educational progress overall, as well as for evaluating the effectiveness of personalized educational approaches.
3. All schools must be held accountable for student outcomes, but accountability should not create unnecessary barriers to personalized learning.
4. Policymakers need to design policies that can be customized to variations in local landscapes and needs.
5. Policymakers need to design policies that can evolve over time as personalized learning matures.

Introduction

Common Core. Over-testing. No Child Left Behind. Few debates in education are as divisive as those over standards, testing, and accountability. The latest push to reauthorize No Child Left Behind, the 2002 law now eight years past its expiration date, has set off another frenzy. But the debate in 2015 looks much the same as it did in 2013, and in 2011 before that. Even the legislative proposals are recycled almost verbatim.

As lawmakers, advocates, and analysts dust off old arguments about the nation's most significant K–12 education law, they run the risk of ignoring the future. Where NCLB was bold in its vision—all students proficient by 2014—the current proposals are remarkably lacking in ambition and new ideas. Innovation has been relegated to the fringes of the debate.

One of these innovations is personalized learning, which involves transforming students' daily experiences so that they are customized to their individual needs and strengths. Through new kinds of learning environments, new technologies, and new ways for students to demonstrate their knowledge, personalized learning aims to meet students where they are and allow them to advance to more challenging material whenever they are ready. Like many reforms, there is a lot of hype surrounding it. Advocates and early adopters of personalized learning view it as a game changer with the potential to dramatically accelerate learning for students at all levels of performance. Others view it with skepticism or outright hostility, worried that excessive screen time will harm children, developers will abuse student data, or vendors are simply trying to make a profit off of public schools.

The extremes of hype and hysteria aside, the reality is that a small but growing number of schools and districts across the country are experimenting with personalized learning. As they do, they are increasingly encountering tensions with state and federal accountability structures, from limited end-of-year testing windows to school rating systems that measure school performance based mainly on student proficiency rather than on growth over time. Policymakers at all levels of government appear ill equipped to handle these issues, choosing to avoid the looming conflicts and shying away from existing tools that could be deployed to ease the tensions.

Most personalized learning models are nascent and evolving; they need strong accountability to validate whether they work and enable the best—and only the best—to scale.

This is a missed opportunity. Most personalized learning models are nascent and evolving; they need strong accountability to validate whether they work and enable the best—and only the best—to scale. Accountability systems could likewise benefit from the richer, real-time information on student performance that personalized learning models are collecting in order to customize students' learning.

The challenge for policymakers is to protect the progress made under the old accountability system while creating space for new educational models to flourish under the next iteration of school accountability. It would be premature to remodel today's accountability apparatus around personalized learning models that are less than fully formed and short on evidence of their effectiveness. But it would also be shortsighted to cling too tightly to accountability policies that could stifle promising innovation in delivering better learning experiences to more children. The question isn't whether accountability policies should change; it's how, and when.

This paper seeks to chart a middle ground—to help policymakers enable smart innovation and safeguard key accountability functions. By understanding the development of personalized learning and accountability, and articulating the tensions building between them, policymakers can use the tools they have and capitalize on current policy trends to create future accountability policies that work with personalized learning approaches and not against them.

The Past: Origins of Personalized Learning and Accountability

Personalized Learning: A Differentiated Instruction Dilemma

Personalized learning seeks to resolve an age-old problem: how to tailor instruction to students of different ability levels, meet their individual needs, build from their strengths and weaknesses, and tap their natural curiosity and genuine interests.

Personalized learning seeks to resolve an age-old problem: how to tailor instruction to students of different ability levels, meet their individual needs, build from their strengths and weaknesses, and tap their natural curiosity and genuine interests.[1]

Educators have long sought to differentiate instruction for students, but it often felt daunting, or even impossible. The result was educational triage: teachers often focused their efforts on students in the middle of the performance distribution or closest to certain performance levels.

New approaches, however, hold potential to help teachers change their practice to more fully calibrate lessons to each student's level, even those well above or well below their nominal grade level, and tailor the pace and format of daily instruction to address students' specific needs. As one high schooler described his school's shift to personalized learning to *The Hechinger Report*, "There used to be a lot more of teachers talking at you—it didn't matter if you were ready to move on. When the teacher was done with the topic that was it…This is so much better."[2]

Personalized learning will become increasingly relevant as states transition to college- and career-ready standards. With fewer students expected to score at the highest achievement levels, more students—including those previously deemed proficient—will need instructional support to get on track. Moreover, students who were already struggling under the old standards will have an even greater distance to go to in order to reach mastery if the new bar is college and career readiness.

While the idea of personalized learning is compelling, it is more complicated to explain what these approaches mean for educators, parents, and policymakers. Proponents of personalized learning struggle to describe what it is—and what it is not—in part because they don't always agree among themselves.[3] A group of philanthropies, funders, advocates, and research organizations have developed a working definition of personalized learning that includes four key elements:[4]

1. **Learner Profiles.** Each student has an up-to-date record of his/her individual strengths, needs, motivations, and goals.
2. **Personal Learning Paths.** All students are held to clear, high expectations, but each student follows a customized path that responds and adapts based on his/her individual learning progress, motivations, and goals.
3. **Competency-Based Progression.** Each student's progress toward clearly defined goals is continually assessed. A student advances and earns credit as soon as he/she demonstrates mastery.
4. **Flexible Learning Environments.** Student needs drive the design of the learning environment. All operational elements—staffing plans, space utilization, and time allocation—respond and adapt to support students in achieving their goals.

This definition can help address common questions and misunderstandings about personalized learning. But it does not fully resolve public confusion, due in part to the wide variety in personalized models and strategies (See Sidebar 1: "One Size Does Not Fit All: Variations in Personalized Learning").

Sidebar 1

One Size Does Not Fit All: Variations in Personalized Learning

Two of the more developed approaches to personalized learning—competency-based education pilots in New Hampshire and *Teach to One: Math*—illustrate both the variation in personalized learning and how different models combine its four core elements.

Ten years ago, New Hampshire became the first state to abolish the credit hour as the primary measure of students' learning and began to transition to competency-based education, adopting policies to allow students to progress upon mastery or proficiency rather than seat time. In a strong local-control state like New Hampshire, some communities have inevitably taken the new policies further than others. These districts are not only moving beyond time-based credit requirements for graduation, but also are expanding learning for students outside the school day (via internships, project-based learning, and/or virtual instruction). Technology is part of New Hampshire's effort to encourage learning to happen "anytime, anywhere," but is a limited component in many districts' efforts. New Hampshire has also engaged teachers to collaborate in developing, administering, and scoring performance-based assessments of students' abilities to apply knowledge and skills in curriculum-embedded tasks. Four schools districts are piloting these assessments this year and have won approval from the U.S. Department of Education to use them instead of state summative tests in certain grades, with the hope that the approach could eventually scale statewide and offer an alternative to state assessments.[i]

Teach to One: Math, by contrast, is narrower in scope. It seeks to transform instruction in participating schools, as opposed to whole districts or states, in one subject and over one grade-span (grades 5–8). Developed by the nonprofit New Classrooms, the approach is also highly dependent on technology. *Teach to One: Math* "redesigns the physical classroom to create several learning stations that teachers and students move between during a single class period."[ii] A hundred students, armed with laptops, can be in a *Teach to One: Math* classroom, along with a dozen teachers or assistants. Some students work independently via online software or with virtual tutors, while others receive group instruction led by a classroom teacher or collaborate with their peers in small groups. However, as NPR described in a profile of one *Teach to One* school, "beneath all the human buzz, something other than humans is running the show: algorithms. The kind of complex computer calculations that drive our Google searches or select what we see on our Facebook pages. Algorithms choose which students sit together. Algorithms measure what the children know and how well they know it. They choose what problems the children should work on and provide teachers with the next lesson to teach."[iii] In other words, sophisticated data analytics inform the daily schedule for each student, and information on students' mastery is gathered in real time as they work through math lessons and assessments.

Sources: i Alyson Klein, "Will New Hampshire Be Arne Duncan's 'Test Case' for Accountability 2.0?" *Education Week*, October 23, 2014, accessed April 2, 2015, http://blogs.edweek.org/edweek/campaign-k-12/2014/10/will_new_hampshire_provide_a_t.html and "New Hampshire Gets Approval to Try Out Local Assessments," *Education Week*, March 5, 2015, accessed April 2, 2015, http://blogs.edweek.org/edweek/campaign-k-12/2015/03/new_hampshire_gets_approval_to.html.

ii New Classrooms, "We Believe," accessed April 2, 2015, http://www.newclassrooms.org/believe.html.

iii William Huntsberry, "Meet the Classroom of the Future," National Public Radio, January 12, 2015, accessed April 2, 2015, http://www.npr.org/blogs/ed/2015/01/12/370966699/meet-the-classroom-of-the-future.

