NEW **KNOWLEDGE**

AND DEVELOPMENTS IN PUBLIC EDUCATION

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ACKNOWLEDGEMENTS

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INTRODUCTION

At the University of Chicago Urban Education Institute (UEI), our mission is to produce knowledge to create reliably excellent urban schooling. We are committed to bridging the worlds of education research and practice in a way that contributes meaningful new knowledge on what matters most for school improvement and student success to educators and education policymakers nationwide. Across four units, we conduct rigorous applied research, train teachers and school leaders, operate a preK-12 public school, and provide research-based tools and resources to schools in 62 major cities across 34 states.

Our knowledge on the driving forces behind school improvement and student success stems from nearly three decades of rigorous applied research, and from putting that research into practice within our own teacher education program and public school as well as more than 6,000 schools across the country.

With 2019 upon us, we've taken stock of and summarized the past year's new knowledge and developments on major issues and topics of discussion in preK-12 public education, from defining and measuring the quality of early childhood education programs and using data to improve schools from the ground up to cultivating students' social-emotional development, fostering Spanish literacy proficiency, and better preparing educators to teach science.

We hope you will find this collection of new and emerging research- and practice-based knowledge on public education informative and applicable to your roles as educators, school partners, civic leaders, policymakers, parents or guardians, and community members.

We believe strongly in the power of a community of education stakeholders working together to share and build upon each other's knowledge. By tuning in to and applying new knowledge coming from rigorous education research, and research-based practice, we can all contribute to fostering evidence-based school improvement that generates better outcomes for all of our nation's students.

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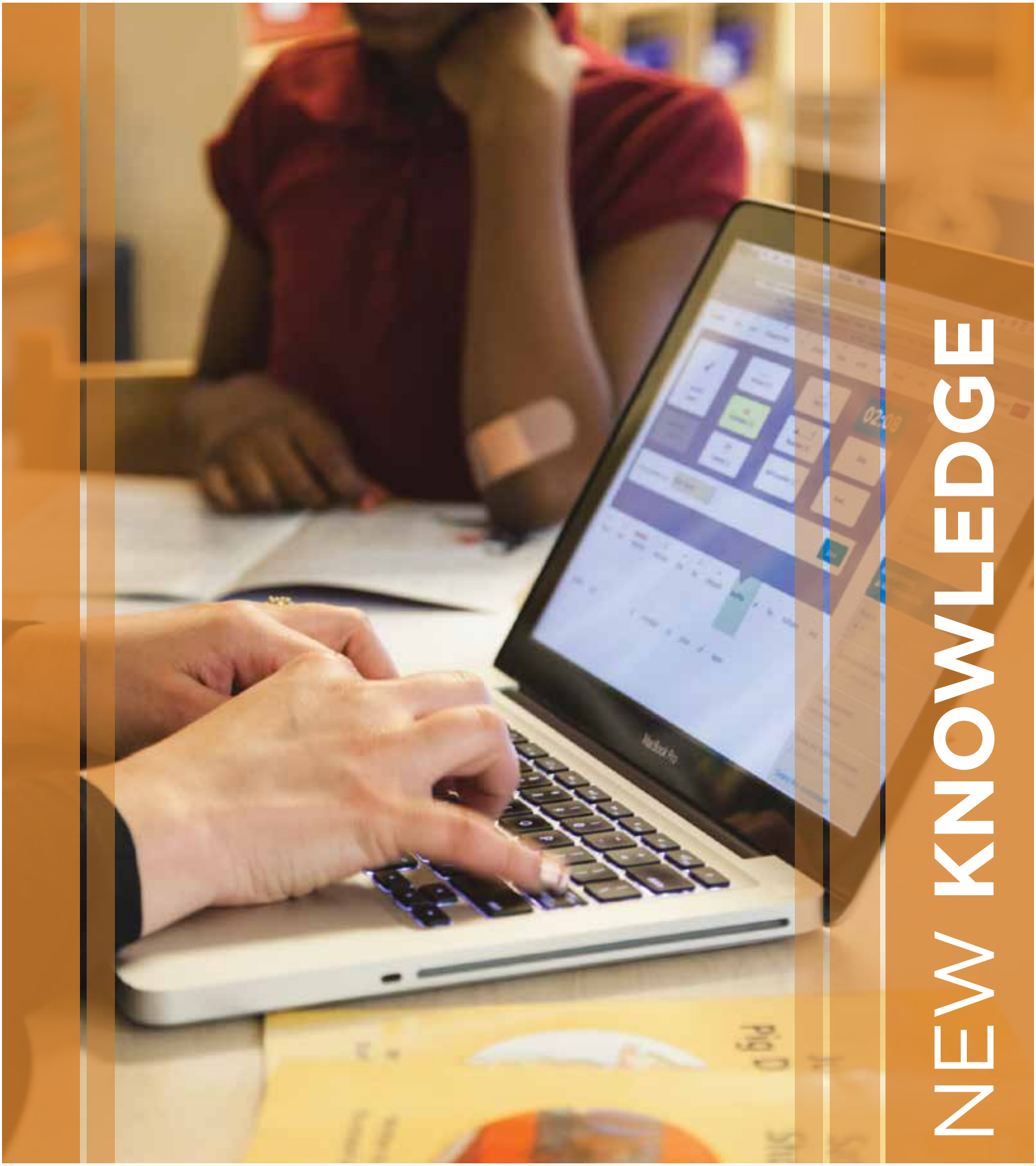

NEW KNOWLEDGE

Using Data to Improve Schools from the Ground Up

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THE BIG PICTURE

The world generates 2.5 quintillion bytes of data every day,[1] and more than ninety percent of the world's data[2] was reportedly produced in the past five years alone. While only contributing a small fraction to the quintillions of daily data points, the nearly 100,000 public elementary and secondary schools[3] across the United States "generate reams of data."[4] As the Hechinger Report's Tara Garcia Mathewson wrote this year, "There's data from reading programs, math programs, state tests, daily quizzes, student history and more, each one a single puzzle piece that could be linked to other pieces to create a unified picture, but that, more often than not, stands alone" — or remains unused. In 2010, the U.S. Department of Education released a study titled "Use of Education Data at the Local Level: From Accountability to Instructional Improvement,"[5] which concluded that data was having little to no impact on classroom instruction. It cited educators' perceived lack of time, difficulty with using data systems, perceptions that data was not useful, and restrictive district curriculum policies as major reasons for the disconnect between data and classroom practices.

Why has the leap from data collection to utilization been so challenging? A 2018 study from the Data Quality Campaign[6] found that 57 percent of teachers said they don't have time during the school day to review data. The 2017 version[7] of the same report found that 67 percent of teachers also said they were not satisfied with the data tools available to them and only 36 percent of parents thought they had easy access to the information necessary for them to help their child get a good education.

Against this backdrop, states across the country are taking measures to improve district- and school-level capacity to use and analyze data effectively.[8] In approved plans submitted as part of the Every Student Succeeds Act (ESSA), 49 states have committed to providing better training and supports for districts and schools to utilize data. Thirty-eight states have committed to investing in data tools that will make monitoring and analyzing data easier for educators on the ground. States like Washington are also building state education agency partnerships[9] to ensure data analysis informs policy to improve outcomes for students.

Thus, a strong current of enthusiasm and political will for increasing educators' capacity to use data in school settings has developed, and evidence of the promise of data for improving instruction and learning continues to mount.[10] At the same time, new resources designed to build educators' capacity for analyzing and applying data are emerging. Organizations and initiatives including the Data Quality Campaign,[11] The National Association of Elementary School Principals,[12] and the University of Chicago's To&Through Project[13] are producing resources designed to help educators put data into practice.

NEW UCHICAGO KNOWLEDGE

Chicago provides a particularly valuable case study for thinking about the challenges we face as a nation in creating large-scale, equitable improvements in students' outcomes. In the past decade or so, the Chicago Public Schools (CPS) district has seen tremendous improvement on the most important indicators of student success. Between 2006 and 2017, CPS saw a 28 percentage-point rise in the proportion of its freshman on-track to graduate from high school, with the greatest increases among Black and Latino males. High school graduation rates have increased by 18 percentage points, with ACT scores and GPAs improving at the same time. Most impressively, even with thousands of additional high school graduates, CPS's four-year college enrollment rate rose by 14 percentage points, and the overall proportion of high school freshmen who are projected to earn a bachelor's degree has doubled in the last decade.

There is an important story to be told about the role that data played — and continues to play — in these kinds of improvements. Of course, it would be a mistake to think that the mere presence of data provided educators with all they needed to chart such a remarkable course of improvement. This decade of improvement in Chicago relied on many supports and conditions other than data, and not all efforts to apply data to improvement efforts during this time period were successful. Not all indicators have taken root in the life of schools. Not all educators welcomed data-driven improvement efforts with open arms. And not all data systems gave educators the tools needed to guide their efforts and solve their problems of practice. This era of improvement in Chicago has, however, generated a particular kind of approach to using data in Chicago's schools — an approach that responds to the drive to make the field of education more data driven, while also acknowledging the human networks and systems that produce results.

Researchers and practitioners from the University of Chicago Consortium on School Research (UChicago Consortium), the Network for College Success (NCS), and The To&Through Project explain this "practice-driven" approach to data in *Practice-Driven Data: Lessons from Chicago's Approach to Research, Data, and Practice in Education*.[14] The UChicago Consortium has conducted more than two decades of research on CPS, and helps build capacity for school reform by identifying what matters most for school improvement and student success. NCS helps build CPS high school leaders' capacity to respond to emerging research and data with actionable strategies for improvement through ongoing professional learning. The To&Through Project is an initiative that utilizes NCS and the UChicago Consortium as partners to integrate research, data, and professional learning to move more students to and through high school and college. This combination of research, data, and professional learning has yielded significant improvements in CPS students' educational attainment, as well as some important lessons with implications for educators in Chicago and across the country. These lessons are:

LESSON 1

PREPARE: Build Capacity to Facilitate Hard Conversations

LESSON 2

FOCUS: Prioritize Research-Based Indicators

LESSON 3

MAKE MEANING: Develop Shared Ownership over the Implications of Research

LESSON 4

STRATEGIZE: Use the Right Data at the Right Time

LESSON 5

DISRUPT: Identify and Stop Inequity

1. **Prepare: Build Capacity to Facilitate Hard Conversations.** Using data to guide school improvement means that the conversation around the data is just as important as the data itself. For data to improve student outcomes, educators must be able to use data in conversations about their practice. Our work in Chicago has underscored the importance of building educator capacity to have hard data conversations that clarify what the problem is and what the solutions might be. This requires investing in the capability of one or a few people at a school to lead data-driven conversations, and it also requires strong school leadership to support a culture of data-driven improvement.

2. **Focus: Prioritize Research-Based Indicators.** In a relatively short period of time, CPS, like a great many school districts across the country, moved from a system in which educators were thirsty for any data to one where they could drown in data if they were not careful.[15] The proliferation of data meant educators needed to find ways to focus their discussions on the most important data. It is the role of researchers to work with educators and develop high-leverage indicators that can help them focus on what matters the most for future student outcomes. Data system designers can then integrate these indicators into

the data that reaches schools. Finally, educators and school leaders can then incorporate this data into their ongoing work, using these indicators to track progress and examine patterns both within and across schools.

3. **Make Meaning: Develop Shared Ownership over the Implications of Research.** When using data for improvement, accessible research findings give school and district leaders the opportunity to infuse their data work with research evidence. This, in turn, builds educators' sense of ownership over the problems of practice raised by the research and commitment to changing adult practice to improve student outcomes.

