Unfinished: Insights From Ongoing Work to Accelerate Outcomes for Students With Learning Gaps

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Introduction

This report seeks to identify the shifts that need to occur in the field in order to arrive at a future state in which students with significant learning gaps access educational systems, schools, and classrooms that enable rigorous, differentiated learning. These students are immersed in learning experiences that **counteract bias and engage, motivate, and accelerate the progress** of all students to **close learning gaps** and ultimately achieve college and career readiness.

The report aims to equip people across the education sector — especially educators, system leaders, professional developers, materials providers, and education technology providers — with a factbase to spur continued advancement toward the vision.

We recognize that there are many efforts in this area that have made important advances. Here we see fresh opportunity, building off of the important work of many others, to ground in the science of how students learn in order to move past the debates and disagreements that can stymie collaboration and progress. We also acknowledge that these lines of research do *not* address many other factors influencing student learning — including a student's life outside of the school.

Executive Summary (1 of 3)

The Need

Many students have significant gaps in learning. For example, a majority of U.S. students do not meet grade-level expectations (per NAEP). However, schools are rarely able to close these gaps.

What do we mean by "students with significant gaps in learning"?

- Everyone has gaps in learning — knowledge and skills that they have not yet acquired. While many people can continue to deepen their learning despite these gaps, sometimes the gaps are significant enough to hinder deeper learning.
- While there is no standard definition of "significant gaps," we understand students to have significant gaps in learning when they have not yet mastered sufficient knowledge and skills required to consistently access grade-level learning.
- These gaps may appear as students scoring as "not proficient" or "below grade level" on standardized assessments, even as we note that standardized tests are often imperfect and imprecise assessments of gaps in learning.
- We do not include students with special needs (i.e., students with diagnosed learning challenges who require special education services) in this definition, as the research background and implications for serving students in this special population are beyond the scope of our research.

Executive Summary (2 of 3)

There Are Significant Challenges in Addressing Students' Gaps in Learning

Students Need Meaningful Learning Experiences	Educators Need Effective Professional Learning and Supports	Students and Educators Need Robust Instructional Materials
• From learning science, we know students' individual interests and cultural contexts must be considered, and students must be actively engaged in challenging learning experiences. • Evidence indicates students are not consistently challenged or engaged, nor do they find their interests and cultures reflected in their learning.	• To address student needs, educators need broad and deep knowledge and skills. Thus, professional learning must be high quality: tailored, continuous, collaborative. • Educators are most effective amid strong school systems and culture (e.g., instructional vision to use of time). • Data shows that current educator development and school systems are not meeting educators' needs.	• Teachers and students need a range of materials, but there is not coherence across the range of materials; this limits usability. • High-quality materials exist, but they have not been widely adopted by systems and educators, indicating the materials do not yet meet users' needs — and leaving teachers to make and find their own materials. • Data and technology are critical tools, but educators still struggle with access and effective use of these tools.

Executive Summary (3 of 3)

Closing Student Learning Gaps Requires Collaborative Work Across the Sector; There Is No Single Solution

Learning that closes gaps …

Rigorous, differentiated learning motivates and engages students to grapple with challenging, grade-level skills and knowledge *while also* addressing students' diverse learning gaps.

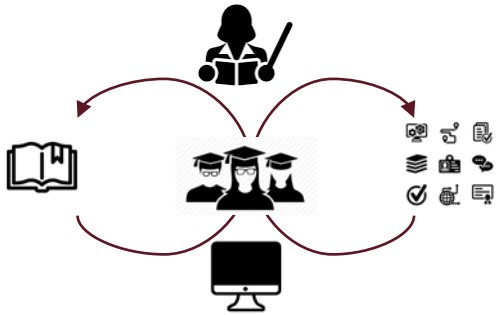
… Requires collaborative efforts across the sector

Practice-oriented research

Systems-level vision, strategy, and decision-making

Coherent, content-embedded, and practice-focused leader and teacher development

Instructional materials designed for rigorous, differentiated learning



Informative, usable data and tools

BELLWETHER EDUCATION PARTNERS

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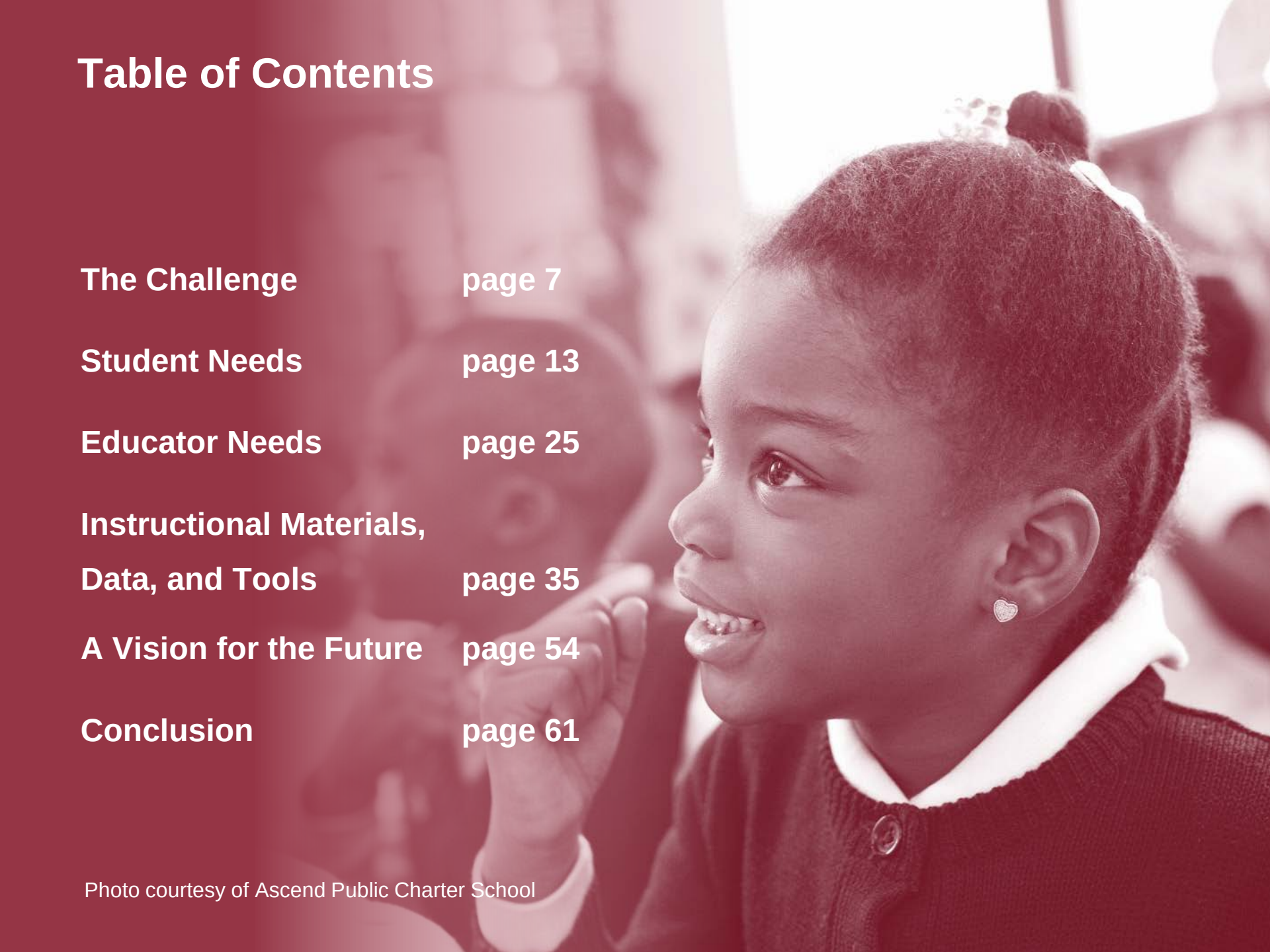
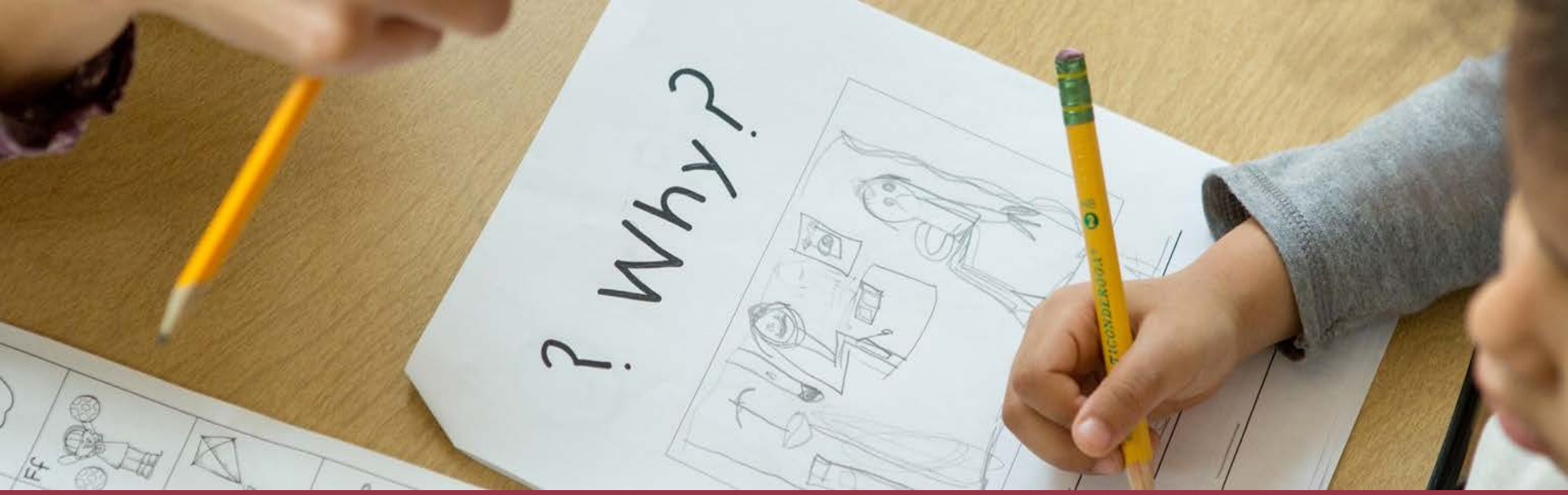


Photo courtesy of Ascend Public Charter School



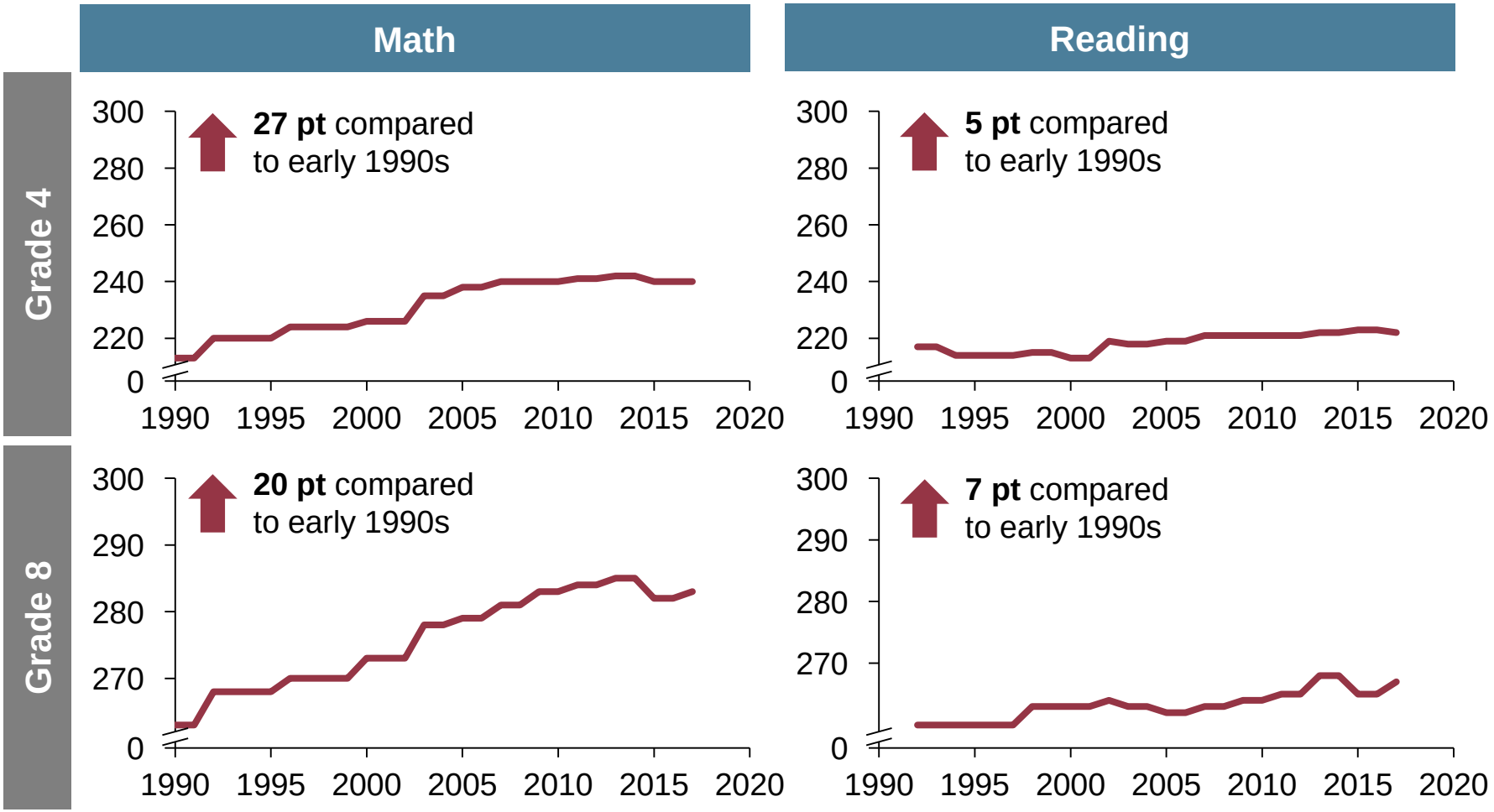
The Challenge

What do we know about gaps in student learning?

Courtesy of Allison Shelley/The Verbatim Agency for American Education: Images of Teachers and Students in Action

Over the last 20 years, the U.S. has experienced some growth in students' academic achievement

Average scores for National Assessment of Educational Progress (NAEP)



Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2017 Mathematics and Reading Assessments.

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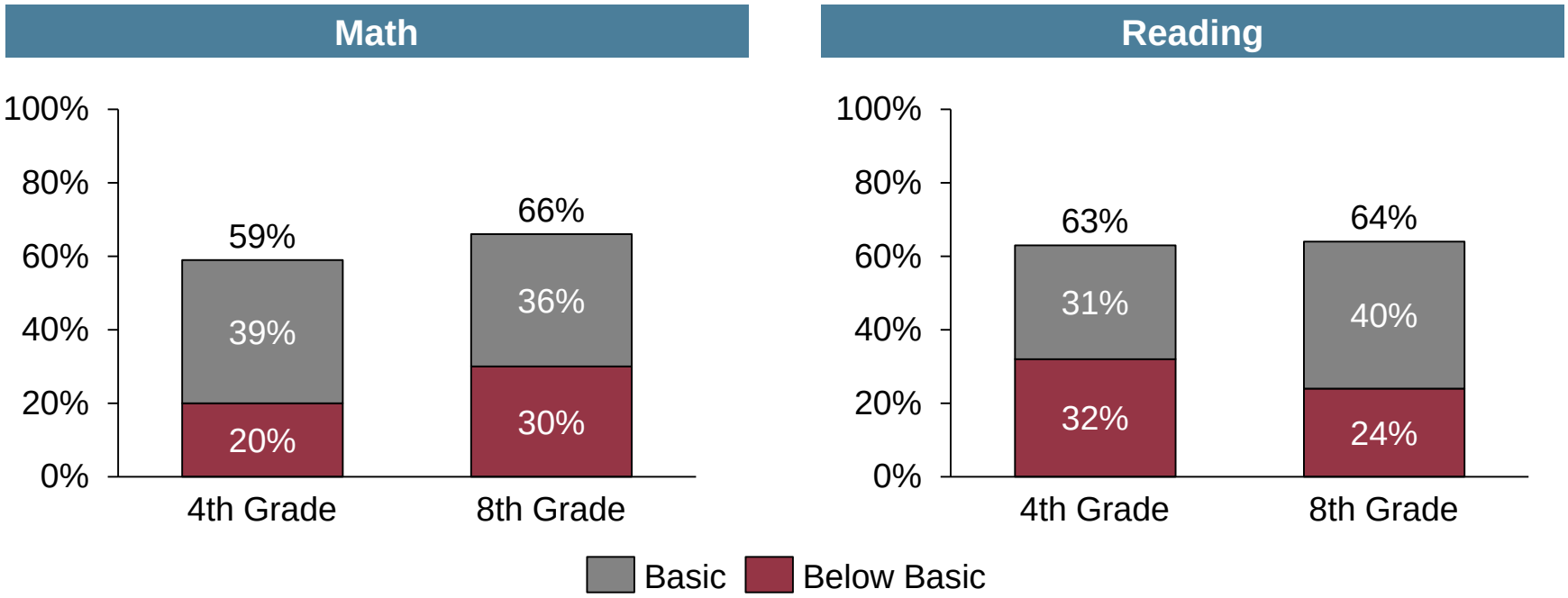
However, a staggering number of students are not meeting grade-level expectations

A majority of students score "basic" or "below basic" on NAEP, indicating they do not yet demonstrate knowledge and skills aligned with grade-level expectations. Because knowledge and skills build year-to-year, students not meeting expectations in one grade may have significant challenges accessing learning aligned to the next grade level's expectations.

NAEP Achievement Levels, All Students, 2017



Note: NAEP defines basic as "denoting partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade assessed"

Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2017 Mathematics and Reading Assessments.

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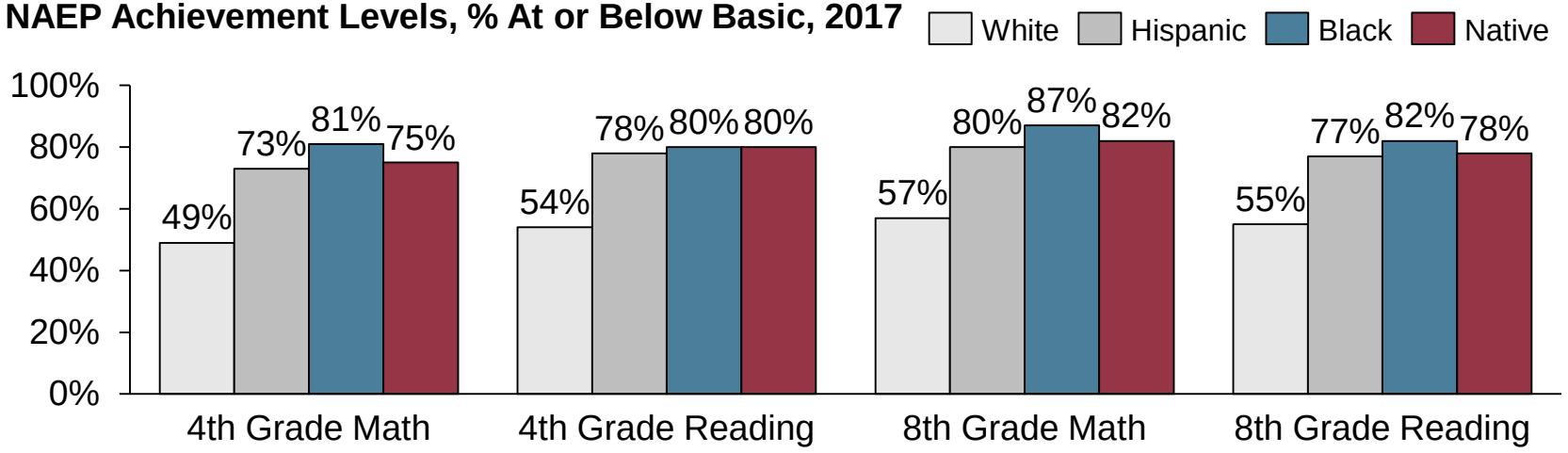
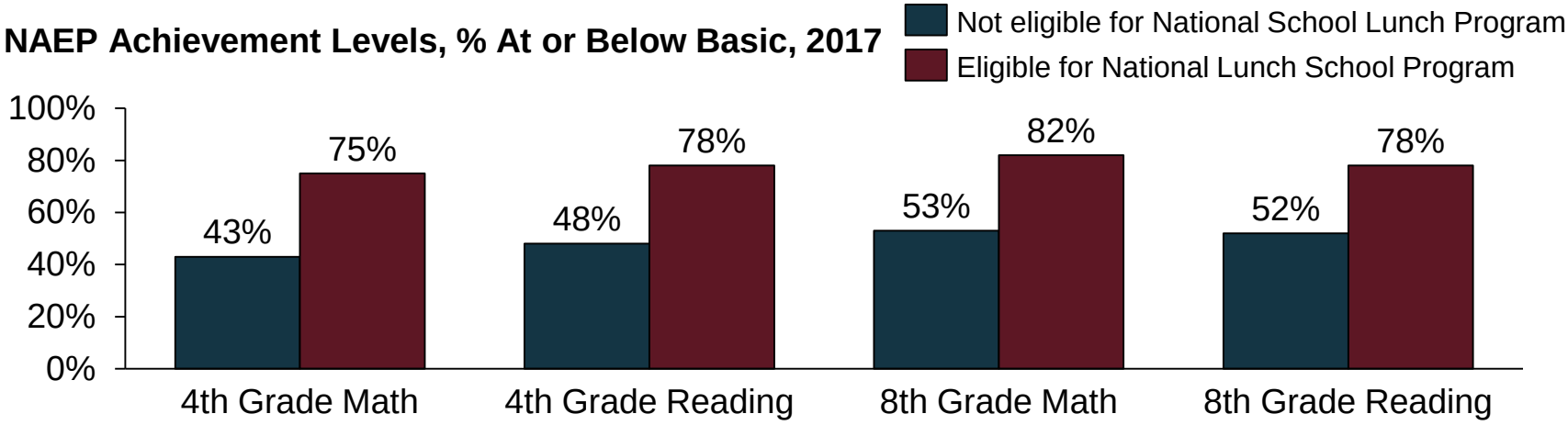
Significant portions of black, Latino, Native, and low-income students are not meeting grade-level expectations

NAEP Achievement Levels, % At or Below Basic, 2017



NAEP Achievement Levels, % At or Below Basic, 2017



Note: NAEP defines basic as "denoting partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade assessed."

