Research Eclipsed:

How Educators Are Reinventing Research-Informed Practice During the Pandemic

EdSurge Research

About EdSurge

EdSurge informs, drives conversation and builds communities to support the future of learning for all.

EdSurge is a leading education news and research organization that covers the people, ideas, and technologies that shape the future of learning. Through our work, we aim to help educators, entrepreneurs, policymakers, and other stakeholders engage in rich and complex conversations about evolving teaching and learning environments and the technologies and tools that support them.

We do this through three core activities:

- Publishing rich content, including news and research;
- Creating vibrant community through conferences and convenings;
- Providing useful tools to help people find technology that supports their teaching and learning needs.

The **EdSurge Research** team is skilled at making sense of complex trends in the market and in translating analysis into actionable insights for the industry. Our research is predicated on the belief that the field needs to put smart and actionable research in the hands of those driving change. Our research practices are rooted in our journalistic and investigative bones—we listen, we dig, we cover multiple perspectives, and we share information in a compelling way that encourages and inspires action.

In 2019, EdSurge was acquired by the **International Society for Technology in Education (ISTE)**, a nonprofit membership organization for educators. EdSurge operates as an independent news and research initiative of ISTE.

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Acknowledgements

The work examined in this report is the third phase of a multi-year project. In this third phase, we showcased stories, hosted virtual convenings, and conducted research about how educators and school communities around the country are leveraging research in their practice in order to serve the whole child.

We present this work during a tumultuous time as our nation wrestles with the devastation of the COVID-19 pandemic and as we collectively confront the resulting deepening of inequities in education. School communities—and educators themselves—have been deeply affected by these events, and our project seeks to capture the voices of educators who are striving to confront the new reality of remote learning in ways that prioritize the whole learner, social-emotional growth, and social justice.

Sudden school closures and the painful health and economic impact of the COVID-19 pandemic on school communities are less-than-ideal circumstances for transformation of teaching practice. We are inspired by the educators we've met over the course of this project who are tackling these challenges head-on, even eclipsing research to meet the moment in many cases. The participation of hundreds of educators—through discussions at Virtual Learning Circles (moderated discussions of how educators are drawing on select EdSurge articles in their practice), authorship of articles, involvement in research interviews and surveys, and as readers—was critical for the success of this project.

We are deeply grateful to the education practitioners, researchers, and other members of the educational community who shared their powerful voices with us and the larger community through storytelling in the third phase of this project.

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Introduction

What sort of images does the word "research" conjure up in your mind? If you're like most U.S. educators, perhaps you imagine a dusty journal article, its title full of colons and qualifiers, its appendices full of stats and equations, its methodology statement incomprehensible to the non-specialist. Or maybe you summon the image of a laboratory with trained scientists hovering over test tubes, following a strict process and protocol. In either scenario, chances are that you envision a project that is resource-intensive, that does not involve educators, and that requires significant work to make sense of findings—let alone to incorporate them into daily practice.

Research on how educators perceive educational research bears out these ideas. On the one hand, educators access research regularly, if infrequently, relying on journal articles, abstracts, and news accounts, as well as colleagues who read research. But on the other hand, educators are ambivalent about how easy this educational research is to understand and transfer to their own practice. That's unfortunate because educators desperately want research that is actionable and see opportunities to break down existing siloes between researchers and educators.[1] The research community is beginning to take note of such disconnects, with the American Educational Research Association even designating collaboration between researchers and organizational stakeholders as the theme of its most recent annual meeting.

But for all we know about educators' perceptions of research, and for all the efforts to break down barriers between researchers and educators, we know comparatively little about how educators and school communities are leveraging research in their own practices. What role can research play in helping educators and school communities measure and improve learning outcomes, support student well-being, and strengthen social-emotional growth? What do efforts to strengthen the feedback loop between research and practice look like on the ground? And how can the education community, broadly defined, move the needle on research-informed practice—looking toward educators themselves to guide the movement?

[1] One study found that educators were somewhat neutral (neither agree nor disagree) in their agreement with the following statements: "Education research is easy to understand" (mean score of 4.54 on a 7-point scale of agreement); and "Education research is easy to transfer to your practice (mean score of 4.47 on a 7-point scale of agreement) (Table 9, p. 16). Overwhelming majorities access journal articles and abstracts, and news reports on research at least once a year (Figure 1, p. 10). But this research is not satisfactory for most educators. Educators prefer research results accompanied with clear, explicit directions (mean score of 5.80 on a 7-point scale of agreement) (Table 10, p. 17). Educators strongly believe that educators should influence topics on which researchers conduct educational research (mean score of 6.08 on a 7-point scale of agreement) (Table 13, p. 21), and 59% want to be involved in research themselves (Table 14, p. 22).

This year-long project aimed to answer these questions, focusing on current research-informed practices designed to serve the whole child; challenges that educators face in performing this critical work—including how to access, apply and develop research; and the role of instructional technology in practice and in design. In all of this work, the project aims to amplify the voices and champion the position of educators, themselves, as crucial collaborators in setting research agendas, participating in research, and making change based on research. It also aims to expand the vision for what constitutes progress and what is deserving of research, making explicit connections between traditionally-defined learning outcomes such as performance on summative assessments, social-emotional growth, and student well-being.

We aim to promote a more expansive understanding of the role of research and who can leverage research to improve teaching and learning in service of the whole child.

With support from the Chan Zuckerberg Initiative, EdSurge Research began this project in the summer of 2019. Our work and charge changed considerably in late winter and early spring 2020 as the COVID-19 pandemic forced school closures and changed the way that educators and school communities supported learning and student well-being. The switch to remote learning both exposed and deepened many pre-existing disparities and raised new challenges. The pandemic highlighted inequities present in all elements of society and forced educators and school communities to think differently about their responsibilities and practices.

What did these societal shifts mean for our project? Educators and school communities are adopting new approaches to accommodate the new realities, but the underlying goals—and many of the research-derived methods for realizing those goals—remain consistent. At the same time, the manner in which research is conducted and applied is different than in the past. Educators can't wait on long-term studies. School communities can't afford to bypass research on remote learning that doesn't correspond to the exact contours of the current moment. Educators need to develop and adopt homegrown practices that respond to present

[2] In this project, we use the term "educator" to refer to school-based practitioners who work directly with students, such as classroom teachers, administrators, counselors, technology specialists, librarians and related service providers.

[3] This project represents the third phase of work in EdSurge Research's examination of how educators and school communities are supporting the whole child. The first phase of work addresses personalized learning and was conducted from summer 2017 to summer 2018. The second phase of work documents how educators and school communities are shifting practice to serve all learners and was conducted from summer 2018 to summer 2019. This report addresses the third phase of work conducted from summer 2019 to summer 2020.

demands, even if those approaches are—as yet—unproven. With the COVID-19 pandemic, our project shifted in two critical ways: We aimed to capture emerging—and not fully vetted—research and practice in real time and tried to highlight existing research that is important and relevant for meeting the moment, even if that research is imperfectly aligned to the exact needs of educators-on-the-ground.

The pivot reflects a core principle of this project: We aim to promote a more expansive understanding of the role of research and who can leverage research to improve teaching and learning in service of the whole child. We recognize both the importance of educational researchers' expertise and the critical role that educators can play in contributing to that research and in acting upon it. As such, our project considers how educators are collecting evidence and engaging in action research in their own schools and classrooms, as well as the challenges and risks of this approach to research. We show how educators are taking the initiative to seek out and incorporate scholarly research into their practice, often leading their colleagues to make changes as well. And we surface alignments and disconnects between how educators and edtech product designers think about and make use of research. In all of these ways, we hope to amplify educator voices and urge readers to reconsider how research can be conducted and leveraged.

We do this by making explicit connections between research and practice in all areas of our project. This report explores findings from all of these project elements:

- We published over 50 articles by reporters, educators, researchers, and others to highlight specific teaching strategies, school models, and support strategies that rely on research.
- We conducted a survey of over 500 educators who use instructional technology with students and conducted follow-up interviews with 14 educators to understand the practices and approaches that educators are using to teach social-emotional learning, and the role that instructional technology plays in these efforts.
- We conducted interviews with 12 instructional technology developers to understand areas of alignment and divergence between how product developers and educators think about research and practice.
- We conducted four Virtual Learning Circles—accompanied by a follow-up survey—for dozens of educators to discuss articles in our series with a common theme, encouraging educators to embrace research and understand their own critical role in leading change.

This report brings these different project elements together, looking for themes across and between them. The report aims to give educators and school leaders—as well as researchers—a glimpse of what is possible and encourage them to bring the questions raised and findings offered in this report to their own classrooms and learning communities. In so doing, this report tries to—quite literally—bring research into practice and practice into research.