4. **Strategize: Use the Right Data at the Right Time.** Decision-making in schools varies from big-picture strategy to fine-tuning interventions with individual students. Each of these decisions — and everything in between — benefit from the right data at the right time. The data system should provide schools with different data for different levels of decisions, with researchers evaluating popular strategies across contexts to determine the potential for scale.

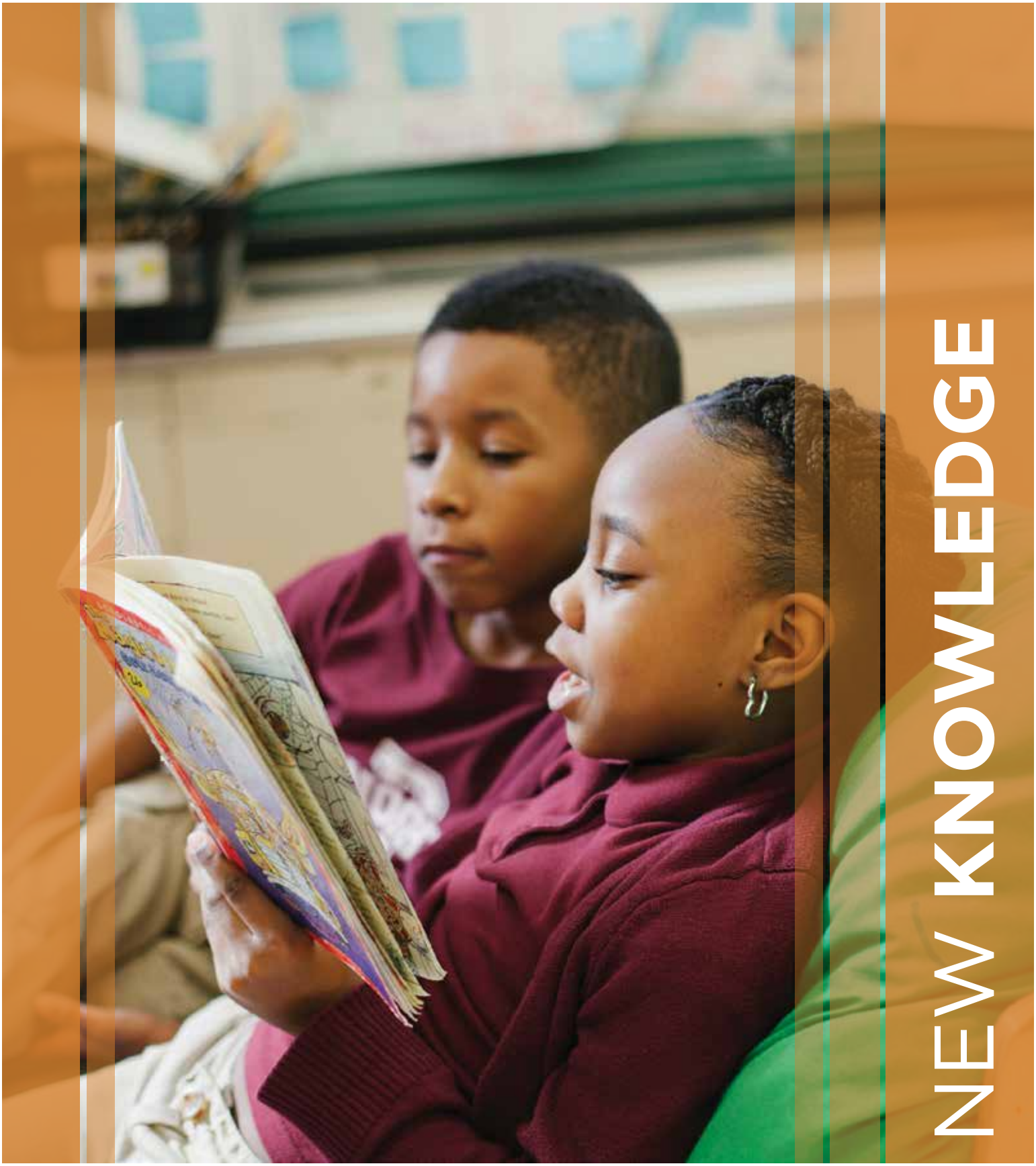
5. **Disrupt: Identify and Stop Inequity.** Decades of public discussion on the need to reduce achievement gaps has done little to produce more equitable outcomes for American students. In Chicago, we use data not only to highlight differences in student achievement, but also to push educators to examine the beliefs, practices, and institutional conditions that create inequitable outcomes for our youth across the district. Everything from the intentionality of the conversations at the school to the organization of the data ecosystem to the design of the research itself has implications for equity.

Taken together, these five lessons from *Practice-Driven Data: Lessons from Chicago's Approach to Research, Data, and Practice in Education* form an approach to data use that focuses stakeholders at various levels on the most important goals and features of a data ecosystem that has the potential to catalyze systematic improvements in student outcomes. The authors of the report describe how these lessons have played out in practice in Chicago's high schools from the perspective of school-based educators, and their implications for different stakeholders in the broader education system, including researchers, data analysts, and data system designers. The report does not prescribe a particular method or model for effective improvement. Instead, it lays out important lessons that will prepare educators across the country to thrive with the information they have available to them. By focusing on the indicators that matter most, making meaning of data to build collective ownership of a challenge, strategizing to use the right data at the right time, and identifying and disrupting inequity, educators can help change the direction of education from the ground up in new and exciting ways.

DEVELOPMENTS TO WATCH

Many educators are already leveraging the data available to them to inform improvement efforts at the district and school levels. Schools in suburban Milwaukee are using data not only as a mechanism to track their progress, but also as a starting point to open new conversations with their students,[16] by having students keep data journals to track their own progress and reflect on where they've been successful and could improve. Metro Nashville Public Schools are also taking advantage of their access to school-level data to drive internal efforts to improve, better coordinate with after-school program partners, and foster deeper conversations with students[17] and their families.[18] This includes regular "data chats" between teachers and parents intended to help parents better understand their children's progress and support their ongoing growth. New York City is investing in a data-informed community school strategy[19] designed to bring schools and community organizations together and inform data-driven conversations about how community-school partnerships can help address citywide challenges such as chronic absenteeism. The state of Michigan recently launched a Parent Dashboard for School Transparency in collaboration with the Center for Educational Performance and Information (CEPI). The dashboard provides school-level data to families and other school stakeholders to "encourage richer conversations about school progress" and offer "a more balanced picture of school quality."[20]

Ultimately, as data becomes more accessible to educators, policymakers, and families, its potential to drive improvement in school and student outcomes will continue to grow — but access to data on its own won't yield substantive gains in student attainment. We need research to illuminate the data that matters most and professional learning that supports educators in translating research and data to improved practice. This combination of research, data, and professional learning has yielded dramatic gains in Chicago students' educational attainment, and it will continue to power progress in the years to come.



NEW KNOWLEDGE

Defining and Measuring Quality in Early Childhood Education

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THE BIG PICTURE

The demand for quality early childhood education (ECE) programming is high — 86 percent of Americans report they want it to be a national priority — and the estimated economic benefits are striking: according to the National Bureau of Labor Statistics, investments in early education generate approximately $7 for every dollar invested. Still, just 55 percent of American 3- and 4-year-olds attend a formal preschool program.

States including Alabama and Oklahoma have been on the forefront of enacting policies designed to improve access to high-quality ECE programs, and other states have followed suit. Over the past 15 years, state-funded pre-K programs have more than doubled in size and, since the beginning of 2018 alone, 15 state legislatures have introduced — and in some cases, enacted — bills to improve the accessibility and quality of early childhood education and childcare.

Lawmakers at the federal level have also introduced bills aimed at improving ECE such as the Child Care for Working Families Act of 2017, which calls for "a tiered and transparent system for measuring the quality of child care providers that includes a set of standards for determining the quality of a child care provider" that meet "rigorous and evidence-based standards that are tied to child outcomes."

At the same time, city governments have worked to expand access to high quality ECE programs. After creating universal pre-K for all 4-year-olds in New York City, Mayor Bill De Blasio announced that he intended to extend full-day pre-K to 3-year-olds in late 2017. Chicago's outgoing mayor, Rahm Emanuel, also set a goal to have a full-day universal pre-K program in place for 24,000 4-year-olds within the next three years, and other cities, including Boston, Washington D.C., and Detroit are working to implement universal pre-K programming.

Prioritizing ECE has clearly become an area of focus for policymakers. Yet as they work to expand access to ECE programs, the question remains: how do we define and measure high quality programming? The National Institute for Early Education Research (NIEER) has tracked the funding, access, and policies of state-funded preschool programs since 2001 and published an annual State of Preschool Yearbook since 2003. NIEER developed and recently updated a rating system for 10 preschool policy standards related to quality. According to NIEER, "the benchmarks provide a coherent set of *minimum* policies to support meaningful, persistent gains in learning and development that can enhance later educational and adult life achievement,"[1] yet cannot guarantee success and significant variability in the quality of and outcomes associated with ECE programs across the country remains.

In a recent effort to measure the effects of eight state-funded pre-K programs, researchers from NIEER, The University of Delaware, The University of California, Los Angeles, and the Michigan Public Health Initiative found a diverse range of outcomes associated with large-scale, public pre-K programs and encouraged states to devote "increased attention to frequent, more rigorous, and broader evaluations of their pre-K programs."[2]

Ultimately, while the idea of expanding access to ECE opportunities has taken root nationwide, there is a growing consensus around the need to pair that growth in access with more rigorous expectations of quality in order to best serve the next generation.

NEW UEI KNOWLEDGE

In an effort to measure key organizational constructs that can help broaden the ECE field's understanding of high-quality programming, The University of Chicago Consortium on School Research (UChicago Consortium) and The Ounce of Prevention Fund (The Ounce) partnered to develop and test surveys designed to assess the underlying organizational conditions of ECE programs. To date, the ECE field has focused most improvement efforts on classroom materials and interactions. There has been little to no consensus around how to define and measure the underlying organizational conditions that contribute to improvement in early childhood education programs.

The relationship between organizational conditions — often referred to as "school culture and climate" conditions — and improvement in K-12 schools has been well established. Nearly twenty years ago, the UChicago Consortium identified five essential factors that drive K-12 school improvement. Strength in the five essentials, detailed in the seminal publication, *Organizing Schools for Improvement: Lessons from Chicago*, is strongly correlated with improved student outcomes. The UChicago Consortium's research found that schools strong on at least three of

the five essentials were 10 times likelier to show substantial gains in students' reading and math achievement than schools weak on three or more of the five essentials; and strength in the five essentials correlated with gains in test scores, attendance, Freshman OnTrack, high school graduation, and teacher retention rates.

The UChicago Consortium and The Ounce set out to determine whether a similar kind of relationship exists between organizational conditions and indicators of program quality in the early education space. They studied 81 ECE program sites throughout Chicago — 41 school-based and 40 community-based. Nearly 750 surveys were collected from teachers and 2,464 were collected from parents. The surveys were found to be reliable (measuring what they're intended to measure) and valid (positively related to established measures of ECE program quality). With these survey results, researchers from the UChicago Consortium and The Ounce identified six "Early Education Essentials" for early childhood programs.

