R&D ALERT

*timely knowledge for education and human development professionals*

Looking for an evidence-based, nonbiased source to help you address pressing issues in education and human development?

Sign up for free monthly updates of our latest research, resources, and services, along with insightful articles from our award-winning R&D Alert.

》 **WestEd.org/subscribe**

WestEd 50 YEARS
WestEd.org
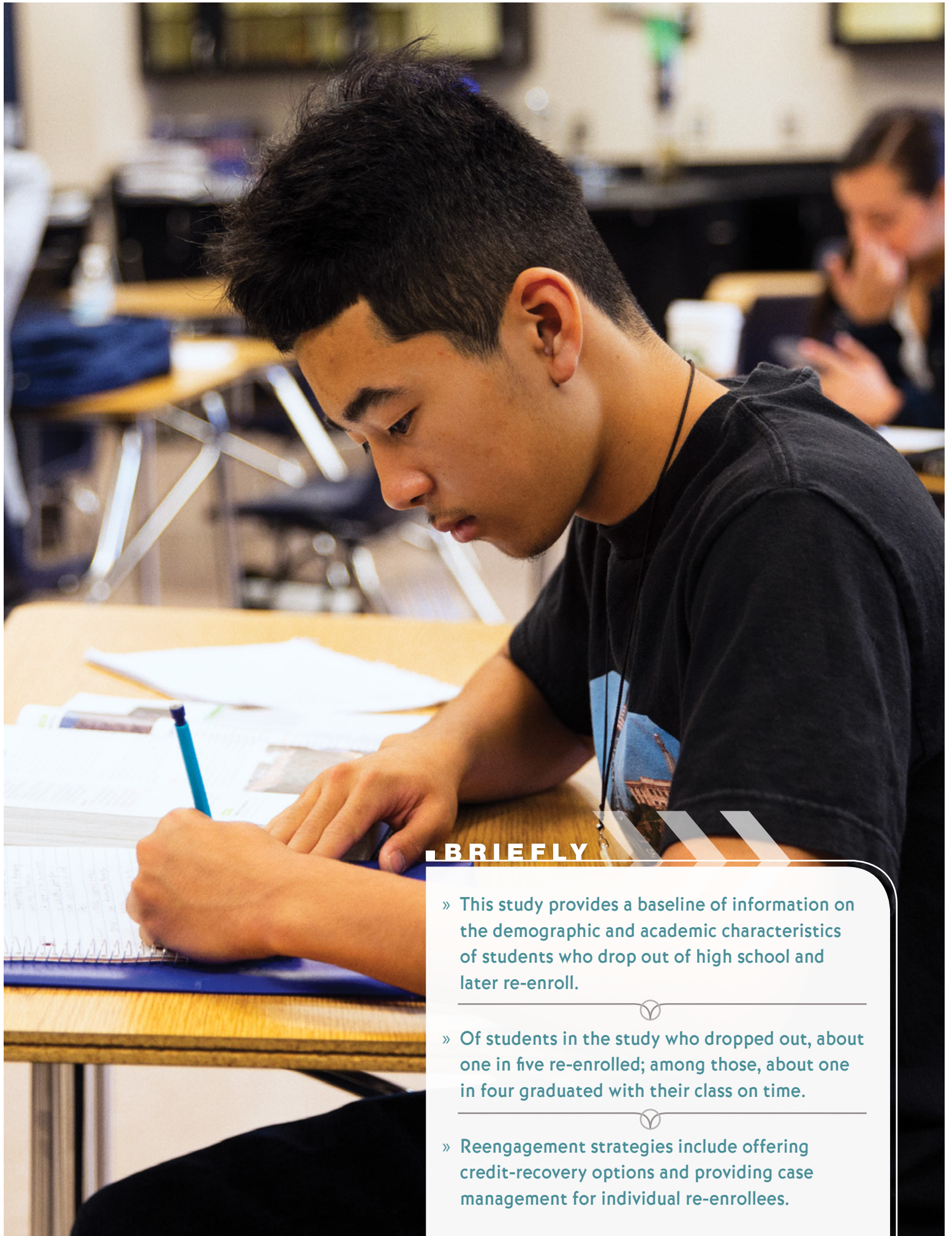
▪ BRIEFLY

» This study provides a baseline of information on the demographic and academic characteristics of students who drop out of high school and later re-enroll.

» Of students in the study who dropped out, about one in five re-enrolled; among those, about one in four graduated with their class on time.

» Reengagement strategies include offering credit-recovery options and providing case management for individual re-enrollees.

RE-ENROLLEES ON THE RADAR

Dropout. For many, the word conjures up an image of a lost cause, a student gone from the school system for good. But a recent study challenges that notion and adds important new information to the national conversation about reengaging disconnected students.

"We identified a subgroup of students who drop out but have the tenacity to come back — sometimes second and third times," says BethAnn Berliner, a senior researcher at WestEd and co-author of *Characteristics and Education Outcomes of Utah High School Dropouts Who Re-enrolled*, produced by WestEd's Regional Educational Laboratory (REL) West. "These 're-enrollees' are determined and hungry for a diploma."

While there is a sizeable body of research on the prevalence, causes, and prevention of high school dropout, relatively little is known about students who drop out and later re-enroll. With no national numbers or descriptions of re-enrollees currently available, this study — the first statewide analysis of re-enrollees — begins to paint a much-needed picture of who these students are and which of them struggle the most.

"To help re-enrollees graduate, we need to know more about them," says Berliner. "This study gives us a baseline of information to better understand the demographic and academic characteristics of these students."