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WHAT WE ARE LEARNING

This project began as an effort to examine how educators and school communities leverage research in their practice in order to fulfill a variety of interrelated objectives: to improve engagement, to measure and improve learning outcomes, and to promote student well-being and students' social-emotional skills. COVID-19 transformed the project. School closures led us to reconsider the meaning, utility, and application of research at a moment when events on the ground were eclipsing research and when educators and school communities were forced to implement new approaches quickly, under less-than-ideal circumstances. Nevertheless, the body of work in the project revealed a few clear and common themes representing the 2019-2020 school year:

Promoting Student and Educator Well-being: The pandemic dramatically shifted readers' context and needs, but the crisis also strengthened a core proposition that informed the design of this project from the beginning: **social-emotional learning is critical to students' success and well-being, and educators can and should play a critical role in facilitating such learning**. At a moment when so many members of our school communities are facing health, social, and economic catastrophe, social-emotional learning and growth that are supported by research are no longer "nice-to-have"; they are essential if students are to weather the current crisis and thrive in the future.

We learned that educators agree with this premise and often seek to infuse their academic instruction with opportunities for students to build social-emotional skills such as problem solving and collaboration. Our stories highlight examples of how school communities are using research-supported and informed approaches to supporting students' well-being in a school year unlike any in our lifetime.

The reality is that students aren't the only members of our school communities who are suffering during the pandemic. Educators already faced enormous stress, and the pandemic has only deepened that reality. Our project is premised on the idea that school communities have a sacred obligation to support educators' well-being and that such support is critical if educators are to serve their students effectively. The pandemic has changed what this support looks like. But the need for school communities to support educators' mental health, collaboration, empowerment, and continued learning is more important than ever. Our project shows how school communities and educators can leverage research to provide these critical supports.

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Using Instructional Technology to Meet This Moment: School closures have forced educators and school communities to adopt new practices and deploy new programs, even if their central aim of supporting students' well-being and learning remained constant. Perhaps there's no better place to see this shift than in educators' use of instructional technology—software products that are primarily used to facilitate teaching and learning. **When we began this project, we could not have anticipated that a pandemic would make instructional technology indispensable for American education**. But as with social-emotional learning, tech became core to schools' ability to function effectively at this unprecedented moment.

Educators involved in our project see great potential for instructional technology's ability to facilitate student learning around social-emotional skills such as collaboration. Our research and articles provide numerous examples of educators leveraging technology to do this critical work. At the same time, though, the pandemic has scrambled both the needs of educators and school communities and the ability of educators to implement instructional technology in accordance with recommendations set by product developers. In this report, we provide examples of how educators are using instructional technology to respond to the particular needs of their students during the pandemic, as well as some of the frustrations that educators have had in adjusting. In doing so, we make the case for product developers, educators, and researchers to align on the research that informs product design, on the functionality that will best support students and teachers, and on the implementation models that are most advantageous to learners—even in the absence of rigorous research on the pandemic's effect on student well-being and learning, which is still emerging.

Research to Practice: Our project pivoted to respond to the reality that research could not keep pace with the pandemic. At the same time, we did not alter a fundamental premise of the project: research should inform teaching and learning practice. While the exact conditions of the pandemic are new, there are a whole host of research findings that can be applied to the new reality. **Yet, overwhelmed educators and school leaders seldom have the resources to interpret this research and develop a pandemic-era practice that is solidly anchored in what we know is effective for remote learning, reducing social isolation, addressing trauma, and a host of other relevant areas**. Our project aims to guide presented practices that are thoroughly rooted in research, even if those practices sometimes develop organically.

We see an urgent need to support and extend collaborations between researchers and educators

In taking this approach, we see an urgent need to support and extend collaborations between researchers and educators. As practice eclipses research during the pandemic, such coordination is urgently needed. This project itself offers one way to build such connections, and many of our stories highlight other approaches to this critical work. Educators desperately want to act on research, but they are often unsure about whether and how that research can be applied in their particular circumstances. **In some cases, educators don't see their communities or circumstances reflected in research at all**. A central goal of this project is to join a conversation that aims to reverse such sentiments. There was always value in researchers and educators working together, but the pandemic has made this collaboration even more important.

In the pages ahead, you'll read about stories, research, and convenings that highlight these themes and illustrate the importance of taking research and social-emotional learning seriously, now more than ever.

Supporting and Enabling Educators

Stacey Roshan, a math teacher and director of innovation and educational technology at an independent school in Potomac, Md., is a star educator by any measure. Roshan has published a book about teaching with technology and is a sought-after speaker and commentator on education and edtech subjects. But when she attended a Virtual Learning Circle hosted by EdSurge Research earlier this year, Roshan shared that she wasn't always able to find the time to communicate the research backing her selection of edtech tools. She also heavily relied on her years of experience and observations of effective practice to intuit what types of experiments she could run in her own classroom. "So much of what I learn is because I continue to teach. My [students] are my guinea pigs, and I get to test things out on them." In fact, the new approaches that Roshan tested in the classroom were backed by research, but it was challenging for her to communicate the literature along with best practice recommendations to teachers who already had so much on their plates.

Many of the educators that we surveyed, interviewed, and convened voiced sentiments similar to Roshan's. Teaching with an eye toward the whole child while finding time to share research-backed practices is difficult. In a 2017 survey conducted by the American Federation of Teachers, 61 percent of respondents reported that they "always" or "often" found work stressful. About two-thirds of respondents indicated that their mental health was "not good" for at least one of the past 30 days, a figure that was significantly higher than people of all professions. Over a quarter reported harassment or bullying on the job. And—supporting Roshan's observation about educators' lack of time—respondents averaged more than 50 hours of work a week.

Together, these statistics paint a bleak portrait of educators' work environments and mental health. COVID-19's spread has made the profession all the more difficult, with nearly three-quarters of teachers reporting that their morale was worse in spring 2020 during school closures than before the pandemic. Sheila Ohlsson Walker, a scientist and professor at Tufts University and Johns Hopkins University, explained the problem this way in a story for our series: "In 2020, teachers are living in a veritable tinderbox of stressful conditions."

So much of what I learn is because I continue to teach. My [students] are my guinea pigs, and I get to test things out on them.

Stacey Roshan, math teacher and director of innovation and educational technology in Potomac, Md.

Walker describes how the switch to remote learning and the attendant concern for families, students, themselves, and other educators at such a precarious moment can be debilitating.

STARTING WITH DISCRETE PRACTICES, FOCUSING ON THE INDIVIDUAL EDUCATOR

How can school communities, researchers, and others support time-strapped, demoralized, and overwhelmed educators who want to make changes to their practice? Our project drew on research that shows the importance of taking practical steps toward change in order to avoid fatigue, even when there isn't time to solicit and receive stakeholder buy-in prior to implementation.

In addition, we were eager to highlight practices that educators could implement on their own, especially in cases where administration support was lacking. In our survey, nearly one-in-five educators reported that their administration was not supportive when they had an idea for a new program. At the same time, nearly half of those who indicated that their administration was unsupportive of new program ideas agreed or strongly agreed that they had a lot of freedom to use the methods they wanted to. This highlights an opportunity for supplying individual educators with practical guidance on small steps that they can take in their own classrooms or learning settings without soliciting buy-in from administrators or other stakeholders.

	Disagree/Strongly disagree	Agree/Strongly agree	Total respondents
My administration is supportive when I have an idea for a new program.	85 (18%)	385 (82%)	470
I have a lot of freedom to use the methods that I want to.	97 (21%)	373 (79%)	470
(Among those who disagree or strongly disagree that their administration is supportive when they have an idea for a new program) I have a lot of freedom to use the methods that I want to.	44 (52%)	41 (48%)	85

Note: Respondents were asked to evaluate the above statements based on the following prompt: "Thinking about your own class and school environment, please indicate your level of agreement on a scale of strongly disagree to strongly agree for each statement below." See the methodology for details on survey purpose and administration.

Many of our stories highlighted discrete research-backed activities and practices that educators can adopt to help themselves and their students at this moment of crisis. University professors and researchers Kristin Kipp and Kerry Rice offered specific practices that educators can implement on their own in order to engage students during remote learning. These include replying early and often to student requests for help, offering personal feedback to students, and carving out time for students to share hobbies and projects in a supportive environment. These practices can be time consuming when adjusted for the number of students that each educator serves, but they are effective and can typically be implemented without a great deal of support from administrators or other community members. Kipp and Rice pointed to research to show how implementing such practices can create an environment where teacher, parent, and peer engagement can lead to more successful student engagement—and can positively impact learning outcomes.

Similarly, fourth grade teacher Tom Whisinnand explained how one-on-one virtual meetings with students "have proven to be the most impactful way to build [his] classroom community through the transition to remote learning." In his story, Whisinnand frames his one-on-one meetings as part of a larger initiative to connect student emotions to learning, drawing on the writing of Marc Brackett and leveraging research that shows the importance of cultivating and maintaining meaningful relationships with students for the purpose of learning. Whisinnand acknowledges that the period of remote learning in spring 2020 was "taxing" and that "some elements of great teaching" are "hard to replicate in an online learning environment." But Whisinnand also sees great potential for investing time in setting up one-on-one virtual meetings with students—an action that most teachers can take on their own, without significant buy-in or program development, barring school or district rules that do not permit such interactions.