Personalized learning can be supported at a variety of levels—from the individual classroom, to whole-school models, to district and even statewide reforms. For example, more than 50 Washington, D.C., teachers participating in the Education Innovation Fellows program have received training to deploy personalization in their individual classrooms.[5] Charter networks like Summit Public Schools and Rocketship have built entire schools around an educational model that uses technology and new staffing approaches to personalized student learning.[6] And at the district and state levels, Kentucky has created a system to designate "districts of innovation" that may bypass various state requirements that inhibit personalized learning models.

Personalized learning models also vary in their use of technology. Most deploy it in new ways to support greater personalization, but technology is not a requirement. Educators can also customize learning experiences by allowing greater student choice in traditional classroom settings and assignments, or by providing and formally recognizing learning opportunities outside the classroom.

Further complicating matters, personalized learning is often conflated with other, related efforts to transform K–12 education: blended learning and competency-based learning.

Blended learning combines traditional teaching with technology, so that students learn in both brick-and-mortar classrooms and virtual environments.[7] Some personalized learning models use digital tools, like Khan Academy's YouTube videos, to deliver specialized support to students who are struggling, or to expose students to more advanced material. But using Khan Academy is not necessarily personalization, especially if it occurs only in the context of whole-group instruction or assignments rather than as part of broader efforts to allow students to progress through content at their own pace. Blended learning can provide tools for schools seeking to create new learning pathways and offer more flexible learning environments, but absent other changes it stops short of full personalization.

Competency-based education is also easily confused with personalization, especially because it is one of the four pillars within the personalized learning working definition. Competency-based models measure students' progress through the educational system based on mastery, rather than seat time or grade levels. Students can advance to higher-level material whenever they demonstrate they are ready—but not before. While integral to personalized learning, competency-based education is more an enabler of personalized learning than a synonym for it. For competency-based education to be fully personalized, these models must do more than allow for variations in pacing through content. They must also include multiple pathways to college and career readiness, and learning environments flexible enough to foster and support those pathways. Students also need, at any given time, to know where they are along their pathway—and the competencies they have yet to master.

How do the three concepts—personalized learning, competency-based education, and blended learning—work together? Competency-based progression is necessary, but not sufficient, for personalized learning. And the combined impact of competency-based education and personalized learning is amplified when they integrate blended learning. Heather Staker, a senior research fellow at the Christensen Institute, explained this relationship this way:[8]

(personalized learning + competency-based learning) *blended learning*
= student-centered learning, at scale

Adding technology to the mix helps maximize the cost effectiveness, efficiency, and reach of personalized learning—increasing its scalability and extending its potential benefits to the children who have the most to gain from it.

There are reasons to be hopeful about the potential of personalized learning. A 2014 evaluation of the *Teach to One: Math* model found that in the first year of implementation, students in two of seven schools showed math gains significantly above national averages on the NWEA Measures of Academic Progress (MAP) assessment; in the second year, after some changes to the model, 11 of 15 schools demonstrated gains significantly above average.[9] The Bill & Melinda Gates Foundation also released an interim report conducted by the RAND Corporation on personalized learning in 23 charter schools in 2014. Among schools that had been personalizing learning for two years, two-thirds saw statistically significant MAP growth in math and reading compared to similar students in comparable schools, and students that began the year behind academically were likely to finish the year on par with national norms.[10]

Still, unqualified endorsement of personalized learning may be premature given that most approaches are nascent, relatively uncommon, and lack evidence. Most models have not yet been subject to independent evaluation. Studies like the ones above are rare exceptions, and even they have limitations. They do not represent peer-reviewed, published academic research, but rather preliminary reports of initial implementation in a small sample of schools, using limited experimental methods. For example, neither report could definitively show that personalization led to the gains in the sample schools; other factors may have been responsible. Part of the challenge is that many schools have only just begun to implement personalized learning. As these models mature and expand, more robust evaluations should be possible. Accountability systems also can help demonstrate whether personalized learning strategies live up to their potential and elevate student learning.

A Nation at Risk: Powering Standards-Based Accountability

While personalized learning starts in the classroom, and can lead to systemic changes as efforts are taken to scale, standards-based accountability starts with the system first to drive instructional changes. Standards-based reform emerged from the 1983 landmark report *A Nation at Risk*, which argued that systemically mediocre achievement among American students was due to minimal expectations for schools' and students' academic performance.[11] The antidote was to set rigorous standards for what students should be able to know and do each year, measure progress against those standards, and hold schools accountable for student outcomes.

While personalized learning starts in the classroom, and can lead to systemic changes as efforts are taken to scale, standards-based accountability starts with the system first to drive instructional changes.

This basic theory of action behind standards-based accountability remains the dominant framework for federal and state policy efforts to improve public education. Over the past 30 years, every state in the nation has put in place systems of standards and accountability that include four key features:

1. States create **academic content standards** that establish what students should know and be able to do in core subjects and that, in turn, inform the development of teacher training and development, curriculum, and instructional materials.
2. States develop **assessments and other indicators** aligned to the standards that measure students' mastery and that track progress toward performance goals.
3. States make **public determinations of school performance** based on their assessments, using transparency to improve understanding of school quality and create conditions that drive improvement.
4. States and districts design **interventions for low-performing schools**, creating incentives for policymakers, administrators, and educators to focus on their performance goals and align teaching and instruction more closely to the standards.

In this way, standards-based accountability aims to bring coherence to a fragmented, decentralized K–12 system. When each of the components is in sync, standards and assessments provide students, educators, and officials with a clear understanding of the level of performance that is expected, and accountability systems create incentives for them to do what needs to be done to achieve it—resulting in improved student learning. If any piece is out of alignment, however, the chain of information and incentives linking the standards to educator practice and better student outcomes breaks down.

The original case for accountability emphasized global competitiveness, stagnating achievement, and low levels of academic rigor overall. By the late 1990s, however, civil rights organizations seized on standards and accountability as a way to address long-standing inequities in educational opportunities and outcomes for poor and minority children. NCLB reflected this shift by requiring states to disaggregate test results and hold schools accountable for performance of student subgroups—including English-language

learners, students with disabilities, and major racial and ethnic groups—and not just for students overall. By shining a light on inequity for historically disadvantaged students, the logic went, NCLB would push schools to devote resources and attention to them. Civil rights groups became, and continue to be, one of accountability's strongest supporters.

Studies have repeatedly shown that accountability is associated with moderate, positive effects on student performance, especially in math.

Evidence suggests the strategy is working—albeit less rapidly than proponents might have hoped. Studies have repeatedly shown that accountability is associated with moderate, positive effects on student performance, especially in math.[12] Research has also shown that schools seeking to avoid sanctions, or facing the most severe interventions, were more likely to improve.[13] And educators responded to NCLB's incentives by raising expectations and changing, in positive ways, how they served previously underserved populations. For example, schools where special-education students counted toward accountability were more likely to end self-contained classrooms for those children compared to schools where special-education student results were not examined separately.[14] And while achievement gaps persist, performance on the National Assessment of Educational Progress (NAEP) among 4th and 8th graders has never been higher, with black and Hispanic students showing larger gains than others.[15]

Despite these outcomes, standards-based reforms have encountered increasing pushback from educators and advocates who oppose standardized testing and the use of test scores to measure school performance. Parents worried about "over-testing" in public schools have added to the opposition, as have conservative activists and politicians concerned about the increasing federal role in a range of areas, from health care to the environment to education. Even many supporters of standards-based reform have concluded that NCLB identified too many schools as low-performing and relied too heavily on test scores, and that its interventions were overly prescriptive and ineffective. As a result, the consensus has shifted toward giving states more flexibility. In the 2012–13 school year, the Obama administration began granting states waivers from key provisions of the law; this allows states to design accountability systems of their own making, with fewer federal prescriptions.[16] As a result, accountability policies are in flux as Congress struggles to rewrite the underlying law.

The Present: Tensions Between Accountability and Personalized Learning

Today, both personalized learning approaches and standards-based accountability policies are in a state of evolution. These developments can appear unrelated: personalization is an instructional reform strategy, while standards-based accountability seeks to drive change at the systems level.

Nonetheless, each concept creates implications for the other. Personalized learning aims to change instruction in ways that customize students' experiences—and, ultimately, lead to *systemic changes* in how students are assessed and progress to more advanced content. Standards-based accountability seeks to mold the K–12 system by creating common expectations for student performance—and, ultimately, incentives for *instructional changes* to help students achieve them. In other words, personalization and accountability meet in the middle, creating challenges for policymakers when the two appear to be in conflict.

Personalized learning and standards-based accountability both seek to enable more students to reach college and career readiness, but they take two divergent approaches to get there.