Measures Included in Final Versions of the *Early Ed Essentials*

ESSENTIALS	MEASURES
1 Effective Instructional Leaders	• Instructional Leadership[A] • Program Coherence • Teacher Influence • Teacher-Leader Trust
2 Collaborative Teachers	• Collective Responsibility[A] • Teacher Collaboration • School Commmitment • Teacher-Teacher Trust • Socialization of New Teachers
3 Supportive Environment	• Teacher Safety[A] • Child-Child Interactions* • Positive Learning Climate*
4 Ambitious Instruction	• Early Cognitive Development* • Early Language Development* • Early Math Development* • Early Social-Emotional Development* • Quality of Student Interactions*
5 Involved Families	• Teacher-Parent Trust[A] • Parent Involvement • Teacher Outreach and Collaboration with Parents* • Parent Influence
6 Parent Voice	• Including Parents as Partners*[P] • Teacher Communication with Parents*[P] • Program Orientation towards Early Education*[P] • Parent Influence on the Program*[P]

Note: * New Early Ed measure (not on K-12). [A] Slightly adapted from K-12 measure. [P] Parent survey measure.

1. **Effective Instructional Leaders:** The school or program leadership is strategically focused on children's development and early achievement. They nurture trust, collective understanding and responsibility for excellence, and improvement among staff and families.

2. **Collaborative Teachers:** Teachers are committed to the school or program, build strong relationships with their colleagues, and work together continuously to improve teaching and learning.

3. **Supportive Environment:** Schools or programs are physically and emotionally safe and engaging environments, wherein staff hold high expectations for children's socio-emotional and academic learning, coupled with nurturing, individualized support for children and families.

4. **Ambitious Instruction:** Teachers and staff provide consistently engaging, effective, rigorous, and developmentally-appropriate curriculum and instruction.

5. **Involved Families:** Staff develop strong, collaborative relationships with families and support active family engagement in children's learning.

6. **Parent Voice:** Parents feel included as a partner in their child's learning and development, including influence over the programming.

Early childhood program sites' scores on the Early Education Essentials were significantly related to ECE program outcomes, including CLASS pre-K scores and attendance rates. A more complete summary of the findings can be found in the UChicago Consortium and The Ounce's 2018 research snapshot, "Early Ed Essentials: Testing New Surveys to Inform Program Improvement."[3]

Ultimately, the Early Education Essentials tool developed by the UChicago Consortium and The Ounce provides early childhood programs with valid, reliable, and actionable data that ECE leaders can use to focus attention on strengthening the organizational supports for teaching, learning, and family engagement. It also expands the definition of quality in the ECE space beyond classroom conditions and teacher characteristics, to include organizational conditions and the important role of leaders as instructional guides. Additionally, the alignment between the Early Education Essentials and K–12 5Essentials tools provides a common lens and language for understanding and discussing improvement across the educational continuum. Leaders from both the early education and K-12 sectors can strengthen alignment of structures and practices, and thus the experiences children and families have as they transition from pre-K into the early elementary grades.

DEVELOPMENTS TO WATCH

Look for the topic of ECE program quality — and the cost of implementing high-quality ECE programs — to remain at the forefront of nationwide policy and practice discussions on ECE in the years ahead.

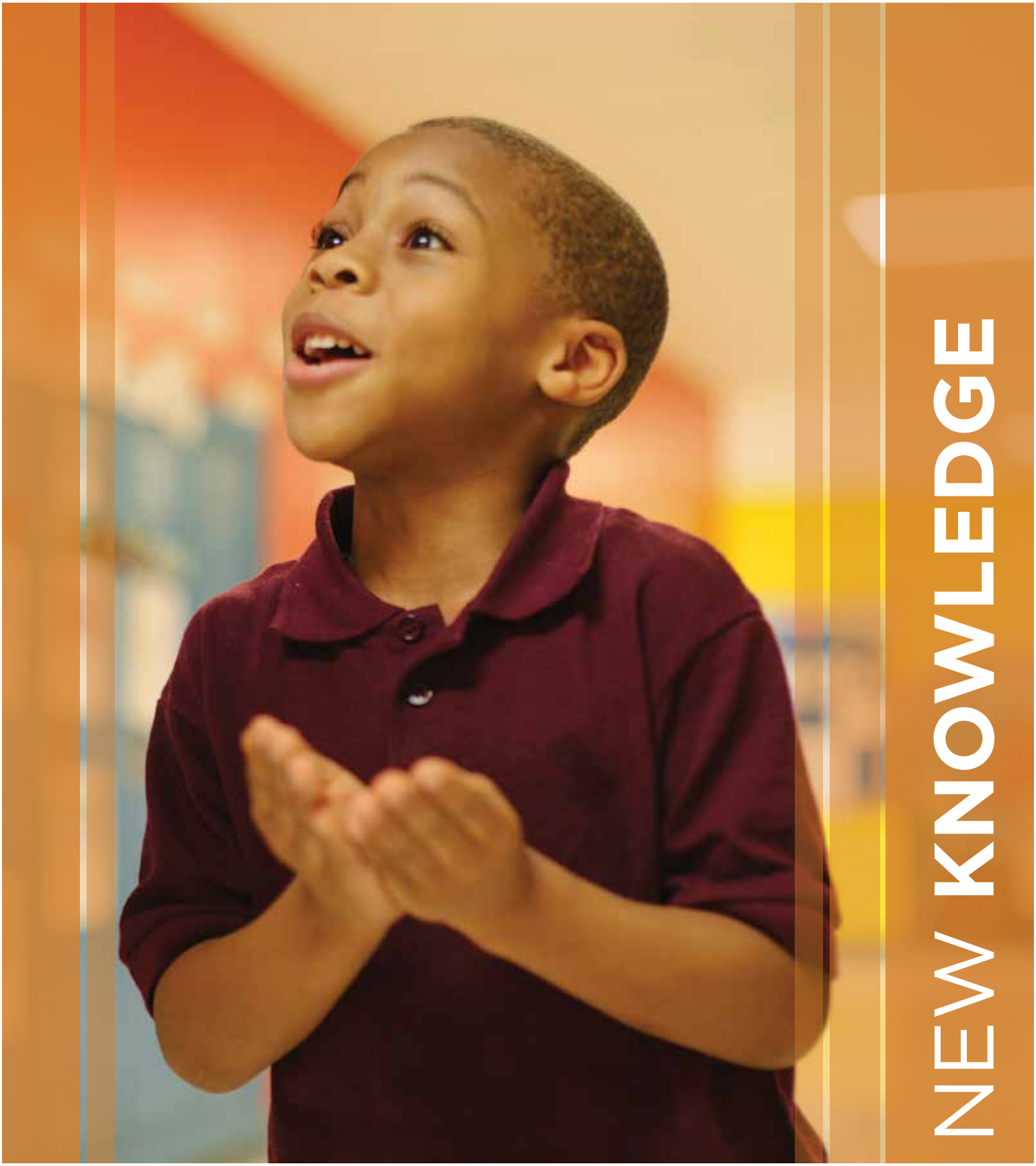
ECE played a prominent role in recent gubernatorial elections, with newly elected governors in New Mexico, Michigan, Illinois, and Colorado all pledging to increase funding for high-quality pre-K options. Other states have already pledged funds to expand access to ECE programs. In New Jersey, three districts have received a total of nearly $1.5 million in preschool education expansion aid from the state to create free, full-day preschool programs. An additional $36.5 million in state funds has been allocated to expanding access to other districts' early childcare and education programs, namely through an increase in subsidy payment rates for lower-income families. These subsidy payment rates will be higher for parents placing their children in programs rated three or more stars by Grow NJ Kids, the state's quality rating improvement system for early childcare and education. Additionally, nearly $7 million will be dedicated to improving the quality of other programs' classroom learning materials.

ECE advocates in other states are urging their legislators to follow suit. In conjunction with Early Learning Indiana, Indiana University's Public Policy Institute released a report that advocates for expanding Pre-K access through tax credits for businesses that support ECE, social impact bonds funded by private investors, and dedicated revenue sources created by local tax initiatives. The report is expected to influence the Indiana state legislator's budget negotiations beginning in January 2019.

The political will for expanding access to and funding for ECE often comes from increasingly positive bipartisan polling and the idea that higher quality education ultimately leads to better economic outcomes. In the recently released documentary, "Starting at Zero: Reimagining Education in America," Greg Canfield, Secretary of Commerce for the State of Alabama, shares his view of ECE as a lever for economic development and urges other state-level leaders to make investments in early education programs, asserting that, "now is the time to have a very strong, successful launch and expansion of early childhood education."

As state leaders focus on expanding access to high quality ECE, researchers are shedding new light on what high quality ECE looks like. A December 2018 report from The Ounce and the UChicago Consortium provides contrasting descriptions of strongly- and weakly-organized ECE programs, as measured by the Early Education Essentials tool, to help educators, policymakers, and families better understand how and why different supports in ECE programs can create better outcomes for children.[4]

Ultimately, the interest in and political will to move ECE forward in the United States seems to be high right now, and research continues to illuminate how to identify and implement high-quality ECE programs.



NEW KNOWLEDGE

Cultivating Social, Emotional, and Academic Development

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THE BIG PICTURE

Over the last decade, significant advances in our understanding of how children's brains grow and develop have fostered a growing appreciation of the critical role that social-emotional skills play in learning. As this work evolves, educators and policymakers are increasingly recognizing the importance of students' identity development, agency, and other competencies for long-term success.[1]

In 2012, the University of Chicago Consortium on School Research (UChicago Consortium) published a literature review that highlighted the link between social-emotional factors such as a positive mindset, social skills, and perseverance, and academic performance.[2] Since then, additional studies have shown that measures of students' social-emotional learning (SEL) are related to academic outcomes — including students' math scores on standardized tests at the middle school level, as well as their high school readiness.[3] Research in social neuroscience provides further support for the importance of fostering students' social-emotional development, suggesting that "the aspects of cognition that we recruit most heavily in schools, namely learning, attention, memory, decision-making, and social functioning, are both profoundly affected by and subsumed within the process of emotion."[4]

Thus, a broad consensus is emerging around the importance of social-emotional development for children's learning at all ages and education levels. New research also suggests that providing equitable educational opportunities to all students requires, in part, supporting equitable opportunities for high-quality social-emotional development in schools.[5]

Research finds that, "focusing only on the content of instruction and students' tested achievement is insufficient to achieve considerable improvements in educational outcomes and address issues of equity." Educators and schools are trying to prepare students for jobs that did not exist a decade ago. The demands of the 21st century workforce require new sets of skills and capabilities, which emphasize creative problem solving and teamwork.[6] As a result, educators are rethinking their work, going beyond teaching content and toward the more complex work of creating opportunities for students to develop the learning mindsets and critical competencies they will need throughout their lives.

According to a 2018 survey from McGraw Hill, 96 percent of school administrators, teachers, and parents believe that SEL is just as important as academic learning and roughly two-thirds of teachers and administrators report that SEL is being integrated into school-wide planning initiatives. Moreover, 75 percent of teachers report they are focusing on SEL in their classrooms, with nearly three-quarters of teachers also reporting that they devote more time to fostering SEL than they did five years ago. Yet, amid this uptake of and enthusiasm for SEL, two-thirds of teachers say they don't have enough time to devote to their students' social-emotional development, and only 22 percent say they feel very prepared to develop their students' social-emotional skills. A recent report published by The Pennsylvania State University identified additional barriers to equitable access to social-emotional development opportunities, including poverty, exclusionary discipline practices and policies in schools, a lack of trauma-informed practices within a school, implicit bias in school staff, and educator stress and burnout.[7]

NEW UEI KNOWLEDGE

The UChicago Consortium's 2018 research synthesis, *Supporting Social, Emotional, & Academic Development: Research Implications for Educators*, is designed to help teachers and principals support equitable opportunities for social-emotional development and outcomes for all students. The synthesis suggests ways that educators can understand, reflect upon, and utilize insights from research to create responsive, engaging schools and classrooms that advance educational equity: spaces in which all students can fully participate in learning, without disparities in student performance along lines of race or socioeconomic status.