A number of stories from before the pandemic also highlight approachable, research-backed changes that educators can make in their practice to engage learners, teach critical social-emotional skills, and support the whole child. Some of these practices have obvious applications in remote learning environments, and many respond to inequities that have been more deeply exposed by the pandemic: the disparities in resources that impact educational outcomes, the access problems that disproportionately affect students from low-income families and students of color, and the enormous health and economic burden borne by low-income families and families of color during the pandemic. Many of our stories wrestled with the roots of such inequities, even those written before the COVID-19 pandemic.

In a September 2019 story, media specialist Jacquelyn Whiting described a lesson she developed on implicit bias. Students completed a "Mad Libs" type exercise that Whiting

created from a published op-ed, working in pairs to compare and contrast their responses and the original words by the op-ed author. The lesson corresponds to the research-backed "cloze reading technique," in which students strengthen reading comprehension by filling in words that were removed from a text to reinforce the interrelationship between words and to improve semantic and syntactic awareness. Yet, Whiting's activity not only forced students to think about why they had chosen particular words, but also offered a structured framework for dialogue around difficult issues.

Other stories describe practices that may not map so easily onto our current reality of school closures, social distancing, and remote instruction. Still, they highlight fundamental truths that are important for educators to remember as they teach to the whole child. For example, Teagan Carlson, a former high school teacher, described how she reevaluated her policy toward hugs after a student died by suicide at her school. With their permission, Carlson began to embrace her students, working off of research showing physical and mental benefits of hugs, as well as increased engagement. Given our current COVID reality, educators may not be able to follow Carlson's playbook for some time. But Carlson's overall goals of offering students empathy, compassion, personal attention, and emotional support are ones that educators can pursue even during this moment of crisis.

ADDRESSING EDUCATORS' WELL-BEING AND MENTAL HEALTH

Students aren't the only ones in need of a hug. Educator demoralization and stress are real—conditions that contribute to high dropout rates and are exacerbated by the pandemic's effects on families and school communities. One study found that the percentage of teachers who feel successful dropped from 96 percent before the switch to remote learning to 73 percent during remote learning, with just under half of those at schools that educators judged to be "unsupportive" feeling successful. In a survey of more than 5,000 educators co-administered by the Yale Center for Emotional Intelligence and the Collaborative for Academic, Social, and Emotional Learning (CASEL)—described in one of the stories in our project—respondents were most likely to mention the following frequently-felt emotional states: anxious, fearful, worried, overwhelmed, and sad. School leaders felt similarly. A separate story in our project described a survey of school leaders in New York at the height of the pandemic. When asked to name the top three emotions that they had experienced the most during the prior two weeks, 95 percent named negative emotions.

Some of our stories were written directly to educators, cognizant of the fact that educators can be empowered to make individual changes that benefit their well-being. One story

described how educators can use mindfulness techniques to improve their well-being during the crisis. In that piece, Maria Gehl, the leader of a nonprofit that promotes mindfulness in early childhood education, encouraged educators to "start small" and urged them to make mindfulness a routine. However, some educators may need more than small changes on their own to overcome anxiety, fear, worry, hopelessness, and sadness.

Many of the stories for our project argued that school communities need to support educators as they struggle with declining confidence and increasing anxiety, inflaming the already-high rates of stress in the teaching profession. In a multi-part series, Christina Cipriano and Marc Brackett, both researchers at the Yale Center for Emotional Intelligence, offered guidance for supporting teachers during a difficult time. They wrote, "The time has come for all schools to address the missing link in what will help educators thrive—a greater focus on all adults' health and well-being." In their research, they found that teachers craved patience and understanding from families and administrators and wanted to find strategies to support student and teacher wellness. To achieve this, Cipriano and Brackett suggest forming an "Emotional Intelligence Charter" between faculty and staff. The charter reflects the "top five" feelings that faculty and staff members want to have and two or three behaviors that can produce each feeling among faculty and staff. The charter becomes a living document that is reevaluated and against which progress is marked. Research-backed practices like the "Emotional Intelligence Charter" are important for building community, trust, and commitment during normal times. They're all the more important during the pandemic.

School communities can support educators taking the lead to evaluate and recommend practices based on thorough research.

LETTING EDUCATORS TAKE THE LEAD

School leaders and communities can also help support educators by providing structured opportunities for educators to make changes in their practice. Through our project, we found that educators sometimes viewed large-scale changes warily, having seen various models and approaches that were abandoned or lacking a foundation in research. In many cases, educators did not feel that they were adequately engaged in decision-making, especially when it came to educational technology. As one respondent to our survey explained it, "[The] district decides what is useful based on their own decisions, without teacher input."

To meet such skepticism, school communities can support educators taking the lead to evaluate and recommend practices based on thorough research. For example, Kristin Simmers, a teacher at an international school in Thailand described how she created a professional learning community for educators interested in Mind, Brain, and Education (MBE) research. This group of educators was able to explain to their students how the brain learns, creating an awareness of the learning sciences that research shows improves learning. In addition, school leaders tapped Simmers' group to lead professional development for the school's teachers and to create programming for parents. The result was the implementation of a research-backed set of practices that empowered educators to be leaders and that fit the particular needs of the international school where Simmers taught.

School- or district-led approaches to changing practice can—and should—provide opportunities for educators to take the lead, drawing on learning science research. In her story for our project, district administrator Margaret Lee described how she engaged teacher specialists who work with teachers and administrators in an effort to prioritize MBE research in decision-making processes around curriculum. Lee realized that making MBE an initiative replete with "year-of-the-brain posters…[and] jazzy guest speakers" ran the risk of teachers and principals "perceiving the work as one more thing on their already heavy plate." However, Lee recognized that teacher specialists' "influence would catalyze the work organically," providing a framework of four critical questions to evaluate existing practice and suggest modified or new ones, while empowering educators themselves to recommend change.

Whether initiated by districts, schools, or educators, the school or district community can support effective change by making research available and transparent, encouraging educators to become expert resources for the community, and soliciting educator feedback early and often. This is particularly true when it comes to identifying and implementing research-backed methods that correspond to the particular needs of students in a community.

In their examination of social-emotional learning strategies for special education students during remote learning, research scientists Christina Cipriano and Gabrielle Rappolt-Schlichtmann describe one school leader as executing an "emotionally intelligent decision-making process" that asks educators, parents, and students to determine problems that need to be addressed and to collaborate on developing solutions. While it is hard to evaluate the success of such initiatives in the midst of a crisis, there is a long tradition of "action research" and "teacher research" that empowers educators to examine, apply, and develop research in their own contexts in order to collaborate on solutions.

Anatomy of a Virtual Learning Circle

In May and July, we hosted four Virtual Learning Circles with around 10 educators in each. These sessions were both a professional learning opportunity for educators and an opportunity for the EdSurge Research team to understand how guided engagement with research-supported articles contributed to changes in thinking and practice.

Two of our sessions focused on the theme of "play," while the other two focused on the theme of "learning sciences." Participants pre-read two to three EdSurge articles from our series, each tackling the chosen theme through different perspectives or different research-based approaches. In addition, participants selected a research article linked within the EdSurge articles to read.

The conversation focused on whether and how educators could apply the approaches described in the articles and how educators can leverage research to improve their practice. Over two-thirds of participants indicated that they planned to try something new in their practice based on their pre-reading assignment and participation in the Virtual Learning Circle.

IMPLEMENTING LARGE-SCALE STRUCTURAL CHANGES WITH EDUCATOR INTERESTS IN MIND

Supporting educator well-being involves engaging educators as critical stakeholders, especially when schools and districts roll out large-scale initiatives. This is all the more important during periods of remote schooling when school communities must change practice rapidly, sometimes without the ability to thoroughly vet different options. Educators are critical to the successful rollout of any new approach, and it's important that school and district leaders are aware of and responsive to educators' personal and professional needs in the construction of new approaches.

How does educator-centered design and implementation work in practice? School leaders Glenn Whitman and Ian Kelleher described how they reinvented their school's daily schedule in response to school closures by incorporating the feedback that teachers, students, and families offered on how well the old schedule was working in a virtual environment. The old schedule was based on sound research, and—crucially—teachers and staff were trained on the brain science behind the construction of the schedule. But when Whitman and Kelleher surveyed key constituencies about how the 65-minute classes were working online, over 87 percent of teachers, students, and families said that class periods were too long to be engaging for students. Teachers and administrators looked at research on screen time and online instruction and prioritized the brain sciences principle that students "have to want to learn" when constructing their new schedule.

In other cases, it may not make sense for district and school leaders to engage educators as key collaborators in developing new structures, large-scale practices, and approaches. Time may not permit it, or decision-making protocols may not allow for educator voice. But as in the scheduling example, school and district leaders can engage educators by communicating new changes clearly, explaining the research-backing for those changes, and providing clear guidance on implementation. Research shows that this support for educators is critical to the success of new initiatives. In their article on how to foster a positive school climate in virtual learning environments, researchers Scott Levy, Jessica Hoffmann and Marc Brackett emphasized "supportive teaching practices," including remote learning professional development for teachers and modeling effective practice.