And given the bleak outcomes for high school dropouts, being able to better understand and support re-enrollees is as critical as ever. Adults without a diploma are more likely than high school graduates to experience unemployment and poverty, depend on public assistance, have health problems, and be incarcerated.[1]
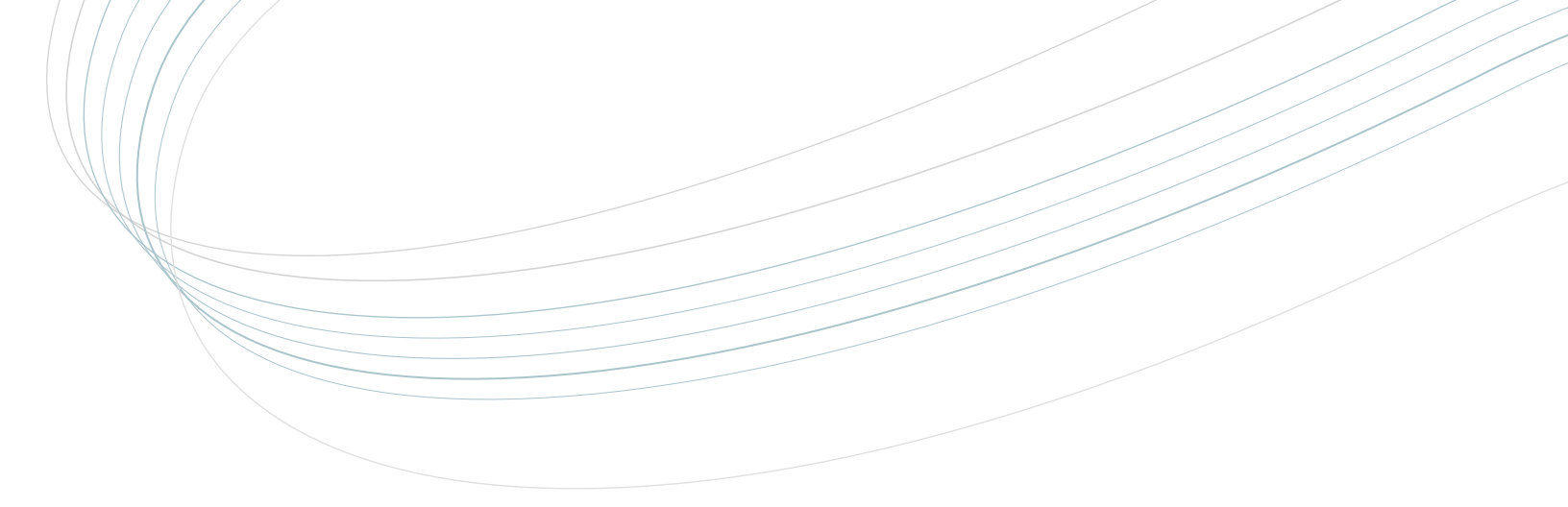
COUNTING RE-ENROLLEES IN UTAH

WestEd researchers looked at data on nearly 42,000 Utah public high school students expected to graduate in 2011 and found that about one in five dropped out sometime during their high school years.

Dropout risks. Dropout rates varied considerably based on student demographic characteristics. Racial/ethnic minority students and English learner students had the highest dropout rates — more than twice those of White students and English-proficient students.

Other students with relatively high dropout rates included those starting high school at age 15 or older (28 percent), those eligible for the federal school lunch program (27 percent), and those with disabilities (24 percent).

Rate of re-enrollment. Of the students who dropped out during high school, about one in five returned, but those who dropped out later in high school were less likely to re-enroll.

Although there was much less variation among groups when it came to re-enrollment, some differences did emerge. For example, re-enrollment rates for low-income students and students with disabilities were above the state average. In contrast, Black students and English learner students had re-enrollment rates below the state average, putting them at particular risk of not graduating.

"These data are worrying," says Vanessa X. Barrat, a senior research associate with REL West and co-author of the study. "For English language learners, having a re-enrollment rate below the state average means they're more likely to leave school permanently."

The data, according to Barrat, underscore the need for improved dropout prevention; a better understanding of the road blocks to re-enrollment; and targeted reengagement efforts, especially with the most struggling groups.

REENGAGING STUDENTS

Among students in the study who dropped out and later re-enrolled in high school, about one in four graduated with their class on time in 2011. With two more years, the graduation rate of the re-enrollees went up to 30 percent.

"The glass-half-full perspective is that, despite the hurdles to catch up on credits and reengage in school, almost one third of re-enrollees attained diplomas within six years," says Berliner. "The glass-half-empty? About 70 percent of the re-enrollees did *not* graduate. This means we need to do better at supporting these students."

In many cases, reengagement strategies for re-enrollees are not targeted enough, says Barrat. "Students who drop out often do so because they're behind academically — and when they re-enroll, they're even further behind. Too often, the reengagement approach is to simply tell students to re-enroll, go to classes, and do their homework." She adds that when a re-enrollee shows up in class, the educator may not know that the student missed a significant amount of school and thus would not think about differentiating instruction or referring the student to appropriate supports to catch up on missed content.

To give re-enrollees a better chance at academic success, Berliner says it's important to learn which courses students were failing, why they became deficient in credits, and how to accelerate their content and credit accrual upon their return. Anecdotally, gateway math is often a stumbling block, and "you can't complete three years of math if you don't pass freshman-year math," says Berliner. A whole host of other factors may contribute to students' lack of credit — from family instability and poverty to persistent learning struggles and lack of academic supports.

Lessons from Washoe County. Concerned with low graduation rates, Washoe County School District (WCSD) in Nevada secured a federal grant in 2010 to implement a high school graduation initiative to support students at risk of dropping out and re-enrollees. WCSD expanded interventions within its multi-tiered support system which included securing reengagement specialists and opening reengagement centers. "We learned early on that it wasn't enough to just re-enroll students," says Jennifer Harris, a program evaluator for WCSD.

With a focus on chronic absenteeism, the district also created an early warning system to help identify students at

> *We identified a group of students who drop out but have the tenacity to come back. These 're-enrollees' are determined and hungry for a diploma.*

risk of disengagement and to target resources and outreach accordingly, ideally *before* students drop out. The early warning system tracks multiple indicators — including academic performance, credit deficiency, transiency, suspensions, and attendance — to generate a student risk index that can be accessed by WCSD staff.

Reasons for dropping out are incredibly varied, says Harris. That's why it's critical for teachers and intervention and reengagement specialists to personally investigate and provide individualized interventions. "The number-one thing we've learned is the importance of talking directly to students about why they dropped out and what's needed to keep them persisting when they return," says Harris.

Conversations like these have helped enlighten schools in the district about the importance of mental health support, for example. According to Harris, by being asked for and offering their input, students have also become more engaged and socially competent.