Specifically, the synthesis highlights a canon of literature showing that:

Engaging students in learning is an educator's most critical task: policymakers and educators often spend a great deal of effort trying to improve student achievement by changing what is taught — changing standards, curriculum, graduation requirements, accountability tests — and less time working to get students more engaged in whatever is taught. Curriculum, standards, and tests do not matter if students are not participating in class and investing themselves in the learning opportunities that teachers prepare.

The most basic requirement for engagement in learning is to be present. Yet, nationally, about 15 percent of K–12 students — almost 20 percent of high school students, and more than 10 percent of elementary school students — are chronically absent, missing at least 10 percent of class time.[8] Disengagement cuts across racial, socioeconomic, and achievement lines, yet the consequences of disengagement are more significant for students from families with fewer resources; there are more second chances and supports outside of school for students from more affluent families.[9] Ultimately, there will continue to be large disparities in educational outcomes, with many students struggling in school, as long as one-fifth of high school students and one-tenth of elementary students are chronically missing considerable amounts of school.

Active engagement, where students are emotionally invested and fully participating in learning, is key to students' academic growth. Students learn by actively engaging with material, and it is that process of grappling that allows new skills and content to stick.[10] Studies have consistently found that about half the students in high school are bored and disengaged.[11] When students feel disinterested in a subject, it requires extra energy to pay attention — causing mental fatigue and a cognitive inability to focus, which in turn can further undermine students' feelings about and connections to school.[12]

Classroom conditions and teacher practices influence engagement: The ways teachers set up their classes influences students' emotional connection to their school work and their interactions with their teachers and peers. The most equitable classrooms use student-centered instructional practices and create the conditions that

UCHICAGO Consortium on School Research

Supporting Social, Emotional, & Academic Development

Teachers, principals, and student support personnel all play an important role in creating a school culture that supports the development and success of all students.

What questions can the adults in a school ask themselves as they work to create a supportive school climate?

Teachers and Students

- Have I set up my classroom in ways that promote positive academic mindsets?
- Do all my students feel...?
  - ... they belong in this learning community.
  - ... they can succeed at this.
  - ... they will see their ability and competence grow with effort.
  - ... that the work has value for them.
- Am I using grade and attendance data to tell me who needs more support?

Principals and Families

- What can I do to develop a positive school culture in which students and families feel engaged and empowered?

Teachers and Families

- Am I establishing positive relationships with families at the beginning of the year?
- Am I communicating and engaging with families regularly so we can be partners in supporting students to succeed in class?

Principals and Teachers Working Together

- Are teachers working collaboratively on our common goals for students?
- Do we have strong monitoring and support systems for students that are opt-out, instead of opt-in? How are we assessing whether our systems and strategies are working and for whom?

All School Staff Working Together

- How can we create a culture where teachers, school staff, and families are working together in true partnership to support student learning and engagement?
- How are we allowing students' to bring facets of their lived experiences in to our school?

Source: Allensworth, E.M., Farrington, C.A., Gordon, M.F., Johnson, D.W., Klein, K., McDaniel, B., & Nagaoka, J. (2018). *Supporting social, emotional, & academic development: Research implications for educators.* Chicago, IL: University of Chicago Consortium on School Research.

allow each student to be highly engaged. For example, by incorporating routines into academic lessons, teachers can not only promote social-emotional development, but also deepen students' content-area knowledge and skills.[13] It is important to note that investing time in students' social-emotional development is key to influencing students' engagement, and is not a substitution for teaching academic content — it is a change in how academic content is taught. Learning comes about through cycles of action and reflection — where students encounter, tinker, choose, practice, and contribute to new experiences, and then describe, evaluate, connect, envision, and integrate to make meaning of those experiences.[14]

Teachers shape students' mindsets, changing their learning experiences: It is becoming clear that teachers and other school staff are in a unique position to change students' daily experiences and beliefs in ways that have beneficial effects on students' academic performance.[15] Some of the most exciting research from the science of learning and development points to how students' perceptions of the classroom and desire to engage in learning are shaped by how their learning experience is organized. It shows teachers can activate students' intrinsic motivation — the kind of motivation and mindsets that deepen young people's engagement and persistence in academic tasks, improve the quality of the work they produce, and increase their overall enjoyment of learning. Four learning mindsets are particularly important in supporting students' academic behaviors, persistence, and performance on academic tasks. Expressed from the point of view of a student, the four mindsets are, "I belong in this learning community," "I can succeed at this," "My ability and competence grow with my effort," and "this work has value for me."[16] How true these statements feel within a classroom determines how likely students are to focus their attention on learning and persevere with challenging academic tasks. Research has consistently found that students with more positively oriented mindsets engage in better academic behaviors (they have better attendance and are more likely to participate in class, study, and complete homework) and earn better grades than students for whom these belief statements don't feel true.[17] Teachers can support positive academic mindsets in many ways, including connecting learning to students' identities, interests and prior experiences, and providing frequent and specific feedback on students' work in ways that allow them to improve their performance.

Responsive classrooms enable all students to engage: Teachers' efforts to create classroom environments that are responsive to students' individual social and emotional needs can enable all students, and particularly those who have experienced significant stress outside of school, to engage fully and succeed. Each year, millions of students experience significant trauma, such as the death or chronic illness of a loved one, family conflict or separation, extreme damage to home or property, homelessness, food insecurity, neglect or abuse, sexual assault, or exposure to community violence. Educators' critical self-awareness and appreciation of how traumatic stress may affect children's experience of their classrooms are key to responding in supportive ways that enable all children to participate fully and succeed. There are a number of preventative practices, as well as restorative discipline practices, that teachers can learn and employ and these can be supported by school-wide strategies. For example, many schools have adopted Positive Behavioral Interventions and Supports, which emphasize teaching and rewarding positive behaviors across the school. Other schools provide access to social workers, therapists, and wraparound mental health services to create a school-wide culture that supports educators' ability to understand, recognize, and respond to all children's needs.

Partnering with families supports student engagement: There is significant evidence that strong parent engagement practices are related to student achievement.[18] Students who have involved parents are more likely to earn higher grades and test scores, and enroll in higher-level classes; be promoted to the next grade level, pass their classes, and earn more credits; and attend school regularly.[19] Also, in schools where there are strong relationships between school staff and families, students feel safer and more supported.[20] Much of what accounts for the large differences in safety among schools are the ways in which parents, teachers, and students work together and trust each other. Research in Chicago found that, among schools that served students from similar neighborhoods, those that had strong relationships between teachers and families had much safer and more orderly school environments.[21] Principals and teachers can create intentional practices and systems that promote family involvement, including for families who face challenges to involvement, such as work schedules, language barriers, and differences in culture.

School leaders and staff co-create the climate for student success: It takes educators working together on creating supportive, trusting, and safe learning climates in schools to improve student learning. When teachers

are left on their own to figure out how to create equitable learning environments in their classrooms, the task can seem daunting, and their success will vary considerably. Without intentional, whole-school efforts to build collaborative relationships across the school community, individual teachers and school staff members lack support in addressing the challenges they encounter — leading schools to recreate the inequalities that mirror the larger society. Research has shown everyone benefits when schools have a collaborative learning culture among all of the adults working in the school, including administrators, teachers, counselors, front-office staff, and security guards, and a culture in which all educators take responsibility for the whole school and are committed to creating a strong and inclusive climate. In fact, the way teachers and other staff work together in the school is more important than individual teacher qualifications.[22] Relational trust is key to successful collaboration so that all staff are able to work together on the factors that matter for success.[23] By taking a systems-level approach focused on school climate, principals can foster an environment that empowers both educators and students to thrive.

Ultimately, the UChicago Consortium's report points to the importance of creating the student-centered learning environments that research shows foster students' holistic development and contribute to equitable learning opportunities and outcomes. Importantly, it also offers ways that educators can understand, reflect upon, and utilize insights from research for SEL.

DEVELOPMENTS TO WATCH

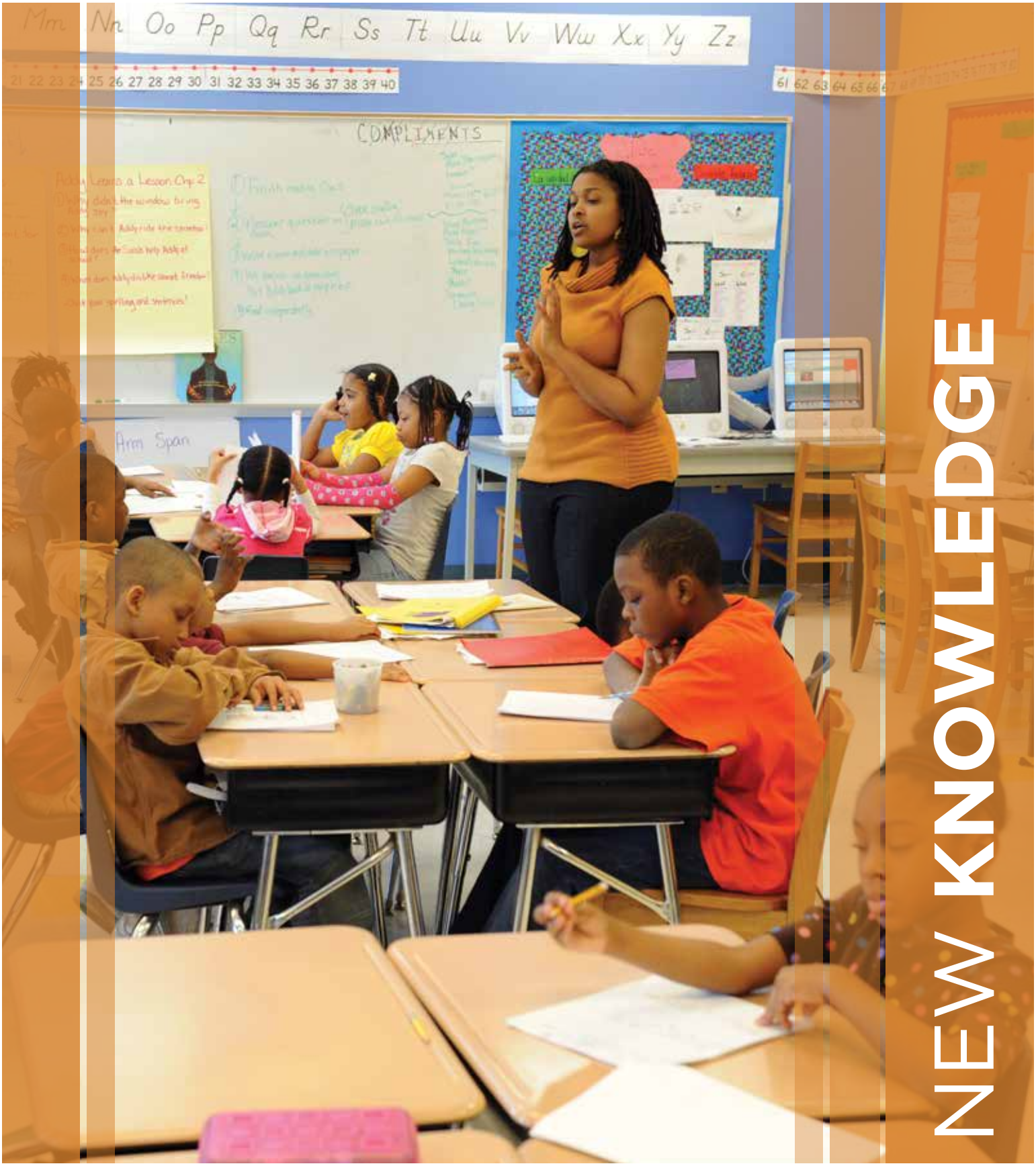
As research on and interest in students' social-emotional development grows, a growing number of districts are integrating and expanding SEL in their classrooms. The Collaborative for Academic, Social, and Emotional Learning (CASEL) has partnered with 20 urban school districts across the country — including major cities such as Chicago, Atlanta, Austin, Baltimore, Cleveland, Minneapolis, Oakland, and Dallas — to help strategically embed SEL into all aspects of their education systems. CASEL's program, the Collaborative Districts Initiative (CDI), provides a resource center with research on and classroom-tested practices for fostering social, emotional, and academic development, among other supports. Similarly, the Whole School, Whole Community, Whole Child model created by ASCD and the U.S. Centers for Disease Control and Prevention provides tools and guidance for schools to enhance the social emotional development of their students.