Source: US Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1990–2017 Mathematics and Reading Assessments.

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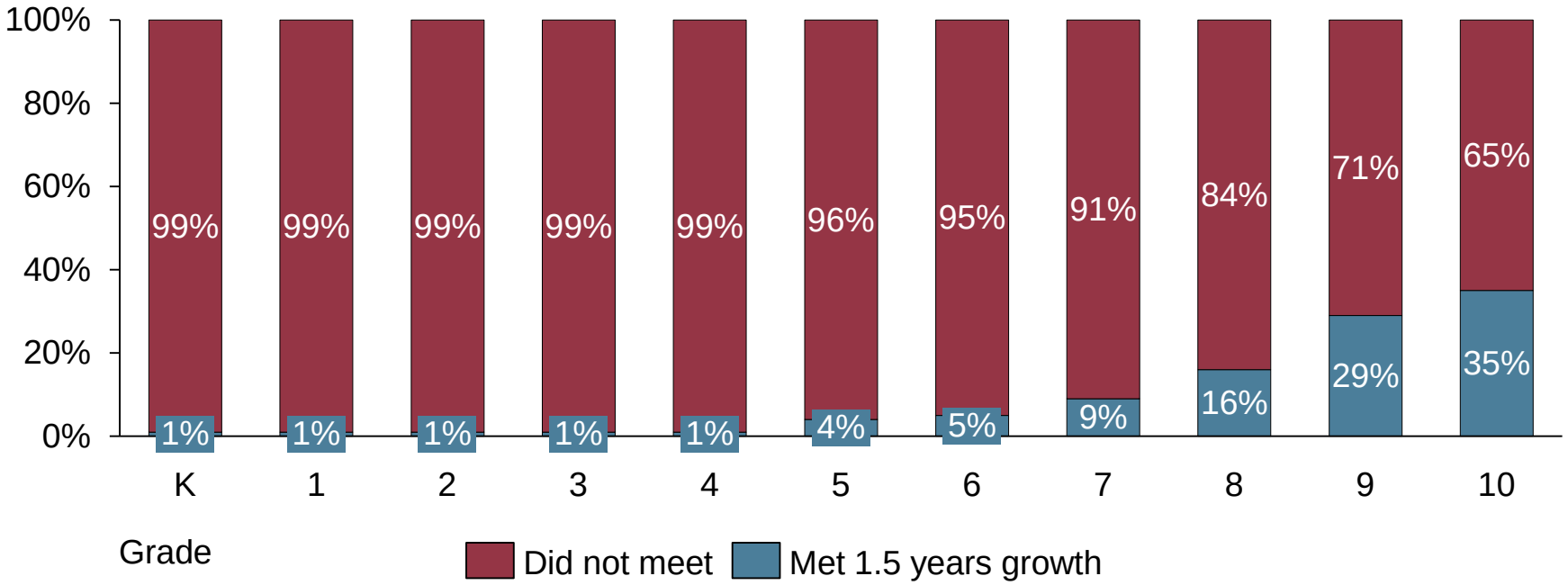
Students who start a grade below grade level rarely catch up; accelerating growth is rarely achieved

Given the high rates of students with significant learning gaps, schools must do the hard work of helping students address gaps *and* learn the new knowledge and skills aligned to the expectations of the current grade level. This requires growth above and beyond one year's worth — a feat few schools are able to support.

Proportion of schools with low-performing students averaging 1.5 years of growth in mathematics



Note: Data based on NWEA MAP assessment results. The growth norm for students in the early grades is higher; what constitutes 1.5 times the growth norm in lower grades is much greater than what constitutes 1.5 times the growth norm at higher grade levels.

Source: John Cronin, "How Many Students and Schools Actually Make a Year and a Half of Growth during a Year?" *NWEA Teach. Learn. Grow.*, June 16, 2016.

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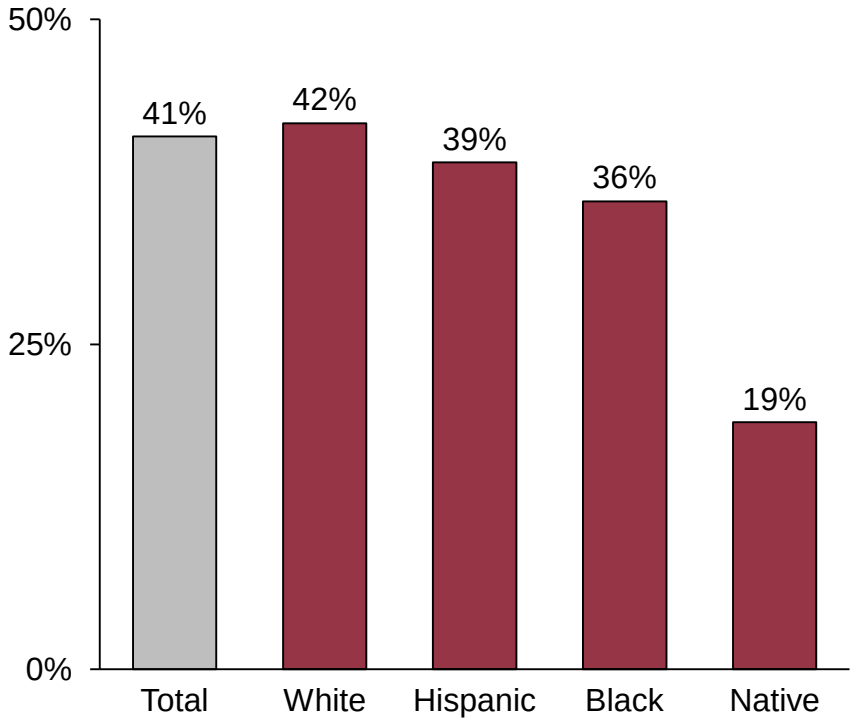
This ultimately leads to troubling outcomes related to college enrollment and completion

There are stark differences along lines of race/ethnicity in percentage of 18- to 24-year-olds enrolled in college

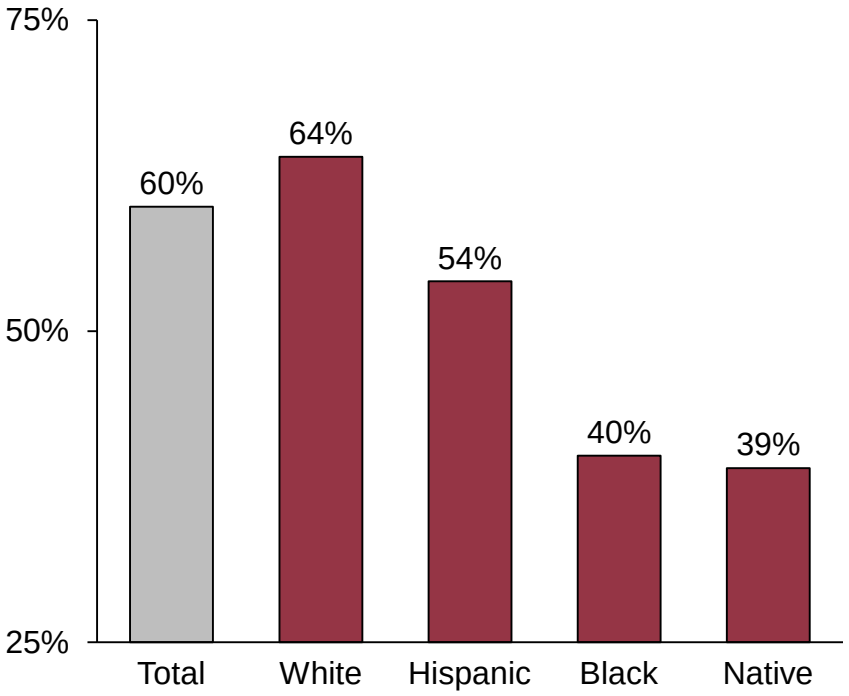
Enrollment rates of 18- to 24-year-olds in college, 2016



Source: US Department of Commerce, Census Bureau, Current Population Survey (CPS), October Supplement, 2000, 2010, and 2016. See Digest of Education Statistics 2017, table 302.60.

… as well as in six-year college graduation rates

6-year graduation rate from first institution attended for first-time students at 4-year colleges, 2010 starting cohort



Source: US Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), spring 2002 through spring 2013 and winter 2013-14 through winter 2016-17, Graduation Rates component; and IPEDS fall 2010, Institutional Characteristics component.

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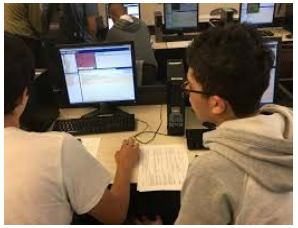
Student Needs

What do we know about students' needs that should inform how to best accelerate learning and close gaps?

Meet Fernando, a student about to enter eighth grade



Fernando's **dreading eighth grade**. Last year, he got a 2 in math and a 1 in ELA on the end-of-year test; his parents had to meet with the school to make sure he wouldn't repeat seventh grade.

In math, **each day is the same:** The teacher does practice problems and students do worksheets. There's a data tracker on the wall that shows Fernando has 65% mastery so far based on daily exit tickets. Fernando wants to be at the 80% goal, but doesn't know what he needs to do differently. His teacher gives him more practice problems to reach 80%, but he still doesn't understand the equations.

Next, Fernando has social studies, a class he loves. His teacher sometimes ditches the text so students can study historical Latino leaders who shared a cultural identity with Fernando and his classmates. Unfortunately, Fernando learned he's going to be **pulled from this class for something called Reading Skills.** Fernando is crushed.

In Reading Skills, Fernando logs into a website where he reads passages and responds to questions. **The passages are boring, and Fernando zones out and just presses random buttons on quizzes.** His Reading Block teacher is nice and tries to teach him strategies, like underlining key words, but his recent benchmark revealed he's still at a Level 1 in ELA. More passages it is.

After Reading Skills, Fernando has ELA. Last week, the class reviewed famous civil rights speeches. The speeches were long, though, and Fernando struggled. His teacher noticed, **so she gave him and two others an easier passage — but Fernando could tell he was missing a lot of messages.** Fernando really cares about social justice, and he was excited for the lesson. He was disappointed when he couldn't really participate in the discussion.

Now, the class is reading "To Kill a Mockingbird" and discussing character development. The teacher asks questions, and the same few students always answer. **Fernando is quiet. He has trouble keeping up with the chapter of reading the teacher assigns each night.**

After school, Fernando's sister picks him up. "How was it?" she asks. "I survived," he replies.

Fernando's school experience is not reflective of what we know about student learning needs. What are those needs? We summarize key themes on the next pages.

Note: Story of Fernando is a fictionalized account based on Bellwether student and educator interviews.

Learning science research identifies specific features of effective learning experiences

Motivation	*"Motivation is a condition that activates and sustains behavior toward a goal."*
Use of prior knowledge and transfer	*"Prior knowledge can reduce the attentional demands associated with engaging in well-learned activities, and it can facilitate new learning."*
Alignment to learning progressions (where known)	*"Detailed descriptions of typical learning serve as representations of models of cognition that can guide instruction as well as the design and interpretation of the results of assessment."*
Challenge	*"Learners tend to persist in learning when they face a manageable challenge (neither too easy nor too frustrating)."*
Choice	*"The opportunity to make meaningful choices during instruction, even if they are small, can support autonomy, motivation, and ultimately, learning and achievement."*
Ownership	*"Goals — the learner's desired outcomes — are important for learning because they guide decisions about whether to expend effort and how to direct attention, foster planning, influence responses to failure, and promote other behaviors important for learning."*
Feedback	*"Feedback may address how tasks are understood and performed. [... It is] most effective when it is focused on the task and learning targets; delivered in a way that is supportive and aligned with the learner's progress; delivered at a time when the learner can benefit from it; and delivered to a receptive learner who has the self-efficacy needed to respond."*

Source: National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783.

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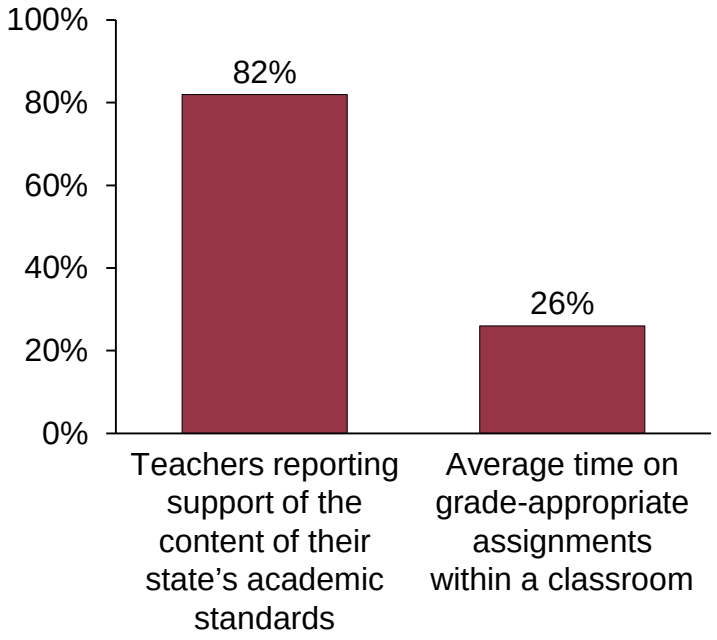
Students need access to challenging work aligned to grade-level expectations; many are not afforded this access

Learning research indicates that "people learn better when [...] they engage in learning activities that pose a challenge." – "How People Learn II: Learners, Contexts, and Cultures," National Academies of Science, Engineering, and Medicine

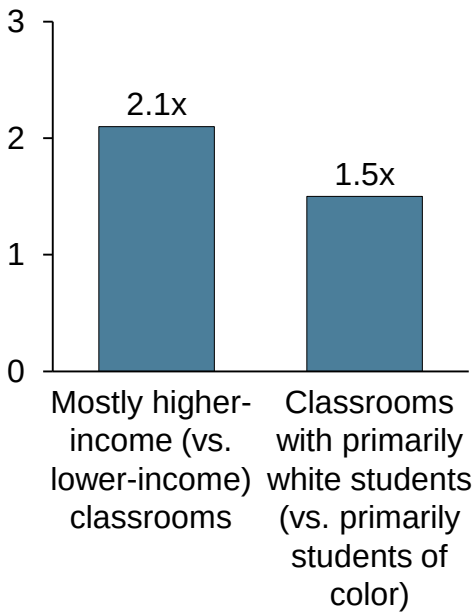
TNTP's "The Opportunity Myth" study of five school systems illustrates gaps and opportunities in implementing this research:

Despite support for standards, students lack access to grade-level work



Access is cut along lines of race and class

Relative amount of time on grade-appropriate assignments



Grade-level work can accelerate learning

"The gap between these students [starting off the year behind grade level] and their higher-achieving peers began to narrow substantially — by more than **seven months of learning in a single school year based on better assignments alone**."

Sources: National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783; "The Opportunity Myth," TNTP, 2018, https://opportunitymyth.tntp.org/.

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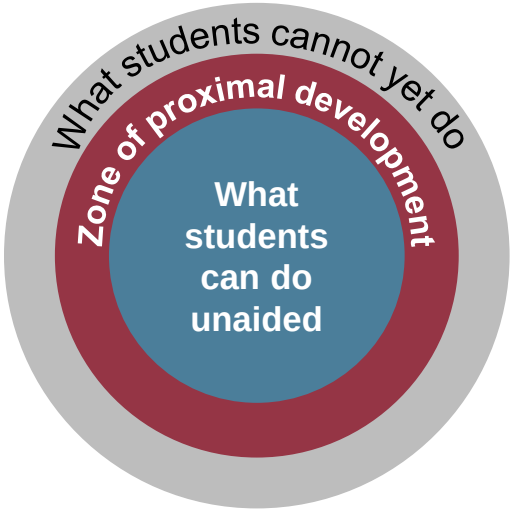
All students need support to access rigorous and challenging work

Psychology Concept: Zone of Proximal Development

The concept of **zone of proximal development,** developed by psychologist Lev Vygotsky, is "the distance between what a child can do by themselves and the next learning that they can be helped to achieve with competent assistance."



Source: Elsa Bilings and Aida Walqui, "The Zone of Proximal Development: An Affirmative Perspective in Teaching ELLs/MLLs," NYSED.

Instructional Practice: Scaffolding

To implement in classrooms, teachers provide **instructional scaffolding** by "systematically building on students' experiences and knowledge as they are learning new skills." These supports are temporary; supports are gradually removed as students master assigned tasks. Strategies may include:

- ***Content scaffolding*:** Educator selects content that allows students to focus on the skill being taught, without being held back in the content
- ***Task scaffolding*:** Educator specifies steps in a task, models the steps, and enables students to practice, with feedback as needed
- ***Material scaffolding*:** Students are provided prompts or cues to help perform a task or use a strategy

Source: "Providing Instructional Supports: Facilitating Mastery of New Skills," IRIS Center, Vanderbilt University.

Engagement is important for learning; however, significant numbers of students report lack of engagement

Learning research indicates "educators may support learners' motivation by attending to their engagement." – "How People Learn II: Learners, Contexts, and Cultures," National Academies of Science, Engineering, and Medicine

Field research highlights the importance of engagement ...

... But finds fewer than half of students actively engaged

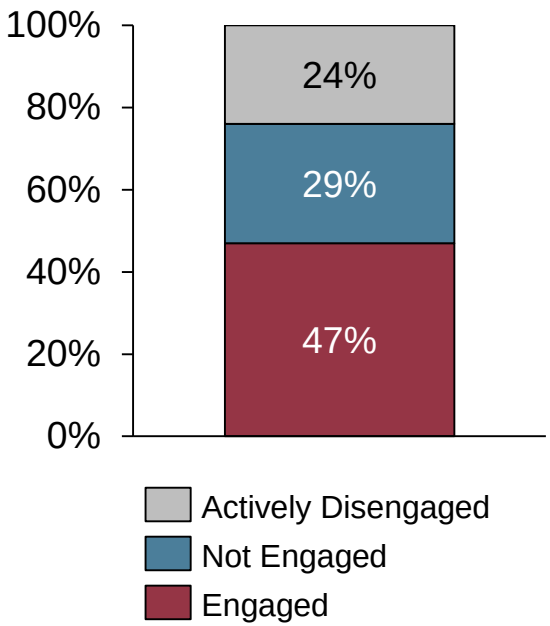
Other data shows especially low engagement among middle and high schoolers

Engaged students are ...