Thus far, WCSD's efforts seem to be paying off — since 2010, the district's four-year graduation rates have gone up and its dropout rates have gone down. As the work progresses, the district's reengagement specialists continue to personally support students after re-enrollment to ensure that they don't fall through the cracks. And to help sustain the work, the reengagement specialists coach schools about the needs of students and how to carve out time to meet with them individually. The district is also building partnerships with adult education programs to better support students who drop out but later want to return to school.

While significant resources are needed to do the kind of intensive work taking place in WCSD, Barrat notes that other districts can learn from WCSD and implement strategic approaches of their own, such as:

» Increase district capacity to offer credit-recovery options at traditional and continuation high schools.

» Enroll credit-deficient students early in rapid recovery interventions.

» Provide case management for individual re-enrollees to coordinate academic and other supports to get back on track to graduate.

» Include past dropout events and gaps in enrollment in district early warning systems.

Now that re-enrollees are beginning to show up on the radar, Berliner says that new funding streams are being earmarked for support, and the conversation is moving toward what we need to do to support these students rather than blame them. "Dropping out does not have to be a permanent outcome," says Berliner. "Re-enrollment gives educators a second chance to meet the needs of some of our most vulnerable students."

NOTE

[1] Rumberger, R. (2011). *Dropping out: Why students drop out of high school and what can be done about it.* Cambridge, MA: Harvard University Press.

For more information, contact BethAnn Berliner at 510.302.4209 or bberlin@WestEd.org, or Vanessa Barrat at 415.269.3519 or vbarrat@WestEd.org.
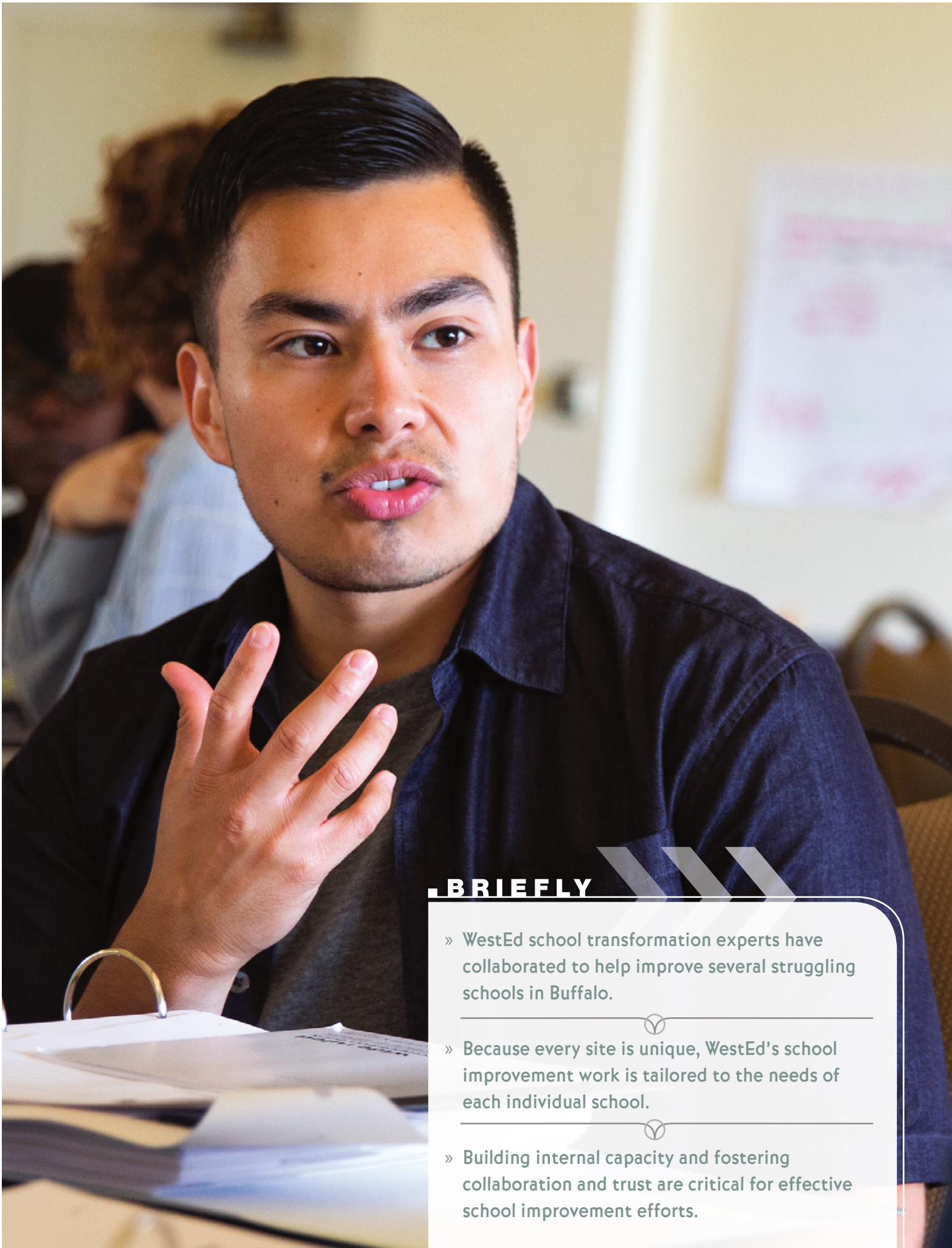
BRIEFLY

» WestEd school transformation experts have collaborated to help improve several struggling schools in Buffalo.

» Because every site is unique, WestEd's school improvement work is tailored to the needs of each individual school.

» Building internal capacity and fostering collaboration and trust are critical for effective school improvement efforts.

Tailored Support
Helps Struggling Schools Turn Around

Consider the traditional, time-honored way that teachers ask students to demonstrate knowledge of the differences between plant and animal cells: "Typically, you ask students to label illustrations of the cell structures," says Mark Collins, a teacher and teacher facilitator at PS 198 International Preparatory School in Buffalo, New York. "But while that may help students learn to identify the structural differences, all too often they still can't make informed observations about the significance of those differences."

Now, consider how Collins and other PS 198 teachers worked together during a common planning-time session to tweak that standard lesson to help a colleague whose students were struggling to understand what the differences mean: "Together, we identified various ways to push the students to interact more substantively with the content," explains Collins. "That included asking students to not only label the illustrations but to also create Venn diagrams to organize the information they've learned."