Researchers have also made strides over the past year with respect to the development of reliable measures for identifying students who may be at-risk both academically and socially. A recent study published in the Journal of Applied Developmental Psychology found scores for the teacher-completed Social Emotional Learning Screening Assessment (SELA) aligned with the five major components of SEL recognized by CASEL and provides practitioners with a reliable and timely way of identifying at-risk students.[24] Additionally, UChicago Impact, a nonprofit organization within the University of Chicago Urban Education Institute, has partnered with the UChicago Consortium to test a research-based survey designed to increase educators' capacity for reflecting upon and understanding how the learning environments they create, from the way their classrooms are organized to seemingly mundane daily practices, influences aspects of their students' social and emotional development. The forthcoming survey, Cultivate, is based on UChicago Consortium research showing that the conditions teachers create in their classrooms influence students' mindsets and strategies for learning, which are reflected in students' academic performance.

Cultivate is unique from other systems that measure mindsets and strategies in that it turns educators' attention away from trying to "fix" students and toward creating the kinds of environments and experiences that enable students to develop the type of academic mindsets and learning strategies that lead to higher levels of academic achievement. The survey provides educators with data on the seven dimensions of a classroom that matter most for cultivating students' academic mindsets and learning strategies: Teacher Support, Learning Connections, Developmental Relationships, Classroom Community, Learning Goals, Organization, and Class Work.

UChicago Impact is also developing a reporting site designed to illustrate the connection between the specific conditions teachers create in their classrooms and the academic performance of students who experience those conditions. Moreover, the site will include recommendations on strategies educators can implement in their particular schools to cultivate the classroom conditions that contribute to students' social, emotional, and academic development.

Finally, the philanthropic community continues to invest more in the potential of SEL. In October 2018, the Allstate Foundation committed $45 million over 5 years to provide direct programming for youth who can most benefit from SEL. Other major philanthropies including the Bill and Melinda Gates Foundation and the Robert Wood Johnson Foundation, are also focusing some of their efforts on improving and supporting SEL work across the country.



NEW KNOWLEDGE

Intensifying Teacher Training

THE UNIVERSITY OF CHICAGO | UEI URBAN EDUCATION INSTITUTE

THE BIG PICTURE

Teachers spend a lot of time with children during their formative years. Research shows that quality relationships developed over time between teachers and students can foster students' social-emotional development and improve academic outcomes.[1] Yet, despite the central role teachers play in the lives of children, teacher turnover in the United States is startlingly high. This is especially true in high-need, Title I schools, where annual turnover rates are nearly 50 percent higher than in non-Title 1 schools.[2]

As education leaders look to address the root causes of teacher turnover, many have focused on the fact that 77 percent of new teachers report they did not feel prepared to meet the needs of their students[3] when they first entered the classroom. In light of this, programs designed to provide longer-term and more intensive pre-service classroom experience for teachers-in-training have become more common. Teacher residency programs, in which aspiring teachers work with veteran teachers in classrooms for a full year before entering the teaching workforce, have gained ground, growing from a handful of residency programs in the early 2000s to three dozen programs making up the membership of the National Center for Teacher Residencies (NCTR) in 2018. By embedding in classrooms for a full academic year rather than the more customary 10 weeks, teacher candidates have more time to learn from experienced educators and gain a feel for the dynamics of classroom life throughout a school year. Organizations affiliated with the NCTR are seeing this residency model approach to teacher preparation pay off, with 86 percent of students graduating from NCTR member programs remaining in the field for more than three years. Educators and policymakers are now exploring ways to scale the residency model approach to teacher preparation and expand its impact in high-need districts, in particular.

NEW UEI KNOWLEDGE

The University of Chicago Urban Teacher Education Program (UChicago UTEP) launched in 2003 as one of the first teacher residency programs in the United States. UChicago UTEP offers a two-year Master of Arts in Teaching followed by three years of post-graduation mentoring and coaching for five years of comprehensive teacher education. As a founding member of the NCTR, UChicago UTEP's practice has helped shape the national discussion about how to effectively prepare pre-service teachers for successful, long-term careers in education.

With a focus on educating youth in urban school districts, UChicago UTEP's coursework is designed to prepare pre-service teachers to reflect upon and develop an in-depth understanding of the community and cultural contexts in which they will serve as educators. UChicago UTEP developed a Foundations Seminar to help teacher candidates "unlearn" some of their socialized, preconceived notions about what it means to be a teacher, and provide forums for critical, honest conversations about race, class, and unconscious bias. The Foundations Seminar also integrates critical analysis of the specific education, housing, and economic policies that have impacted the communities in which UTEP students will teach, as well as thoughtful examination of norms related to gender identity and sexuality, with the ultimate aim of helping aspiring educators create more inclusive school and classroom environments.

In addition to coursework, UChicago UTEP students embed within local nonprofit and social service organizations, where they have the opportunity to work with and learn alongside community members. In the Foundations Year, they work with community-based organizations like the Center on Halsted, Asian Americans Advancing Justice, and Blocks Together. As students progress to their Residency year, their work in the community continues with organizations such as the Umoja Corporation, which helps UTEP's teacher candidates learn how to implement restorative justice practices in their classrooms. Each of these placements and collaborations allow pre-service teachers to learn about the challenges the

communities in which they will serve face, as well as the assets and strengths that community members can bring to their classrooms. UTEP students also learn how to understand the trauma that plagues many students and families in high-need communities. In partnership with Dr. Micere Keels, an Associate Professor in the University of Chicago's Department of Comparative Human Development, UChicago UTEP teaches trauma-responsive practices that can help educators deescalate aggressive behaviors that stem from trauma experienced outside the classroom, build restorative communities, and keep students on productive learning paths. In 2018, UChicago UTEP began offering an English as a second language (ESL) endorsement pathway in response to the burgeoning population of English language learners and Illinois' 2015 mandate for an ESL endorsement for every teacher serving students with ESL needs. UTEP's endorsement will provide both pre-service and seasoned teachers with in-depth knowledge of various methods of teaching ESL and explore instructional approaches, methodologies, and techniques for successfully engaging ESL students.

Each element of UChicago UTEP's model noted above is designed to help teachers empathize with and understand the students and families with whom they will work so that they are better poised to teach and remain teaching in high-need communities. UTEP's integration of coursework, classroom, and community-based experiences has helped keep 92 percent of UTEP graduates inside high-need schools five years into their teaching careers.[4] By comparison, "many schools serving America's neediest children lose over half of their teaching staff every five years."[5]

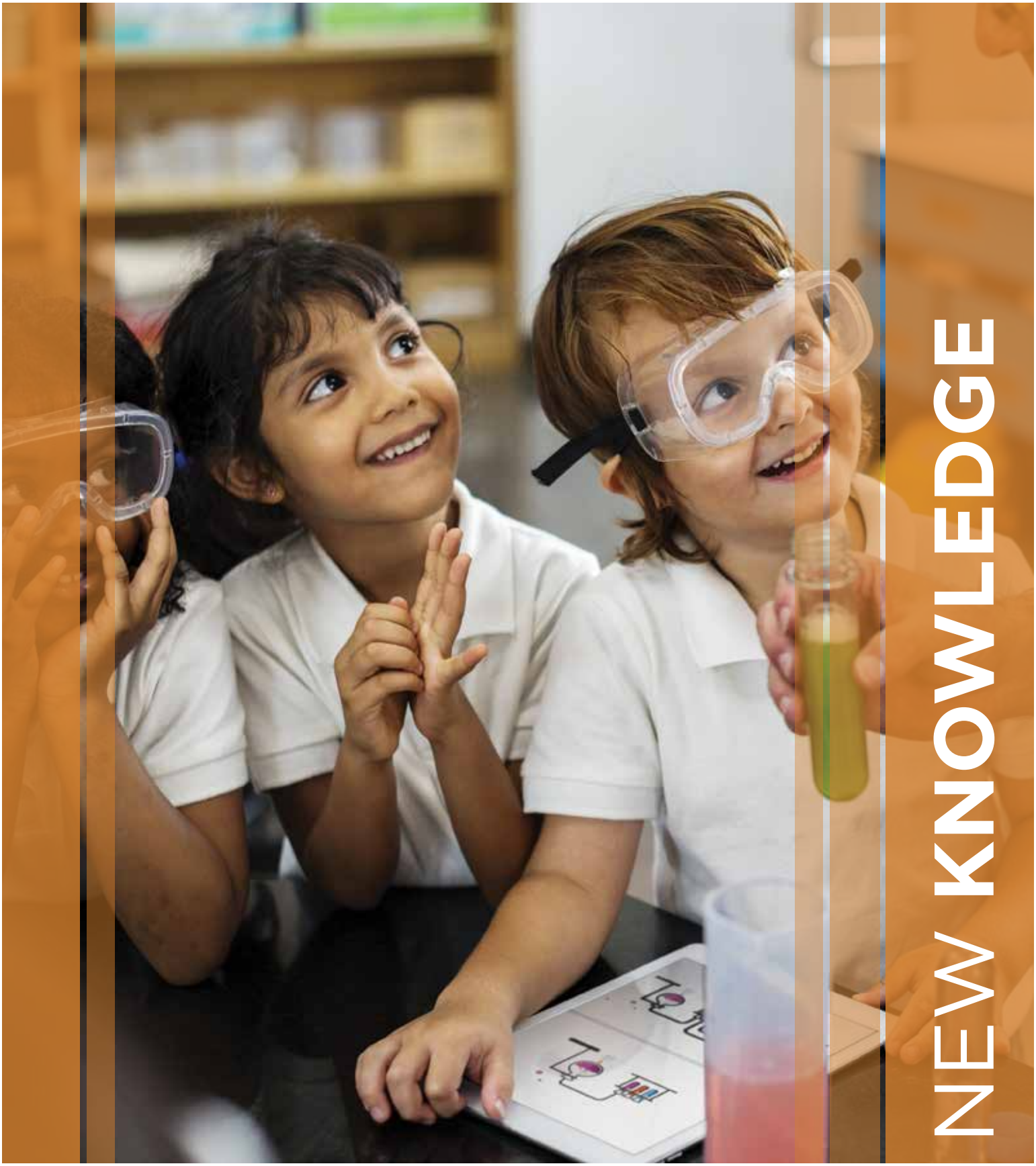
DEVELOPMENTS TO WATCH

New teacher residency programs are cropping up across the country as evidence of their effectiveness in stemming the tide of teacher attrition mounts. Colleges and universities have historically operated a majority of the nation's teacher residency programs, but public school districts have begun to create their own residency programs to develop and retain a larger pool of well-prepared teachers. In 2018, Chicago Public Schools (CPS) launched its own residency program to prepare future teachers committed to working in CPS schools to succeed and thrive.[6]

Other states and districts across the country are also channeling resources toward creating residency programs. The 2018-19 budget for the State of California included $75 million marked specifically for grants to support residency programs across the state.[7] With a specific focus on special education and STEM teaching, this influx of money is expected to produce around 3,700 new teachers. Residency partnerships between universities and urban school districts have also cropped up in cities like Denver, Boston, Philadelphia, Richmond, and Seattle.