4.5x More likely to be hopeful about the future

2.5x More likely to say that they get excellent grades and do well in school

... than their disengaged peers



A study of five school systems indicated that "middle and high school **students found their lessons engaging or worthwhile less than half the time**."

Sources: National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783; Tim Hodges, "School Engagement Is More than Just Talk," Gallup, October 25, 2018; "The Opportunity Myth," TNTP, 2018, https://opportunitymyth.tntp.org/.

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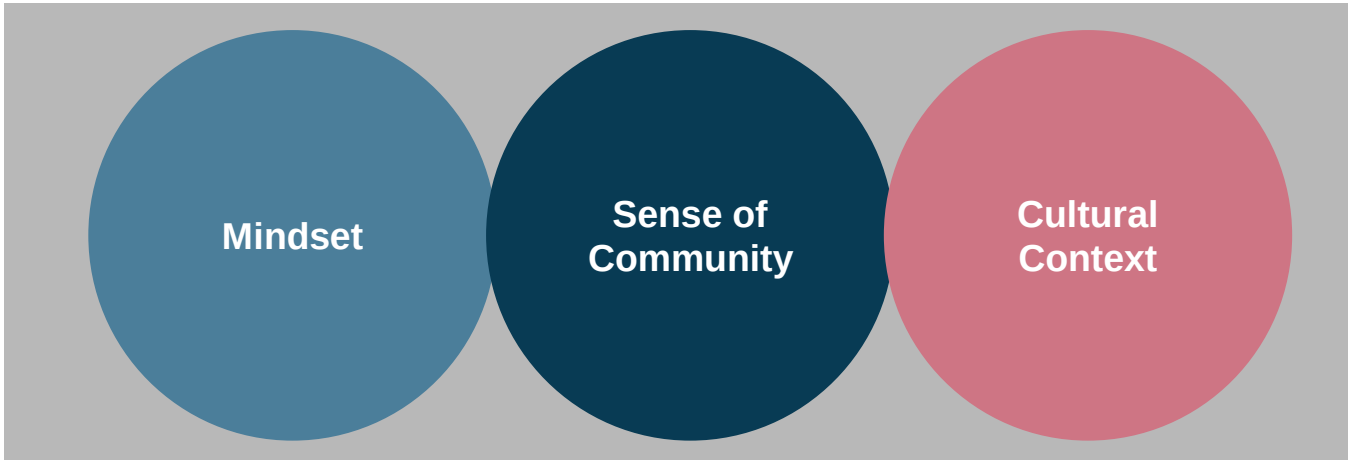
Environmental conditions like mindset, context, and community also influence learning



Learner Mindset: "Learners' ideas about their own competence (i.e., self-efficacy), their values, and the preexisting interests they bring to a particular learning situation all influence motivation." Specifically, "when learners expect to succeed, they are more likely to put forth the effort and persistence needed to perform well."

Sense of Community: "Motivation to learn is fostered for learners of all ages when they perceive the school or learning environment is a place where they 'belong' and when the environment promotes their sense of agency and purpose […] Educator may support learners' motivation by [...] creating an emotionally supportive and non-threatening learning environment where learners feel safe and valued."

Cultural Context: "Learning does not happen in the same way for all people because cultural influences are influential from the beginning of life. These ideas about the intertwining of learning and culture have been reinforced by research on many facets of learning and development."

Source: National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783.

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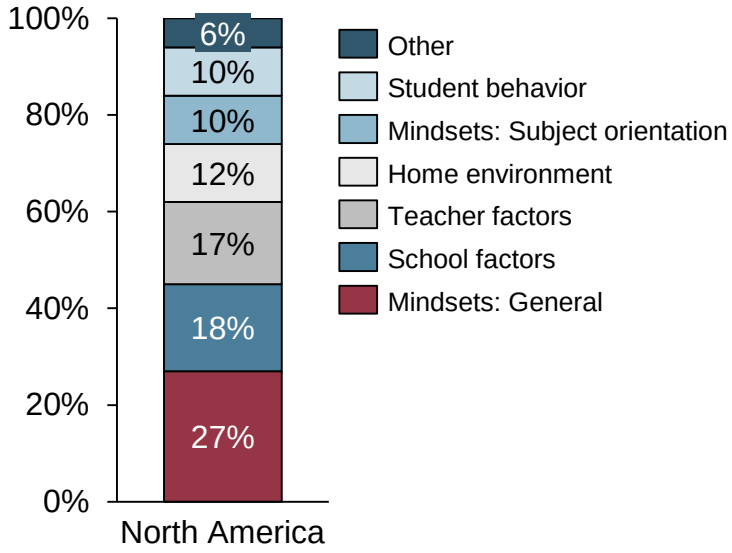
While positive mindsets are critical, they are not consistently developed in students — especially students of color

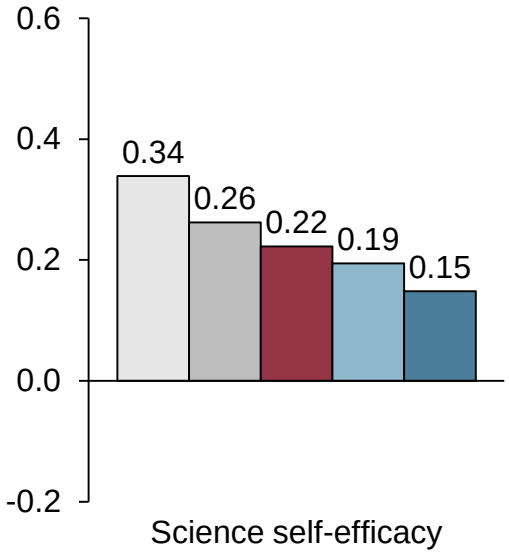
Analysis of PISA data shows mindsets predict achievement

Factors driving student science performance, 2015
PISA, % predictive power by category of variable

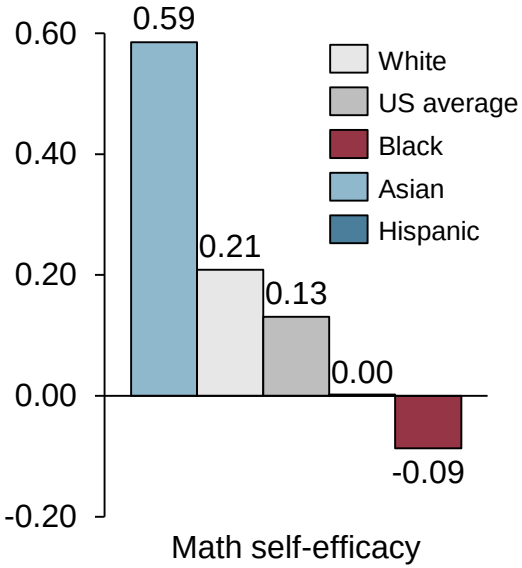


PISA data indicates gaps by race/ethnicity in students' perceptions of one key mindset, self-efficacy

Index mean, by population
PISA 2015



Index mean, by population
PISA 2012



Source: Jake Bryant, Emma Dorn, Marc Krawitz, Paul Kihn, Mona Mourshed, and Jimmy Sarakatsannis, "Drivers of Student Performance: Insights from North America," McKinsey, 2017.

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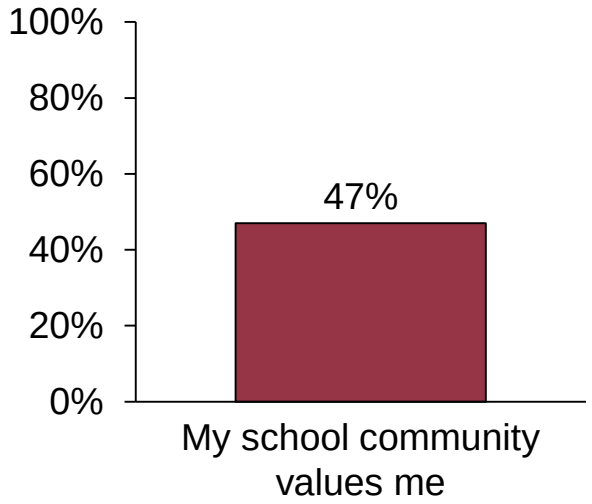
While community matters, many U.S. students report a lack of belonging

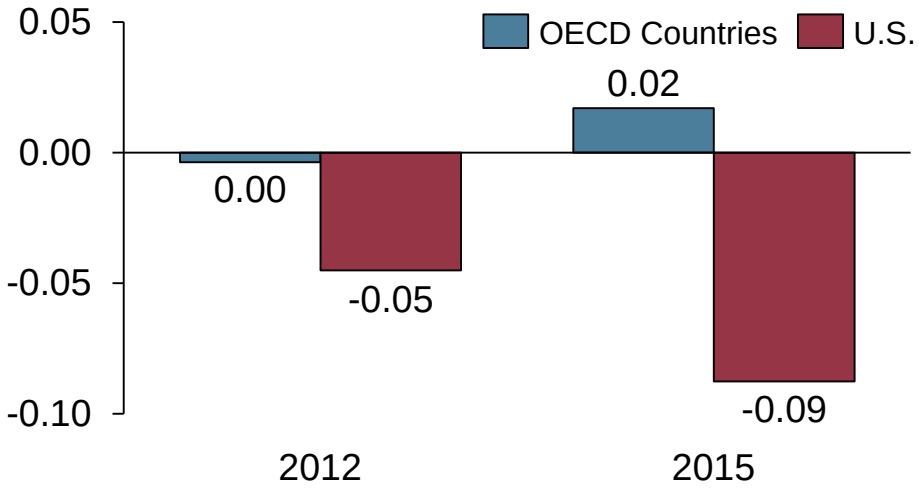
In one study, fewer than half of middle school respondents felt valued at their school

Middle school survey respondents



PISA data indicates widening gaps in sense of belonging of students in the U.S. vs. peers

Sense of belonging index mean, PISA 2012, 2015



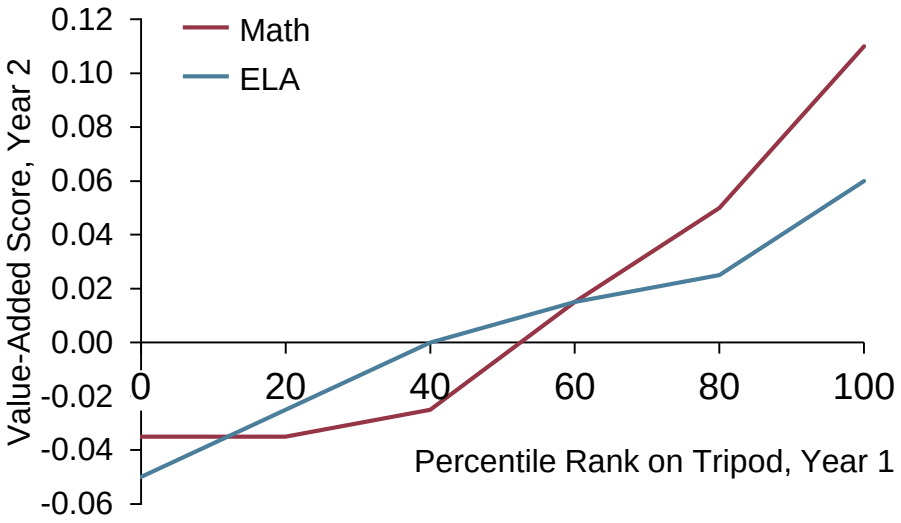
"There is a positive correlation between sense of belonging and contributing positively to the school community. While students that have a lower sense of belonging also exhibit these positive traits, they exhibit them less so than students who have a strong sense of connectedness. Traits included: being respectful, being willing and able to intervene in an unhealthy situation, and possessing a stronger sense of compassion." – "The Importance of Belonging: A Nationwide Look at Adolescent Students' Sense of Belonging," EverFi

Sources: "The Importance of Belonging: A Nationwide Look at Adolescent Students' Sense of Belonging," EverFi; OECD, "Students' Sense of Belonging at School and Their Relations with Teachers," in *PISA 2015 Results (Volume III): Students' Well-Being* (Paris: OECD Publishing, 2017), https://doi.org/10.1787/9789264273856-11-en.

Despite the social nature of learning, students do not consistently experience strong relationships

Student perceptions of teachers correlate with teachers' "value-added" scores

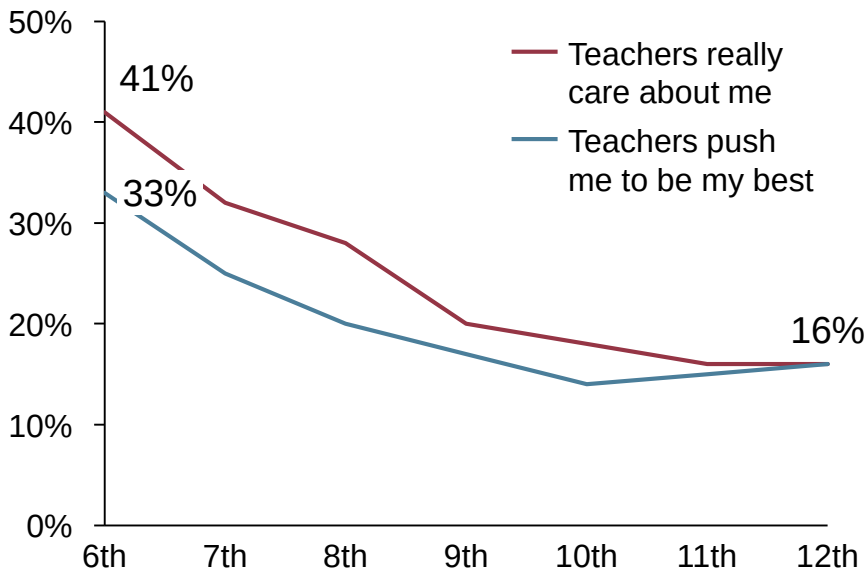
Tripod Results Achievement Gains



The student survey (Tripod) measures student perceptions of teachers' care, control, clarity, challenge, captivation, conference, and consolidation of learning.

However, most students do not report that their teachers care about and challenge them

Percentage of Students who "Strongly Agree" with Statement (n > 120,000)



"Individuals' brains are critically shaped by social relationships, and the information they learn through these relationships supports both their emotions and their knowledge about facts, procedures, motivation, and interests." – "How People Learn II: Learners, Contexts, and Cultures," National Academies of Science, Engineering, and Medicine

Sources: "Asking Students about Teaching: Student Perception Surveys and Their Implication," MET Project, Bill & Melinda Gates Foundation, 2012; "What We're Learning about Developmental Relationships," Search Institute, www.search-institute.org/developmental-relationships/learning-developmental-relationships/; National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783.

Connections to student identity and context support learning; today, instruction and materials do not consistently enable this

Culturally relevant instructional materials benefit student outcomes

A study of San Francisco Unified School District revealed that culturally relevant programs:

Increased student attendance

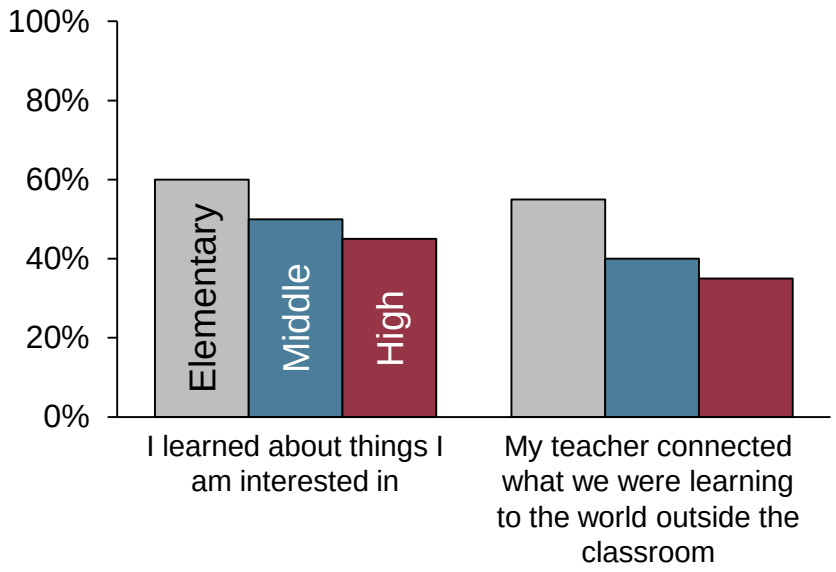
Increased student grade point average (GPA) and credits earned

Additional studies found culturally relevant benefits including:

- Students are "more **inclusive in their mutual friendships**"
- Students "had a greater **sense of interest and belonging in school**"

However, most learning is not culturally relevant or aligned to student context

Student perception of teacher's use of interests and connections to broader world (% agree or mostly agree)



An analysis of children's books revealed that **only 22% were about people of color** or written or illustrated by people of color

Sources: "Honoring Origins and Helping Students Succeed," Chiefs for Change, February 2019; B. Gross, S. Tuchman, and S. Patrick, *A National Landscape Scan of Personalized Learning in K-12 Education in the United States* (Vienna, Virginia: iNACOL, 2018).

Summary of Student Needs

What we know

The process of learning is complex. We know that learning is most effective when multiple conditions are in place:

- Students **actively engage in challenging learning experiences that build their knowledge and skills** (i.e., defined by grade-level expectations), with supports as needed. This includes opportunities for feedback, ownership, choice, goal-setting, and connection to prior knowledge.

- Students' **individual experience and cultural context (including prior knowledge, motivations, interests, etc.) are attended to,** in relationship with the educator and the learning environment.

There is evidence that many students are not afforded access to learning experiences and instructional materials that reflect these principles.

Source: National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783.

BELLWETHER EDUCATION PARTNERS

Educator Needs

What do we know about educators' needs that should inform how they are trained and supported to accelerate learning and close gaps?

Courtesy of Allison Shelley/The Verbatim Agency for American Education: Images of Teachers and Students in Action

Meet Mr. A, a fifth-grade teacher

Mr. A welcomes 30 **students with significant gaps in learning.** Most demonstrate skills at a second- or third-grade level. Principal C meets with Mr. A at the start of the year. It's **vital Mr. A raise test scores.**

Mr. A **independently plans instruction.** Since most students have gaps, he supplements the curriculum by spending hours each night searching Google. Despite best efforts, Mr. A often finds himself **teaching to the middle** — it feels impossible to differentiate for 30 students.

Several students are pulled for remediation each day. Mr. A and the remediation teacher — Ms. B — weekly review **data that shows each student's progress toward grade-level expectations.** The data does not indicate where students' knowledge or skills break down, though. Mr. A and his co-teacher thus do not spend much time on this report (except the time they spend worrying).

During remediation, Ms. B uses Tier 2/3 interventions to pinpoint discrete skills. When students return to Mr. A's class, though, they're confused; **the remedial content doesn't connect with content in Mr. A's class.**

Mr. A notices students disengage. Every day is the same — students come in, learn the same type of lesson, take an exit ticket, and leave. Mr. A tries hard to make lessons exciting: he creates projects, uses videos, and captures students' attention with his dynamic instruction. But Mr. A feels a tension between making learning engaging and staying anchored on grade-level expectations.

Students get updates about how they are doing (e.g., on quizzes), but don't often know what they can do about it (other than "try harder"). Mr. A notices they look discouraged as they review the grades.

Once a month, Mr. A **attends all-staff PD** on topics like "checking for understanding." The PD rarely connects to Mr. A's content or students. He zones out. Twice a year, a **district teacher eval team stops by Mr. A's classroom.** They take notes for his eval but never provide real-time feedback. It stresses him out.

Mr. A is exhausted. He's working so hard for the students he loves, but the summative test scores arrive and indicate that his students are still far behind their peers. Mr. A is at a loss.

Mr. A's school experience is not reflective of what we know about educator needs. What are those needs? We summarize key themes on the next pages.