Danielle Cugalj, an assistant principal at the school, calls that kind of fruitful interaction an "aha moment" — something she sees more and more as "our teachers come to realize how much they can learn from each other when they are given the time and structure to work together in meaningful ways." Over the last couple of years, WestEd school transformation experts have collaborated with educators at PS 198 to redefine how they use their common planning time. Now, like the teachers in the example above, the school's teachers regularly engage in organized, productive collaboration on everything from observing and analyzing instruction to refining lesson plans.

PS 198 is home to over 800 students in grades 5–12, including 39 percent who are English language learners and 19 percent who qualify for special education. Virtually all of the school's students are eligible for free lunch. Helping teachers learn to use common planning time to improve their instruction is just one of the ways WestEd school transformation experts are collaborating with PS 198 — and several other schools in Buffalo — to help boost student achievement and move off a list of Buffalo schools in danger of being placed in state receivership.

PROVIDING CUSTOMIZED SUPPORT

WestEd began providing turnaround support to schools in Buffalo in 2014. According to district officials, that was two years after nearly half of its 55 schools were identified by the state of New York as "Priority Schools" due to their failure to demonstrate student progress in English language arts and/or mathematics, or because of persistently low graduation rates. Aware of the critical implications for ensuring the future success of Buffalo's students, district officials "made a systemwide commitment to improving outcomes and creating better opportunities for their students," says Terry Hofer, WestEd's director of New York school and

> Our teachers [have] come to realize how much they can learn from each other when given the time and structure to work together in meaningful ways.

district services, who has been leading WestEd's school improvement work in Buffalo.

Rather than working with the district as a whole, notes Hofer, WestEd has been contracted by schools in Buffalo on a case-by-case basis. As word spread about the impact of WestEd's services, he says, more schools in the district reached out. To date, WestEd school transformation experts have worked with 10 Buffalo schools. Although there are still Buffalo schools engaged in the transformation process, several of the schools that used their school improvement funds to collaborate with WestEd are now considered in "Good Standing."

Hofer notes that certain overarching principles guide WestEd's approach to school and district improvement. Those principles include using evidence and data to inform decisions, fostering collaboration and a culture of trust, and building internal capacity to carry out and sustain the work. He adds that customization is critical to developing and implementing an effective improvement plan. Because every site has a unique context and culture, WestEd's work is tailored to the needs of each individual school — needs that are identified by surveying and building relationships with administrators and teachers, and surfacing the root causes of a school's struggles. WestEd then draws on its content expertise to design a unique path to school quality.

"In many of the schools where we work, for example, teachers are craving strategies to reach their English learner students," says Hofer. "At PS 3, we paired a WestEd coach with one of the school's instructional coaches to help teachers learn to embed dual-language strategies across the curriculum." Meanwhile, at PS 97, the focus is on boosting family engagement through a WestEd

initiative that brings parents into the school at strategic times throughout the year to get detailed information about their children's academic progress and learn how to improve their learning at home. And at other schools, WestEd has dispatched teams of as many as six experts to train teachers on specific ways to analyze student classwork and achievement data designed to improve instruction and learning.

USING STRUCTURED COLLABORATION TO IMPROVE INSTRUCTION

Some of the most promising outcomes that have emerged from WestEd's turnaround work in Buffalo are the result of helping teachers learn to regularly engage in structured collaborative conversations. According to WestEd's Kevin Perks, a director of school and district services who is also providing school turnaround services in Buffalo, professional collaboration is key to building and sustaining a school's capacity to improve instruction and, in turn, student achievement.

School schedules are often designed to give teachers some opportunities to work together, such as team meetings, common planning time, or grade-level meetings, says Perks. "However, we've found that in such settings teachers can end up spending their time together talking about student issues, addressing disciplinary crises, and dealing with logistical matters, rather than collaborating on how to improve and enhance their own instructional practices."

Perks says that one of WestEd's goals in such situations is to identify and train teacher leaders to function as facilitators and coaches charged with ensuring that their colleagues use collaborative time as strategically and effectively as possible. For example, teachers might be guided

through the process of using a set of learning standards to design a lesson plan, and then arrange for one of their group members to teach the lesson while the others observe. Afterward, the group meets to debrief — sharing their observations, analyzing the quality of both the instructional practices and the student work produced during the lesson, and fine-tuning the lesson plan based on what was learned.

At each step in the process, consultants such as Perks meet with teacher teams — like those at PS 198 — using specific protocols designed to guide and sustain their work. "For example, we have protocols that make sure that those observing a lesson know exactly what to look for," he says. "That means that when WestEd leaves, there are people at the school to continue that observation and feedback process, and to engage their peers in deep conversations about good instruction."

Perks emphasizes that teachers need the chance to give and get honest and constructive guided feedback on all phases of their practice, from lesson design to instruction to analysis of student work. "In fact," says Perks, "feedback is essential for improving instruction. Too often teachers are isolated from each other in their daily classroom practice. We need to shine a light on what they're doing."

One teacher who was asked to evaluate the common planning-time sessions with WestEd cited "rich conversations that allow us to analyze what we are teaching and share ideas on how to teach it" and a "great [opportunity] to discuss things that I really struggle with." Wrote another, "The co-planning has given me useful insights into what my colleagues are doing and has helped me collect ideas to use in my own instruction."

FORGING RELATIONSHIPS AND TRUST REAPS REWARDS

Slowly but surely, PS 198 is working its way toward becoming a Buffalo school in Good Standing. It met 2015–16 performance targets set by the state in areas such as academic proficiency; attendance, graduation, and suspension rates; and school safety. Cugalj is proud that the graduation rate has increased from 33 percent in 2012–13 to 66 percent in 2015–16, and that Regents Exam test scores are trending up. She is quick to credit the dedicated efforts of her school community and the school's partnership with WestEd for helping bring about the improvements. "Our teachers are very receptive to Kevin," she says. "He's built a real collaborative spirit here, mostly by establishing relationships based on trust."

That outcome is intended, Perks notes, explaining that WestEd staff focus on fostering trusting relationships. He adds that feedback is effective only "when given and received in a collaborative environment free of fear."

Says Hofer, "One of the key lessons we've learned is that to carry out the hard work necessary to turn around a struggling school, one must first support a culture of trust that promotes strong, positive relationships."