Despite the growth in teacher residency programs, the number of teachers in the workforce who have gone through a residency program versus a more typical university-based teaching program or postgraduate teacher accreditation program is low. According to the National Center for Education Statistics, there are roughly 3.2 million full-time teachers employed in the United States.[8] By comparison, the NCTR reports that, through the course of its history, its member residency programs have graduated only 3,500 teachers.[9]

As the number of residency programs rises, so too does the number of shorter-term teacher preparation programs designed to address significant teacher shortages. In Detroit, for example, school leaders have turned to alternative certification programs that provide interim certifications that only become full certifications after three years on the job and good reviews from a teacher's administrator.[10] Illinois has also reduced some licensing standards in an effort to address teacher shortages around the state.[11] While these alternative approaches to accreditation may help alleviate immediate shortages, the question of whether they adequately prepare teachers for classrooms in high-need districts, in particular, remains.



NEW KNOWLEDGE

Preparing Educators to Teach Science

THE UNIVERSITY OF CHICAGO | UEI URBAN EDUCATION INSTITUTE

THE BIG PICTURE

As the global economy grows and evolves, there is an increasing need for skilled workers in the science, technology, engineering, and math (STEM) fields. In the United States, STEM fields pay workers 1.7 times higher than the national average and represent some of the fastest growing career paths.[1] Jobs in biomedical engineering, software development, and mathematics are all expected to grow by more than 15 percent by 2020.[2] Yet there is a significant gap between the need for skilled workers in STEM industries and the number of students graduating from high school and college with the skills for or interest in STEM careers.

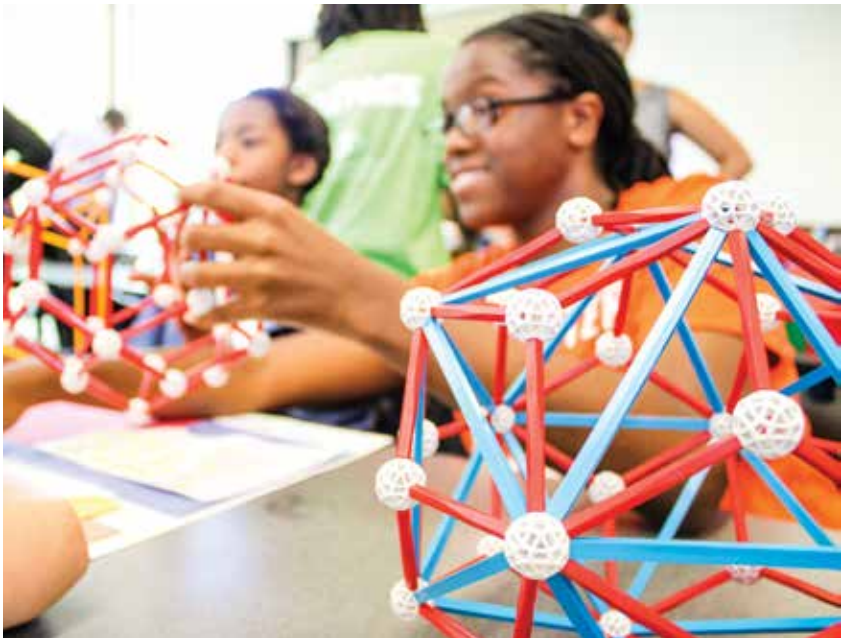
The federal government has created dozens of programs designed to foster interest and achievement in STEM for students in high-need communities.[3] Countless philanthropies and nonprofits across the country, including the Gates Foundation[4] and Iridescent Learning, also work to promote STEM opportunities for young people and, while progress has been made, there is still a long way to go: only 11 percent of scientists and engineers in the workplace are people of color and less than one third are women.[5]

One of the most significant challenges associated with engaging the next generation in STEM is finding and training teachers to help foster the scientific curiosity and creativity necessary to succeed in STEM careers. Nearly every state in the country reported a shortage of science teachers in 2017-18,[6] pointing to the need to build a stronger pipeline of science teachers that can nurture students' interest in STEM from an early age and build a new bulwark of skilled scientists.

NEW UEI KNOWLEDGE

New research shows that teachers trained in science are more likely to be successful in the classroom with inquiry-based instruction models,[7] Inquiry-based science instruction involves challenging students with questions and giving them the opportunity to apply scientific methods to experimenting and problem solving rather than lecturing. The National Association of Science Teachers, the National Science Education Standards, and Next Generation Science Standards all encourage K-12 teachers to use an inquiry-based approach to science instruction, yet it remains an exception rather than rule in many science classrooms throughout the country.

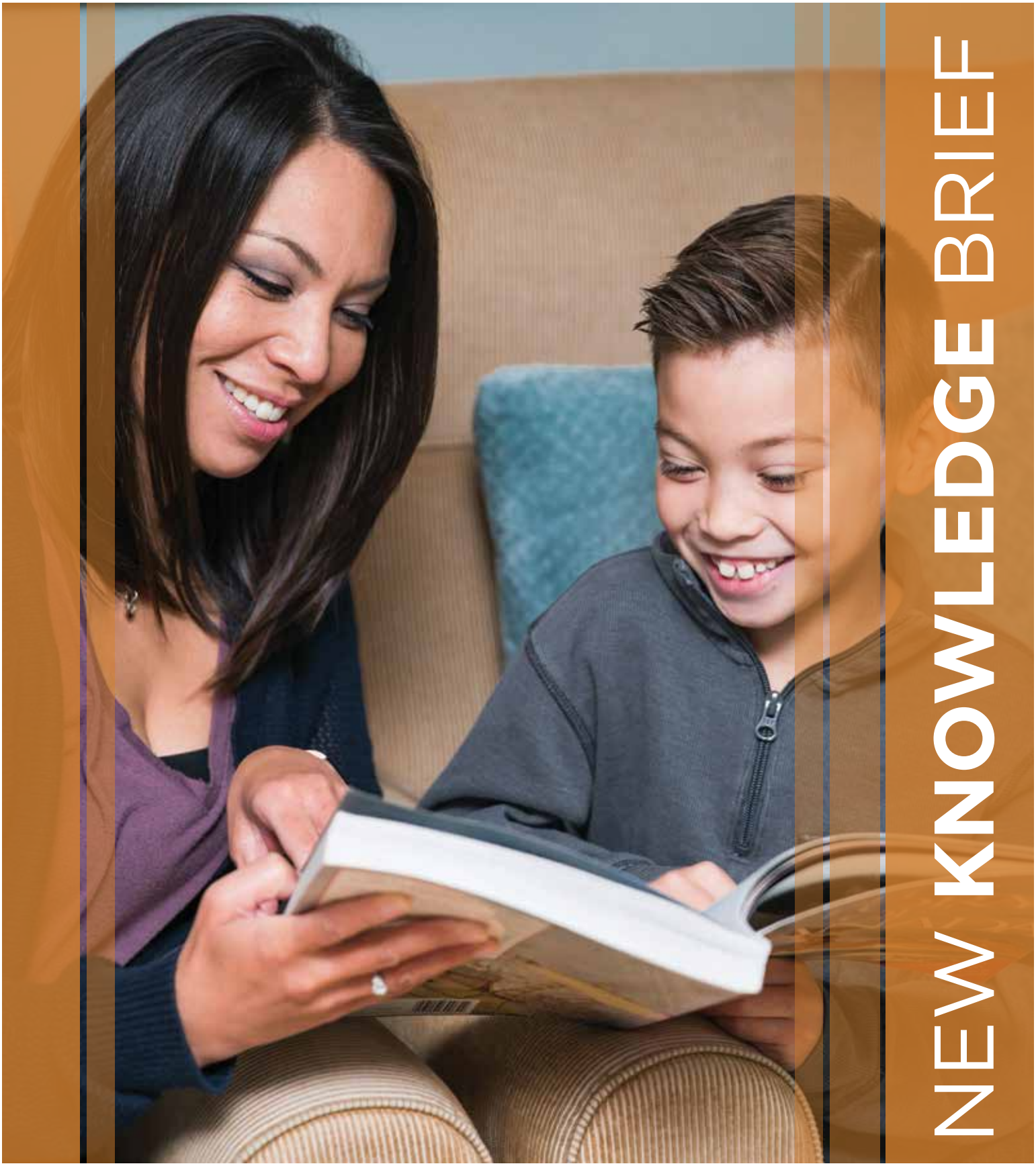
In light of this, the UChicago Urban Teacher Education Program (UChicago UTEP) is training aspiring teachers to lead their classrooms in inquiry-based science instruction by integrating all content courses with scientific inquiry experiences. For example, UChicago UTEP's students are given an assignment that involves examining the anti-bacterial properties of certain common herbs. Teacher candidates are required to work through the entire scientific process, from developing a research question and establishing a hypothesis, to conducting an experiment, to producing and analyzing data, and reporting research results. UChicago UTEP pairs this experiential learning with traditional coursework that prepares aspiring teachers to practically incorporate inquiry-based science instruction into lesson plans — and all of UChicago UTEP's candidates take inquiry-based science coursework, regardless of whether or not they will end up teaching science once they enter the workforce.



Ultimately, evidence suggests that pedagogy needs to intersect with scientific inquiry to be most effective and, by teaching science as an exercise in creative thinking, testing, and problem solving rather than drilling in facts, teachers can promote students' enthusiasm for science in the classroom.

DEVELOPMENTS TO WATCH

Many states and districts have recognized the impact of inquiry-based science learning and the need to train teachers in applying it to more deeply engage students in STEM. The Arizona Science Center launched the Science Teacher Residence (STAR) Program.[8] It provides intensive, inquiry-based professional development for science teachers from around the state, but especially those working in high-need schools. The week-long program introduces teachers to subject-specific activities in the life sciences, physical sciences, and environmental sciences and connects them to local leaders in the STEM fields who can be resources for engaging classroom visits or field trips. Teacher residency programs such as UTeach at the University of Texas Austin also place a strong emphasis on student-led inquiry in the classroom with programs for undergraduates like Hands-on-Science and opportunities to host elementary school students in science classrooms for its pre-service teachers.[9]