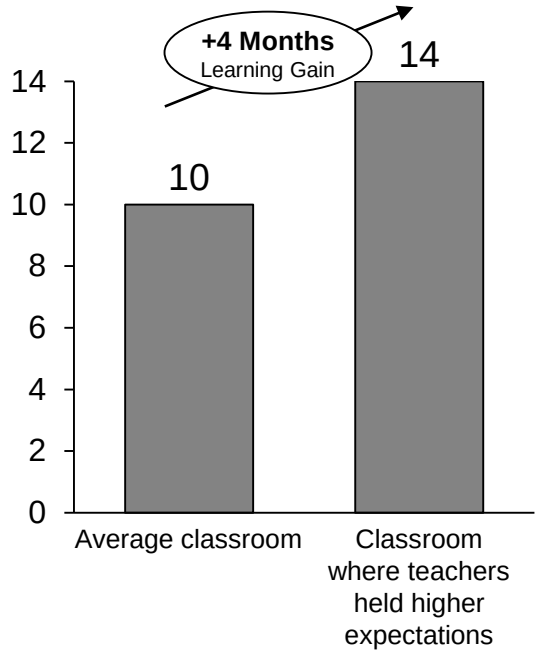
Note: Story of Mr. A is a fictionalized account based on Bellwether student and educator interviews.

Teachers must have high expectations for **all**; however, expectations are not universally high

"Clear feedback that sets high expectations and assures a student that he can reach those expectations are important […] Teachers' unexamined biases regarding gender and race may influence their expectations." – "How People Learn II: Learners, Contexts, and Cultures," National Academies of Science, Engineering, and Medicine

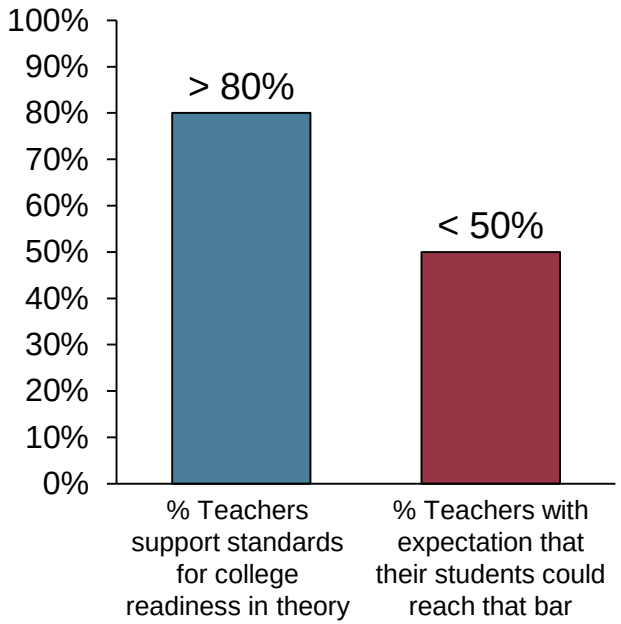
High expectations result in more student learning

Months of Student Learning



But most teachers do not yet set high expectations for all students

Percentage of Teacher Responses



Systems do not yet cultivate the needed mindsets

"The system doesn't send teachers the message that their **mindset matters** nearly as much as the material they teach or the practices they employ in their classrooms. Yet **teacher expectations** had a stronger effect on **student achievement growth** than any other factor we studied." – TNTP

Sources: "The Opportunity Myth," TNTP, 2018, https://opportunitymyth.tntp.org/; National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783.

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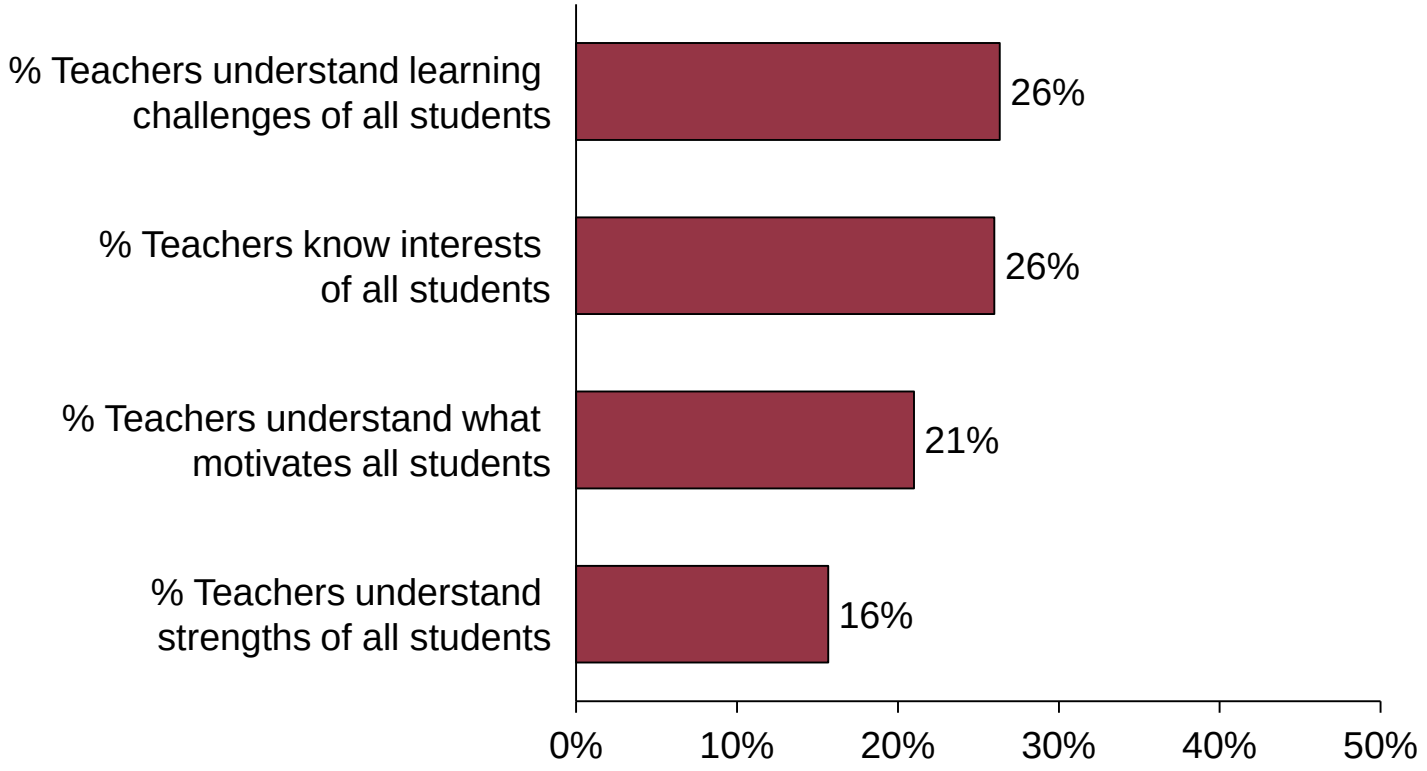
Teachers must engage students based on what they know about them; data indicates many lack info about students

While most teachers **understand their students as learners**, most teachers express **less familiarity with student interests and motivations**

Survey of national teachers (n > 908)



Source: B. Gross, S. Tuchman, and S. Patrick, *A National Landscape Scan of Personalized Learning in K-12 Education in the United States* (Vienna, Virginia: iNACOL, 2018). Content in this report is licensed under a Creative Commons Attribution 4.0 International license.

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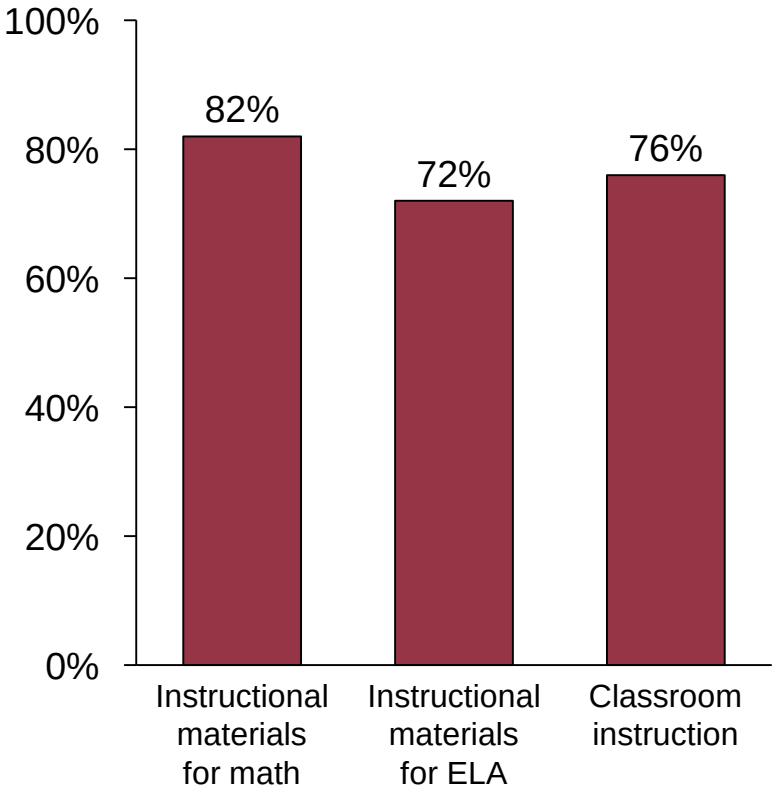
Expectations of teachers have increased; this has required significant work as teachers change *what* and *how* they teach

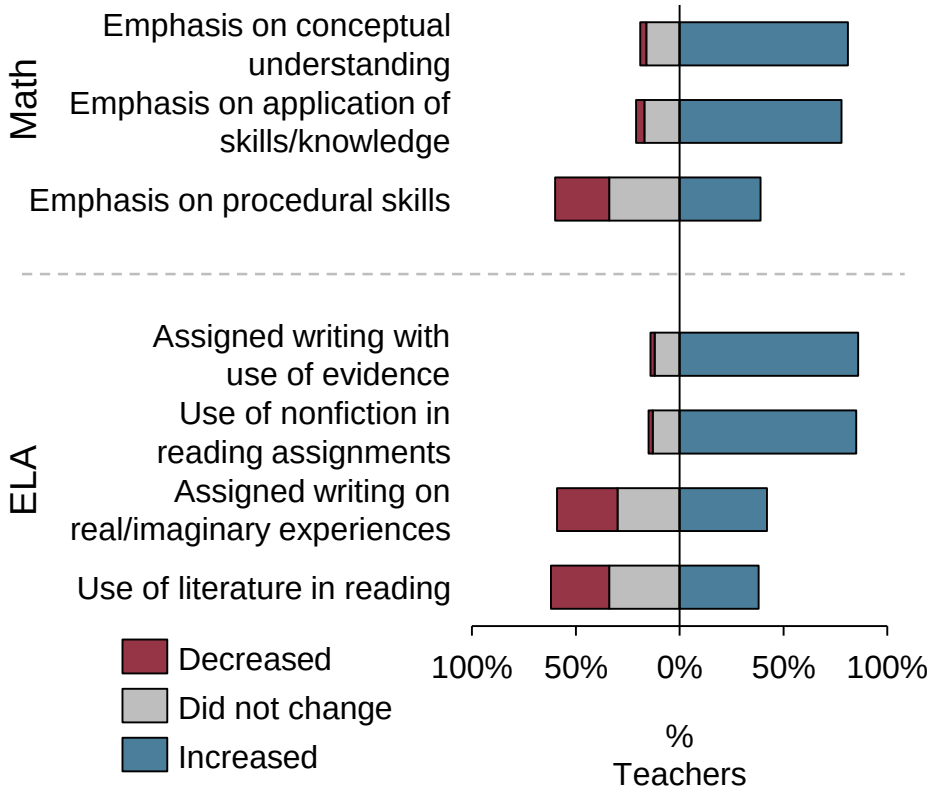
Standards have significantly impacted both "what" and "how" teachers teach

% Teachers reporting >50% changes as a result of Common Core State Standards



The changes are content-specific and nuanced

% Teachers who indicated changes by type of instruction



Source: "Teaching Higher: Educators' Perspectives on Common Core Implementation," Harvard Center for Education Policy Research, 2016.

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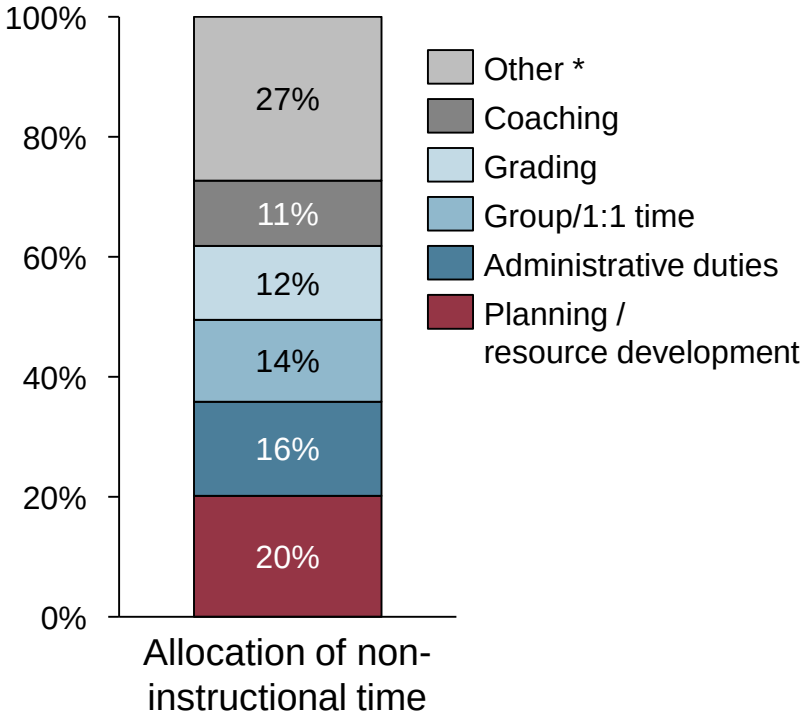
To add to the challenge, teacher time is split across many needs and there are significant barriers to teacher efficacy

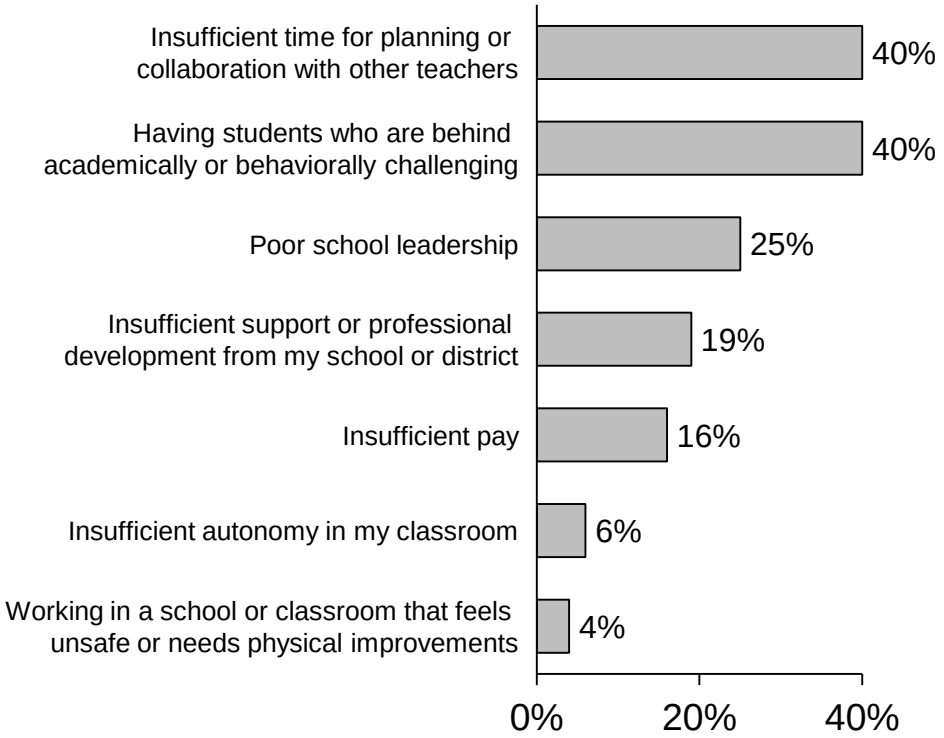
Teachers have many demands on their time

TNTP time study of Fishman Prize winners



And they report significant barriers to their effectiveness

Rank the three most challenging barriers in teaching, % Teacher responses



* "Other" includes meetings, collaboration, professional development, extracurricular activities, and parent engagement, all with <10% allocation.

Source: "Perspectives of Irreplaceable Teachers," TNTP, 2013.

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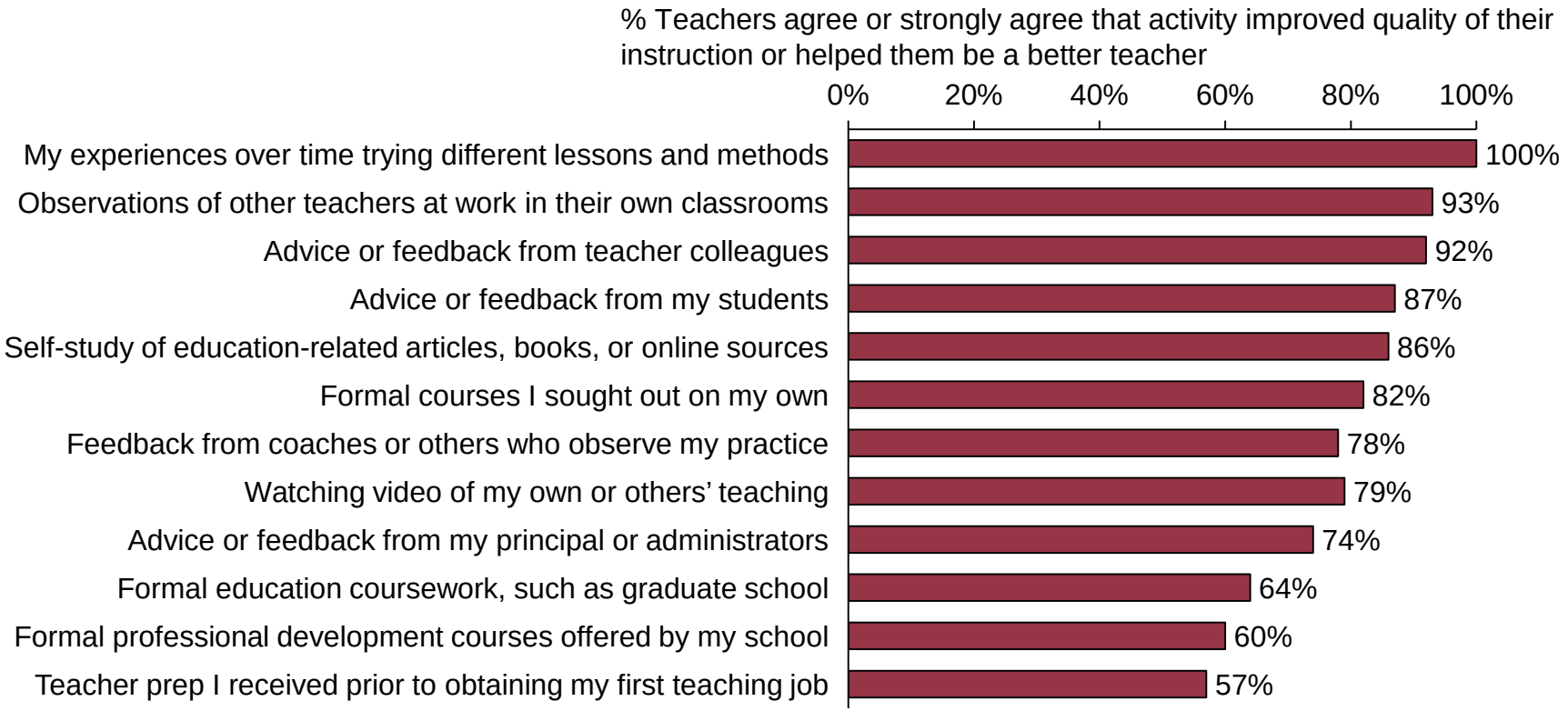
In light of these challenges, teachers want professional learning that is *practice-focused* and *tailored to their context*



However, only about **40% of teachers report professional development "is a good use of my time"**

Sources: "Perspectives of Irreplaceable Teachers," TNTP, 2013; "The Mirage," TNTP, 2015.