For more information on WestEd's school improvement work in Buffalo, contact Terry Hofer at 585.503.3862 or thofer@WestEd.org, or Kevin Perks at 207.252.3461 or kperks@WestEd.org.

**For more about WestEd's work overall in New York, go to WestEd.org/NY.**

» In an ever-changing education landscape, school leaders need guidance on how best to serve communities with multifaceted needs.

» A set of state standards for education leaders and a companion resource have been updated to provide detailed guidance on what effective leadership looks like.

» The standards are a required component of administrator credentialing in California and are used to support leaders in other career stages.
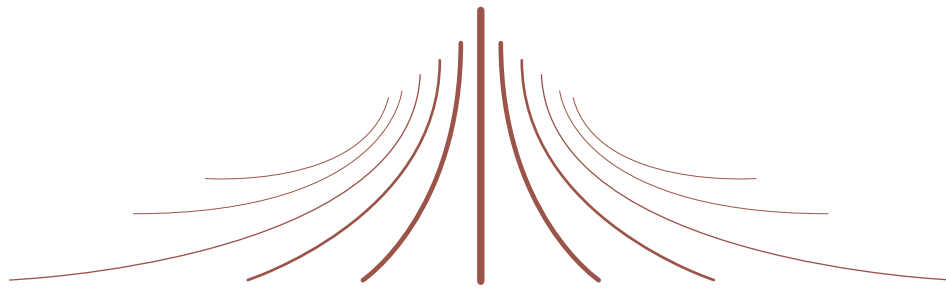
LEADING THE LEADERS
Standards Strengthen Principals' Practice

When Steven Winlock began his administrative career in California, the state had no leadership standards, no explicit expectations for what school leaders should know or be able to do. Without written direction, leaders were largely left to their own devices, says Winlock, now Executive Director of the Leadership Institute, Sacramento County Office of Education.

"When I first became a principal, at age 28, I thought my job was simply to keep the boat afloat — things like making sure yard duty was covered and that there were plenty of pencils and paper in the classrooms," he says. "But the leaders of schools are so much more than just custodians. They must be content expert, coach, politician, and cheerleader, all wrapped into one."

Today, that's truer than ever, says Karen Kearney, Project Director of WestEd's Leadership Initiative. Ever-changing demographics (including an increasing number of English language learners), diverse community expectations, and more public charters and home schooling are just a few factors that have altered the topography of schooling — further ratcheting up the leadership challenges of earlier decades, says Kearney. In addition, administrators need to shape their work to address current laws such as the Every Student Succeeds Act (ESSA).

Fortunately, school principals and other administrators are no longer without guidance. In California, leadership standards first came to fruition in the early 2000s, and recent revisions have made them more responsive to a shifting landscape, says Kearney. "In a relatively short period, we've been able to move the conversation beyond arguing about *what* is important and toward explaining *how* to prepare and support administrators throughout their careers."

ADAPTING STANDARDS TO MEET TODAY'S NEEDS

Winlock and Kearney note that California has two key documents that together provide a solid footing for leaders with multifaceted roles who serve education communities with multifaceted needs; both documents were updated in recent years to adapt to an evolving education environment. One, the *California Professional Standards for Education Leaders* (CPSEL), grew from early national standards and was extended to fit California's priorities. The other, *Moving Leadership Standards into Everyday Work: Descriptions of Practice* (DOP), is a companion to the CPSEL, providing more detail on what effective leadership looks like, not just in theory but in practice.

The CPSEL, recently updated by a panel of stakeholders led by WestEd's California Comprehensive Center and jointly convened by the California Commission on Teacher Credentialing (CTC) and the California Department of Education (CDE), includes six leadership standards that describe expectations for an effective education leader's abilities and actions related to

- » a shared vision,
- » instructional leadership,
- » the management and learning environment,
- » family and community engagement,
- » ethics and integrity, and
- » external context and policy.

"Research shows that effective leaders are competent in these six areas," says Margaret Arthofer, who directs the Clear Administrative Credential Program at the Association of California School Administrators (ACSA), an 18,000-member organization that provides professional development for school administrators.

One highly valued feature of the CPSEL, she says, is that the standards provide concrete examples of practices that leaders can pursue in each of these areas. For instance, a leader wanting to focus on the learning environment will find example indicators such as: "Consistently monitor, review, and respond to attendance, disciplinary, and other relevant data to improve school climate and student engagement and ensure that management practices are free from bias and equitably applied to all students."

Other CPSEL standards convey how issues of equity, opportunity, and well-being — along with academic achievement — are priorities for the leader's attention. The standards identify ways for a principal to focus and connect with individuals, a particularly important skill "because a typical work day includes some 2,000 interactions with other people," notes Kearney.

The companion DOP document, updated to align with the new CPSEL, further delineates the elements and indicators, says Kearney, and clarifies which practices approach, meet, or exemplify the standards. For example: "The leader consistently sponsors actions that promote a safe, fair, and respectful environment for all students, with extra support for students with intellectual, linguistic, cultural, social-emotional, physical, or other needs."

LEADERSHIP TOOLS IN ACTION

The CPSEL and DOP provide the kind of guidance Winlock did not have early in his career, and they support leaders in other career stages. Kearney says the standards are versatile enough to contextualize for individuals, whether experienced district administrators, teachers moving from teacher leader to vice principal, or mentors or coaches of leaders.

"For example, you can use the CPSEL with the DOP to set up objectives at the beginning of the year, figure out the professional learning that you or the principals in your district need, or assess performance at the end of the year as part of a professional portfolio, together with student test scores and other measures," she says.

Having been approved by the CTC, the CPSEL standards are required for administrator credentialing in California. "Every preparation program for the clear administrator credential in California — a period that coincides with the first two years on the job for new administrators — must use the CPSEL as a base of the program," says Kearney.

"Credential candidates engaged in our professional development can't just choose to take an iPhone photography class because they want to create a collage of student activities for the front office," explains Arthofer. Their training must be tied to the CPSEL.

Using the standards for credentialing requires administrator candidates to have a benchmark and final assessment tied to the CPSEL. After a candidate has earned the credential, districts may use the CPSEL to continue guiding and supporting beginning principals and other administrators through professional learning, coaching,

> Other CPSEL standards convey how issues of equity, opportunity, and well-being — along with academic achievement — are priorities for the leader's attention.

and supervision. "Providing continuity is important for ongoing principal development," notes Kearney.