NEW KNOWLEDGE BRIEF

Developing Tools for Assessing Spanish Language Literacy

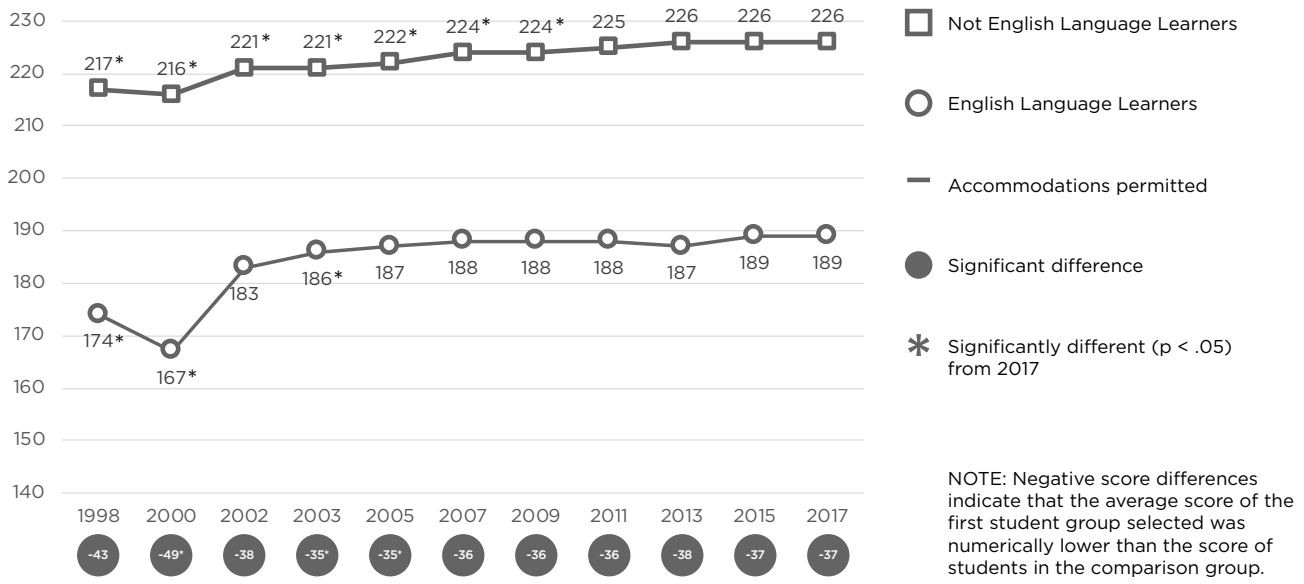
THE UNIVERSITY OF CHICAGO | UEI URBAN EDUCATION INSTITUTE

THE BIG PICTURE

The number of U.S. public school students classified as English Learners has grown significantly over the past two decades. According to the National Center for Education Statistics, there were 5 million English Learners in 2015 compared to 3.8 million in 2000, and 77 percent of all English Learners in the U.S. are Spanish speaking.[1] Historically, students whose first language was anything other than English have been taught to adopt English as their primary language through transitional education programs rather than dual-language programs designed to foster proficiency in both their native language and English.

English Learners have also performed at significantly lower levels than their non-English Learner peers — especially in reading. According to the 2017 National Assessment of Educational Progress, reading scores for fourth-grade English Learners were 37 points lower than monolingual English-speaking fourth graders.[2]

Trend in fourth-grade NAEP reading average scores and score gaps, by status as English Language Learners[3]



Performance like this for fourth-grade students presents a concern and challenge. Research shows that students who are not able to read by the end of third grade are likely to remain poor readers for the remainder of their academic years and beyond. Also, students who fall behind in reading are more likely to fall behind in other academic areas.[4]

Decades of research and developments in educational programming have illuminated more effective ways to educate English Learners and all students. Research shows that students who receive bilingual instruction have outperformed students in English-only instruction on several measures.[5] They score higher in English Language Arts and on measures of English proficiency, and students who maintain biliteracy through high school are less likely to drop out and more likely to attend college.[6] Research has also shown students who receive bilingual education have more cohesive family relations and fewer behavior problems in school.[7]

While evidence of the importance of bilingual instruction in promoting positive student outcomes is strong, implementing bilingual instruction can be challenging. Developing and systematizing effective classroom supports and learning for English Learners continues to be a challenge, and there aren't enough teachers in the workforce who are both bilingual and trained in bilingual instruction.[8]

NEW UEI DEVELOPMENTS

UChicago Impact, a nonprofit organization within the University of Chicago Urban Education Institute (UEI), is working to better support students and teachers in bilingual education programs focused on fostering Spanish literacy proficiency.

UChicago Impact works with school districts and charter networks nationwide to get more students on track to reading proficiency through its Strategic Teaching and Evaluation of Progress (STEP) system. STEP is a research-based formative assessment system designed to build teacher capacity for literacy instruction and provide educators with the data and professional learning necessary to improve student achievement in literacy across grade levels.

STEP currently supports approximately 3,000 teachers and 110,000 students across 270 schools and 31 states. Based on the original STEP validation study (2005), students who achieve STEP 12 by the end of third grade have an 86 percent chance of meeting or exceeding state standards.

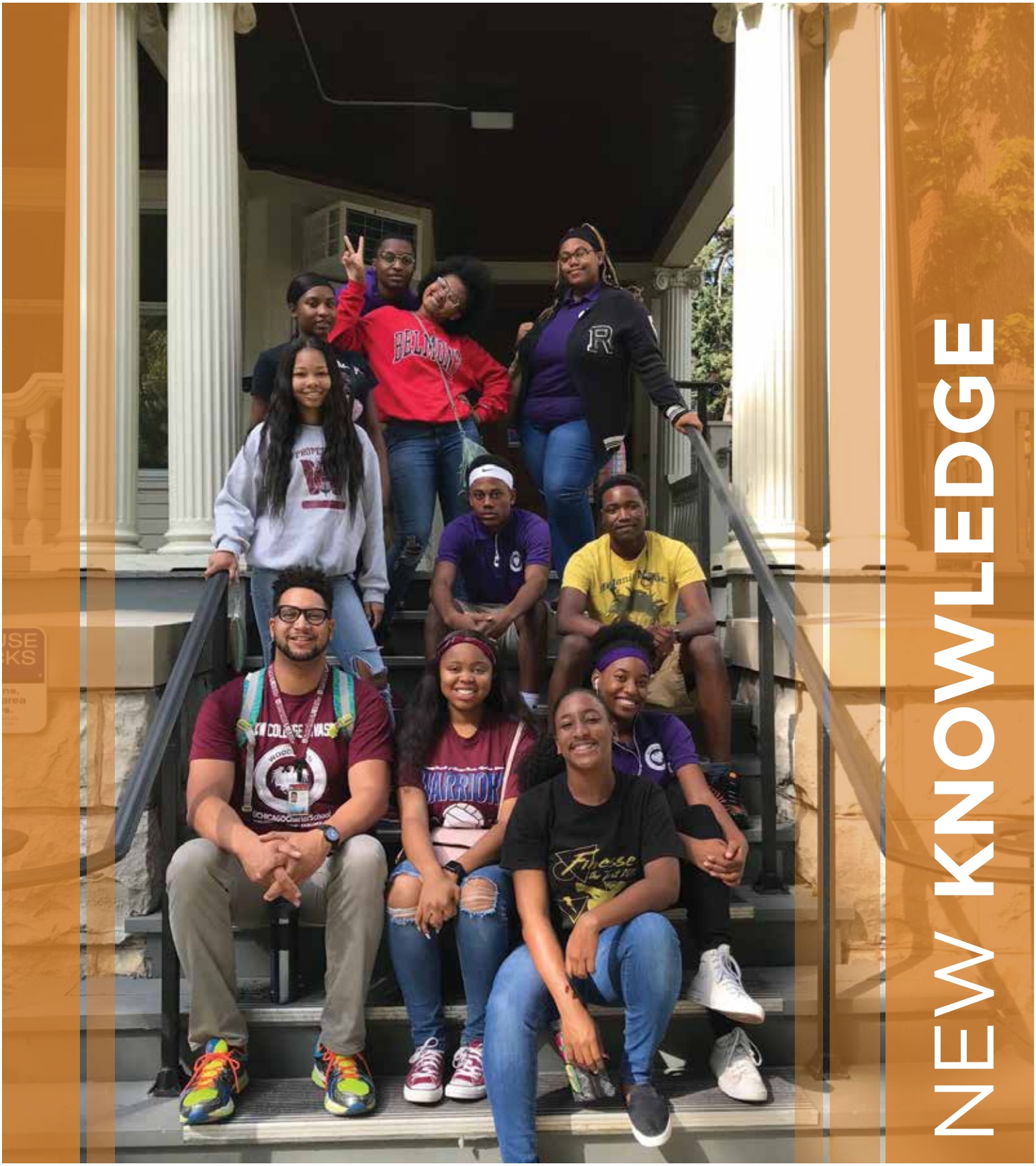
To support educators working to foster Spanish literary proficiency, UChicago Impact is developing STEP Español. Like STEP, STEP Español is a research-based formative assessment system. It is designed to identify students' reading abilities and areas of need in reading and communicating about their comprehension of text in Spanish. Unlike other Spanish literacy assessments, STEP Español is not a translation of its English counterpart. While there are similarities in best practices for English instruction and Spanish instruction, there are specific Spanish literacy milestones that do not have parallels in English literacy instruction. For example, developmental spelling, decoding, and phonemic awareness — all critical reading milestones — progress more rapidly and earlier on in the reading trajectory for Spanish. Also, in Spanish, segmenting words into syllables is the most important skill in emergent literacy and is the strongest predictor of long term reading success. In English, the role of syllabication — dividing words into syllables — does not carry the same predictive weight and it is emphasized later in the developmental trajectory.

The design of the STEP Español assessment and accompanying professional learning supports is taking such differences into consideration. STEP Español will measure students' abilities against the critical reading milestones that need to be met to achieve proficiency in Spanish, specifically. It is designed to inform teachers about student progression against the Spanish literacy skills necessary to build a strong foundation for more advanced literacy development. STEP Español's "Construir y Estabilizar Serie" will support students and teachers in grades K-3, just as English STEP's Construct & Stabilize Series does. The Construir y Estabilizar Serie will support teachers in establishing foundational literacy and comprehension skills through the use of both fiction and non-fiction texts.

UChicago Impact and the STEP Español team of researchers and practitioners look forward to contributing to the growing body of knowledge on and tools for bilingual assessment in the coming years.

DEVELOPMENTS TO WATCH

The growing body of research on effective dual language programs is encouraging more states across the nation to implement The Seal of Biliteracy, a designation given to students who have studied and attained proficiency in two or more languages by high school graduation. The Seal of Biliteracy is placed on recipients' transcripts or diplomas and serves as evidence of bilingual proficiency for future employers and college admissions officers. Currently, 35 states and Washington D.C. have approved a statewide Seal of Biliteracy,[9] while schools in at least 40 states operate dual-language programs. New York city alone has more than 100 dual-language programs[10] and Washington D.C. is quickly expanding the number of these programs in their schools.[11]



NEW KNOWLEDGE

Bridging K-12 Schooling and Higher Education

THE UNIVERSITY OF CHICAGO | UEI URBAN EDUCATION INSTITUTE

THE BIG PICTURE

Public charter schools were conceptualized in the 1970s with the intention of creating autonomous schools that could pursue innovative educational practices and improve student achievement. America's first charter school law was signed in Minnesota in 1991 and the first charter opened there in 1992. Since then, the number of charter schools has grown to approximately 7,000 across 43 states and Washington DC, serving 3.2 million students.[1]

Charter schools are named as such because they operate under a legally binding contract called a charter issued by a governing body authorized to hold schools accountable for meeting certain criteria and performance metrics. Oftentimes, local school districts serve as authorizers. In fact, 90 percent of authorizers are local educational agencies.[2]

Universities and colleges can legally authorize charter schools in 17 states and roughly 47 higher education institutions have taken on that role.[3] Central Michigan University became the first university authorizer of public charter schools in 1994 and has authorized 64 schools serving more than 30,000 students in the state since.[4]

An even smaller number of universities go beyond authorization and actually operate and house a public charter school. The University of Chicago became one of those charter school operators in 1998. It was among the first universities to operate a public charter school with the opening of its first University of Chicago Charter School (UChicago Charter School) campus in the North/Kenwood Oakland neighborhood on the South Side of Chicago. The school has since expanded to serve approximately 1,700 students across four campuses spanning pre-kindergarten through high school. Today, there are less than a dozen other such partnerships between a university and a public charter school, including at the University of Texas Austin, the University of Dayton, the University of New Mexico, the University of West Alabama, Purdue University, and Delaware State University.