Competing Visions for Educational Improvement

Personalized learning and standards-based accountability both seek to enable more students to reach college and career readiness, but they take two divergent approaches to get there. These dissimilarities in values, philosophy, and acceptance of risk—not the policy specifics—are why it sometimes seems like conversations about personalized learning or education technology and standards-based accountability are, in the words of Democrats for Education Reform's Charlie Barone, "taking place on different planets."[17]

Different Values?

Advocates for standards-based accountability are driven by particular concern for historically marginalized students. In their view, standards-based reforms remedy a malicious problem: students from disparate racial, ethnic, and socioeconomic backgrounds and communities have been exposed to very different academic content and levels of rigor. Federal education policy began as civil rights policy, and accountability is a centerpiece of that agenda today. Common expectations for all students, and transparent data on how well schools enable subgroups of students to meet those expectations, are crucial to ensuring equity. Anything possibly undoing that is viewed as imperiling the gains these student groups have made—a return to what President George W. Bush termed the "soft bigotry of low expectations."[18]

Personalized learning advocates have not framed their case primarily in terms of social justice.

Personalized learning advocates have not framed their case primarily in terms of social justice. Instead, they emphasize opportunities to accelerate learning for all students, increase student choice and engagement, and teach 21st century skills that are more relevant to students' lives. While many do highlight the value of these benefits for disadvantaged students, or fund efforts to implement personalized learning in low-income communities, equity can feel like a secondary concern.[19] For example, in 2012 the U.S. Department of Education awarded more than $350 million to 16 districts to help them improve achievement via personalized learning as part of its Race to the Top competition. The majority of these communities served populations that were poorer and more racially diverse than their respective states as a whole. But when asked about their primary goals for personalized learning by *Education Week* two years later, only a quarter of the grantees specifically emphasized improving outcomes for low-income or minority students, or closing achievement gaps.[20]

A related challenge is that personalized learning is often most developed and demanded in less diverse communities. Consider the four districts in New Hampshire piloting performance-based assessments (See Sidebar 1: "One Size Does Not Fit All: Variations in Personalized Learning"). All have higher concentrations of white students, and lower concentrations of black, Hispanic, and English-learning students than statewide averages—even in a relatively homogenous state. The most racially and ethnically diverse of the four districts has 96 percent white students. Further, schools in these districts are generally not low-performing. In 2014–15 only one of the 20 schools in these districts was named a "priority" or "focus" school—the NCLB waiver designation for schools in the bottom 15 percent statewide.[21]

If personalized learning is concentrated in affluent communities, it could exacerbate inequities by reducing low-income children's access to new instructional modalities and strategies that have the potential to accelerate their learning. And even if personalized models are implemented in a variety of communities, targeting instruction to students' current skills and knowledge levels could exacerbate inequities via the "Matthew effect,"

allowing students who are already ahead to make even more rapid progress. Without appropriate safeguards to ensure that all students ultimately reach key milestones toward college and career readiness, personalization could inadvertently exacerbate inequitable expectations for varied groups of students.

Without appropriate safeguards to ensure that all students ultimately reach key milestones toward college and career readiness, personalization could inadvertently exacerbate inequitable expectations for varied groups of students.

Different Philosophies?

The bigger challenge, however, may be that proponents of standards-based accountability and personalized learning have very different conceptions of what educational equity means. Within standards-based accountability, equity has historically meant ensuring that all children are able to acquire a common set of skills and knowledge necessary for success as adults. Holding students to uniform expectations each year is a selling feature, not a bug—a necessary corrective to a long history of lower expectations and less access to rigorous coursework, qualified teachers, and other resources for low-income and minority students.

Personalized learning advocates, in contrast, question the value of uniformity. They view equity more in terms of differentiating learning to meet students' needs and enabling all students to reach their individual potential.

Figure 1 Standards-Based Accountability and Personalized Learning Philosophies

STANDARDS-BASED ACCOUNTABILITY: Students will learn best when	PERSONALIZED LEARNING: Students will learn best when
• They are expected to learn the same essential content in core subjects • Content is organized in a consistent sequence • Pacing is set by grade-based divisions within the standards • Learning is assessed at the end of each grade and/or subject	• They can experience different content that engages them by reflecting their interests • They can work through content in different sequences • They can progress through content at different speeds • Learning is assessed when students are ready to demonstrate mastery, not just at the end of a grade or course

As a result, some view the consistency that standards-based accountability creates as a barrier to, rather than facilitator of, improved learning and equity. Advocate and author Sir Ken Robinson argues, "Current policies are based on a tragic misdiagnosis of the problem. They treat education as an industrial process rather than as a human one. They are driven by a culture of testing and standardization that has narrowed the curriculum and sees students as data points and teachers as functionaries rather than as living breathing people. To improve our schools, we have to humanize them and make education personal to every student and teacher in the system."[22]

Yet most personalized learning advocates still share the end goal of standards-based reformers: ensuring that students graduate with the skills, knowledge, and dispositions they need to be successful after high school.

Yet most personalized learning advocates still share the end goal of standards-based reformers: ensuring that students graduate with the skills, knowledge, and dispositions they need to be successful after high school. Most personalized learning models still use college and career-ready standards as a foundation. Recognizing this common ground, other personalized learning advocates, like the CCSSO Innovation Lab Network, try to balance personalization and standardization. The Network is currently working with states to identify what it calls "key 'guardrail' principles." These include "commitment to make annual determinations of achievement and progress for all students, even as the methods for making those determinations are subject to innovation; to hold those methods to a level of comparability across districts; and to help build capacity in all districts so that successful pilot systems can scale toward statewide transformation."[23] The Network believes that proactively addressing the tensions between standardization and customization will enable states to develop policies that accommodate both.

Different Approaches to Risk?

These differing values and philosophies translate into conflicting assessments of the risks involved in new personalized models. Advocates for standards-based reform focus on consistency and common standards because they are concerned that students will fall through the cracks of customized systems, or will fail to attain skills required for success after high school. In this context, multiple pathways, student flexibility, and individualized learning plans seem risky. The evidence base for new models is limited, whereas there is an historical track record of different expectations leading to inequitable outcomes for poor and minority students. Some of the policies that most frustrate personalized learning innovators also help protect students; Carnegie unit (i.e., credit hour) requirements for high school graduation, for example, provide a recognized metric that students can use in college admission.

Increasing students' ownership of learning via personalization is a powerful goal—but it can feel like schools are placing the onus on students, rather on teachers or schools, to guide their instruction. Lindsay Jones, director of public policy and advocacy at the National Center for Learning Disabilities, explains:

> *"Without an accountability system, the blame can fall on the student. When teachers have a hard time figuring out how kids learn and aren't well supported, they may feel like, 'I'm doing everything I can. It's the student that isn't doing their job.' Accountability gave students and parents the power to say, 'No, there's a systemic problem here.' Personalized learning may do the opposite if it isn't well designed to meet unique student needs because it could appear the student isn't learning as opposed to not being able to access the content. But without accountability we could again hear ... 'We're making the system respond to you, and you still can't learn.' That could become an unbearable burden on students or parents."*[24]

Families are also affected. Some parents value the real-time learning data produced by personalized learning, while others feel like schools are making them responsible for tracking and understanding students' progress. Similarly, the use of "bring your own device" and "flipped classroom" approaches in some models places new demands on parents to provide educational resources they cannot meet.

In contrast, personalized learning advocates tend to be less risk averse—both more optimistic about the potential upside of personalized learning and less troubled by the potential risks. "Disruptive innovation" might sound scary to parents, but many personalized learning advocates believe this is exactly what public education needs. And at the system level, the payoff could be significant if personalization enables many more students to reach mastery of college- and career-ready standards, engage deeply with rigorous content, and develop approaches to learning that will help them be successful beyond the classroom.

As personalized learning develops, the conflict between the risk takers (in favor of more personalization) and the risk averse (defending accountability) could be eased by bringing both back to where they agree: the need for all students to graduate college- and career-ready.

Early implementers of personalization are, by definition, unusually entrepreneurial and willing to experiment. But this may not be the case as personalized learning scales up in more "typical" schools and districts, which may lack these sorts of leaders. As personalized learning develops, the conflict between the risk takers (in favor of more personalization) and the risk averse (defending accountability) could be eased by bringing both back to where they agree: the need for all students to graduate college- and career-ready. If policymakers, in coordination with practitioners and developers, can keep this shared goal in mind, they are more likely to be able to recognize these fundamental differences between personalized learning and accountability, as well as to create policies that allow for both. With a common understanding of student success, accountability can help personalized learning models build more compelling evidence that their approaches work—and convince those who are more risk averse that personalization is an effective strategy to reach their common goals.