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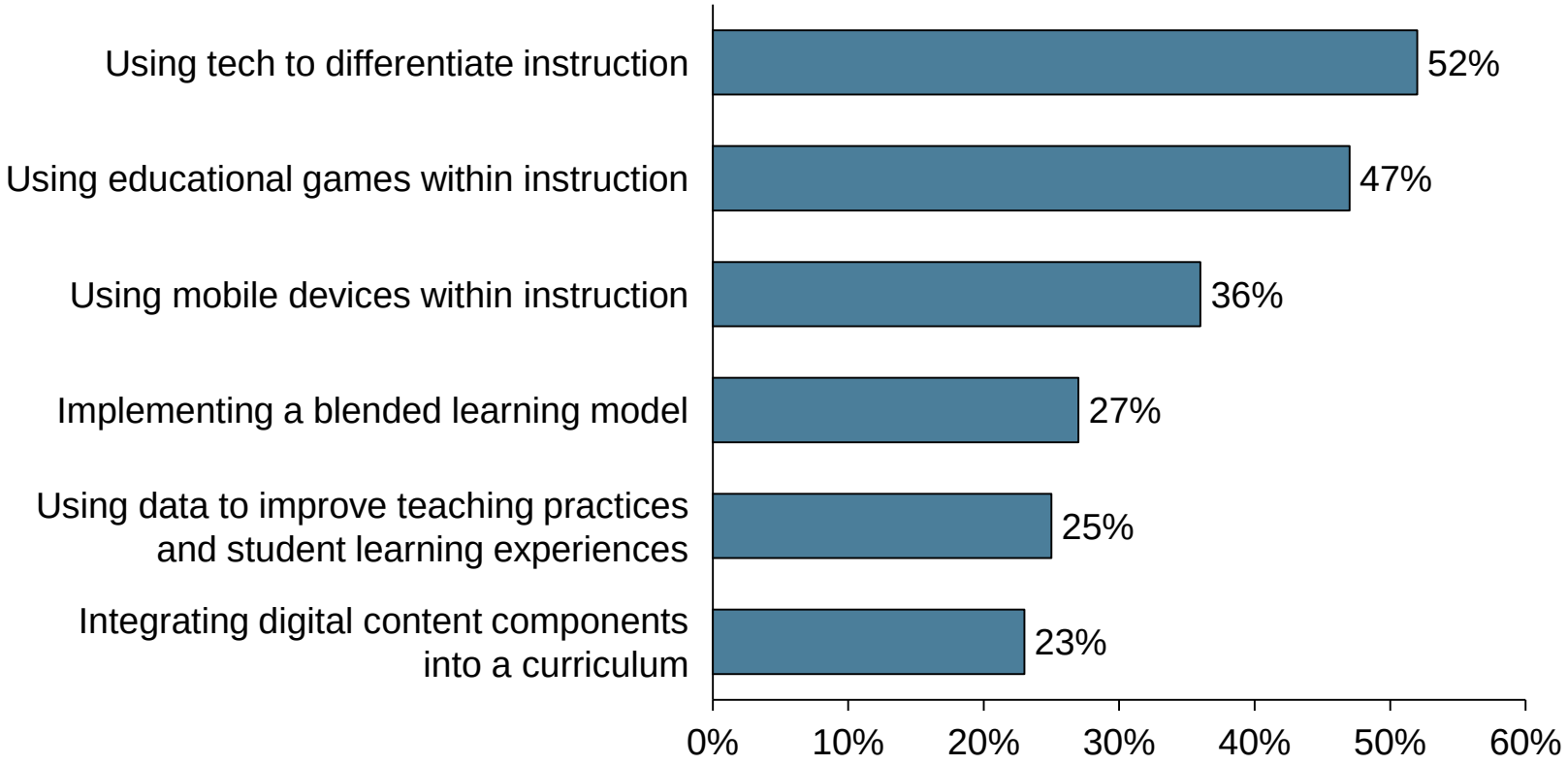
Many report interest in professional learning regarding use of tech to address learning gaps and engage students

Teachers report interest in professional development specific to use of tech



Source: Michael Fullan, "Trends in Digital Learning: Building Teachers' Capacity and Competency to Create New Learning Experiences for Children," Blackboard, 2017.

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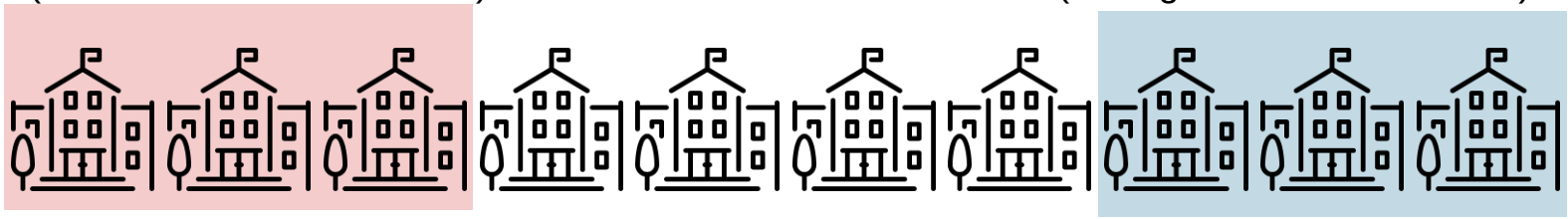
Beyond professional learning, teachers (and students) benefit from being in a school with strong instructional culture

A TNTP study of 250 schools in six cities across the country over two years found strong instructional culture correlated with higher student achievement (as measured by percentage of students scoring proficient or above on state standardized tests); weak instructional culture correlated with lower teacher retention.

Bottom-Quartile Schools
(Weak Instructional Culture)

Top-Quartile Schools
(Strong Instructional Culture)



Bottom-quartile schools experience higher teacher attrition

2x *Lose twice as many effective teachers*

Top-quartile schools experience better student achievement

+21 *Percentage points higher in math*

+14 *Percentage points higher in ELA*

Note: Instructional culture assessed through teacher survey responses to: (1) my school is *committed* to improving my instructional practice, (2) teachers at my school share a *common vision* of what effective teaching looks like, and (3) at my school, the *expectations* for effective teaching are clearly defined

Source: "Greenhouse Schools," TNTP, 2012.

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Summary of Educator Needs

What we know

Educators must be well-equipped to address the breadth of student needs — especially the needs of students with significant gaps.

- Teachers need **high-quality professional learning** to develop content and pedagogical content knowledge and skills. This should help teachers develop positive, anti-biased mindsets, build relationships with all students and engage them, use and adapt instructional materials, and use data to make decisions. This development is most effective when it is tailored to a teacher's context (e.g., content area, level of experience, student needs), is continuous, and is collaborative.

- The **broader school system and culture** educators work within also matter. Educators need strong instructional vision and culture, time focused on high-leverage activities for educator and student learning, and — as we will explore in the next section — access to high-quality instructional materials that can be used as effective tools in the classroom.

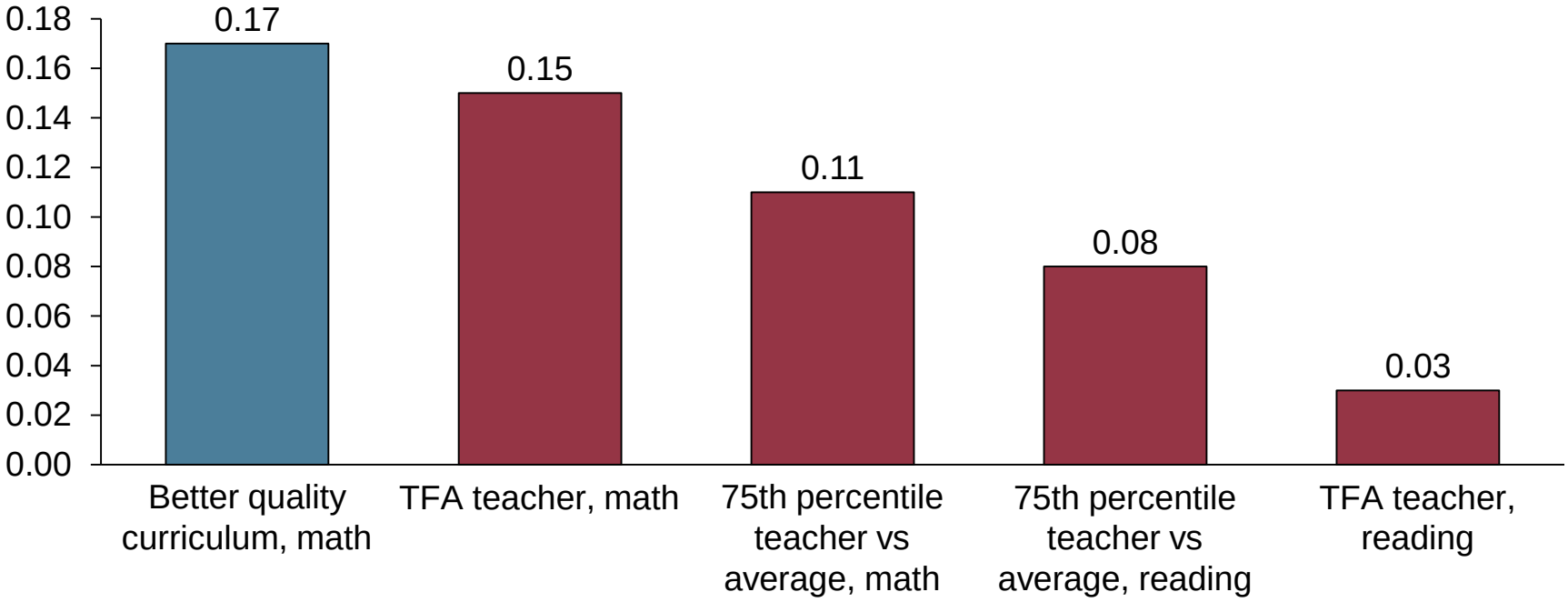
Source: "Aligned System for Professional Learning," Charles and Lynn Schusterman Family Foundation.

Instructional Materials, Data, and Tools

Given what we know about student and educator needs, how well do current instructional materials, data, and tools reflect those needs?

Instructional materials are foundational elements of a classroom that accelerates learning for students

Effect size, in standard deviations, of selected interventions on student test scores



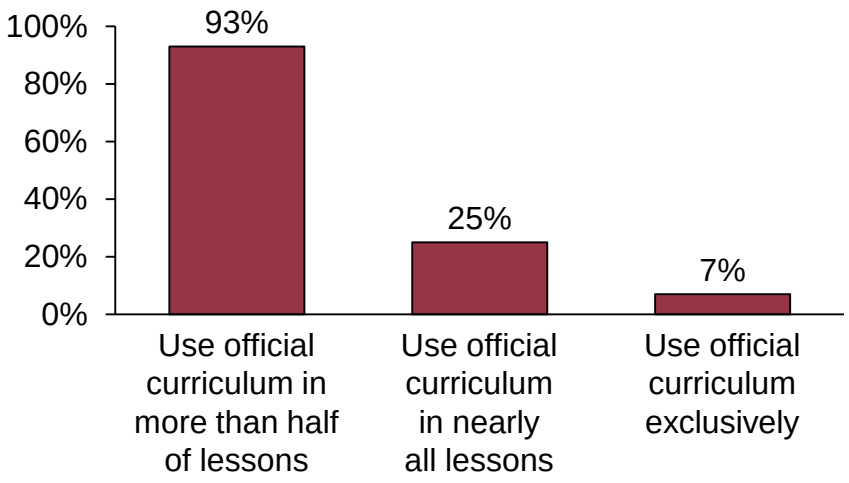
According to a second study, adopting high-quality curriculum had a cost effectiveness ratio approximately 40 times that of reducing class size

Sources: Matthew M. Chingos and Grover J. Whitehurst, *Choosing Blindly: Instructional Materials, Teacher Effectiveness, and the Common Core* (Washington, DC: Brown Center on Education Policy at Brookings, 2012); Boser Ulrich et al., *The Hidden Value of Curriculum Reform* (Washington, DC: Center for American Progress, 2015).

However, benefits of instructional materials are not consistent due to variability in implementation

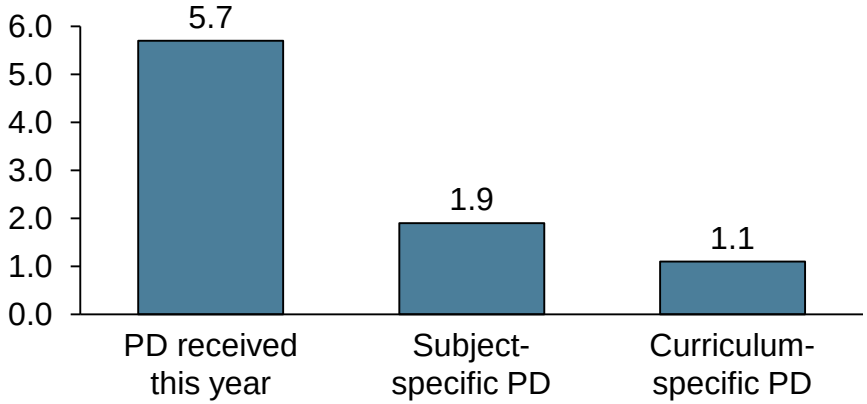
Use of instructional materials is not consistent

Percent teacher responses



And teachers are not consistently trained to use materials effectively

Average days of professional development (PD) per year

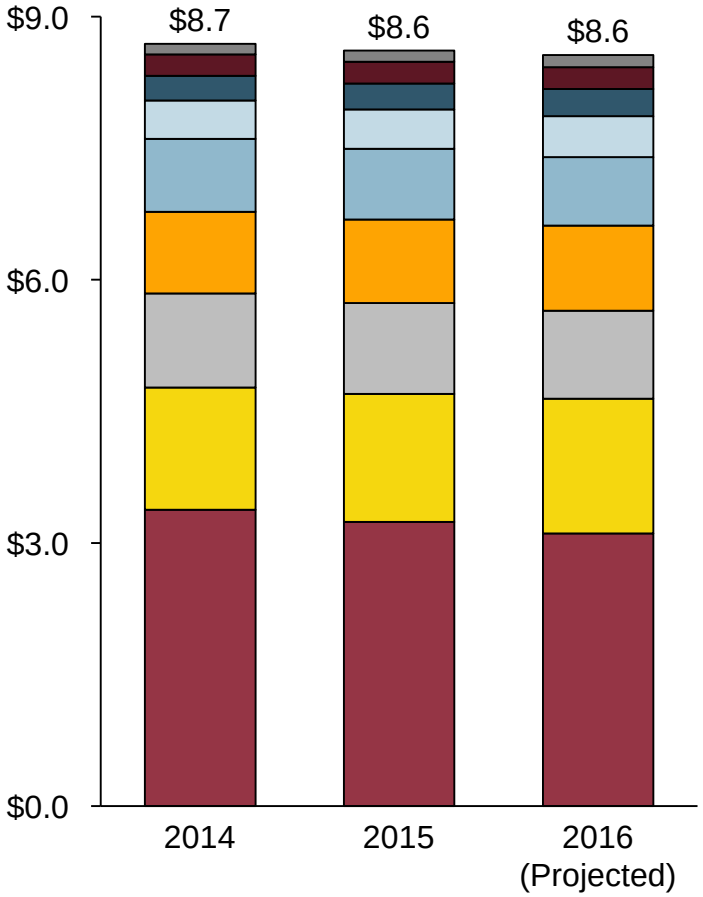


"Although the researchers saw substantial variation in achievement growth among the schools using each particular curriculum, there were no differences in average student achievement growth between curricula."

Source: D. Blazar et al., *Learning by the Book: Comparing Math Achievement Growth by Textbook in Six Common Core States*, research report (Cambridge, Massachusetts: Center for Education Policy Research, Harvard University, 2019).

Today's landscape of instructional materials is plentiful and complex

Sales of Print & Digital Instructional Media to the U.S. PreK-12 School Market, $Billion



Source: "Publishing for the PreK-12 Market 2016–2017," Simba Information report, 9.

Segment Definitions

- **Classroom magazines.** Short-form content in magazine format, informs and offers various activities. Ex: Geography Spin, Scholastic
- **Video.** Clips and long-form on various topics offered singularly or in collections; originally film-based, now generally streamed online. Ex: Discovery Streaming Plus
- **Trade books.** Fiction and nonfiction books used to encourage reading and stimulate literacy. Ex: "A Bee's Life," Time for Kids
- **Manipulatives.** Hands-on materials that foster learning through touch and physical interaction or digitally. Ex: Geoboard, The Math Learning Center
- **Print supplements.** Paper-based content used to support core curriculum, including workbooks, test-prep materials, formative assessment, alternative textbook programs. Ex: Spectrum Test Prep, Carson-Dellosa
- **Digital supplements.** Digital content used to support core curriculum, including software, games, and apps. Ex: Minecraft, Education Edition, Microsoft
- **State-level tests.** High-stakes summative tests to meet accountability provisions of education laws. Ex: PARCC
- **Courseware.** Digital content program aligned to scope and sequence of a subject that is accessed over a semester- or year-long course. Ex: Apex Learning Tutorials
- **Basal curriculum.** Comprehensive compilation of core content aligned to scope and sequence of a subject that is used as the basis of instruction over a semester- or year-long course. Formerly textbooks, now increasingly blended offerings. Ex: Wonders, PreK-6, McGraw-Hill Education

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This plentiful market can create noise and lead to a lack of coherence in instructional approach

Ecosystem of siloed providers with little collaboration

- Organizations specialize in core materials, supplemental materials, assessment, technology, and/or implementation, but rarely all
- Materials across organizations are infrequently designed to work together or be interoperable

Systems often lack coherent vision and strategy

- Systems purchase products and supports piecemeal
- Systems do not define a vision for instruction, and then cannot align products or supports to the vision

Teachers experience incoherence

- Teachers are overloaded with materials (often none of them seem quite right)
- Teachers do not have guidance on effective use of materials

Source: Bellwether interviews.

The definition of “high quality” has become clearer in recent years in ELA and math

ELA K-2 Example

Text Quality and Complexity, and Alignment to Standards with Tasks Grounded in Evidence

- Materials provide opportunities for rich and rigorous evidence-based discussions and writing about texts to build strong literacy skills.
- Materials in reading, writing, speaking, listening, and language targeted to support foundational reading development are aligned to the standards.

Building Knowledge with Texts, Vocabulary, and Tasks

- Materials build knowledge through integrated reading, writing, speaking, listening, and language.

Math K-8 Example

Focus and Coherence

- Students and teachers using the materials as designed devote the large majority of class time in each grade K–8 to the major work of the grade.
- Coherence: Each grade’s instructional materials are coherent and consistent with the Standards.

Rigor and Mathematical Practices

- Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

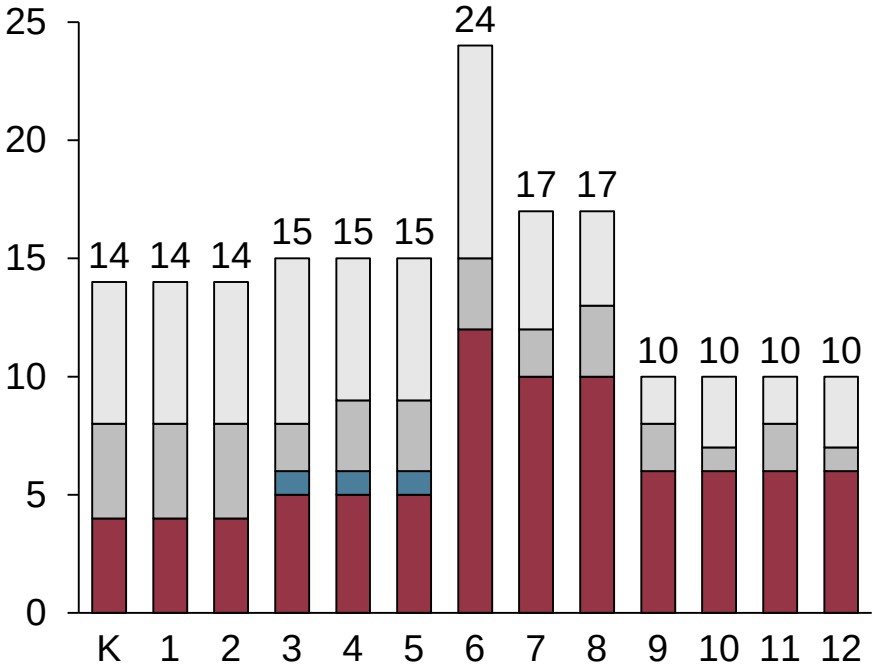
Instructional Supports and Usability

- Materials are well-designed and take into account effective lesson structure and pacing.
- Materials support teacher learning and understanding of the Standards.
- Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.
- Materials provide teachers with strategies for meeting the needs of a range of learners so that they demonstrate independent ability with grade-level standards.
- Materials support effective use of technology to enhance student learning. Digital materials are accessible and available in multiple platforms.