Often, that kind of support is lacking. In our own survey, the three most common frustrations that educators cited about using edtech products in general related to lack of training or understanding about how products worked—something that could be addressed through better professional development arranged by schools or districts.

	Frustration with edtech product	Respondents agreeing
Frustrations more impacted by educator training	Information overload for teachers	189 (47%)
	Not knowing how to use this product effectively	156 (38%)
	Difficulty setting up the product for students	152 (37%)
Frustrations less impacted by educator training	Information overload for students	142 (35%)
	Lack of alignment between my goals and the product's methods or output	115 (28%)
	Not producing the type of data I want	75 (19%)
	Unclear or inaccurate content	63 (16%)

Note: 406 respondents answered the following question, "What are the biggest frustrations that you have encountered using edtech products in general? Select all that apply." See the methodology for details on survey purpose and administration.

Guidance for educators is important in every realm, not just edtech use. Nowhere is that more true than in supporting students' emotional health and well-being at moments of crisis and under difficult conditions. EdSurge reporter Emily Tate explored how school crisis counselors in the Cobb County School District are adapting their practices for this remote-only moment. Counselors are learning in real time about effective implementation models for delivering news and providing support around the death of a member of the school community or other major trauma, whether it is advising students to keep their video conferencing cameras turned on so that staff can observe students' body language or creating virtual activities to help students process their grief. Perhaps most importantly, counselors in Cobb County are guiding one another and other educators. Tate reports that Cobb County counselors schedule a phone call after a day of virtual grief counseling to discuss how things went, what changes they should make, and how to follow up with individual students. They are also sharing the implementation guidance they've created with the staff of other school counseling groups.

It's this type of support for educators and evidence-based guidance—even in the absence of large-scale research studies—that can be transformative for educator well-being and that can empower educators to make change in their own communities. Supporting and enabling educators hinges on a recognition of the importance of social-emotional learning and practice—for both teacher and student well-being and for learning outcomes.

Infusing Instruction with Social-Emotional Learning

Noemi Ortiz is a special education teacher at a public high school in Clovis, Calif., who participated in an interview as a part of our project. Ortiz teaches all subjects to a small group of students who have Individualized Education Programs (IEPs) for emotional well-being. Ortiz is a jack-of-all-trades, creating grade-appropriate Math and ELA lessons customized for each of her students, studying up on content where she doesn't have expertise, and figuring out how to serve the emotional needs of her students. Ortiz is used to juggling a lot, but remote learning has added even more balls to manage. With remote learning, Ortiz was unable to rely on visual observation of students throughout the day. She also recognized that her students were under enormous stress. Ortiz quickly discovered that she needed more tools for assessing students' well-being. She created a Google Form to check in on her students' mood, and she uses that to decide what and how to teach. As Ortiz explains, "Students can't learn if they're struggling emotionally. And I can't teach if I don't know what's going on with them."

> **Students can't learn if they're struggling emotionally. And I can't teach if I don't know what's going on with them.**
>
> Noemi Ortiz, high school special education teacher in Clovis, Calif.

Ortiz isn't alone. With decades of research that illustrate the importance of social-emotional learning, it's no longer provocative to argue that social-emotional learning and practices directed at serving the whole child support better learning outcomes.[4] Educators themselves acknowledge the importance of social-emotional learning and recognizing the needs of the whole child in school communities. More than nine-in-ten educators in our survey agreed or strongly agreed that it is impossible for students to learn if they don't have their basic needs met, reflecting Maslow's Hierarchy of Needs, a staple in teacher education programs and a central tenet of most whole child frameworks. And educators are acting on this conviction. In our survey, more than eight-in-ten respondents agreed or strongly agreed that they integrate social-emotional learning in teaching their academic subject.

[4] Social-emotional learning is generally defined as learning to achieve competencies necessary for handling social and emotional aspects of life, including learning, relationships, and everyday problem solving. It includes self-regulation, collaboration, and caring, among other factors.

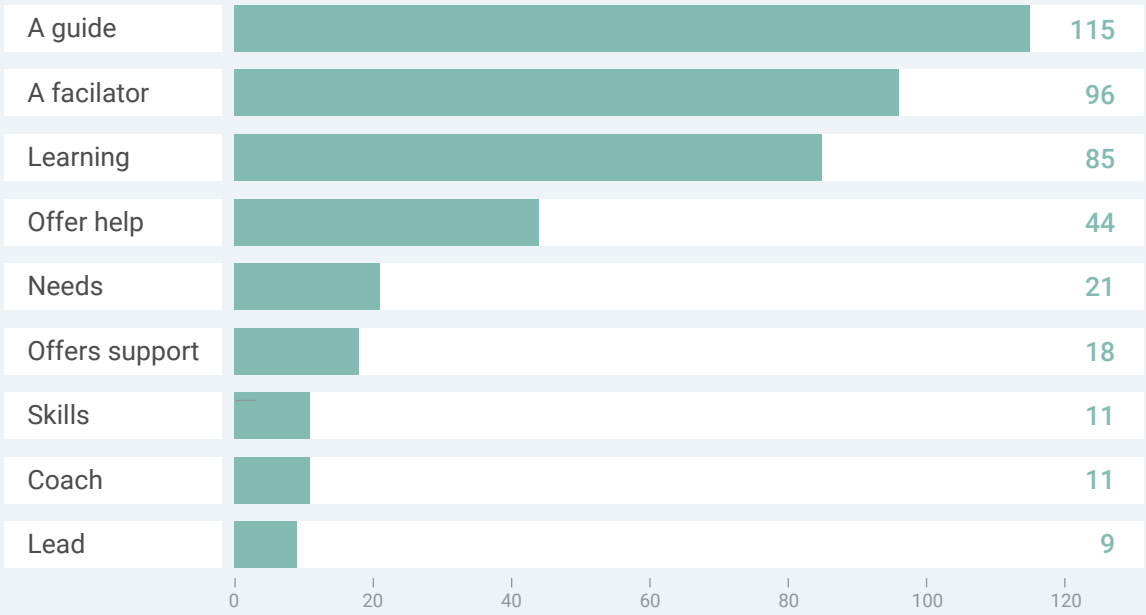
What Is A Teacher?

We surveyed educators about how they saw the role of the teacher, keeping their philosophy on teaching and learning in mind. Here are some of the responses that we received:

- "A facilitator of growth and learning. A guide for students."
- "A facilitator giving [students] the guidance and tools they need to learn what they want to learn."
- "Facilitator and guide along the students' journey of education."

Survey respondents saw the teacher as a guide, a facilitator, a supporter, a helper, a coach. Many respondents emphasized the importance of teachers' content and method expertise—but almost universally in the service of facilitating opportunities for learning and growth, not as an end in itself. In other words, educators in our survey saw teachers' primary role as supporting the whole child. As one respondent put it, "My role is to guide students through learning content knowledge, support their ideas, care and love them, and help them grow."

How Survey Respondents View the Role of the Teacher



Note: A graph showing commonly occurring words appearing in answers to a free response question about survey respondents' views of the role of the teacher. Forms of the same word have been combined in this tally. Some words have been excluded in this graph (e.g., students, teacher, role, classroom). 320 respondents answered this question. See the methodology for details on survey purpose and administration.

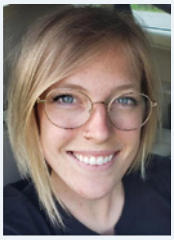
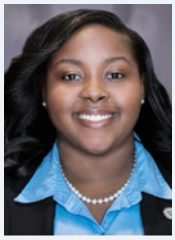
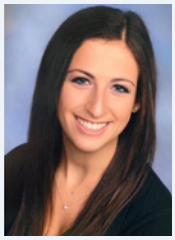
And schools are getting in on the game, too; just over half of educators in our survey indicated that social-emotional learning was a widespread practice or condition in their school. Nearly two-thirds agreed or strongly agreed that their school had a curriculum for teaching social-emotional skills.

TEACHING SOCIAL-EMOTIONAL LEARNING WITHIN REGULAR INSTRUCTION

Educators clearly value social-emotional learning and view it as an important tool for students' academic success. At the same time, many educators—over half in our survey—believe that their own value is measured primarily by their students' performance on tests, not on how well their students learn critical social-emotional skills that may lay the groundwork for improved test scores. Given this reality, many educators are trying to build social-emotional learning into their academic instruction, rather than teaching it in standalone units that take time away from helping students develop the content knowledge and techniques on which they will be assessed. Clear measurements for social-emotional growth are still murky at best, and experts caution against formal assessments for social-emotional learning overall, even if they suggest thinking about ways of measuring individual competencies. As such, it also makes sense for educators to infuse regular instruction with opportunities to build skills such as collaboration, problem solving, stress management, and identity development.

The Experience of First-Year Teachers During COVID-19

Being a first-year teacher comes with plenty of challenges, stress, and uncertainty. Throw a pandemic in the mix, and it's enough to scare anyone away from the profession. But that's not what happened to the nine first-year teachers that EdSurge reporter Emily Tate spoke with this summer for a feature piece. Instead, the experience of teaching through COVID-19 brought many of them newfound confidence, resilience, perspective, and in a few cases, a surprising sense of comfort.