Where Personalized Learning Intersects With Accountability Policy

The differences above tend to feed into the hysteria and hype around personalized learning, obfuscating more practical challenges that practitioners face when trying to implement a personalized learning strategy. Yet even among the list of practical issues, accountability policies are often a secondary and less immediate concern.

Most early adopters of personalized learning opt to focus first on getting implementation right within their particular school or classroom—that is, making the case that it works—before taking on system-level changes like accountability. Successful implementation depends on choosing or designing the right model, training teachers how to use it, and establishing the technological infrastructure to support it. Success also means creating a school and community culture that embraces the theory of action behind personalized learning—such as competency-based student progressions. "Even more than accountability, the biggest barrier to personalized learning is human capital and culture, not accountability...At the end of the day, it's about teacher knowledge, capacity, and having the tools and support they need to do [personalization] well at their school," explains Maria Worthen, vice president for federal and state policy at the International Association for K–12 Online Learning (iNACOL).[25]

Even more than accountability, the biggest barrier to personalized learning is human capital and culture, not accountability... At the end of the day, it's about teacher knowledge, capacity, and having the tools and support they need to do [personalization] well at their school.

But as schools and districts move from initial adoption of personalized learning to systemic deployment, they often begin to encounter policy barriers, including procurement policies that hinder software purchases, collective bargaining agreements that prohibit flexible uses of educators' time, class-size policies and staffing requirements that prevent certain instructional models and student groupings, and seat-time requirements that limit schools from awarding credit based on mastery rather than time spent in the classroom.[26]

Accountability has drawn less attention than these other policies, but schools and districts that are furthest along in implementing personalized learning are starting to find ways in which their chosen approaches bump up against standards-based accountability systems.

The exact interactions between personalization and accountability depend on the characteristics of the personalized learning strategy. A system-wide transformation, like that of New Hampshire, creates more complicated accountability challenges than a more targeted model like *Teach to One: Math* (See Sidebar 1: "One Size Does Not Fit All: Variations in Personalized Learning"). Regardless of the personalized model, however, each of the four components of accountability systems—standards, assessments, school determinations, and interventions—can pose a potential obstacle for early adopters to work around.

Academic Content Standards

Of the four components of accountability systems, academic content standards create the fewest tensions with personalization, largely because most personalized learning models treat state standards as the floor—that is, the minimum level of knowledge students must attain to be college-and career-ready. Having a common goal helps. States' academic standards support greater customization by establishing a common understanding of where the multiple pathways offered within personalized learning settings must end, opening space for greater flexibility in how students get there.

But there's no getting around the fact that all existing state standards are organized according to grade-level expectations—as are the vast majority of K–12 schools. This entirely reasonable approach creates two types of potential conflicts for personalized learning models.

Grade-level expectations may be too rigid for schools implementing personalized learning.

First, grade-level expectations may be too rigid for schools implementing personalized learning. When the goal is to meet students where they are, and to deliver instruction tied to a student's current skill level, nominal grade levels become much less important than whether students are on pace to be college- and career-ready. The Common Core may call for students in 3rd grade to "fluently add and subtract within 1,000," but if formative assessments show that Sara has not mastered the prerequisite skill to "add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10," then personalization calls for her to receive instruction focused on helping her master more basic addition, even if it is a 1st grade standard.[27] Similarly, the fact that Anne is only in 3rd grade should not prevent her from tackling multi-digit multiplication of whole numbers (a standard at the 5th grade level) if assessments show that she has already mastered the prerequisite skills.

Conversely, grade-level standards may not be comprehensive enough to support personalized learning. Truly competency-based education not only requires grade-level standards, but also expects students to "acquire, make meaning of, and … transfer their content and skills" to various problems and situations.[28] To enable these new applications of knowledge, educators need a clear articulation of the specific competencies that students must master, as well as a mapping of the potential sequences in which students can acquire these competencies as they progress along multiple pathways toward the end goal of college and career readiness. Currently, most schools and districts implementing personalized learning still need to develop these competencies, using their state standards as a base.

To date, these issues have posed few challenges. Most students, even in personalized settings, still spend the bulk of their time on content within grade-level expectations—often because of the organizational and cultural shifts competency-based progression requires. As the Christensen Institute found in a case study of New Hampshire's efforts:

> *"Although mechanisms for students to move through material more quickly might be in place, a student might not be encouraged to do so. … [T]his might be because students are not aware of this option, but also because it requires a heavy lift from students…. [T]he option to advance upon mastery is treated as a separate project from traditional courses, rather than being integrated into the academic model itself."*[29]

Getting parents, students, educators, and school leaders to shift their mindsets is a far more daunting obstacle for personalized learning than the existence of grade-level standards is.

It is also relatively easy for schools and districts using personalized learning to augment their standards by developing competencies and performance tasks on top of grade-level standards. But augmentation may not be ideal over the long term. At some point, grade levels, let alone standards designed around them, become meaningless in competency-based environments. If competency-based education grows to scale in places like New Hampshire, states may need to consider a more radical departure from current standards.

Assessments and Other Performance Indicators

State assessments create the most significant tensions between personalized learning and standards-based accountability today. "We assess every student on grade-level standards using tests that are largely focused on that content and have limited ability to move significantly above or below those standards. And then, in the best-case scenario, we base accountability systems on growth from those tests. There is a disconnect between that system and the idea of competency-based education, where you meet students where they are and let them show mastery in real time," explains Scott Benson, a managing partner at NewSchools who was formerly with the Bill & Melinda Gates Foundation.[30]

This focus on grade-level proficiency is a byproduct of NCLB, which required states to develop annual assessments aligned to their standards in reading and math and to use achievement on these assessments as the primary measure for accountability. Under NCLB, tests couldn't just relay information about how students compared to one another or national norms; they also needed to be valid and reliable measures of whether students had mastered state standards at the end of each grade. As a result, state assessments are designed for grade-level, not competency-based, progressions.

Specific NCLB provisions limit states' ability to tailor assessments to students' skill levels. The law stipulates that tests "shall be the same academic assessments used to measure the achievement of all children."[31] Further, regulations require tests to address the full depth and breadth of states' grade-level standards.[32] Combined, these provisions make it next to impossible for states to design or adopt the kind of assessments that would best measure student learning in personalized environments. Computer adaptive tests, for example, alter the difficulty of successive questions based on students' previous answers, producing more challenging questions if previous responses were correct and easier ones if they were not. This approach produces a much more precise and accurate measurement of students' knowledge and learning gains, but runs afoul of NCLB's requirements that all children take the same test based on grade-level standards.

Because personalized learning models calibrate instruction to students' current abilities, some students may spend most of their time learning content that is not covered by the state test for their grade level—but they still need to take that grade-level test at the end of the year.

This has particularly problematic implications for students who are already far below grade level. Even if these students are making significant gains, assessments tied to grade-level content may not capture their progress. Not only do such assessments fail to accurately measure schools' performance in educating these students, they also encourage educators to focus on grade-level content, rather than filling gaps in lower-level foundational skills that students need to master grade-level content. Grade-level assessments further may not accurately capture learning for students achieving above grade level. These problems exist for traditional schools, but even more so in a personalized learning context. Because personalized learning models calibrate instruction to students' current abilities, some students may spend most of their time learning content that is not covered by the state test for their grade level—but they still need to take that grade-level test at the end of the year.

These summative tests stand in contrast to the frequent, formative assessments that personalized learning models often depend on. For instance, *Teach to One: Math* gathers information on students' mastery daily in order to identify what content students should learn next, and what modality would best help them learn it.

Some personalized learning schools cope by focusing on their internal data and assessments for the majority of the year and then cramming for state tests at the last minute. For them, the statewide assessments may be an annoyance or a waste of time, but not an obstacle. However, statewide grade-level assessments can act as a disincentive for schools considering personalized learning models or feel like a penalty for those already deploying them. New Classrooms' co-founder and CEO Joel Rose describes this tension in *Teach to One: Math*: "Teachers may feel like they're penalized…. Their students are being successful in the program, but then they feel like they have to switch that off to do test prep."[33]

Statewide grade-level assessments can act as a disincentive for schools considering personalized learning models or feel like a penalty for those already deploying them.

NCLB regulations do allow local assessments to be used instead of statewide ones—a provision that could create space for districts implementing personalization to adopt their own alternatives. But it has been challenging to tap this flexibility, in part because the regulations set a high bar to ensure that local tests do not become an escape hatch for districts seeking to avoid accountability. Locally developed tests must meet the same technical requirements as state assessments and be valid and reliable for the same purposes. Further, local tests must be reviewed and approved by states and the federal government to ensure that they are "equivalent to one another and to [s]tate assessments…in their content coverage, difficulty, and quality."[34] States that attempted to use the provision, like Nebraska, struggled and ultimately failed to meet these standards.[35] And even if states or districts did secure approval to use locally developed models, they may still be constrained by provisions that limit use of adaptive assessment.