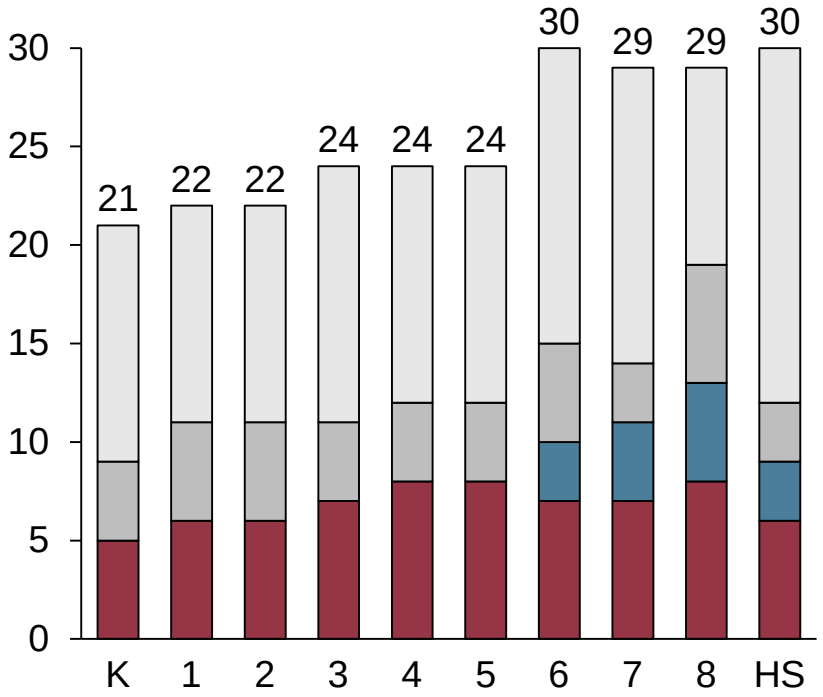
Source: “EdReports.org Quality Instructional Materials Tool,” EdReports.

However, the supply of materials aligned to that definition varies by content area and grade level

 # Ed Reports-rated ELA curricula, by grade level and number of gateways met



 # Ed Reports-rated Math curricula, by grade level and number of gateways met



Source: "EdReports.org Quality Instructional Materials Tool," EdReports, data as of May 2019.

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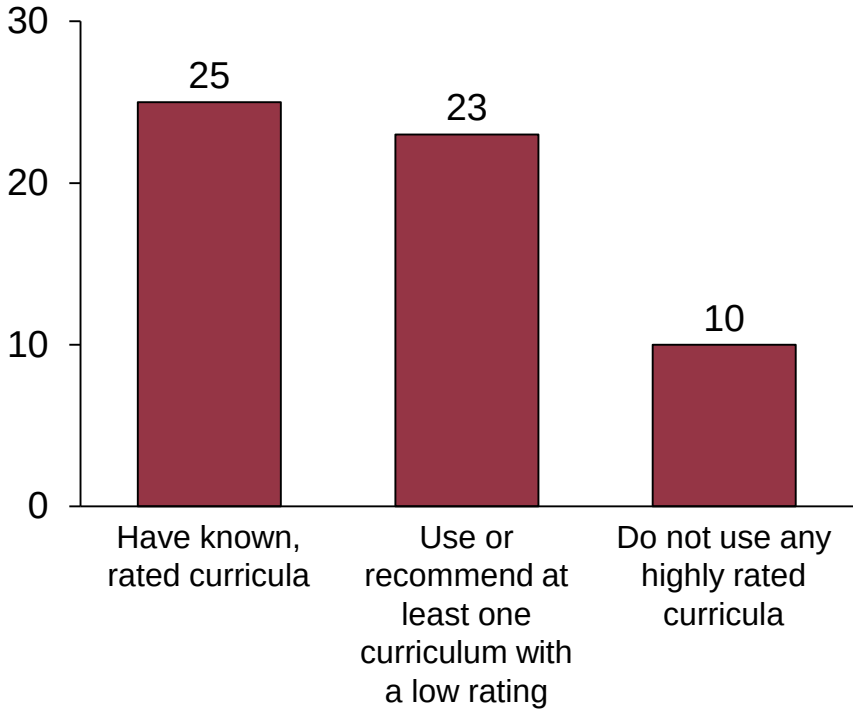
Districts do not uniformly adopt quality materials (open or proprietary); teachers access content of variable quality

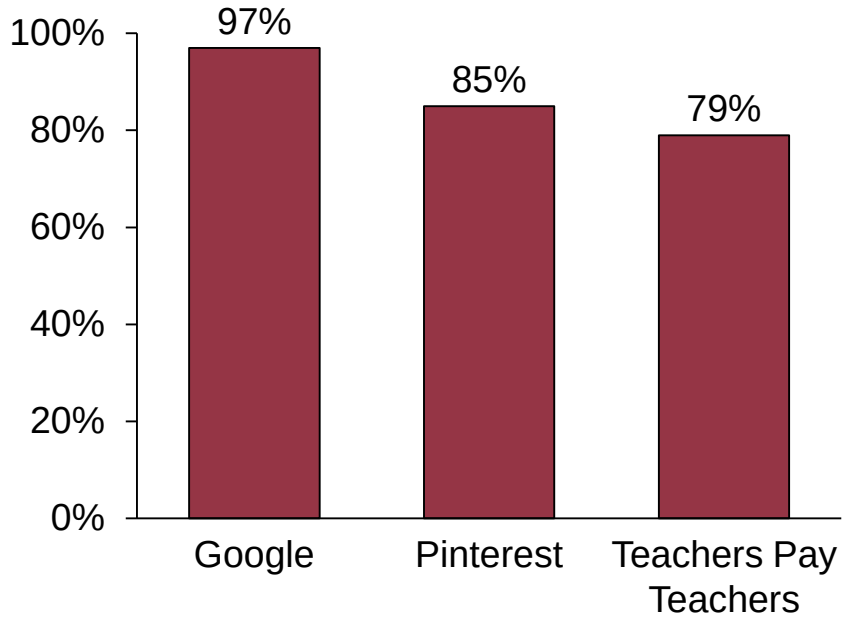
Major U.S. districts are not consistently adopting high-quality curricula (as defined by ratings from EdReports or Louisiana Department of Education)

Instead, a staggering number of teachers access content (of variable quality) online

Number of districts among 30 largest



Percent of teacher respondents



Sources: Lisette Partelow and Sarah Shapiro, "Curriculum Reform in the Nation's Largest School Districts," Center for American Progress, 2018; V. Darleen Opfer, Julia H. Kaufman, and Lindsey E. Thompson, *Implementation of K-12 State Standards for Mathematics and English Language Arts and Literacy: Findings from the American Teacher Panel* (Santa Monica, California: RAND Corporation, 2016), https://www.rand.org/pubs/research_reports/RR1529-1.html.

Open Education Resources (OERs) have afforded more teachers and students access to quality materials

OERs are free, openly licensed digital materials that are designed for use in instructional settings. They encourage broad use, modification, remixing, and sharing via licensing terms such as Creative Commons

?

engage ny

ZEARN
gooru
KHAN ACADEMY
ck-12
UnboundEd
OPEN-UP resources

2002

MIT OpenCourseWare sparks the popularity of the OER movement when it puts MIT's course catalog online

For a long time, OER resources ranged considerably in quality and lacked coherence and usability

2012

EngageNY, a coherent, standards-aligned set of OER materials funded via Race to the Top, reignites excitement, as it demonstrates that OER can be high-quality

2019

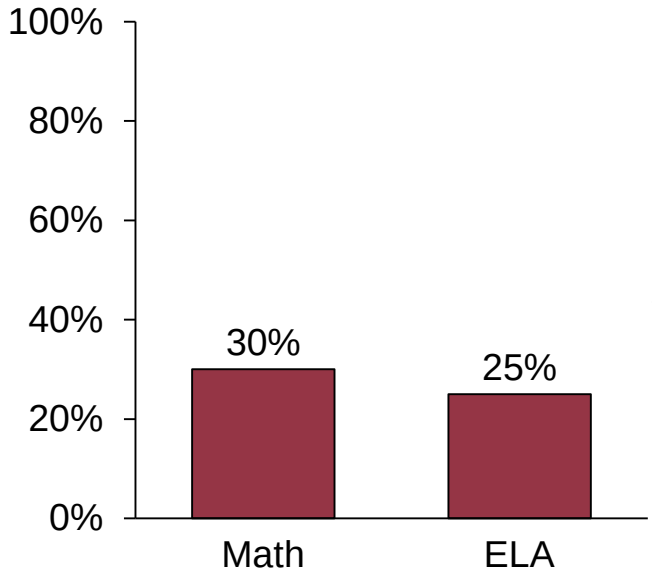
Today there are many players entering the market offering high-quality, free materials

Source: Julia H. Kaufman et al., *Use of Open Educational Resources in an Era of Common Standards: A Case Study on the Use of EngageNY* (Santa Monica, California: RAND Corporation, 2017), https://www.rand.org/pubs/research_reports/RR1773.html.

However, OERs are not widely adopted and used

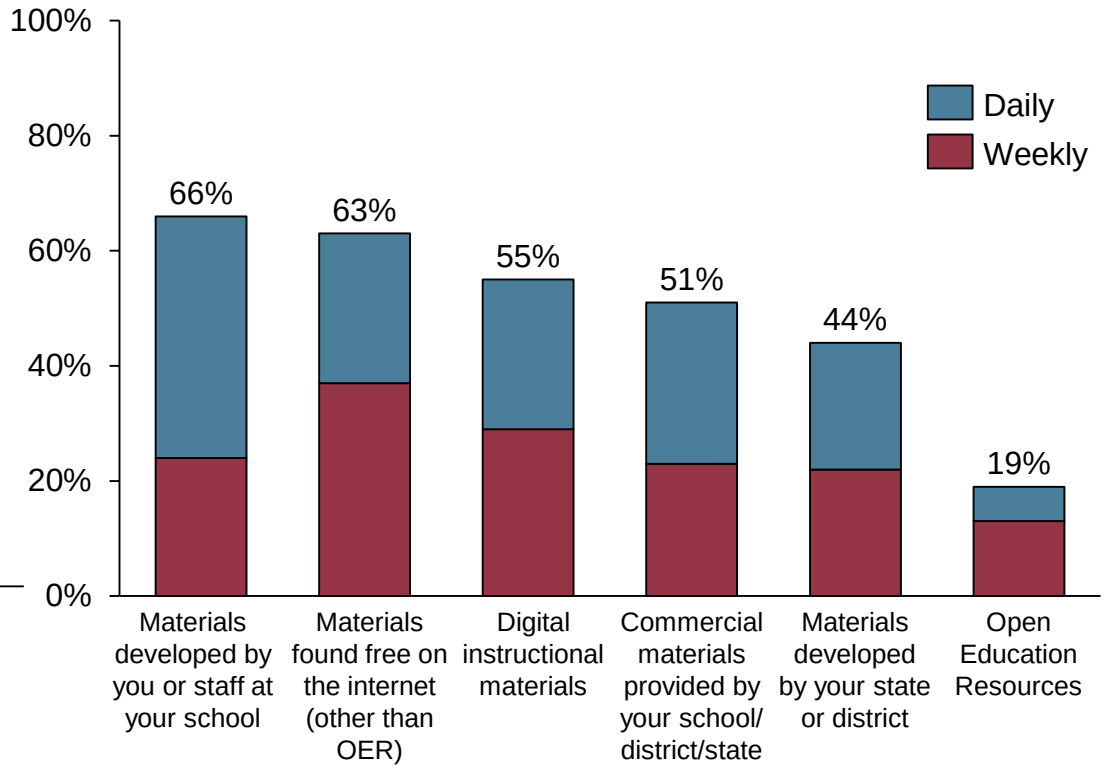
A significant portion of teachers have used EngageNY

% of U.S. teachers using EngageNY in some way



But overall use of OER still lags other instructional materials

Frequency of use of instructional materials by source



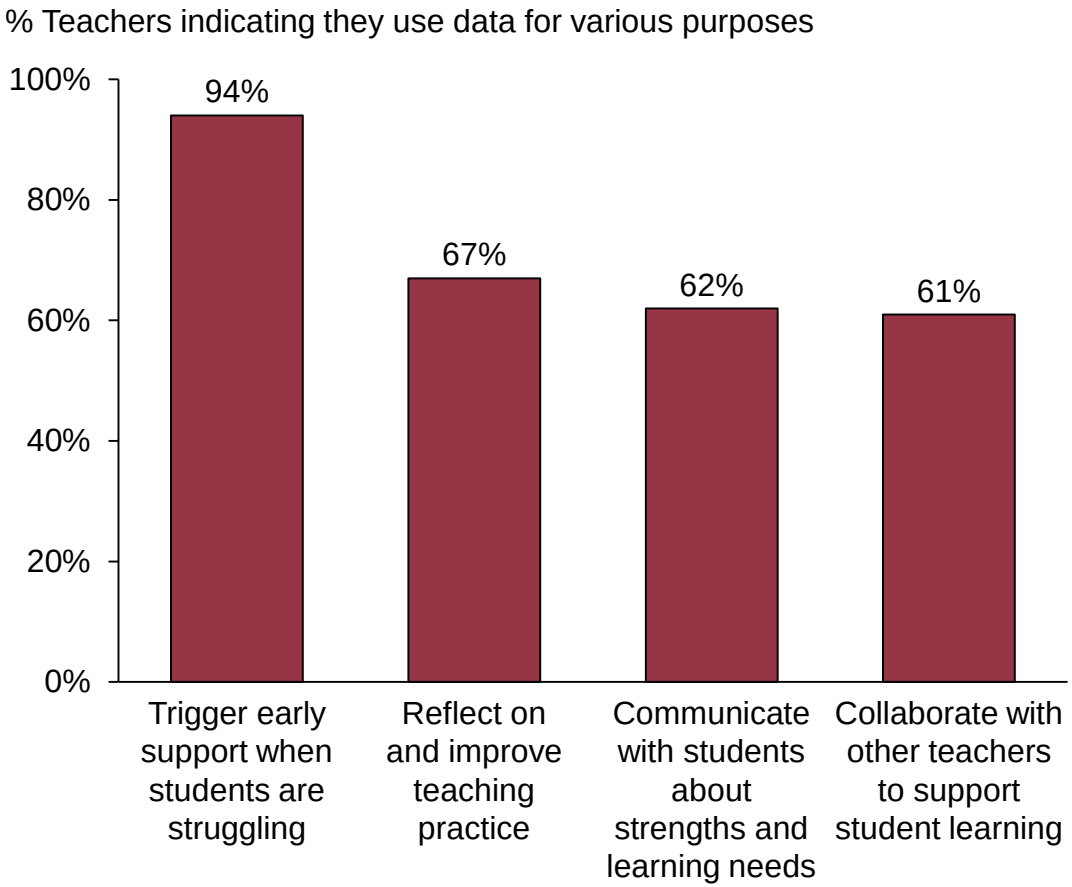
Sources: Julia H. Kaufman et al., *Use of Open Educational Resources in an Era of Common Standards: A Case Study on the Use of EngageNY* (Santa Monica, California: RAND Corporation, 2017), https://www.rand.org/pubs/research_reports/RR1773.html; "Classroom Trends: Teachers as Buyers of Instructional Materials and Users of Technology," EdNET Insight Report, MDR, 2016.

Teachers value data and use it in myriad ways

Data serves multiple purposes in the classroom and beyond

- Help **students** know their learning strengths and areas for growth
- Help **parents** know how to support their students' success
- Help **teachers** know each student's interests, goals, and areas of strength and challenge
- Help **school leaders** know what is and is not working in a school environment to inform decisions on resources and supports

Evidence shows that educators are using data to inform teaching and learning



Source: Online surveys conducted within the US by the Harris Poll on behalf of Data Quality Campaign: May 23–26, 2018, among 762 full-time K-12 teachers.

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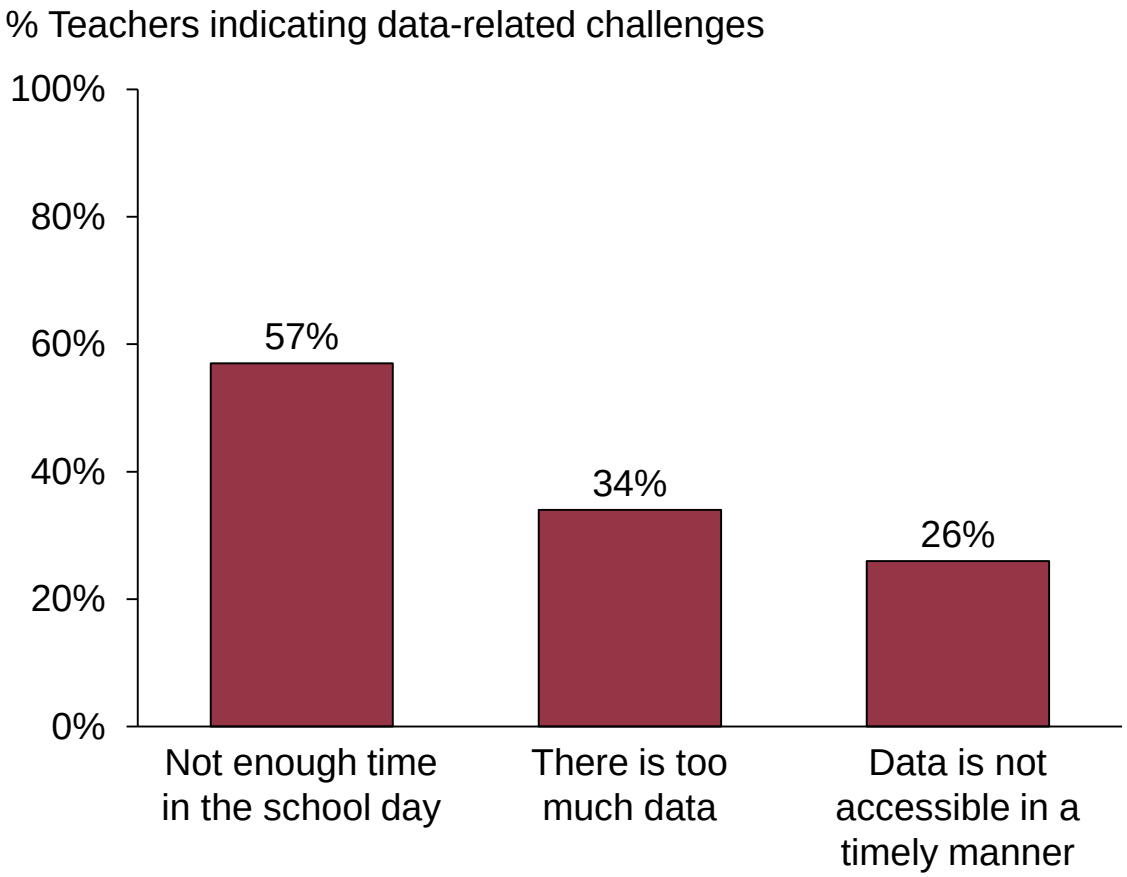
However, key pain points exist in accessing data

Teachers report challenges in (1) ability to digest and implement data, (2) volume of data, and (3) timeliness of data



Source: Online surveys conducted within the US by the Harris Poll on behalf of Data Quality Campaign: May 23–26, 2018, among 762 full-time K-12 teachers.