Our stories illustrated how effective integration of social-emotional learning into academic instruction can work in both the physical and virtual classrooms. Social studies and humanities teacher Donna Neary explained how she and her colleagues used a summer program for struggling students in her districts to help students develop resiliency, social awareness, and other "skills for life" while working to boost math and reading scores. The program's project-based learning design relied on research demonstrating that deep learning was possible, even before students had mastered "the basics." Rather than replicating standard math and English classes, students participated in a "Mayan Adventure" project and other themed learning opportunities. The Mayan Adventure included opportunities for students to interact with community members in their city of Louisville, Ky. Students visited an urban farm and visited a local restaurant where they learned how to make corn tortillas. The program also gave teachers an opportunity to experiment with project-based learning.

Place-based education can also help elevate local communities and fight inequities. Middle school principal Megan Vroman described how her school's social action-oriented activities and service learning initiatives were designed to help students pursue their own academic interests while serving their communities. In completing projects and learning around critical societal issues such as food insecurity or elementary STEM education, students develop expertise and content knowledge in areas such as cooking or video game design. They also build partnerships with local institutions, such as organizations feeding the hungry. Vroman sees another benefit of this approach to helping her students develop kindness and empathy: it draws on research that indicates that adolescence is a period when brains are still developing. Educators and school communities can seize this moment to help students develop the types of relationships and emotional skills that can contribute to the foundation of later academic and career success.

EXPLAINING LEARNING SCIENCE IMPROVES LEARNING

Learning science research can be an ally to educators who want to help their students make progress—whether through a large school-based initiative or a change to individual teaching practice. Throughout our project, we found that educators commonly drew on the metacognition learning science principle that an awareness of learning processes helps improve learning. Among 407 survey respondents, all but 20 agreed that students need to understand their own learning in order to meet their potential—a viewpoint that is supported by learning science research.

Our stories highlighted instances of educators explaining brain science to students in order to further learning and ease conflict. Linda Ryden, the creator of the Peace and Mind

Program, and full-time peace teacher[5] at an elementary school in Washington, D.C., wrote about how her students were sometimes unable to apply their learned conflict resolution skills in the heat of the moment when emotions were running high. Ryden began to read about the science behind mindfulness as a de-escalation technique—an area that is in need of more research, despite an explosion of interest. Crucially, Ryden taught mindfulness alongside the science of learning, even developing a picture book to explain what happens to a child's brain when she is angry and what mindfulness exercises she can use to address that anger. Ryden describes the shift that accompanied this new approach as transformative: "Once I was able to teach my students what was happening in their brains when they were angry and how they could take care of their brains with mindful breathing then working out the conflict was a breeze."

In other cases, educators used brain science findings to illustrate the tangible effects of students' choices in order to empower students to be self-regulators and take ownership over their own learning. In such cases, students can generate their own research. Author Ana Homayoun explained how she surveyed middle school students about their daily habits and their personal goals. Homayoun found that there was a disconnect between those two elements, with students often expressing a desire to spend more time with friends or on hobbies, but with daily habits—including social media use—that didn't make time for those priorities. Homayoun provided students with strategies for blocking distractions and found that students were likely to implement these strategies if they felt that they were serving the goals that they had identified for themselves. In short, students leveraged intrinsic motivation and made substantive changes because they were aware of their own habits and the effects that those habits had on their ability to achieve their goals.

FACILITATING LEARNING TOWARD SKILLS THAT PROMOTE THE WHOLE CHILD—AND ACADEMIC SUCCESS

Developing social-emotional skills within students helps promote students' intrinsic motivation, which research shows is correlated with academic success. Researchers have developed many ways of understanding and categorizing these skills, with some frameworks identifying discrete areas of competence and others offering a hierarchy that begins with foundational skills and reaches the higher levels of social-emotional skills needed for true independence.[6] Whatever the framework or the exact skills named, researchers and teachers

[5] A teacher who specializes in conflict resolution

[6] Among the most dominant frameworks are those of the Collaborative for Academic, Social and Emotional Learning (CASEL) and Turnaround for Children's Building Blocks for Learning. Other frameworks and principles are more focused on how social-emotional learning relates to the whole child. For example, see the ASCD's Whole Child Tenets.

agree that social-emotional skills can be learned. They are not innate, and educators play a critical role in helping students develop proficiency in social-emotional areas, especially when students are facing challenges.

Throughout our project, educators emphasized the importance of teaching both social-emotional skills and academic skills in their classes. In our survey, we presented respondents with a list of twelve skills and knowledge areas and asked them to select the areas that they felt it was important for students to develop in their class. Every item on the list was selected by a majority of respondents.

Respondents viewed problem-solving skills as the most important skill for students to develop in their class. Indeed, even educators who taught math selected problem-solving skills with greater frequency than numeracy skills. And literacy skills were in a virtual dead heat with problem-solving skills among educators who taught ELA or English classes.

Ordered list of skills and knowledge areas that survey respondents felt were important for students to develop in their class	Numbers and percentages of respondents indicating importance
Problem-solving skills	373 (92%)
Literacy skills	319 (78%)
Collaboration skills	311 (76%)
Relationship skills	304 (75%)
Perseverance	300 (74%)
Executive functions	275 (68%)
Analytical skills	274 (67%)
Stress management	268 (66%)
Sense of belonging	259 (64%)
Numeracy skills	227 (56%)
Global awareness	217 (53%)
Identity development	204 (50%)

Note: Respondents were asked to select all the skills and knowledge areas that they felt were important for students to develop in their class. 407 educators answered this question. See the methodology for details on survey purpose and administration.

USING SOCIAL-EMOTIONAL LEARNING TO SET FOUNDATIONAL CONDITIONS FOR STUDENT SUCCESS

Our stories illustrated how educators are leveraging research to provide students with opportunities to develop the social-emotional skills educators view as important. Many of these stories explored how educators and schools were seeking to create community and belonging by helping students develop in areas such as collaboration, relationship skills, sense of belonging, global awareness, and identity development. These are all areas that evidence suggests are important for learning and future success.

In some cases, schools are transforming traditional academics to help students develop identity and community simultaneously. For example, EdSurge reporter Stephen Noonoo explained how a California school district's curriculum draws on vocational psychology to give students a vision and path to fulfilling work in the future. Ed Hidalgo, the district's chief innovation officer explains that the curriculum aims to address identity development head-on. "You matriculate through all these years of schooling, but no one ever really stops to have a conversation with you about, really, who are you?" Hidalgo says. The program responds to research that shows that the influence of stereotyping on young people's career choices increases with age. Through the curriculum, students identify professions that are of interest to them through exposure in elementary school, and through assessments in middle school. The curriculum stresses hands-on learning and relationship-building. Students also have the opportunity to build their own communities around their selected areas of professional interest through conversations with adults who are working in those fields.

In other cases, schools are responding to research showing that life outside of school affects students' performance. In addition, we know that stressors such as hunger, financial insecurity, and other traumas negatively affect students' ability to achieve their full potential, academically and as a member of the community. NyRee Clayton-Taylor, an elementary school resource teacher, visited 20 schools as part of her semester-long sabbatical as the 2019 Kentucky Elementary Teacher of the Year. In an EdSurge story, Clayton-Taylor described the results of her action research. She details how school leaders are creating communities where students—especially those who are often defined as marginalized or "at-risk"—feel safe. One principal creates "goody bags" of essentials that students sometimes lack at home. Another school convenes "Sister Circles" in which older students visit local elementary and middle schools to engage African American girls in discussions about their classroom experience. They work to counteract the harmful effects of the adultification of African American girls. These programs are designed to build both identity and community and to create the conditions for student success.

In another example, EdSurge reporter Emily Tate traced the efforts of three public school districts to provide food to school and community members during pandemic-induced school closures. The program serves the bottom level of Maslow's Hierarchy of Needs by addressing students' physiological needs, but it also offers students and families an opportunity to meet higher-level needs such as safety and belongingness. As Beth Kujawa, the food services supervisor for a district outside of Chicago explained it, "People think they're just handing the kids a plate and that's it. But lots of time they're giving the kids a smile and making them feel comfortable." In Tate's story, Michelle Jones, the general manager of food services for a school district in Minnesota stresses that food services work is even more important during these school closures. She says that her staff have had "really emotional connections with our parents and students who are really relying on us."

As the experience of food service workers illustrates, pandemic-related school closures and the accompanying loneliness that many students feel make this community-building work urgently important. At the same time, whether it happens in the virtual classroom or in a larger school community, educators and school leaders are finding that their typical methods for creating community are either inadequate or inappropriate for the current reality, even if their goals are ultimately the same. Our project explored how educators are adapting their practices to build relationships and community during the COVID-19 era—and to set up the conditions that students need for success.

Pandemic-related school closures and the accompanying loneliness that many students feel make this community-building work urgently important.