Identification of Low-Performing Schools

Tensions between personalized learning and school rating systems are an outgrowth of the tensions between personalized learning and assessments.

If proficiency rates on grade-level summative tests are the main measures used to evaluate schools, then educators in personalized learning settings—where the pacing and sequencing of content is intentionally more flexible—may reasonably suspect that accountability systems will not accurately measure their efforts. "There is a fear of not showing optimal performance in a grade-based, summative world, and a hesitation to take the risk to pursue a model of personalized learning that is unknown when [schools] are judged on the old system," says Neil Campbell, policy director for personalized and blended learning at the Foundation for Excellence in Education.[36] This anxiety is particularly high for schools that have been identified previously as low-performing.

States have tools to ease these tensions, though, especially under NCLB waivers. Before waivers, schools were judged primarily on students' proficiency rates on end-of-year tests. Waivers gave states flexibility to design new ratings systems that emphasize other factors, including student growth, tests in additional subject areas, student engagement surveys, and local program and curriculum reviews.[37] This flexibility allows more comprehensive, nuanced determinations of school quality and could improve accountability for schools exploring personalized learning.

Yet most states have not taken advantage of this flexibility, continuing to rely mainly on proficiency rates to evaluate schools.[38] For example, across 42 states' waiver requests, researchers found that only 20 states included student growth in their index for identifying low-performing schools, and in those states, the emphasis on growth ranged from 14 to 75 percent.[39]

This is a missed opportunity for personalized learning and accountability advocates alike. New measures, particularly student growth, would make accountability systems more valid and fair, especially for schools that serve students who are struggling academically when they arrive. Because proficiency rates tend to be correlated with demographics, accountability based mostly on proficiency over-identifies poor and minority schools. Growth measures, in contrast, control for students' past performance and isolate what schools add to students' learning, regardless of where those students started the year.

But even if growth measures were used more widely, they are not a panacea for personalized learning schools seeking fairer accountability. Growth measures are typically limited to math and reading for students in grades 4–8 because they depend on annual testing data. Further, because they use data from summative, end-of-grade tests, growth measures may not fully capture gains for students significantly above or below their nominal grade level.

Interventions in Low-Performing Schools

For most schools, intervention strategies do not pose a significant a tension for personalized learning. This is in large part because interventions are only an issue for schools that are identified as low-performing, and most schools are not identified as such—typically 15 percent of Title I schools in states with NCLB waivers, and between 25 and 33 percent in those without waivers.[40]

For the schools that are identified as low-performing, policies that govern improvement interventions can affect personalized learning in two ways. First, intervention guidelines, and the results that are expected from them, may create barriers to schools that want to implement personalized learning or are already doing so. Schools are often expected to complete a needs assessment, plan and implement an intervention strategy,

and make dramatic performance gains in three years—if not sooner. This is particularly challenging when progress is measured in terms of proficiency rates against grade-level standards. Schools using personalized learning models may take several years to see significant increases in proficiency, even if students are making meaningful gains in the interim. As New Classrooms' Rose explains it, accountability systems too often expect and incentivize grade-level proficiency each year, rather than a multiyear plan to get students to proficiency. "The IRS lets [delinquent taxpayers] go on a multiyear payment plan, but we don't do that with accountability."[41]

Schools using personalized learning models may take several years to see significant increases in proficiency, even if students are making meaningful gains in the interim.

Second, some educators, advocates, and policymakers have supported personalization as an intervention strategy for low-performing schools. Many chronically low-performing schools have significant numbers of students who are years behind and far from meeting grade-level expectations. If these schools could implement personalized models in ways that consistently, and significantly, accelerate students' acquisition of knowledge, then personalization could be a more promising intervention model than many of those currently used.[42] The adoption of personalized learning could also help drive broader changes in school culture by bringing educators together around common goals for students' learning opportunities and a shared theory of action for transforming instruction in ways that provide those opportunities.

But there are also reasons to discourage low-performing schools from adopting personalization as a turnaround strategy. Most personalized learning approaches have not been validated at scale and lack evidence of their effectiveness. (This is also true of other improvement models explicitly endorsed in state and federal policies.) Implementing personalized learning is also hard work that requires significant capacity and strong leadership to change longstanding norms and practices—a tall order for low-performing schools. These schools, often located in high-poverty communities, may also lack the resources and technical infrastructure, like computing devices and network connectivity, to implement personalized learning effectively.[43] If implemented poorly, personalized learning—and the flexibility it requires around content, sequence, pacing, and assessment—could exacerbate inequality for students who already are at risk of graduating unprepared for college or careers, if they graduate at all.

To date, school improvement policies have not engaged these tensions, in part because the number of schools identified for improvement has declined under NCLB waivers. As personalized learning models continue to grow, however, more schools or districts may seek to use them as part of a turnaround strategy. Policymakers need to think now about the trade-offs before deciding to implement personalized models in low-performing schools, providing oversight and making adjustments as needed.

Why Haven't Policymakers Addressed These Tensions?

Accountability systems are more of an inconvenience for personalized learning advocates than an intractable barrier. After all, implementation of personalized learning—and the desire to identify high-quality models—is spreading across the country.[44] And district- or statewide efforts, where features of accountability systems most likely come into conflict with personalized learning, are relatively rare. In those cases, practitioners and advocates have been able to identify workarounds within current policy structures. "Mostly, personalized learning happens in spite of federal accountability…Educators and leaders that really want to do personalized learning are doing it anyway. They're figuring out a way—finding resources, complying with basic requirements—and sometimes, that means [accepting] dual accountability systems," says iNACOL's Worthen.[45]

Because they can, many have kicked problems down the road instead of resolving them proactively. Bellwether partner Lina Bankert, who has worked closely with districts and systems on personalized learning issues, explains that only the most sophisticated district leaders "recognized personalized learning couldn't succeed without changes at the system level. Most [of the others] were hoping to change policy down the road, and were not fighting those battles now."[46]

Part of the reason to delay policy changes, even where personalized learning is a systemic effort, is that the politics around accountability are especially unsettled. NCLB is pilloried in public debates and perceived as overly punitive, despite the flexibility ushered in via waivers. And NCLB waivers—along with Common Core,[47] standardized testing,[48] and high-stakes consequences for low-performing schools and educators[49]—bring their own controversies, even as they could help facilitate personalized learning (See Sidebar 2: "Untapped Resources: Policy Trends for Personalized Learning").[50] If leaders can make personalized learning happen in their schools without running afoul of testing and accountability, they do.

The fact remains that states, especially those with NCLB waivers, have tools to make accountability systems work better for schools and districts on the fore of personalized learning. What they may not have is the know-how to use them.

Sidebar 2

Untapped Resources: Policy Trends for Personalized Learning

NCLB waivers and the Common Core create new opportunities for innovations that balance accountability and enable personalized learning. Because of their complexity and the controversy surrounding these policies, public officials, school leaders, and personalized learning providers often misunderstand what these policies do—and what they don't do. As a result, few have taken advantage of opportunities to use these shifts to support increased personalization of students' learning.

No Child Left Behind Waivers

The 42 states with waivers have new flexibility to adjust accountability in ways that support greater personalization. Waivers allow states to ignore NCLB's annual proficiency targets and interventions for low-performing schools and create new targets, new approaches to evaluating schools, and new strategies to help schools improve.

Each of these changes creates opportunities for personalized learning. For example, states can set performance targets that measure schools based on student growth rather than proficiency. Growth models provide a more nuanced picture of school performance, particularly for personalized learning models that seek to help students progress toward mastery, regardless of where they start.

Similarly, waivers allow states to evaluate schools using indices that combine multiple factors—like proficiency, graduation rates, growth, postsecondary readiness, chronic absenteeism, and student engagement—into a final rating. Performance indices show how schools are contributing to a broad set of student outcomes, and can further benefit personalized learning by including local measures drawn from the formative assessments that personalized learning models use to track students' progress.

Waivers also offer states the flexibility to buffer personalized learning schools from low ratings. Although states must name the bottom 15 percent of schools as low-performing, they have discretion in how they identify them and in what districts must do to help those schools improve. States can make a case for not identifying a school as low-performing during the first few years of implementation, or use personalized learning as the designated improvement strategy if these schools are identified.