Many administrators also use the DOP because of its alignment to the CPSEL, says Arthofer. "Although the DOP is not an assessment per se, it functions as a rubric-like tool that we've incorporated into our program, training all our coordinators and our staff who coach new administrators on how to use it."

Arthofer is particularly enthusiastic about the DOP's developmental continuum of practice, which illustrates ranges of behaviors, such as reactive to proactive, basic to complex, and individual to shared. The DOP explains, "When reading across a continuum, the progression is evident, with the descriptions indicating deepening knowledge, increasing task complexity, and greater collaboration with and capacity building of others."

Having these progressions clearly described "is very helpful for coaches who are working with credential candidates," says Arthofer. "The coach can refer to the phrases in a continuum and ask, for example, 'Is the candidate reacting to this situation or starting to be proactive?'"

Arthofer describes the too-common scenario of a new administrator reacting to the crisis of the day, such as a parent yelling at him in the hallway. A coach may first need to spend time with the candidate to defuse emotions. But with the help of the CPSEL and DOP, she can direct the conversation back to the leadership goals and skills needed to make short- and long-term progress related to family and community engagement — not just reacting to the moment.

WORKING FROM THE SAME PLAYBOOK

Because of widespread use, CPSEL gives leaders equitable expectations and the opportunity for fair performance assessments, says Kearney. "CPSEL gets the state's 8,000 school principals and their district leaders onto the same page. Policymakers interested in big ideas can also operate on the same page as the principal trying to develop specific objectives for her end-of-year performance review."

Having specific, coherent expectations and buy-in from a variety of agencies and districts may go a long way toward making effective principals and quality education a reality, says Kearney. "Education experts have repeatedly pontificated about the need for clear expectations for students, but we've rarely offered educators or administrators that same benefit. Everybody ought to be judged by the same explicit standards and treated with respect — we all have assets and gaps — and the principles of learning apply to us all. But if administrators never experience these principles, how can they possibly model them?"
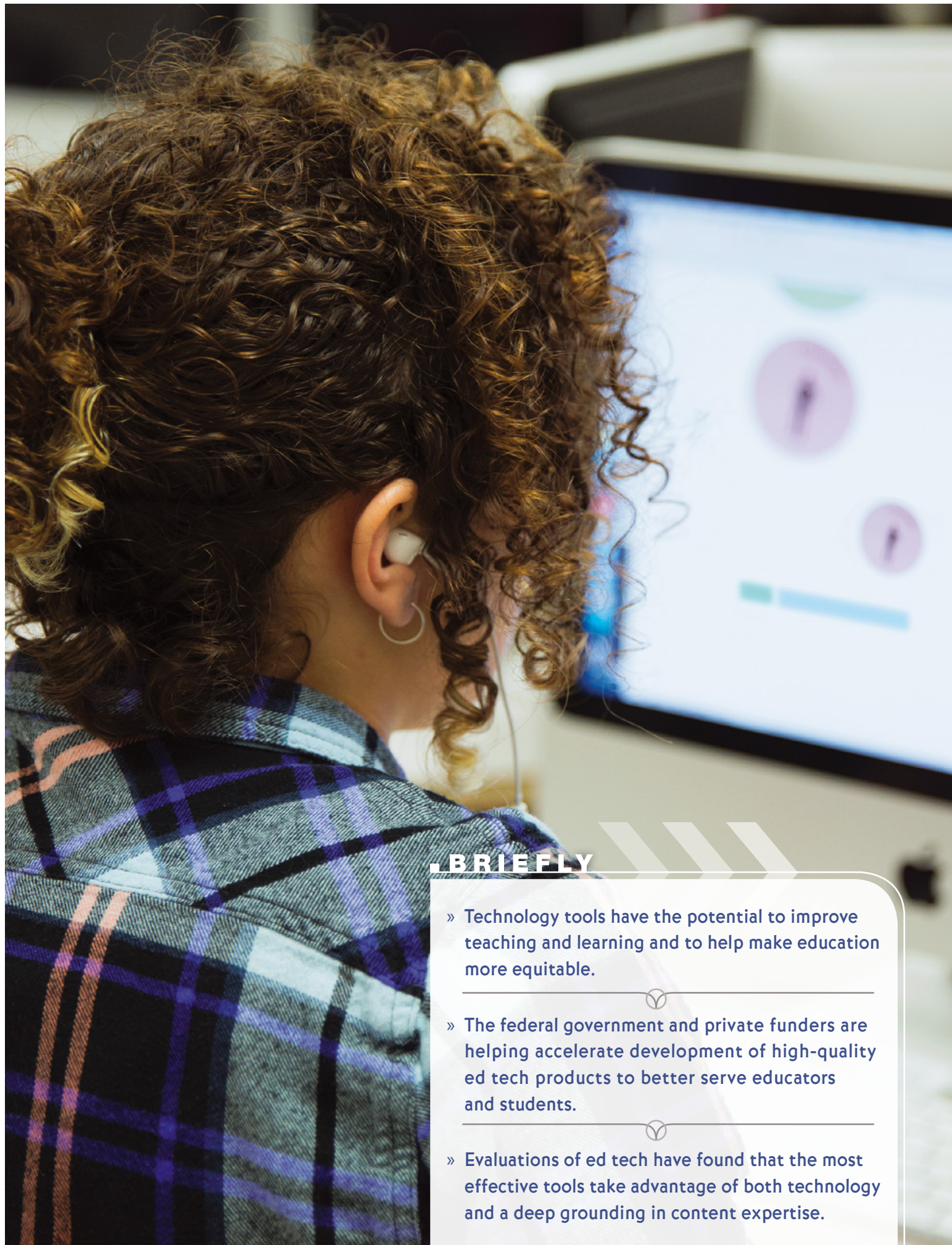
Perhaps they now have a much better chance of success.

NOTE

For more information, contact Karen Kearney at 415.615.3185 or kkearne@WestEd.org.