Reporter Emily Tate traced a powerful example of this work. Tate visited the Valley Day school in Pennsylvania before school closures and then followed the school's efforts to provide services for their students during the months of virtual learning. Valley Day is designated as an Approved Private School and enrolls students who have been referred by their public school districts and who qualify under 13 federally-defined disability categories. Valley Day's trauma-informed approach is not punitive, but instead aims to identify the root causes of behavioral problems and help students develop a practical plan for change. The model is predicated on routine and predictability—things that were in short supply after Valley Day was forced to shutter its literal doors. Students no longer had access to a "Reset Room" where they could work through their emotions by riding a stationary bike or doodling. Sent home with paper packets

to keep them occupied in the short-term, students no longer had a predictable schedule or a sense of what future routines might look like.

Valley Day's staff worked hard to adapt their model to the new virtual environment. Rob Hall, Valley Day's executive director explained that some elements of the transition were non-negotiable. "Some things we had to have: sense of safety, connections, relationships, giving folks a sense of hope for the future. Those are the tenets and hallmarks of trauma-informed intervention." That meant having regular check-ins between staff and families, establishing virtual school community meetings, providing private therapy sessions over video, and interacting with students individually and in groups over video. On the other hand, staff found that they needed to be flexible in other areas. For example, they tried not to introduce too many new concepts in virtual academic learning. However, even with such adjustments, it's not clear how effective these changes will—or can—be. As a teacher explained, "The students are showing that they feel the isolation and anxiety more, and I am concerned because I am not able to support my students in the way that they truly deserve." Still, Valley Day's model offers a glimpse of how school communities are drawing on research—in this case, work around trauma-informed intervention—to build community in a challenging time.

Our project also documented smaller-scale efforts to build relationships and community during the pandemic. For example, Gaia Ines Fasso, a consultant, offered observations on the challenges that school communities faced during the early period of school closures based on interviews that she conducted with school leaders at several schools. She wrote, "My interviewees are concerned about the impact online mandatory instruction will have on the depth of relationships between students and teachers and how this will affect students' level of engagement and learning." Her interviewees were trying to address this challenge by creating learning opportunities to bring students and staff closer together, figuratively though not literally. The Millennium School, a private middle school in San Francisco offered a virtual assembly in which students discussed hygiene in the COVID-19 era, as well as their own fears. The school is offering "virtual expeditions" that are designed to feel like online field trips. While it's too soon to know if such efforts are effective, they are examples of how schools are trying to build community and strengthen relationships across computer screens.

Editors' Picks: Stories Written by Educators

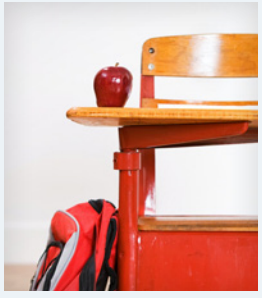
Educators have a keen ability to think flexibly and morph their practices in response to their students' needs, drawing on research along the way. That's never been more powerful or necessary than during this unprecedented year. As editors, we've been humbled by the opportunity to support educators in sharing their stories about how they're changing practices, whether those shifts occurred in the physical classroom or came as educators navigated unique challenges related to school closures and remote learning during the COVID-19 pandemic. These stories showcase the enormous ingenuity that educators possess. But they offer something more: inspiration and, in many cases, a blueprint for how other educators can make research-informed change.

My Greatest Teaching Problem Was Feedback. Here's How Research Helped Me Solve It. by Elizabeth Matlick

Providing feedback to 100 students has been Elizabeth Matlick's greatest teaching challenge. Over the years, she's found ways to make the workload more bearable, but it was when she turned to academic research on feedback literacy that she found a more meaningful solution—one that's helping her students process feedback and use it to improve their learning.

How 3 Techniques From Cognitive Psychology Reinvigorated My Math Classroom by Torre' Mills

High school math teacher Torre' Mills spent 20 years watching learners struggle with algebra. He found it particularly frustrating observing students master concepts only to forget them before big tests. It wasn't until he began using research-backed techniques from the world of cognitive psychology, designed to keep concepts fresh in students' minds, that he saw a difference. In his story, Mills walks us through his classroom transformation.



Feeling Nostalgic for In-Person Schooling? That May Hurt Our Chance to Rethink It. by Sarah Pazur

Many educators are missing the normal rhythms and routines of school, but administrator Sarah Pazur writes that for many students, school was not working—and the shift to remote learning has revealed "glaring inequities...that many of us aren't willing to ignore." In her story, Pazur shares how this nostalgia can make it difficult for educators to take the opportunity to rethink school.

Editors' Picks: Stories Written by Reporters

Over the course of a year, our reporting staff has encountered a handful of stories that have reminded us how taxing the education profession can be, how change can be enormously difficult, and how powerful the relationship between student and teacher is—whether in person or virtual. In reporting these stories, we've found honesty and humanity that have resonated with our audience and that have moved us profoundly.

[A New Approach to Discipline Slashed Suspension Rates and Transformed This DC School] **by Emily Tate**

When new staff arrived at Langley Elementary School in 2016, the school's suspension rate was at 66 percent and physical altercations were not uncommon. Three years and a top-to-bottom transformation later, the school is unrecognizable. EdSurge reporter Emily Tate visited the Washington, D.C. school to understand how a social-emotional learning-based approach changed school culture for the better.

[How Long Should a Remote School Day Be? There's No Consensus] **by Stephen Noonoo**

At a time when the traditional six- or seven-hour school day has been thoroughly disrupted, how much time should students spend each day on remote learning? As it turns out, there's no consensus. This story breaks down the guidance by state and shares what online learning experts believe is a better approach to managing remote learning days.

[Pandemic May (Finally) Push Online Education Into Teacher Prep Programs] **by Rebecca Koenig**

Most K-12 teachers weren't trained to teach online, and that's partly why remote instruction hasn't been a smash success. So leaders at college teacher prep programs are reconsidering how to train their students—future teachers—to teach in virtual and blended classrooms, drawing on two decades of research. That's good news for future crises—and for people who aspire to online teaching careers.

HELPING STUDENTS DEVELOP AS INDEPENDENT, SELF-DIRECTED LEARNERS AND PEOPLE

Many of our interviewees touted the importance of strong communities and relationships, but emphasized that they are preconditions for student success, not ends in themselves—a view also supported by research and research-backed frameworks for student development.[7] And educators believe that they can play a role in helping students develop these skills. As shown earlier, nearly three-quarters of respondents in our survey indicated that perseverance was a skill that educators felt was important for students to develop in their classes. Yet, students must be motivated to persevere, especially with challenging material.

In an interview with EdSurge Research, middle school social studies teacher Geordie Paulus explained the problem this way: "Enthusiasm for learning is important [if students are to be successful in the classroom]. But motivation can be a problem for students." Paulus tries to address this motivation gap with engaging assignments, such as creating a website for a unit capstone project and by creating classroom challenges. But she finds that it's a constant struggle to help students develop motivation in an age of digital distraction and in an environment that privileges high grades over the intrinsic value of learning or skill development.

Our projects uncovered examples of how individual educators and school communities are addressing this challenge head-on, relying on research to construct their solutions. In an op-ed for our series, Tim Klein, a project lead for the True North Program at Boston College made the case for one approach for encouraging and leveraging intrinsic motivation: formally eliminating grades. Klein cites research that shows that grading actually works against student motivation and academic success. He argues that students' lack of motivation created by baseless grading incentives has contributed to lack of engagement during remote learning. Klein calls on school communities to increase intrinsic motivation by encouraging autonomy (by letting students choose the skills they want to learn), competence (by letting students choose what they want to learn), and relatedness (to show students the value of their learning).

If school communities aren't yet willing or able to take such a dramatic step as eliminating grades, there are smaller research-backed steps that individual educators can take to help students develop intrinsic motivation. For example, Elizabeth Matlick, a middle and high school English and writing teacher wrote about how her approach to offering student

[7] For example, the Turnaround for Children's Building Blocks for Learning posits that social awareness is a skill that allows students to become independent, curious learners. But for students to take ownership of their own learning, they must first develop discrete skills such as resilience and self direction.

feedback changed. Matlick's existing approach of writing exhaustive comments was unsustainable, but she also found that the feedback was not having its intended effect: students rarely addressed her feedback in subsequent drafts. Drawing on research that suggested emotional barriers to receiving and implementing feedback, Matlick decided to look for research-backed ways for students to persevere and embrace feedback as curious learners. Matlick wrote, "The goal is for my students to eventually develop the patience needed to persist through multiple rounds of feedback, to have the motivation to improve even when the process feels stressful and to bring a curiosity about how to learn more deeply, rather than focusing on a letter or number grade." Matlick made progress toward this goal by unpacking the emotional reasons that students weren't making use of feedback with an "if/then" statement exercise. She used this feedback and additional research on the responsibility of the learner to have students consider their own role in offering and responding to feedback. Matlick had students write reflections and ultimately created a teacher-guided peer review system that put the responsibility—and the motivation—back on the learner.