Waivers give states less policy leeway in the area where personalized learning is creating the greatest tension with accountability: requirements for summative assessments based on grade-level standards. NCLB's assessment regulations were not waived; they require state assessments to be the same and cover the full depth and breadth of grade-level standards. New Hampshire will be piloting local competency-based assessments in four districts in 2015—a significant milestone—but the U.S. Department of Education allowed the state to proceed without submitting these tests for review. The conditions set by the U.S. Department of Education to monitor this pilot, and the results New Hampshire sees, will serve as a roadmap for others interested in local testing options for personalized learning.

continued on next page

Common Core Standards and Assessments

In the past decade, states have elevated college and career readiness for all students as the defining mission of the K–12 system. Forty-two states and the District of Columbia have adopted the Common Core State Standards, a set of K–12 math and English language arts standards developed by governors and state schools chiefs in 48 states. In addition, two multistate consortia—PARCC and Smarter Balanced—received initial funding through the federal Race to the Top competition to develop new assessments aligned with Common Core, which will replace previous state assessments in many states this year.[i]

The new college- and career-ready assessments—including PARCC, Smarter Balanced, and other new assessments being developed by commercial vendors—are shifting to an online format. The demands of these tests are motivating states and districts to build out their technical infrastructure, as well as students' familiarity with software and digital tools—changes that will better position states and districts to implement personalized learning.

College- and career-ready testing systems will also help develop the kinds of assessments personalized learning advocates say they need: an on-demand bank of test items, including performance tasks. Banding together in consortia enables states to share the costs of developing and implementing more sophisticated, real-time assessment systems. Further, Smarter Balanced is developing a computer-adaptive test, which could work better with personalized learning models where students may be learning content that is above or below grade-level.

These changes aren't just beneficial for personalized learning; they benefit all students. Adaptive testing, for example, could provide families, educators, and public officials more accurate information about students' level of mastery toward college and career readiness, facilitate better growth measures, and reduce disincentives for schools to serve the most challenging students.

Source: i Catherine Gewertz, "A Map of States' 2015 Testing Plans: The Dust Has Finally Settled," *Education Week*, February 4, 2015, accessed April 2, 2015, http://blogs.edweek.org/edweek/curriculum/2015/02/a_map_of_states_2015_testing_p.html.

The Future: Accountability for Personalized Learning

For 30 years, education policy has been living in a standards-based world. If the future includes personalization, the question policymakers now face is how to get there.

For 30 years, education policy has been living in a standards-based world. If the future includes personalization, the question policymakers now face is how to get there.

Thirty years ago, it also wasn't that far-fetched to imagine that flying cars could exist by 2015. Public officials could have designed transportation policy in the 1980s and 1990s to prepare for this *Back to the Future* eventuality: Who needs bridge and road repair when there will be flying cars? Alternatively, they could have ignored the progress new technology and innovation could bring, or adopted policies to slow the pace of innovation and protect incumbent producers and models. Instead, as is usually the case, policy landed in the middle—not as forward-looking as many innovators and entrepreneurs would have liked, but not entirely static. There have been incremental investments in mass transit, alternative energy, and hybrid technology. Today's leading-edge innovation isn't a flying car—it's a Tesla. America still needs roads, but it also needs charging stations, better battery technology, and new renewable energy sources.

In much the same way, personalized learning probably won't eliminate grade levels. In a couple of decades, most students will still be learning in age-based groupings. Yet students' experiences won't be exactly the same, either. And unlike Marty McFly, policymakers can't travel to the future to see what will emerge. Instead, they must operate on their best-informed guesses about the future, setting guardrails to guide the transition to greater personalization, while also providing space for mid-course adjustments as personalized learning models (and our knowledge of them) grow.

Our recommendations seek to balance key trade-offs. They would maintain momentum for personalized learning and learn from its implementation to improve accountability; at the same time, they would preserve accountability as a safeguard to evaluate the results of personalized learning models, as well as school quality more broadly. We recognize, however, that predicting the future is a fool's game. Over the next decade, new innovations—not to mention our increasing experience with existing ones—will further alter the policy environment. Given this, any update of NCLB must be sufficiently flexible to allow evolution over time. And policymakers need not just recommendations for today, but enduring principles for thinking about the relationship between accountability and personalized learning in a changing landscape. Our recommendations are informed by these principles and represent one possible approach; they can be taken in their entirety or in part, depending on how sophisticated and developed personalized learning strategies are in a given community.

Even if policymakers consider different changes to accountability than those proposed here, their proposals can be evaluated against the principles below.

Key Principles

1. **Both accountability and personalized learning should be part of K–12 education systems going forward.** Accountability has raised expectations by setting standards for learning and holding schools responsible for outcomes, especially for historically underserved students. Personalized learning holds promise for accelerating students to even higher levels of achievement—from merely proficient to college- and career-ready. But accountability and personalized learning are two different types of reforms. Because they do different things, they are complements to, and not substitutes for, one another. Further, accountability, being a systems-level reform, impacts all public schools—whereas schools may choose whether or not to adopt personalized learning. In the near term, the adopters are likely to remain a minority.

2. **Common, agreed-upon metrics of student learning and outcomes, including student growth, are essential to driving educational progress overall, as well as for evaluating the effectiveness of personalized educational approaches.** Objective measures of performance create a common language to describe educational progress, allowing parents, educators, policymakers, and advocates to evaluate what is working based on evidence instead of perception. Measuring and holding schools accountable for these outcomes also creates incentives for educators to improve, which is crucial both to achieving educational equity and to extending the reach of effective personalized learning models.

   If additional educators, leaders, and parents are to demand personalized learning, they need to see evidence that it works. Common measures of student learning

enable personalized learning models to provide that evidence, because proficiency or growth on a common state assessment is more compelling than evidence based on a particular vendor's or innovator's self-created tool. Individual student growth is the best measure of the impact of personalized learning models, and of school quality generally. And reliable growth measures require frequent assessments of student learning. For that reason, annual, comparable assessments must continue to be part of accountability systems.

Individual student growth is the best measure of the impact of personalized learning models, and of school quality generally. And reliable growth measures require frequent assessments of student learning.

3 **All schools must be held accountable for student outcomes, but accountability should not create unnecessary barriers to personalized learning.** As policymakers work to shape the next generation of accountability systems, they should do so in ways that create space for personalized learning models to develop, experiment, and evolve—using common measures of student learning and school performance to gauge their success and safeguard equity. Policymakers have a variety of tools to create this space, including both tailored exemptions from overarching systems and larger adjustments to the systems themselves. Whichever tools they choose to use, their strategies should advance the broader goal of designing accountability systems to measure and drive continuous improvement in learning across the range of schools that make up our public education system—not just those implementing personalized learning.

4 **Policymakers need to design policies that can be customized to variations in local landscapes and needs.** Just as accountability policies should be flexible enough to allow smart experimentation with new instructional models, policies should also support varying degrees and types of personalization depending on local context. Parents and educators in one district may demand personalized learning and competency-based progressions, while a neighboring district feels it is best to maintain more traditional, grade-based sequencing and pacing. Accountability systems need to accommodate—and accurately evaluate the performance of—both.

5 **Policymakers need to design policies that can evolve over time as personalized learning matures.** In the short term, there is still much to learn about personalized learning models and what makes them successful—or not—in various settings and with various populations. Many of the daily challenges in personalized settings are related not to accountability, but to human capital and school culture. Issues of scalability and sustainability must also be addressed.[51] As these more immediate challenges are resolved, the real-time feedback on students' learning, more sophisticated growth measures, and individual learning progressions associated with personalized learning could actually facilitate better accountability systems. Policymakers should not adopt policies that prevent them from using these tools to improve accountability systems in the future.

Policy Recommendations: A Combination of Umbrellas and Waivers

These underlying principles, and the ongoing evolution of both personalized learning and accountability, call for an integrated strategy. A combination of reforms to the overarching accountability system (umbrellas) and exemptions for schools or districts that meet certain criteria (waivers) could work to balance the development and expansion of personalized learning with maintenance of key safeguards and features of accountability systems.

The umbrella approach helps maintain uniform expectations, information, and incentives across all public schools. To the extent that accountability tensions facing personalized learning models also affect other schools—such as those serving high concentrations of students who enter far below grade level—system-wide approaches can also benefit this broader population of schools and students. Given that systemic changes have far-reaching effects, however, policymakers should tread with care. This set of reforms may therefore be more cautious than some personalized learning advocates would like, or need, in order to develop models that radically depart from current norms and structures.

Tailored waivers for personalized learning models can complement umbrella strategies by giving those on the leading edge of personalization greater room to innovate. Personalized learning waivers would operate like demonstration pilots for innovative instructional models, encouraging experimentation with new ideas and independent, rigorous evaluation of their effectiveness. Crucially, waivers create space for innovation that has yet to be imagined. If such innovations prove effective, they can then expand to the broader field.

The danger, however—for personalized learning and accountability advocates alike is that shoddily implemented personalized learning could ultimately undermine the demand for, and credibility of, such approaches. Preventing this will require rigorous initial bars for granting waivers, as well as ongoing evaluation of the results they produce. Schools or models that fail to demonstrate evidence of effectiveness, using appropriate metrics and within a reasonable time frame, would return to the standard accountability system.