A 2008 Issue Brief from the National Association of Charter School Authorizers (NACSA) describes the rationale of many universities that choose to become charter school operators:

> *"Driven by a commitment to advance education reform, connect research to practice, and better serve the communities in which they are located, institutions of higher education are increasingly tapping into the potential of the charter school sector to broaden the impact of their missions."*[5]

Still, very few higher education institutions operate public charter schools. The reasons for that surely vary, but NACSA suggests some of the major obstacles include earning commitment from key stakeholder groups, "the unprecedented levels of accountability set for the charter school sector," and "the ongoing political debates that surround charters nationally."[6]

Timothy F.C. Knowles, a chief architect and former director of the University of Chicago Urban Education Institute (UEI), acknowledged the risks to operating a public charter school, but ultimately said, "What are universities for if they aren't helping America solve its biggest problems?"[7] That sentiment was an important impetus for the founding of the UChicago Charter School.

The book, *The Ambitious Elementary School: Its Conception, Design, and Implications for Educational Equality*, written by Elizabeth McGhee Hassrick, Stephen W. Raudenbush, and Lisa Rosen examines the UChicago Charter School elementary model and its success in narrowing achievement gaps. In regard to the potential promise of partnerships between higher education institutions and public, K-12 schools, the authors write "that new collaborations between researchers and practitioners are essential to clarify, improve, and disseminate powerful approaches to schooling for the nation's most disadvantaged children."[8]

A CLOSER LOOK AT THE UNIVERSITY OF CHICAGO CHARTER SCHOOL

The UChicago Charter School plays a critical role in the production of new knowledge in preK-12 schooling, and is also a major beneficiary of it, bringing to life how university and preK-12 partnerships can connect researchers and practitioners in service of improving outcomes for students. The school is situated within and operated by UEI, which bridges the worlds of education research and practice to foster greater equity and excellence in public schooling. Across four units, UEI conducts rigorous applied research, trains teachers and school leaders, provides

research-based tools and resources to schools in 62 major cities across 34 states, and operates the preK-12 UChicago Charter School. Together, UEI's units produce research- and practice-based knowledge on what matters most for school improvement and student success, with the UChicago Charter School serving as a conduit for new knowledge from UEI as well as a pilot site for research-based tools and practices UEI's units have helped produce, including the Strategic Teaching and Evaluation of Progress (STEP) System and the Early Education Essentials Measurement System.

The UChicago Charter School also provides the University of Chicago Urban Teacher Education Program (UChicago UTEP) with a site in which to complete a portion of its teacher preparation work. All of UChicago UTEP's teacher candidates tutor UChicago Charter School students and participate in a UChicago Charter School-based child study during their first year of foundational coursework.

The UChicago Charter School benefits from its proximity to the University of Chicago Consortium on School Research (UChicago Consortium) within UEI as well. Founded in 1990, the UChicago Consortium has established itself as a leader in rigorous, applied research that identifies what matters most for school improvement and student success. Based on the UChicago Consortium's research, the UChicago Charter School has established a number of policies, goals, and school-wide improvements. For example, the school established a 98 percent attendance rate goal for all of its campuses based on UChicago Consortium research illuminating the link between a 98 percent attendance threshold and college readiness.[9] The school also regularly monitors its Freshman OnTrack rate — the proportion of its ninth grade students earning no more than one semester F in a core course and enough credits to be promoted to the tenth grade at the end of freshman year — as well as students' attendance rates and GPAs in light of the UChicago Consortium's research illuminating the importance of these measures for students' high school and college attainment.

The UChicago Charter School also benefits from its proximity to myriad resources and enrichment opportunities at the University of Chicago. The University's Office of Civic Engagement offers free tutoring and college counseling, connecting UChicago undergraduates with UChicago Charter School students through its Neighborhood Schools Program. UChicago's Office of Civic Engagement and Facilities Services also sponsor a monthly seminar for UChicago Charter high school students interested in architecture and construction careers. Each session involves visiting an active construction project and interactive activities that expose students to the intricacies of planning and designing buildings.

Additionally, UChicago supports initiatives to improve the safety, health, and well being of UChicago Charter School students and families. The University of Chicago Police Department's PAL program provides after-school experiences that build academic and life skills for UChicago Charter's middle school students, and UChicago Medicine has supported work to improve asthma identification and education at the UChicago Charter School, screening over 1,200 students and identifying more than 280 with asthma or signs of asthma. The students who were identified, as well as their parents or guardians, received education and follow-up from a community health worker and the program helped reduce the number of emergency department visits for participants by 83 percent. UChicago Medicine also partnered with the UChicago Charter School to create the Fresh, Fit, Fun program designed to teach children, parents, and staff about nutrition, improve access to fitness activities, and train teachers on approaches to reducing childhood obesity.

With the aid of these partnerships and supports, the UChicago Charter School has generated strong results. An in-depth study of the UChicago Charter School's elementary model found that students who attended the UChicago Charter School by virtue of winning a random lottery achieved substantially more in reading and mathematics than those who lost the lottery and were unable to attend the school. Specifically, children who lost the lottery and therefore were unable to attend the school scored, on average, at the 26th percentile of the white distribution in Chicago. That means that 74 percent of the white students in Chicago would outscore those children. In contrast, children who won the lottery and therefore were able to attend the school scored at the 44th percentile of the white distribution. This means that just over half of the white students in Chicago would outscore those children. Thus, attending the UChicago Charter School closed most of the gap between these students and white students in Chicago. This result holds up for reading as well as math and is one of the largest effects of innovative schooling in the published literature.[10] Additionally, two of the nation's leading economists and education scholars—Harvard University's Richard Murnane and University of California Irvine's Greg Duncan — showcased the UChicago Charter

School's North Kenwood/Oakland elementary campus as one of three of the nation's most promising educational solutions in their book, *Restoring Opportunity: The Crisis of Inequality and the Challenge for American Education*.

Evidence also suggests the UChicago Charter School's model is working to move students to and through college. Since 2012, 100 percent of the UChicago Charter School's graduating students have been accepted to college, and the UChicago Charter School holds one of the highest college persistence rates of all non-selective high schools in Chicago,[11] with alumni attending Stanford University, the University of Chicago, Oberlin College, the University of Illinois at Urbana-Champaign, the University of Missouri, Howard University, and other selective colleges across the country.

In addition to educating its own students, the UChicago Charter School also provides education and enrichment opportunities to students and families across Chicago's South Side. The UChicago Charter School's Woodlawn Campus offers free college counseling services, including financial aid counseling, college application assistance, and exam preparation, to all students in the neighborhoods surrounding the University of Chicago.

Ultimately, the UChicago Charter School points to the potential of partnerships between higher education institutions and K-12 schools. Universities can bring a wealth of interdisciplinary knowledge to bear on K-12 schooling, as well as valuable enrichment opportunities to K-12 students, while K-12 schools can inspire and inform higher education institutions' work to prepare teachers and conduct research that informs education policy and practice in meaningful and impactful ways.

NEW DEVELOPMENTS

While the number of higher education institutions operating charter schools remains small, more are joining the space. For example, the University of West Alabama welcomed nearly 300 students for the first time to its PreK-12 University Charter School in August 2018. The school, located on the university's campus, represents the first rural charter school in the state of Alabama and aims to create a diverse learning environment in a state that remains largely segregated.[12] The school currently serves grades pre-K through 8 and will add one grade per year until it reaches 12th grade.

In 2017, Purdue University, with the support of the City of Indianapolis, opened The Purdue Polytechnic High School for students who specifically want to pursue careers in STEM-related fields and may have been off-track toward graduation. The Head of School said, "The primary goal of the high school was to appeal to students who were not on track to further their education through college or technical school."[13] The school recently completed its first year with a racially and economically diverse freshman class of 150 students and partnered with local businesses, including Subaru, Fair Oaks Farms, and IndyGo Transportation, to develop student programs.

The University of Texas is unique in that it operates two university public charter school districts that continue to expand and add campuses. One of the districts primarily serves special needs students in settings like psychiatric hospitals and residential treatment centers. This district educates more than 3,000 students in 23 locations in the central Texas and Houston areas. The second district is an open-enrollment charter serving 304 students in PreK-5. The CEO says, "Our partnership [with the University of Texas] is mutually beneficial as we not only place student teachers and interns from all of the college's departments, but we are a site for research for the college that is conducted by world-renowned faculty and staff dedicated to the success of our students."[14]

In the coming year, the UChicago Charter School will continue to deepen its partnerships with other units within UEI, and with the University of Chicago writ large. For example, UChicago Charter School directors will receive embedded leadership coaching from the UEI's UChicago Impact division. UChicago Impact provides tools designed to improve teaching, learning, and leadership to schools across the country, and will support the UChicago Charter School in translating the research and data they collect on their school's culture and climate, as well as their students' achievement, into actionable strategies for improvement. The UChicago Charter School will also continue to partner with UChicago's Office of Civic Engagement in new ways that serve to support both its students and students across Chicago's South Side communities.

CONCLUSION

There has certainly been no shortage of new developments in the education world over the past year, and the pace of change is only set to accelerate as new knowledge on what matters most for students' success in school and in life continues to emerge, and as educators' utilization of real-time or near real-time data grows. States across the country are taking measures to improve district- and school-level capacity to use and analyze data effectively for the purpose of improving instruction and learning outcomes — and we expect to see an even more intense focus in the coming year on learning outcomes beyond test scores. Districts and schools across the country are expanding their efforts to foster students' social-emotional development as the body of research on the factors and conditions that foster students' social-emotional development continues to grow.

We also expect the topic of early childhood education program quality — and the cost of implementing high-quality early childhood programs — will remain at the forefront of policy discussions in the years ahead. While the idea of expanding access to early childhood education opportunities has taken root nationwide, there is a growing consensus around the need to pair that growth in access with more rigorous expectations of quality.

Look for more higher education and K-12 partnerships to emerge in the years ahead as well. While the number of higher education institutions operating or working in close partnership with public, K- or preK-12 schools remains small, more are entering the space in an effort to bridge the worlds of education research and practice and contribute to building a strong pipeline of college and career ready students.

On a college and career ready note, we expect to see more educators focused on fostering biliteracy, as the number of students who are English Learners continues to grow and as evidence pointing to the importance of bilingual proficiency to students' future employment prospects mounts. States across the nation are implementing The Seal of Biliteracy, a mark of students' proficiency in two or more languages that appears on their transcripts or diplomas. Still, challenges with fostering biliteracy remain with a shortage of educators who are bilingual, and trained in bilingual instruction, as well as a lack of resources in many areas for developing and systematizing effective classroom supports for English Learners.

There is also an increasing focus on the need to prepare educators to teach science, technology, engineering, and math (STEM). In the United States, STEM fields pay workers 1.7 times more than the national average and represent some of the fastest growing career paths. Job needs in biomedical engineering, software development, and mathematics are all expected to grow by more than 15 percent by 2020, yet there is a significant gap between the needs of STEM industries and the number of students graduating from high school and college with the skills for or interest in working in STEM. In light of this, many states and districts are taking measures to more rigorously train educators to teach and engage students in STEM subjects.

We expect to see an increase in the number of teacher residency programs designed to provide longer-term and more intensive pre-service classroom experiences for teachers in training. Of the nearly 3.2 million full-time teachers employed in the United States, only about 3,500 have graduated from an intensive, teacher residency program. New teacher residency programs are cropping up across the country, however, as evidence of their effectiveness mounts.

Taken together, the set of briefs in this report are intended to provide a big-picture view of major new developments and ongoing topics of discussion within the education landscape. We hope you have found this collection of new and emerging research- and practice-based knowledge informative and applicable to your work, and encourage you to reach out to us with your thoughts or questions. With that, may we all look forward to expanding our collective pool of knowledge on what matters most for students' success in 2019 and beyond.

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