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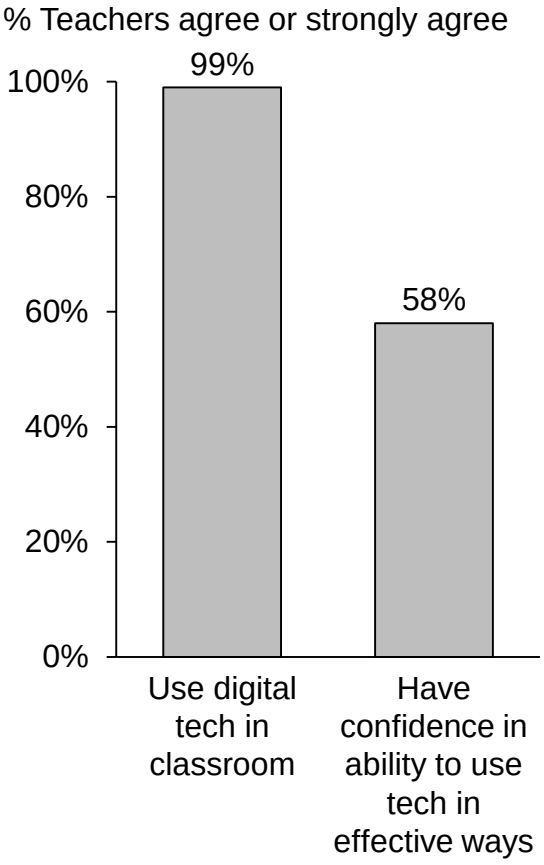
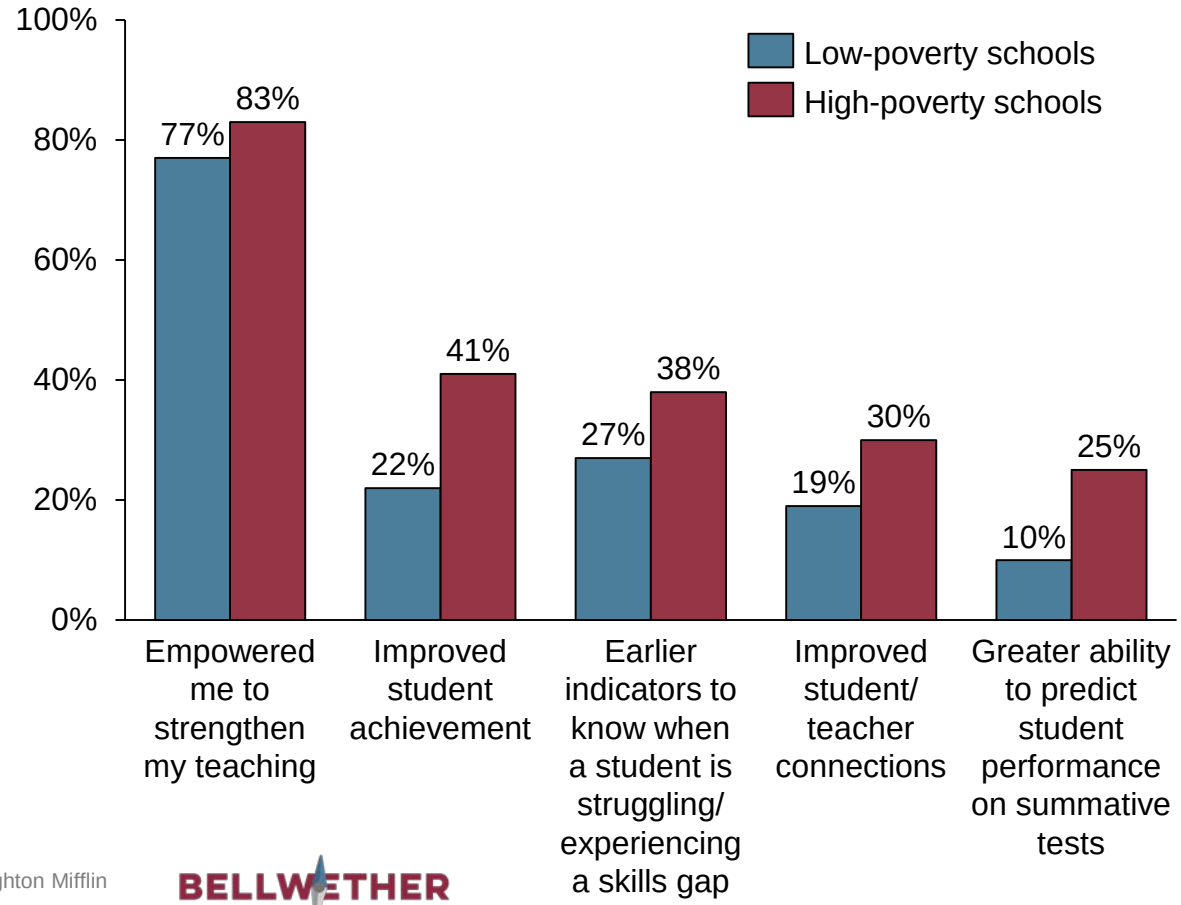
Teachers have access to and see benefits to using technology

Technology is in use and it is not going away

Teachers in high-poverty schools are particularly excited about the potential of tech





Source: "4th Annual Educator Confidence Report," Houghton Mifflin Harcourt, 2018.

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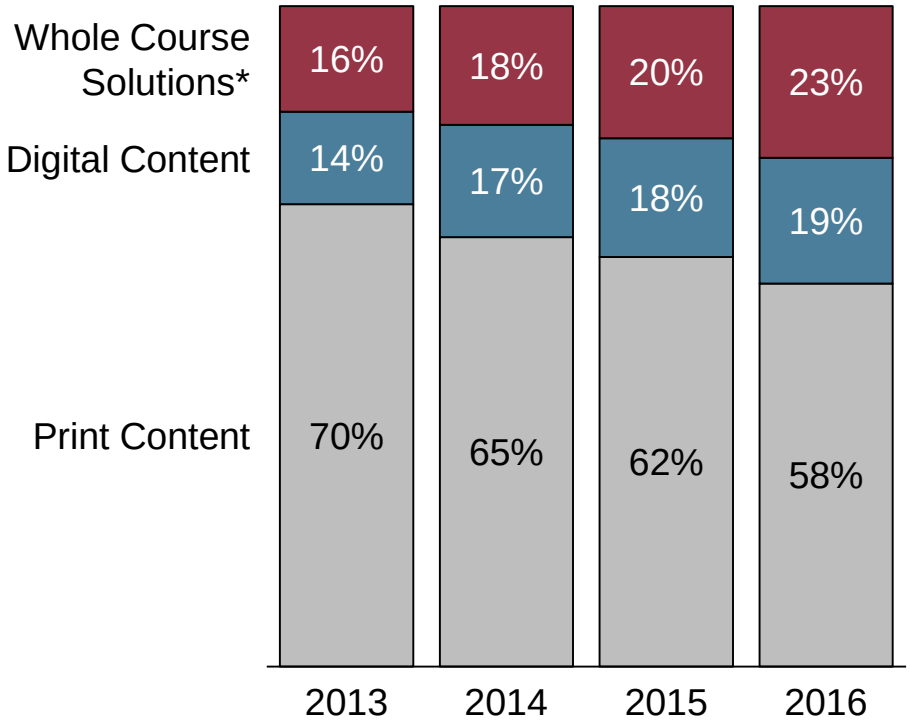
Digital solutions (including digital content and blended solutions) are on the rise



CAGR

+13%

+11%

(6%)

Key Adoption Drivers

1. Increased investment in new digital content
2. Increase acceptance of digital content by schools
3. State and federal initiatives encouraging transition to digital texts
4. Investment in infrastructure supporting digital tools and content
5. Individual district interest in self-authoring materials

As digital resources proliferate, there is an increasing focus on the interoperability of resources and a movement away from closed platforms.

Note: "Whole Course Solutions" is an integrated package of print and digital and includes curriculum content, assessments, interventions, and professional-development tools.

Sources: Jeffrey M. Silber, "What's Next for Textbooks?" Outsell Inc., 2012; BMO Capital Markets, 2016.

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Multiple reports reinforce the rising importance of digital tools and robust digital materials

- A majority of teachers think digital learning has a positive impact on student learning, with newer teachers most likely to agree:
  - **81%** of teachers with less than 10 years of experience
  - **73%** for 11-20 years of experience
  - **64%** for 20+ years of experience

- **42%** of teachers say at least one digital device is used every day. Laptop computers are used weekly in more than **56%** of classrooms

- **75%** of teachers say digital learning content will replace printed textbooks within the next 10 years

- **90%** of districts say digital assessment MUST be a part of any digital learning offering

Sources: "After the Bell Rings: Expanding the Classroom," Deloitte, 2016; Kelly Calhoun Williams, *Five Key Digital Assessment Trends in US K-12 Education* (Stamford, Connecticut: Gartner, 2016).

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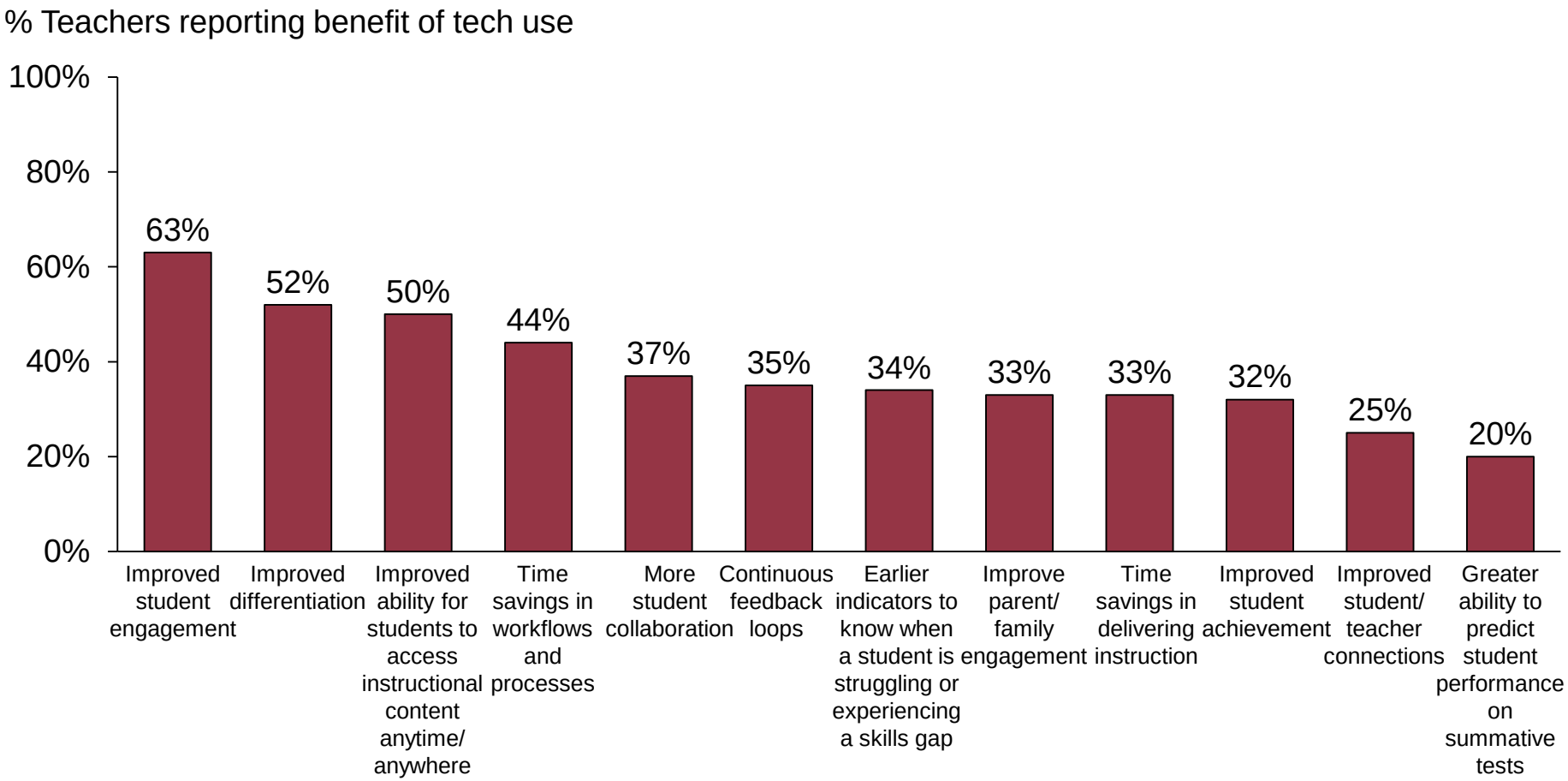
But teachers are not experiencing the full range of potential benefits of technology use in the classroom



Source: "4th Annual Educator Confidence Report," Houghton Mifflin Harcourt, 2018.

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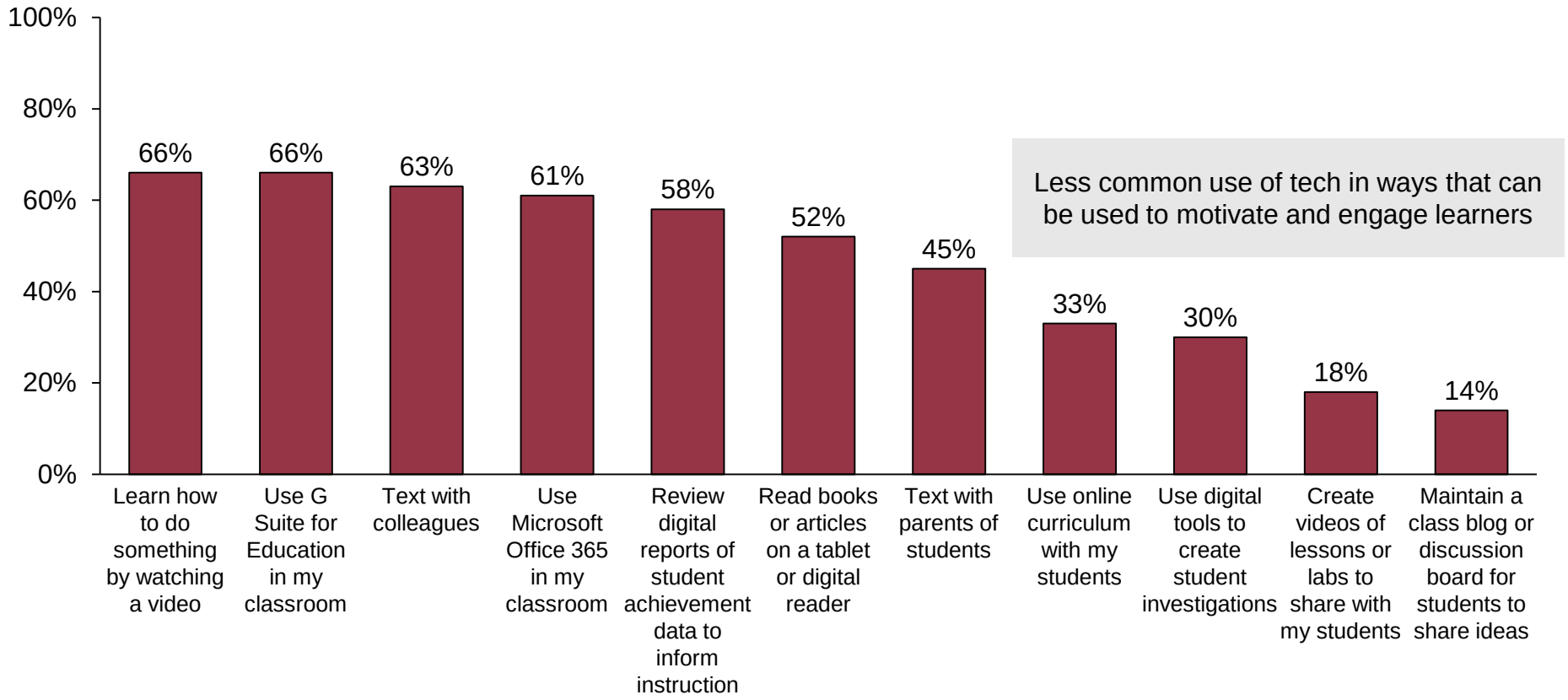
Teachers do not always leverage tech in the full range of ways it may motivate and engage students

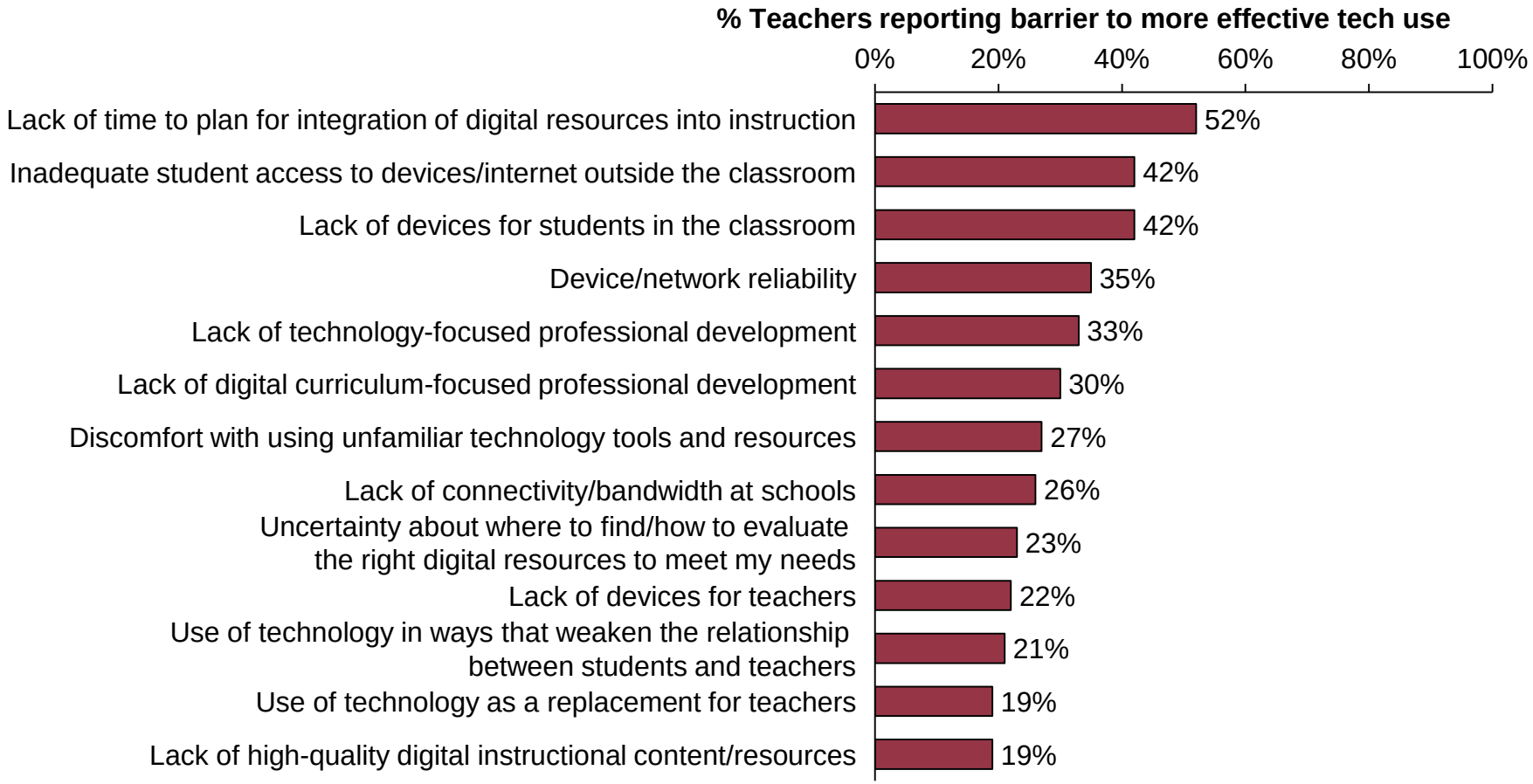
Teacher-reported use of technology to support professional tasks in the classroom



Sources: Michael Fullan, "Trends in Digital Learning: Building Teachers' Capacity and Competency to Create New Learning Experiences for Children," Blackboard, 2017; "4th Annual Educator Confidence Report," Houghton Mifflin Harcourt, 2018.

To leverage technology effectively, teachers indicate need for more time, hardware and infrastructure, and prof. development

Availability of digital content and resources is less of a concern than barriers related to school-specific access to and implementation of digital tools and resources



Source: "4th Annual Educator Confidence Report," Houghton Mifflin Harcourt, 2018.

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Summary of Instructional Materials, Data, and Tools

What we know

Instructional materials, data, and tools are important resources in the learning process. To be effective, they must address the needs of teachers and students. The current state of materials, data, and tools, however, indicates opportunity for continued improvement:

- The **current materials landscape is large and complex**. This creates challenges in ensuring compatibility and coherence across materials. This has implications for teachers' and students' ability to implement materials effectively.
- There has been significant, important emphasis on **high-quality materials** — including **free and open** versions (i.e., OER). However, adoption is not yet widespread, leaving many teachers to create and/or access content of variable quality.
- **Access to data** is also critical to inform educator planning and student learning; however, there are currently barriers to the availability and usability of student data.
- **Technology** is in classrooms right now and is recognized as a powerful tool to meet student and educator needs. However, the use of technology tools (and robustness of related infrastructure) is currently highly variable.

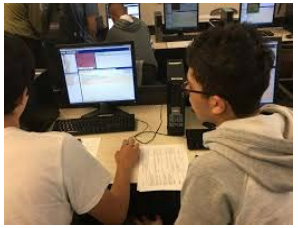
Source: Bellwether interviews and analysis.