It may not be possible for every educator to complete an intensive investigation of research and to develop new structures and tools as Matlick did. But one thing is for sure: During this challenging period of remote learning, many students don't have regular access to a teacher or to synchronous learning opportunities. Now more than ever, students will need intrinsic motivation, perseverance, and curiosity if they are to succeed. Researchers, educators, and the media can provide schools and districts with examples of research-backed approaches to meet this moment. Edtech companies should also be part of this effort.

Now more than ever, students will need intrinsic motivation, perseverance, and curiosity if they are to succeed.

THE ROLE OF INSTRUCTIONAL TECHNOLOGY IN TEACHING SOCIAL-EMOTIONAL SKILLS

According to one study, educators are more likely to prefer digital over non-digital tools for a range of functions, including social-emotional competencies such as collaboration. Our project also showed something similar: educators often see value in using edtech to help facilitate growth in students' social-emotional skills, even when that was not their primary purpose in using an edtech tool with students. In our survey, over 80 percent of educators agreed or strongly agreed that, "Technology can help students learn social-emotional skills."

Educators are realizing that potential for edtech in their own practice as well. In our survey, we asked respondents to identify the instructional technology—defined as software products that are primarily used to facilitate teaching and learning—that was most critical to their practice. An overwhelming majority agreed that the product had made a big difference in student learning outcomes, but a majority also agreed that the product had made a big difference in how students relate to one another.

	Strongly disagree	Disagree	Agree	Strongly agree	Total respondents
This product has made a big difference in student learning outcomes.	0 (0%)	19 (5%)	193 (54%)	125 (35%)	356
This product has made a big difference in how students relate to one another.	8 (2%)	79 (22%)	156 (43%)	81 (23%)	470

Note: Respondents were asked to evaluate the above statements based on the following prompt: "Think about the product. Indicate how strongly you agree with each statement." See the methodology for details on survey purpose and administration.

Of course, improving interactions between students is just one element of social-emotional learning. What other skills do educators hope to advance among students through the use of instructional technology? And what does that look like in practice? In our survey, we asked respondents to select the skills or concepts that they taught through the use of the instructional technology product that was most critical to their practice. Survey respondents selected skills or concepts related to academic knowledge (i.e., content knowledge and literacy skills and the enabling skills of problem solving and analytical skills) in greater numbers than social-emotional skills. Even so, social-emotional skills still figured into educators' deployment of instructional technology.

That said, there was a mismatch between many of the skills and concepts that respondents felt were important for students to develop overall and those that they used instructional technology to address. Among the five skills and concepts that respondents most often cited as important for students to develop in their class, only two—literacy skills and problem-solving skills—were taught by a majority of respondents through the instructional technology most critical to their practice. A minority of respondents used the instructional technology most

Ordered list of skills and concepts that survey respondents indicated that they taught through the instructional technology most critical to their practice	Numbers and percentages of respondents indicating importance	Skills and concepts that over 70% of survey respondents felt were important for students to develop in their class	Top five skills and concepts that survey respondents were most surprised that the instructional technology most critical to their practice could help address
Content knowledge	238 (67%)	N/A - not listed	✓
Literacy skills	220 (62%)	✓	✓
Problem-solving skills	217 (61%)	✓	✓
Analytical skills	173 (49%)		✓
Collaboration skills	170 (48%)	✓	✓
Numeracy skills	136 (38%)		
Perseverance	105 (30%)	✓	
Executive functions	104 (29%)		
Global awareness	88 (25%)		
Relationship skills	78 (22%)	✓	
Stress management	56 (16%)		
Sense of belonging	54 (15%)		
Identity development	52 (15%)		

Note: Data for the second column is based on the responses of 355 respondents who responded to the following prompt: "Which skills or concepts do you teach through this product [that is most critical to your practice]? Select all that apply." Data for the third column is based on the responses of 407 respondents who responded to the following prompt: "Select the skills and knowledge areas that you feel are important for students to develop in your class." Data for the fourth column is based on the responses of 339 respondents who responded to the following prompt: "You identified the product as helping you address the following skills and concepts. Which of these skills or concepts were you most surprised that the product could help address?" Response choices were pre-filled based on previous responses. See the methodology for details on survey purpose and administration.

critical to their practice to teach collaboration skills, perseverance, and relationship skills—three skills appearing on the "top five" list of skills that were important for students to develop in class. Respondents also found the most frequently taught skills the most surprising.

It's not hard to see why there's a mismatch. Survey respondents and interviewees for this project emphasized that their primary objective in using instructional technology was to convey content knowledge or help students develop skills needed for mastery of a particular subject area. Educators viewed instructional technology's potential for helping to facilitate learning around social-emotional skills as an ancillary benefit, not a primary objective.

Common educator-cited goals for using the instructional technology most critical to their practice	Number of responses	Example goals from survey
Content knowledge and academic skills related to a particular academic discipline	96	• "This product helps the children know letters, sounds and reading words." • "For the kids to know how and where to find accurate and complete information"
Classroom coordination and management	50	• "Communication and content distribution" • "To go paperless"
Social-emotional skills	39	• "Teaching students to manage their emotions" • "To have students critique themselves and set goals"

Note: In our survey, we asked respondents the following question about the instructional technology that was most critical to their practice: "What are your goals for using this product?" We then tagged the responses, using multiple tags for a single entry when necessary. Tags included the following: Academic skills, classroom management, data gathering/assessment, required, social-emotional learning, tech skills, and none. 274 educators answered this question. See the methodology for details on survey purpose and administration.

Educators whom we interviewed provided more examples of how they used instructional technology to help students develop social-emotional skills, even in the context of academic learning. For example, Ann-Marie Fine, a high school world history teacher at a public school in California explained that she used Google Drive as a mechanism to share content knowledge and as a platform for having students create projects to demonstrate knowledge of a particular content area. Fine explained that students are also developing executive functions. "I try to get them to create a history folder, have a system, name docs, make sure that it's saved before you shut down your computer." Fine is also drawing on Google Drive's sharing and commenting features to help students develop collaboration skills when they work in small groups.

In all elements of our project, educators emphasized that implementation of instructional technology—and the role of the teacher—mattered greatly to how well tech enabled learning around social-emotional skills.

In another example, Lindsey Own, a PS-8 STEAM integrationist at an independent school in Washington state, explains that the process of learning how to engage with a particular technology or mastering a particular tech skill can help students develop social-emotional skills—if scaffolded well. Own emphasizes the critical role of that scaffolding: "The tool doesn't teach [social-emotional skills such as perseverance]. But the tool enables it." Once students learn and feel confident with a particular tool, the process of more independently learning a similar tool can support their developing problem-solving skills and perseverance. "We use a lot of Adobe products. When kids are in Illustrator, we throw them into PhotoShop and they know how to figure it out because there's consistency in look. They can figure it out on their own." When teachers intentionally scaffold initial competency then allow students to further explore tools on their own, this helps build student resourcefulness as they navigate new features and menus to improve their experience. This prepares students to make sense of new technologies that they'll come across in the future.

IMPLEMENTATION MATTERS

In all elements of our project, educators emphasized that implementation of instructional technology—and the role of the teacher—mattered greatly to how well tech enabled learning around social-emotional skills. In an interview with EdSurge Research, Teresa Simmons, a

veteran classroom teacher who now serves as a technology teacher for middle and high schoolers in rural Virginia put it this way: "Tech should not be the star of the learning. It shouldn't be an impediment to the learning. It should be part of the infrastructure of the learning." For Simmons, tech assisted quality teaching; it was not a replacement for teaching.

Educators and edtech product developers alike told us that implementation of technology and the assignments that teachers offer matter greatly in teachers' ability to facilitate social-emotional skills and concepts using technology. Elements of implementation such as adequate training for instructors, a certain frequency of use, and the integration of tech tools into a broader curriculum are clearly important, though research on these factors has been lacking. In a story for our series, researchers Molly B. Zielezinski and Amanda Thibodeau summarized their research about factors to evaluate when considering edtech tools that are specifically designed to facilitate social-emotional learning. Zielezinski and Thibodeau work with educational technology companies and research organizations to build their capacity for efficacy and evaluation. They argue that it's important to prioritize professional learning around the new learning resource, though they also consider other factors related to content and organization. Crucially, professional learning must come after educators have developed their own social-emotional skills—something that requires ongoing practice. Without social-emotional skills and training around how to use the learning resource, educators will have a tough time maximizing a social-emotional learning tool's potential.

In many cases, edtech product leaders have also conducted their own analysis to identify the optimal conditions for educators using their products. These analyses vary widely in approach and purpose but typically involve examining user data to identify common characteristics among users who have seen success with the product. In our interviews with product developers, we found that definitions of success can vary widely and are highly dependent on product category.

For example, leaders at Pear Deck, a presentation tool that aims to make content engaging through features that promote active learning, have tried to identify the amount of familiarity that educators need to have with the product before they see an uptick in educators' use of more advanced features and higher levels of engagement. Michal Eynon-Lynch, Pear Deck's Chief Educator, explained it this way in an interview with EdSurge Research: "We've found that once teachers have presented Pear Deck five times, that's when we see the growth in their ability and confidence to use the product in more advanced and effective ways."