HOW EDUCATION TECHNOLOGY CAN MAKE THE GRADE

Classrooms throughout the United States face an explosion of new digital technologies. Education technology is a burgeoning market — expected to grow to $252 billion globally by 2020.[1]

"In fact, teachers and administrators are often overwhelmed by the number of ed tech products available in the market," says Michelle Tiu, Senior Research Associate in the Science, Technology, Engineering, and Mathematics (STEM) program at WestEd. Whether in the form of web-based instruction, mobile apps, or virtual and augmented reality, technology tools have the potential to improve teaching and learning and help make education equitable for all students, says Tiu, "but how do you figure out the signal from all that noise? How do you know which products can be effective?"

At WestEd, Tiu coleads a portfolio of projects that have evaluated more than 50 education technology products in recent years, generating insights into what makes for the most effective tools — the ones that can really help students succeed.

NEEDED: DEEP UNDERSTANDING OF EDUCATION AND TECHNOLOGY

Over the years, Tiu and colleagues have found that the highest-quality ed tech tools incorporate four specific areas of expertise. "The most effective ed tech tools are built by developers who have a deep understanding of learning science, have a strong command of subject matter content, take advantage of the affordances that technology can provide, and understand the day-to-day classroom experience," says Tiu. When evaluating ed tech products, WestEd's staff use these four kinds of expertise as lenses to focus on quality.

Attention to learning science (an interdisciplinary field concerned with improving instructional methodologies) and deep content expertise can be seen in an ed tech product's ability to individualize a user's experience and turn the student's mistakes into learning opportunities. "Ed tech products that are built on a strong foundation of learning science and content tend to anticipate where students commonly have misconceptions, provide scaffolding to help them learn, and offer effective instructional opportunities that are grounded in research," says Tiu.

Supporting learning in this way is a big advance over older computer tools, says Steve Schneider, Senior Program Director of WestEd's STEM program. He explains how ed tech products are taking advantage of the affordances of technology: "In the past, when you got an answer wrong, the software usually just gave you another question, and without any hints." Newer, more effective programs are more adaptive, adjusting the difficulty of problems to continually challenge each student — no matter their skill level.

> The most effective ed tech tools are built by developers who have a deep understanding of learning science, have a strong command of subject matter content, take advantage of the affordances that technology can provide, and understand the day-to-day classroom experience.

Schneider notes that even when older software provided individualized assistance, the approach was one of repetition, similar to "drill-and-kill." "Now, personalized tools enable students to work at their own pace within a piece of curriculum," he says. Students might read the same article, for example, but at different reading levels. "Because the software automatically assesses and adjusts to various levels of reading proficiency, students can advance at their own pace, helping free the teacher to possibly spend more time with students who need more attention," says Schneider.

In addition, ed tech products can help teachers become more efficient in the classroom, says Tiu. Technology might assist with time-consuming and repetitive tasks, freeing time to potentially focus on providing more one-on-one, targeted instruction. For example, technology can assist with formative assessment. Instead of teachers having to manually grade and analyze data, many ed tech tools that embed frequent checks for understanding can easily handle collecting, analyzing, and summarizing data, providing real-time reports that allow teachers to quickly understand an individual student's areas of strength and areas for improvement.

ADDING VALUE WITH RESEARCH

Not all companies, particularly small ones, have the full range of expertise in-house to put together all of the pieces of learning science, deep content knowledge, classroom expertise, and technological know-how. Accordingly, companies may bring in outside expertise, particularly in research and development, through

programs such as the U.S. Department of Education's Small Business Innovation Research (SBIR) program.

Kiko Labs, a company that created a game-based app to develop young children's executive function skills, has drawn on SBIR funding to partner with WestEd for research and evaluation support in the product development process. "We recognized that our strength was with product design and we didn't have the capacity to add extensive internal research — especially given our company's small size," says Grace Wardhana, CEO of Kiko Labs.

Kiko Labs' *Thinking Time* product arose out of a recognition that executive functioning is critical to children's development and school readiness.[2] The best window for developing executive functioning skills is from age 3 to 6, but "research shows that these skills are not guaranteed — they don't necessarily materialize with maturity," says Wardhana. "Children with challenges don't usually get the support they need to address these deficits, and the research shows that children from lower-income communities are most at risk. We wanted to create a solution to assess children and help them practice these skills early."

The resulting suite of games targets the development of executive functioning and reasoning in pre-K students. In early phases of development, WestEd was extensively involved in formative research to ensure that the games could be effective in helping children learn these skills.

As products develop more fully, they become ready for larger-scale feasibility testing in classrooms, where researchers gather data about whether teachers can integrate the tool into routines and practices or whether it is

too difficult to implement and will tend not to be used. Tiu notes the importance of asking, "Can the intended audience use it — whether student, teacher, or administrator — and does it achieve the desired outcomes?" If schools focus more on questions of efficacy, she adds, the better products will rise to the top. Another question to consider is whether use of the tool can be scaled up. "The ability to use a product over multiple districts is a potential asset of these kinds of technology," says Wardhana.

WestEd is continuing its research on *Thinking Time* through a randomized controlled trial intended to test the product's efficacy in preschool classrooms and to measure its potential impact on children's cognitive skills.

EXTENDING CAPACITY THROUGH NEW PARTNERSHIPS

Building on the research and evaluation assistance that WestEd has provided to product developers through the SBIR program, WestEd began a partnership with NewSchools Venture Fund. A nonprofit that has invested in education entrepreneurship since 1998, NewSchools seeks to increase equity and improve outcomes for low-income students and students of color. "As a thought partner to NewSchools, we offer expertise across the field of education, help them understand the ed tech research landscape, and connect NewSchools grantees with experts across education arenas," says Tiu.

A program called NewSchools Ignite offers grants of $50,000 to $150,000 and other support to technology developers, says Cameron White, Associate Partner for NewSchools Venture Fund. "Talking with educators, researchers, entrepreneurs, and other experts, we identify market gaps where there is potential for technology to significantly improve educational outcomes," says White. Every six months, NewSchools synthesizes its findings into an entrepreneurial call to action, or "challenge," and selects up to 15 companies and nonprofits developing technology that can address the needs identified through market research — a total of 10 challenges over the course of 5 years.

WestEd has played an integral role throughout the first three NewSchools Ignite challenges, which have focused on science, middle and high school mathematics, and English language learning. WestEd has served as a research partner for each of the challenge winners.