A Vision for the Future

What might it look like to accelerate progress for students with learning gaps, meet educator needs, and effectively leverage instructional materials?

Courtesy of Allison Shelley/The Verbatim Agency for American Education: Images of Teachers and Students in Action

Let’s visit Fernando, our eighth-grade student, again



Eighth grade is different — in a good way. In the first week, teachers led activities to **help students get to know each other and develop community norms. Each teacher also held 1:1 conferences with students.**

In math, Fernando has a **learning plan** for the week, focused on slope. Everyone works on the same objectives, but students decide when to cover each. Monday started with a **group lesson.** Then, Fernando joined a **small group to review basic equations and how they’re used for slope.** Fernando has always struggled with equations. Tuesday, Fernando practiced slope equations using **a graphing calculator**. Today, he’s prepping for his **unit final,** where he and a friend are creating slope graphs and equations via a skateboarding project.

Fernando loves social studies, where they’re studying civil rights movements. The class first **watched videos** of civil rights leaders. Then, each student was **assigned a reading (based on their reading level) about an activist.** Fernando received a **graphic organizer,** where he documents questions, makes predictions, makes connections to things he’s experienced, and writes down new vocab words.

An **intervention teacher is often in the classroom,** and he has Fernando and a few others discuss a reading in a small group. **Fernando enjoys the discussions and notices lots of connections to his life and other classes**. Before he leaves class, Fernando checks in with his teacher about his progress on the unit project. Fernando is **interviewing his great-aunt** who was an activist in the ’60s and **making a short documentary** about her work.

In ELA, they’re studying persuasive speeches. The **teacher broke the class into groups; each read, watched a video of, and discussed a different speech.** Fernando was excited the speech was from the 1960s civil rights movements — just like he’s been studying in social studies. The speech was powerful, especially now that he feels like he really understands that era. Fernando then got to do a cool project, where he **wrote a persuasive speech about an injustice he sees today.** Fernando chose to write about access to clean water in his community. Fernando thinks he aced the speech, and he and his teacher **discuss his performance against a rubric**.

Now, the class is reading “To Kill a Mockingbird.” **An intervention teacher is in class every day, and he helped Fernando make a reading plan.** He also helped Fernando find an **audio version** of the book so he could listen as he reads. It helps him better understand what the characters are saying and engage in class discussion.

After school, Fernando’s sister picks him up. “How was it?” she asks. “Cool!” Fernando replies before returning to “To Kill a Mockingbird.”

Note: Story of Fernando is a fictionalized account based on Bellwether student and educator interviews.

Now, let's check in on Mr. A, our fifth-grade teacher

Mr. A's **students enter with gaps — some significant.** He's ready for the challenge, though, when his principal (Dr. C) describes new supports she's prioritizing: a new schedule to give Mr. A more collaborative planning time, access to a collection of materials that will help him engage and differentiate, and coaching that's tailored to his needs.

Mr. A loves his new collection of **materials** that **consistently expose students to grade-level work *and* address critical gaps.** He **understands why the materials are designed the way they are** because his PD helps him understand grade-level expectations. He also gets **ongoing coaching on how to use and adapt the materials**.

Mr. A and a remediation teacher (Ms. B) **meet daily to review an easy-to-use platform that delivers real-time and actionable data on student progress.** They also discuss their observations from the day. With this data, Mr. A and Ms. B make adjustments to their lessons and student support plans for the week.

For part of the day, Mr. A and Ms. B are in the same class, so students get to learn from both of them. **Mr. A and Ms. B collaboratively plan how to help students** through whole-group, small-group, and independent learning**.** Ms. B still pulls students for remediation, but **she engages students using materials aligned to core curriculum so as to connect the learning to what's happening in the fifth-grade room.**

Mr. A prioritizes relationships with students. He uses 1:1 conferences to learn about students and to **help them set learning goals.** With a coherent collection of materials and the deeper content and pedagogical knowledge built via PD, Mr. A is comfortable talking and directing less, thus challenging students academically and encouraging ownership. **Students are also engaged as they regularly get data about progress on their learning goals**. Mr. A and the students discuss the data, and Mr. A celebrates each student's progress while holding high expectations. Mr. A notices that the data **equips students to demonstrate more ownership**.

Mr. A's PD sessions are more targeted; they help him learn strategies for differentiation and engagement — including use of great materials — given his grade level and content. **The fifth-grade team also meets regularly** (thanks to Dr. C arranging the schedule for all fifth grade to have Specials at 11 a.m.). Together, they study grade-level expectations (including fourth and sixth grades), align on rigor, review data, plan for differentiation, observe colleagues, share best practices, and practice. Mr. A also notices **Dr. C in his classroom for more regular coaching and feedback**. Mr. A values the feedback — it makes him feel less alone and he can see the results in his students' learning.

Mr. A is still exhausted. Deeply knowing and responding to the needs of 30 students is a lot of work. However, Mr. A has better supports. He also sees the impact on student growth and engagement, and that makes the work

Note: Story of Mr. A is a fictionalized account based on Bellwether student and educator interviews.

What would it take to create these experiences for Fernando, Mr. A, and others?

Accelerated learning that closes gaps requires three critical classroom-oriented resources: Prepared and supported educators, instructional materials, and data & tools

To achieve the end goal ...

Students are successful — academically and beyond

... Schools and classrooms must set the conditions for student learning ...

1 Every student is **engaged**, **motivated**, and afforded opportunities to access **challenging, grade-level skills and knowledge** *while also* **addressing their gaps in learning**

... This requires resources to support these conditions

2 **Educator Development & Supports**

3 **Instructional Materials**

4 **Data & Tools**

Often enabled by technology

Evidence indicates that advancements are required in each of these areas in order to achieve the end goal.

Source: Bellwether interviews and analysis.

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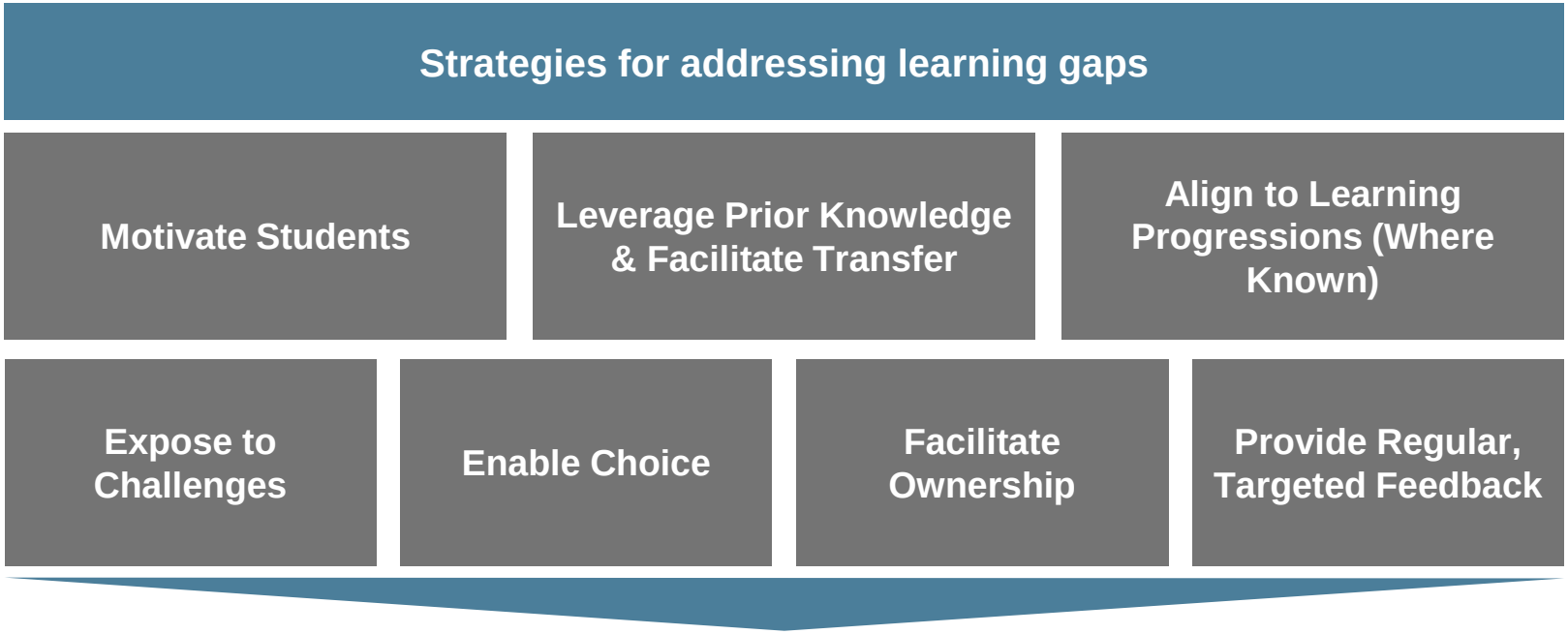
1 Learning science research identifies specific conditions for accelerating learning



We note that, **amid debates across the sector**, such as:

- Focusing on rigor vs. engagement, and
- Exposing students to rigorous, grade-level content vs. meeting them where they're at

The **answers are not either/or, but both.**

Source: National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783.

2 Educators need learning opportunities that equip them to best accelerate student learning and close gaps

Educators need **high-quality, engaging professional learning** that is **tailored to their discipline and learning needs** and planned so as to permit ample time for **reflection, practice, and feedback.** Reviews of effective professional development surfaced seven key features:

Content focus	Focus on teaching strategies on discipline-specific curriculum and pedagogies
Active learning	Engagement in design and practice of teaching strategies; opportunity to experience the same style of learning they are designing for their students
Collaboration	Space to share ideas and collaborate, often in job-embedded contexts; Creating communities that positively change culture and instruction
Models of effective practice	Curricular models and instructional modeling to demonstrate what “good” looks like
Coaching and expert support	Access to expertise about content and evidence-based practices, tailored to teachers’ individual needs
Feedback and reflection	Built-in time for teachers to think about, receive input on, and make changes to their practice
Sustained duration	Adequate time to learn, practice, implement, and reflect upon new strategies

These features include significant overlap with the features of effective learning for students.

Source: L. Darling-Hammond, M. E. Hyler, and M. Gardner, *Effective Teacher Professional Development* (Palo Alto, California: Learning Policy Institute, 2017).

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3 Materials, data, and tools must be enhanced for use by 4 teachers and students to accelerate learning and close gaps

Materials, data, and tools must be able to be used as part of **coherent collections**. The collections must support student development of **grade-level knowledge and skills** while also **addressing critical learning gaps.** They must be robust enough to reflect a **diversity of student interests and cultural contexts.** They must be **usable** by teachers and students and they should afford access to **data that helps inform teaching and learning.** Features of materials in these collections include:

Rigor	Aligns to standards and meets subject- and grade-level indicators of quality
Differentiation	Includes content for scaffolding and remediation, affords appropriate student ownership and choice in content and modality
Educator Usability	Includes supports to enable high-quality enactment, guardrails for high-quality adaptations, and actionable data
Tech-Enabled/ Enhanced	Digital
Coherent Collections	Designed for use with other materials
Continuous Improvement	Has evidence base and mechanism for continuous improvement

Source: Bellwether interviews and analysis.

Conclusion

How do we get to this vision of the future?

Courtesy of Allison Shelley/The Verbatim Agency for American Education: Images of Teachers and Students in Action

Closing student learning gaps requires collaborative work across the sector; there is no single solution

- **The debate about how to address student learning gaps within classrooms is not a question of either/or.** The research is clear that multiple aspects of learning are vital. Students need access to rigorous learning experiences aligned to grade-level expectations; *and* students with gaps often need scaffolds and supports in order to be successful in those contexts. Students must be actively engaged and motivated by the learning process — not subjected to it as if they were vessels to fill with knowledge. The challenge is not which approach to adopt, but rather how to leverage multiple, complex strategies in service of a classroom filled with children.

- Despite this clarity, data indicates that **far too many students are not afforded access to schools or classrooms that reflect these principles.**

- **Affording more access to this type of learning requires continued advancements in educator development, instructional materials, and data and tools.** Teachers remain the central figures in the classroom. Quality materials are foundational to learning. Attending to *who* the student *is* matters. Technology can be a lever for change. At the same time, evidence to date indicates that none of these efforts alone can change outcomes for students at scale. Thus, **work in these areas cannot happen in parallel streams.** Rather, each of these enablers must come together for a coherent student and educator experience. As such, efforts to advance each of these areas must also be coherent.

Source: Bellwether interviews and analysis.

All students must be engaged in rigorous, differentiated learning …

Rigorous, differentiated learning is learning that motivates and engages students to grapple with challenging, grade-level skills and knowledge *while also* addressing students' diverse learning gaps. It accelerates progress toward closing those gaps (and, ultimately, enables meaningful outcomes like college and career readiness)

The research is clear about conditions for learning. This enables us to elevate strategies that — when appropriately enacted by well-prepared teachers and students — promote rigorous, differentiated learning:

- **affording access to grade-level knowledge and skills** with appropriate, skilled **scaffolding** where needed to enable that access[1]
- remediating gaps with **clear connections and opportunities to transfer** to grade-level learning[2]
- **fostering student agency in context of developing grade-level knowledge and skills** (e.g., by building growth mindset, having students set goals, having students plan their learning, emphasizing student choice in what they learn or how they demonstrate learning)[2]
- **engaging and motivating students via content that aligns to their interests and identities** (i.e., culturally relevant content) in context of grade-level knowledge and skills[2]
- **engaging and motivating students via use of various learning modalities** (e.g., print, video, hands-on projects, etc.) in context of grade-level knowledge and skills[2]
- **varying the learning environment** (e.g., full group, small group, 1:1) **and materials** to the student interest, student learning need, and the learning objective[2]
- regularly reviewing and acting on **data about student learning** — including strengths and gaps[3]

These strategies are complex; they require teacher development and supports, instructional materials, schools and systems, etc., all designed to enable these strategies

Sources: 1) "The Opportunity Myth," TNTP, 2018, https://opportunitymyth.tntp.org/; 2) National Academies of Sciences, Engineering, and Medicine, *How People Learn II: Learners, Contexts, and Cultures* (Washington, DC: The National Academies Press, 2018), https://doi.org/10.17226/24783; 3) John Fullerton and Bi Vuong, "Education Decision-Makers Need More Timely, Actionable Data," Harvard Center for Education Policy Research, 2016.

… this means a commitment to changing how students with significant learning gaps are supported

Today, learning gaps are addressed through tiered supports

Tier 1: Whole-Class	Tier 2: Small Group	Tier 3: Individual

Highly scalable/sustainable → *Not scalable/sustainable*

Heterogeneous grouping (i.e., "typical" classroom), *has not consistently met all students' needs and may result in "teaching to the middle," OR*
Homogeneous grouping based on achievement (i.e., tracking), *has been shown to have minimal impact on learning[1,2] and negative effects on equity[1,2]*

Tier 2 (i.e., small group) and Tier 3 (i.e., 1:1 tutoring) supports *have been shown to be inconsistent in implementation from school to school.[4] As a result: Some math practices have been shown to support positive academic outcomes;[3] Some practices have been shown to have negative impact for students in grade 1 reading; Some practices have been shown to have no impact in grades 2 & 3 reading;[5] Increasing the duration of intervention had no impact on students' responsiveness to reading intervention[6]*

However, these tiered supports:

- Have not proven effective in closing learning gaps
- Leverage methods (e.g., 1:1 tutoring) that are not scalable due to resource constraints
- Have the undesirable effect of pulling students away from access to grade-level learning — instead limiting their learning to lower grade-level knowledge and skills, based on their gaps

Therefore, the sector must reimagine how targeted intervention for students with learning gaps is delivered so as to maximize access to grade-level knowledge and skills.

Sources: 1) Tom Loveless, "Making Sense of the Tracking and Ability Grouping Debate," Thomas B. Fordham Foundation, August 1998; 2) John Hattie, *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement, 1st Edition* (New York, NY: Routledge, 2009); 3) US Department of Education, Institute of Education Sciences (IES NCEE), "Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools," April 2009; 4) Sarah D. Sparks, "Study: RTI Practice Falls Short of Promise," *EdWeek*, November 6, 2015, https://www.edweek.org/ew/articles/2015/11/11/study-rti-practice-falls-short-of-promise.html; 5) Jeanne Wanzek and Sharon Vaughn, "Response to Varying Amounts of Time in Reading Intervention for Students with Low Response to Intervention," *Journal of Learning Disabilities* 41, no. 2 (March–April 2008), 126–142; 6) US Department of Education, Institute of Education Sciences (IES NCEE), Assisting Students Struggling with Mathematics.

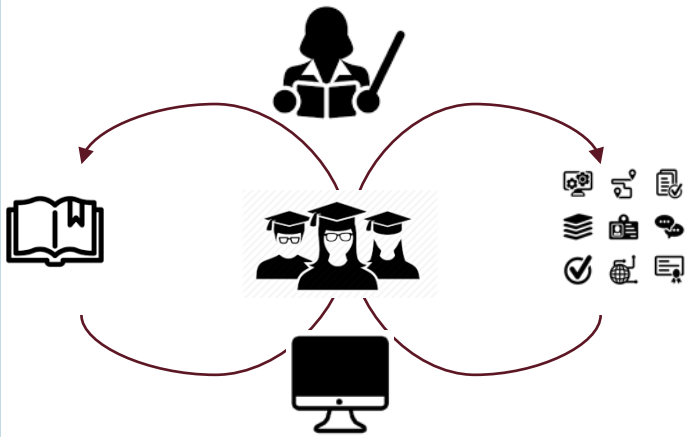
The vision for rigorous, differentiated learning requires a coherent ecosystem of researchers and practitioners

Practice-oriented research:
Deeper, shared understanding of what it takes to address learning gaps and the effectiveness of various real-world approaches.

Systems-level vision, strategy, and decision-making: Coordinated and communicated priorities, resource allocation, expenditures

Coherent, content-embedded, and practice-focused educator development:
Actionable learning about how to build grade-level knowledge and skills, address students' learning gaps, and align systems/structures accordingly.

Instructional materials designed for rigorous, differentiated learning:
Diverse collection of high-quality materials that are digital, flexible/ modular, and accessible for educators and students.



Informative, usable data and tools:
Resources that illuminate students' learning gaps and help educators and students make decisions about how to address them.

Source: Bellwether interviews and analysis.

To foster this coherent ecosystem, the field needs aligned efforts from across the sector

There is no single solution to accelerating learning for students with significant gaps. Systemic solutions — including continued research — are required.

1. Vision & Research	• **Consistent vision** for what constitutes quality • **Research-to-practice pipeline** to inform strategies, products, and supports to enact the vision • **Evaluative research** to assess effectiveness of strategies, products, and supports
2. Coherent Products and Supports	• **Diverse, flexible materials** (core, supplemental, assessment) for use in classrooms • **Data and tools** that enable students and educators to monitor progress and plan and engage in learning • **Educator professional learning** that builds content and pedagogical knowledge and skills • **Provider collaboration and coherence** for market sustainability and usability for teachers and students
3. Exemplars in Practice	• **Exemplar systems and sites** that demonstrate the strategies and practices required to achieve the vision at scale (e.g., evolved use of time, new coaching structures, etc.)
4. Conditions for Scale	• **Policy** (e.g., about seat time) that enables and/or removes barriers • **Understanding and demand** campaigns to engage policymakers, system and school leaders, and families • **Prepared practitioners** from preservice programs oriented to rigorous, differentiated learning

Source: Bellwether interviews and analysis.

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Work across the sector must adhere to the fresh principles

Build off of what exists	Past years of investment (e.g., in high-quality instructional materials or schools centered on strategies for personalizing learning) have made important but incremental steps toward the vision. Continued progress is required.
Invest in the holistic vision	Operating in just one corner of the ecosystem (e.g., materials or educator development) will not achieve dramatic impact. Coordinated activity is required to generate deep impact.
Understand patience is a virtue	Deep, lasting outcomes require changes that take time to enact, including effective design, development, iteration, implementation, and rigorous evaluation.
Build for endurance	True solutions must be financially sustainable (e.g., via a robust business model, evidence of significant user demand, and/or ability to operate on per-pupil revenue).
Value collaboration	Coherence and collaboration are essential to successful design and implementation of rigorous, differentiated learning.

Source: Bellwether interviews and analysis.

Appendix

Our sincere gratitude to the wide range of experts from across the field who shared their perspectives and informed this work

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