A Policy Umbrella for Accountability Changes

The following umbrella policies offer a menu of options that state and federal policymakers should consider to reduce tensions between accountability systems and personalized learning. They are not intended as prescriptions for all states. Depending on the design of a state's accountability system, the progress of personalized learning in that state, and the preferences of its policymakers, some umbrella options may be a better fit for some states than others. Many umbrella policy changes are already an option in states with NCLB waivers. States, however, have not taken full advantage of these flexibilities, despite their potential to improve accountability systems for both traditional learning environments and more personalized ones (See Sidebar 2: "Untapped Resources: Policy Trends for Personalized

Learning"). As such, federal policymakers should provide clear guidance to states about their existing ability to adopt the policy changes included under the umbrella, and should consider encouraging their use more explicitly in future NCLB waivers or a reauthorized law.

Assessment Changes Offered Under the Umbrella

Current law and NCLB waiver regulations provide flexibility for states to adopt policies that reduce the mismatch between personalized learning and end-of-grade summative assessments:

- **Move away from narrow end-of-year testing windows toward real-time testing within grade levels.** Federal regulations allow states to use multiple assessments within their grade-level testing systems. States in the two testing consortia could work together to develop on-demand, shared item banks—allowing students to take portions of their current end-of-grade tests at different points in time. States could then "roll up" multiple assessments throughout the year into a final summative score within federal requirements.
- **Move toward assessing students whenever they are ready to demonstrate mastery, rather than solely at the end of each grade.** States have successfully won flexibility within NCLB waivers to avoid "double testing" more advanced students. For example, middle schoolers taking high school math in Oklahoma do not have to take the 8th grade math test, but can instead take the high school exam for accountability purposes.[52] More states could seek similar flexibilities from the U.S. Department of Education.

Changes to federal law could also help reduce the tension between personalized learning and end-of-grade summative assessments:

- **Allow states to use more fully adaptive tests for accountability.** States can take baby steps toward computer-adaptive testing, as Smarter Balanced plans to do, but efforts to adopt fully adaptive assessments are hampered by NCLB's requirements for students to take the "same" assessments and be tested on the full depth and breadth of state standards for their grade. A reauthorized NCLB, or changes to the U.S. Department of Education's NCLB waiver policy, could allow (but should not require) states to develop more fully adaptive tests for accountability. This idea has bipartisan support and has been proposed in the last three efforts to rewrite NCLB. Computer-adaptive tests can still identify whether students are proficient based on grade-level standards, but they can also more precisely pinpoint students' performance levels, provide feedback more quickly, and capture more significant gains from year to year.

Additional enabling conditions could also help states take advantage of the assessment-related changes within our policy umbrella. Developing, maintaining, and administering high-quality computer adaptive testing, on-demand item banks, or other innovative assessment models requires sufficient resources—whether from states, the federal government, or philanthropy. More sophisticated tests will likely cost more than past

systems, especially if states are unwilling to share the costs across state boundaries. Testing audits could help determine which assessments are worth the investment, but education leaders and practitioners must recognize that a better, higher-quality assessment system cannot be done on the cheap.

School Rating Changes Offered Under the Umbrella

Current law and NCLB waiver policies also allow states to adopt changes to school rating systems that reduce tensions with personalized learning:

- **Increase the weight of individual student growth measures in accountability systems.** NCLB waivers allow states to adopt new school ratings systems that include student growth, as well as proficiency, but many states have not taken full advantage of this flexibility. Researchers found that fewer than half of waiver states used an accountability index that includes student growth to identify low-performing schools, and the weighting of growth measures can be minimal.[53] Proficiency rates offer a snapshot of student performance at a point in time, and are highly correlated with demographic factors, while growth takes into account where students start as well as where they finish. A balance of growth and proficiency measures would offer a more accurate picture of how schools contribute to students' learning in personalized settings, as well as in all public schools. To expand the use of growth, an updated federal law should require it to be a significant factor in all accountability systems.

Adding more holistic measures to accountability could provide a fuller picture of students' learning in both personalized learning and traditional education settings.

- **Include multiple measures of school quality in school rating systems.** NCLB waiver states can update their ratings systems to incorporate indicators beyond test scores and graduation rates, including engagement surveys, chronic absenteeism, and college- and career-ready indicators like AP/IB scores, acquisition of industry-recognized credentials, and college enrollment and remediation. Only about half of waiver states have taken advantage of this option, however, most often by adding a college- and career-ready domain for high schools.[54] One exception is Kentucky, where school program reviews—based on school curriculum, student work samples, formative and summative assessments, and other data—constitute nearly a quarter of the school's rating.[55] Adding more holistic measures to accountability could provide a fuller picture of students' learning in both personalized learning and traditional education settings.
- **Add a domain for locally selected measures.** States could include local measures—such as the formative assessments used by personalized learning schools, or performance-based assessments like those being piloted in New Hampshire—as one of multiple measures included in school rating indices. Alabama's updated A–F school grading system, for example, will include a locally selected indicator.[56] Local measures should be monitored for quality by states before adding them to the index or giving them significant emphasis, however. If local measures don't meet quality standards, states could limit their use to reporting only.

Additional enabling factors could support the effectiveness of these policies:

- **States should work to articulate common measures of student success**, K–12, that can be used to validate both personalized learning models and locally developed performance measures.
- **The U.S. Department of Education could reframe and expand existing funding streams, such as its Enhanced Assessment Grants program**, to explicitly support states in providing technical assistance and developing and benchmarking local assessments, helping to validate and demonstrate their comparability to existing state tests.[57] With stronger evidence that personalized learning models are effective at achieving key outcomes, and that their assessments provide information comparable to statewide metrics, additional flexibilities could be adopted over time.

School Improvement Changes Offered Under the Umbrella

Current law and NCLB waivers provide flexibility for states to improve their identification of low-performing schools, especially those experimenting with personalized learning:

- **Create appeals processes for schools adopting innovative models.** Most states have appeals processes within their accountability systems to account for rare instances where school data may be invalid or unreliable. States could consider broadening this process to allow schools implementing personalized learning to challenge their rating if they feel it does not accurately represent their performance, and to present new evidence of students' learning for consideration. State policies and criteria for granting an appeal must be set high to safeguard statewide accountability, but it would at least offer an avenue for personalized learning schools and districts to give additional proof of their success in improving student learning, especially where accountability mostly considers proficiency rates on grade-level tests.
- **Exempt personalized learning schools from receiving the lowest accountability rating** (e.g., an F grade in an A–F system) during their first year of implementation. This approach would give schools two academic years to implement a new model and show improvement before the most serious consequences apply.
- **Designate personalized learning models with a positive track record of boosting student achievement as approved school improvement strategies that districts can implement in low-performing schools.** This approach would be similar to approval systems that states like Arkansas have established for digital learning providers.[58] Under NCLB waivers, struggling schools can use any intervention strategy so long as it is aligned to broad "turnaround principles" like increasing learning time and using data to inform instruction.[59] If personalized learning models meet these criteria, there is nothing to prevent those models from being submitted to the U.S. Department of Education as an improvement strategy.

In designing these policies, states should exercise caution to ensure that personalized learning does not become a way for schools to avoid meaningful accountability. Creating incentives for low-performing schools to adopt personalized learning as a way to circumvent accountability policies would ultimately undermine both personalized learning and accountability, particularly if these schools adopted ill-conceived models or lacked supports, capacity, and will to implement personalized learning effectively. To prevent this, states should develop evidence-based guidance or official approval mechanisms for personalized learning platforms.

Tailored Waivers for Personalized Learning

Creating a system of waivers for personalized learning will require more change in state and federal policy than the "umbrella" policies described above, most of which are already permitted within the NCLB waiver framework. The U.S. Secretary of Education possesses broad waiver authority in NCLB, but has not used it explicitly for personalized learning until recently, for the four New Hampshire districts mentioned earlier. Personalized learning waivers would be a new kind of waiver specifically designed to facilitate the growth and evaluation of innovative educational approaches. These waivers would allow states, schools, and districts to try bolder, more transformative approaches than with umbrellas alone. But this freedom would be limited to districts and schools that are implementing truly innovative models and meet other key requirements. These districts and schools would then become a personalized learning laboratory, testing and evaluating ideas that can inform the broader field.

Personalized learning waivers would be a new kind of waiver specifically designed to facilitate the growth and evaluation of innovative educational approaches.

The State Role in Personalized Learning Waivers

States would play a key role in personalized learning waivers. Because schools and districts would seek flexibility from statewide assessment and accountability policies to facilitate personalized learning, it makes little sense for the federal government to waive its accountability requirements for a district or school without the state's backing.