In partnership with NewSchools, a WestEd researcher and an educator provide the challenge winners with evidence-based formative feedback on their products, which forms the foundation for small-scale studies. Tiu explains that these types of studies help NewSchools challenge winners to iterate and improve upon their products, using feedback collected directly from teachers and students in the classroom.

WestEd offers a menu of small-scale study designs, including focus groups, subject-matter reviews by experts, and usability and feasibility testing. "For more advanced products, we look at student gains in learning through implementation studies or studies of promise," says Schneider.

WestEd and NewSchools are looking to expand their support and further spread what they've learned from work with ed tech developers. The two organizations
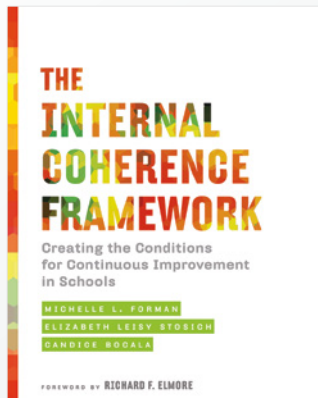
The Internal Coherence Framework: Creating the Conditions for Continuous Improvement in Schools

Internal coherence is the ability of schools to align resources to implement an improvement strategy, engage in collective learning, and provide students with richer educational opportunities. This book introduces the internal coherence framework and is designed to help education leaders:

· Develop a vision for ambitious teaching and learning

· Organize leadership and teacher teams

· Build psychologically safe team, school, and system cultures

The book includes a survey and rubric to help schools better understand their strengths and weaknesses and the kinds of resources they need to support student learning.

2017 | $32.00 | Trade Paper | 272 Pages | Harvard Education Press | ISBN: 978-1-68253-017-7

WestEd.org/resources/internal-coherence-framework/

Emphasizing Social Justice and Equity in Leadership for Early Childhood: Taking a Postmodern Turn to Make Complexity Visible

There is inherent complexity in the field of early childhood, where people and their relationships are at the center of their work. This book expands the concept of leadership for early childhood, drawing on perspectives that value, and make visible, diversities and complex human experiences. Specifically, the author:

· Explores the social justice and equity challenges facing children around the world

· Provides educators with frameworks and strategies for enacting leadership

· Highlights the voices and experiences of early childhood professionals working in different roles and contexts

2017 | $90.00 | Hardcover | 212 Pages | Rowan & Littlefield | ISBN: 978-1-4985-3551-9

WestEd.org/resources/emphasizing-social-justice-and-equity-in-leadership-for-early-childhood/

WestEd is going green!
Explore Our Professional Learning and Resource Catalogs

As part of WestEd's commitment to environmental sustainability, we are taking our three carefully curated catalogs — science and math, English learners and literacy, and school and district improvement — digital.

Visit WestEd.org/catalogs to view or download our latest catalogs and to sign up to be notified about our research, initiatives, events, and new professional learning and resource catalogs.

› WestEd.org/catalogs

Free Downloadable Resources

Four Domains for Rapid School Improvement: A Systems Framework

This framework is designed to help states, districts, and schools lead and manage rapid improvement efforts. The framework shares the practices of successful school turnaround in four domains that are central to rapid and significant improvement: turnaround leadership, talent development, instructional transformation, and culture shift.

2017 | WestEd | **WestEd.org/resources/four-domains/**
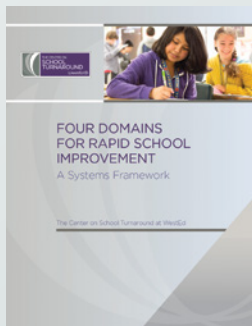
Public School State Snapshot: Arizona, California, Nevada, and Utah

These infographics contain quick and accessible information about public education in Arizona, California, Nevada, and Utah, including:

· Number of public schools, teachers, and students

· Race/ethnicity breakdown of student population

· Percentage of 18- to 24-year-olds enrolled in degree-granting postsecondary institutions

· Percentage of students achieving proficiency in math and reading

2017 | U.S. Department of Education, Institute of Education Sciences
WestEd.org/resources/public-school-state-snapshot-arizona-california-nevada-and-utah/

Instructional Materials: Who Makes the Choice? Findings from the Annual Survey on Implementing the Common Core State Standards in Mathematics

High-quality instructional materials are vital to achieving 21st-century standards, yet districts face a dizzying array of decisions with respect to choosing, adopting, supplementing, and aligning materials. To understand how instructional materials support and/or hinder California educators in their work, WestEd surveyed over 2,000 teachers and 100 administrators. Drawing from this study as well as literature on standards implementation, this report outlines three key steps for educators to consider as they make choices about curricular materials.

2017 | WestEd | **WestEd.org/resources/instructional-materials-who-makes-the-choice/**
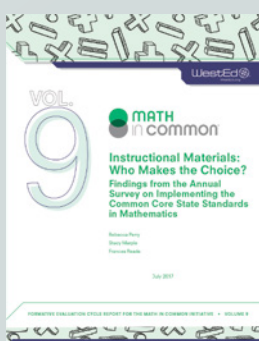
STEM
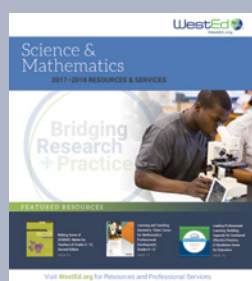
EL & Literacy

Schools & Districts

---

have been awarded a grant from the Small Business Administration's Office of Investment and Innovation Growth Accelerator Fund. It will help build an online portal to more broadly share key learnings with entrepreneurs, funders, and educators.

NOTES

[1] MarketWatch: "Global Report Predicts EdTech Spend to Reach $252bn by 2020," https://www.marketwatch.com/story/global-report-predicts-edtech-spend-to-reach-252bn-by-2020-2016-05-25-4203228

[2] Kiko Labs: "Science," https://www.kikolabs.com/science

The U.S. Department of Education's Institute of Education Sciences (IES), NewSchools Venture Fund, and Small Business Innovation Research grants from IES, the National Science Foundation, and the National Institutes of Health have funded WestEd's work evaluating ed tech tools. The contents of this article do not necessarily reflect the views or policies of these agencies.

For more information, contact Michelle Tiu at 781.481.1129 or mtiu@WestEd.org.