States would apply on behalf of districts or schools for a federal waiver from NCLB provisions they feel inhibit personalized learning—much as New Hampshire applied on behalf of its four pilot districts. To facilitate personalized learning waivers at the federal level, states may first need to waive some of their own statutes. States would also need to define the schools and districts that the waiver would cover. There are two potential options for this approach:

- **Innovation zones.** Some states, like Colorado and Kentucky, have created "innovation zones" under state law that allow schools within the zone greater flexibility from a range of state policies and regulations. States could use a similar approach to support personalized learning waivers in their states.[60] State boards of education could formally designate schools or districts as "innovative models," or they could create or designate new entities—similar to charter school authorizers—with responsibility for doing so.

This would enable schools with the most developed personalized learning plans to bypass requirements, such as seat-time requirements, procurement rules, or staffing and class-size restrictions, without eliminating them statewide.

- **Approved model designation.** Alternatively, states could develop an approval process for personalized learning models that meet certain quality standards and are backed by rigorous evidence. The state could manage this process itself, or designate intermediaries to provide this function. In either case, models and evidence would need to be reviewed by an independent panel of educators or experts. Districts and schools successfully using approved models could then request that the state apply for a waiver on their behalf or include them in its existing waiver. In addition to supporting personalized learning waivers, an approved model designation would help interested schools and districts select providers.

Personalized learning waivers will work best in states and districts that have sufficient infrastructure and supports for personalized learning. These include publicly and privately supported programs to provide technology, instructional materials, and technical assistance, and to develop quality local measures of students' learning within their personalized learning strategies where schools or districts feel statewide assessments poorly reflect their instructional approach.

The Federal Role in Personalized Learning Waivers

Federal policymakers would need to establish clear criteria and processes for evaluating and approving state requests for personalized learning waivers, as well as for monitoring the results of waivers once approved. Waiver requests should be:

- **Limited in scope.** States would need to define the specific set of schools or districts included in the waiver (i.e., those with a track record of implementing "approved models" effectively), as well as their process for expanding the waiver to additional schools or districts (i.e., how schools are selected for the "innovation zone"), the projected number of new schools or districts to be added each year, and the criteria they would use to determine whether a school or district met requirements to be included in the waiver.
- **Time-limited.** Initial waivers would be granted for two to three years, but could be extended for an additional one to two years if an extension was necessary to facilitate implementation of the personalized learning model(s), thorough evaluations of their effectiveness, and refinements based on feedback and data. However, stagnant or declining student outcomes, including poor growth, low graduation rates, or increasing achievement gaps, would be cause for revoking a waiver or taking other enforcement actions.

- **Inclusive of any combination of NCLB provisions.** Current NCLB waivers define a specific set of provisions from which states may request waivers. Under personalized learning models, in contrast, flexibility won by each state could vary based on the personalized learning approaches at work. The Department could, however, issue guidelines or technical assistance to states to help craft successful applications.

Because they have presented the most significant challenges to personalized learning, federal assessment policies are the most likely to generate waiver requests. For example, states might request waivers to regulations that require assessments to measure the full depth and breadth of states' grade-level standards, in order to allow personalized learning schools or districts to use computer adaptive assessments for accountability. Given the importance of high-quality, valid assessments for all educational improvement, however, there should be limits on the flexibility granted to states. Specifically, innovation schools must:

Because they have presented the most significant challenges to personalized learning, federal assessment policies are the most likely to generate waiver requests.

- **Maintain annual testing,** even if local assessments are used, that meet industry standards for technical quality, validity, and reliability and are aligned to state academic standards and/or learning competencies.
- **Provide sufficient accommodations and adaptations** on local tests so that all students can be assessed, including English-language learners and students with disabilities.
- **Annually report to parents and teachers the aggregate results from all assessments** for key subgroups and individual performance toward college and career readiness.

States would be permitted to replace state assessments with local ones in personalized learning waiver schools if—and only if—they completed a validation study demonstrating that the local assessments produced results that could be compared with those of students taking state assessments. In these cases, waiver requests would need to include the results of the validation study. Until local or commercial assessments used by personalized learning schools are validated and benchmarked, students in personalized learning schools should take both state and local assessments in all tested grades. States could, however, request to make modifications of state tests in these schools (without compromising the underlying data) to allay over-testing concerns. Once local tests are validated, innovation schools should continue to administer state assessments at key points in each students' educational trajectory to maintain a limited number of consistent measures as a safeguard, and to continually evaluate the quality of locally developed measures.

In the near term, most requests would likely not meet these validation requirements to substitute local for statewide assessments. In addition to—or instead of—flexibility to adopt different assessments, states could request waivers for innovation schools or districts to operate under different school rating systems, using alternative quality frameworks to hold these schools accountable for meeting key outcomes. These frameworks would be developed by the state, or by other entities governing the operation of innovation schools.

This flexibility could ease pressure on personalized learning schools by significantly reducing the stakes of grade-based summative assessments. Alternative accountability frameworks:

- Could include either or both statewide and locally developed measures of performance.
- Would inform the school and/or district report cards for those with personalized learning waivers.
- Must set clear performance standards or targets to define expectations for acceptable performance, and communicate these performance levels on public report cards.

Further, personalized learning waivers from the statewide school rating system would not override federal reporting requirements. States, districts, and schools would still provide parents with information on their children's performance on statewide assessments, and would publicly report aggregated and subgroup-level results for personalized learning schools, even if there were no consequences attached to the assessments.

The alternative accountability rating would also govern the identification of low performers for individual schools and districts under the waiver. In the waiver request, states would:

- **Outline the performance criteria** by which personalized learning schools would be identified as low-performing; and
- **Define the consequences** for those that do not meet criteria over time, including the point at which a school loses its innovation status.

In a context of policy umbrellas, the bar to earn a personalized learning waiver should be set high. The Department of Education should establish clear, transparent criteria for requests, a rigorous peer review process, and ongoing reporting and monitoring during the waiver period. All documentation should be publicly available. These criteria should include not just states' plans for personalized learning waivers, but also evidence of their conditions and capacity—including state investment and prior history with personalized learning—to pilot accountability for personalized learning effectively. Specifically, state waiver requests should include:

- A description of the criteria schools and districts met to receive an innovation designation;
- The personalized learning model(s) being used in innovation schools, state model approval processes, and evidence of models' effectiveness;
- The current achievement levels and student populations served in designated schools and districts;
- The performance standards schools will be required to meet to maintain innovation status; and
- The particular federal requirements that would be waived under the request, and why these waivers are needed to enable personalized learning.

The ultimate purpose of the waivers is not just to provide space for innovation, but also to learn from that innovation and evaluate new accountability systems for personalized learning schools. This requires capacity both at the U.S. Department of Education and within state education agencies. States should play the primary role in monitoring the *process* within innovation schools, while federal monitoring efforts should focus primarily on *outcomes and data*.

The ultimate purpose of the waivers is not just to provide space for innovation, but also to learn from that innovation and evaluate new accountability systems for personalized learning schools.

The number of states or schools receiving waivers should be limited to ensure that there is sufficient bandwidth to provide support, evaluation, and monitoring of complicated local pilots. The more waivers approved, the less likely that public agencies will be able to monitor them and provide a thorough evaluation of their successes and shortcomings. Finally, to guide future policymaking, the Institute of Education Science within the Education Department could conduct a high-quality evaluation of the impact on student learning of the various personalized models used within the pilots. Without sufficient evaluation of personalized learning waivers, the likelihood increases that these experiments will become an avenue for weakening accountability, rather than improving it for personalized learning schools.

Conclusion

Personalized learning cannot grow to scale without evidence that it works and improves student outcomes. Similarly, accountability structures will only work well for schools if they can tap into better ways of measuring students' learning, like the real-time data collected in personalized models.

Personalized learning is in its early developmental stages. Standards-based accountability is more established but still evolving. Both have an important role to play in the next stage of American education—if not the next stage after that. The best way forward will not be *either* personalized learning *or* standards-based reform, but rather *both/and*: maintaining key accountability features, embracing what new technology and innovation can generate in the future, and bringing them together to drive continuous improvement in student learning outcomes.

Policymakers do not have a time machine to visit the future and bypass the looming tensions between personalized learning and accountability policies. But they do have tools at their disposal to help personalized learning and accountability systems not only coexist, but also reinforce and improve each other. Personalized learning cannot grow to scale without evidence that it works and improves student outcomes. Similarly, accountability structures will only work well for schools if they can tap into better ways of measuring students' learning, like the real-time data collected in personalized models.

Now, policymakers and advocates must ensure that those tools are put to good use. By deploying both umbrellas that improve accountability policies for all public schools and more limited personalized learning waivers to create pockets of disruptive change, policymakers can strike a balance between safeguarding the progress made because of standards-based reforms, and aiding the discovery of new models that could further accelerate that progress.

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