Curricular product developers sometimes look at usage and student performance data to identify implementation models that are correlated with improved student learning

outcomes. Liliana Suero, Instructional Design Director at Istation, a blended learning program for reading, math, and Spanish, explained how this analysis works for her product. "Our research states that when students use our programs with fidelity, following our usage guidelines, there is percentile rank growth by the end of the year. Our guidelines state that students who use our programs for 40 minutes per week consistently see higher growth than those students who don't use us."

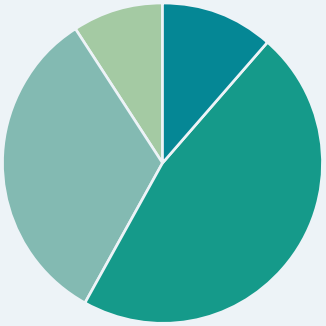
Such analyses of usage data can help product teams train educators on how to use their product effectively under particular conditions. But they can also present obstacles for educators who are unsure of either the method product developers used to establish implementation recommendations, or the rigor behind such analyses. And educators can find it frustrating when their circumstances preclude implementation as the product developer suggests.

Educators' ability to implement technology in accordance with product makers' suggestions appears to be correlated with how critical a tool is to an educator's practice. We speculate that this is because tools that educators perceive as critical are more often aligned to their teaching philosophy, resulting in usage that corresponds with product developers' instructions. In our survey, 94 percent of respondents agreed or strongly agreed that they were using the instructional technology most critical to their practice as the makers intended. Not surprisingly, more than 99 percent of respondents felt that the product was successful or very successful in achieving their goals—goals that reflected their teaching philosophy. When we asked educators about how they were implementing the technology with students, there were clear trends based on category of product. For example, respondents who were using adaptive curricular products were more likely to have students spend 15-30 minutes with the product in a sitting and more likely to have students work by themselves with the product.

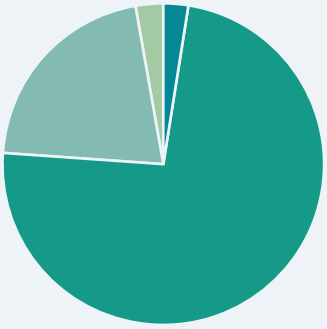
How much time do students typically spend using this product in a sitting?

- Less than 15 minutes
- 15-30 minutes
- 30 minutes to an hour
- More than an hour

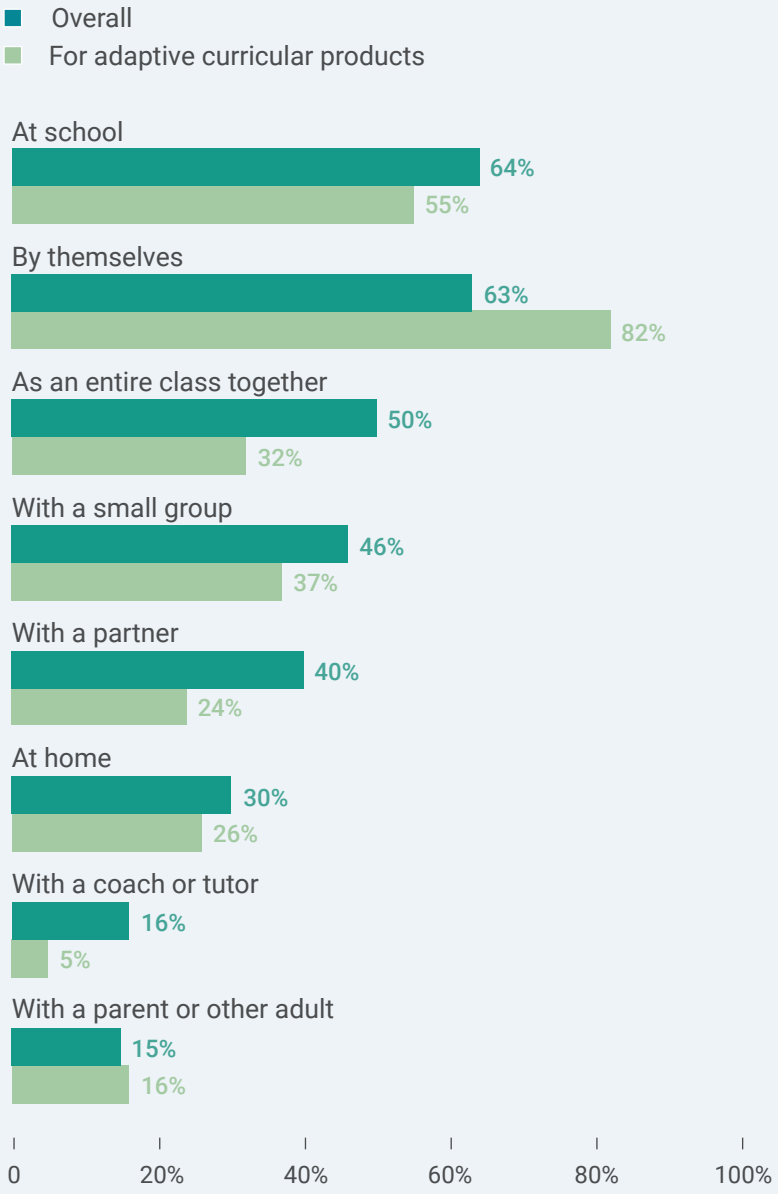
Overall



For adaptive curricular products:



How are students usually using this product? Select all that apply.



Note: In our survey, we asked respondents the following questions about the instructional technology that was most critical to their practice: "How much time do students typically spend using this product in a sitting?" and "How are students using this product?" The first question asked respondents to select a single amount of time. The second asked them to select all answers that applied. We then applied a tag to responses that had listed an adaptive curricular product as the product that was most critical to their practice. 38 respondents were in this group. 341 people responded to this question overall. See the methodology for details on survey purpose and administration.

But when it comes to edtech more generally—as opposed to a single product that educators deem most important for their practice—educators often don't feel equipped to implement the product with fidelity. One study found that majorities of teachers and administrators viewed teachers' lack of training on the effective use of digital learning tools as a significant or extremely significant barrier to the use of such tools.

Product developers often recognize this problem. As Kevin Baird, the Chief Academic Officer at Achieve3000, a literacy and math learning platform, explains, "There's this phrase, 'implementation with fidelity.' I have an equivalent phrase: root canal. Tell a teacher, 'You're going to implement with fidelity.' And what you're actually saying to that teacher is, 'I'm going to take all autonomy away from you. I've created something so inflexible that you can't actually use it in a way for your students, your curriculum or your pedagogical style. You're going to have to do it exactly the way I'm telling you to do it'…[Products] have to provide a flexible enough experience [in order to] focus on the student outcome. Or as Wade Fields, Director of Product Management at Blackboard, a learning management system, put it, "We want to meet users where they're at." That means providing enough flexibility in the product so that educators can use it in the way that they deem most suitable for their goals. That is easier said than done.

AS EDUCATORS ADAPT TO COVID-19, FLEXIBILITY BOTH HELPS AND HURTS

In practice, "flexibility" can sometimes mean that educators and students are overwhelmed by product features or uncertain how to go about implementing a product in service of their particular goals. In our survey, we asked respondents to list features that they liked the least. One respondent summed up a common refrain by describing the instructional technology product most critical to his or her practice—a learning management system—in this way: "can be overwhelming for tech novices." The respondent saw an upside of this problem, however. It "pushes students [who did not have familiarity with the technology] out of their comfort zones and forces them to persevere," the educator wrote. But in this case, an abundance of features—from word processing, to communication tools, to organizational schemas, to survey functions—created an initial barrier to engagement.

On the other hand, educators who participated in our project described flexibility during remote learning

Educators who participated in our project described flexibility during remote learning as vitally important.

as vitally important, even if it sometimes caused additional problems. Educators whom we interviewed explained that they were using different tech tools than in the past, doubling down on video communication and online learning programs and striving to accommodate asynchronous learning models deployed in their schools or districts. Educators described using video conferencing integrations via their learning management systems for the first time. In some cases, they found that these video systems—or other online tools that were typically used in workplace contexts—had not yet been optimized for school environments.

In an interview with EdSurge Research, Lindsey Own explained the practical impact of this flexibility. "We've been trying to figure out what screencasting tools to use and looking for videos and tutorials online. But very little is geared for educators. For example, I finished making a Google Meet tutorial [on how to create and simultaneously supervise multiple breakout rooms on Google Meet] because I couldn't find it anywhere….And there are so few controls because they're thinking about adults when they're making these things. We've found that we can't turn off students' ability to mute each other." Own observed that this caused obvious problems. In follow-up correspondence, Own reported that the muting problem had since been resolved, but the fix created new problems for teachers.

Educators whom we interviewed also described how they are using tech tools to assess the social-emotional state of students and to encourage social-emotional growth. These educators stressed that there was no one-size-fits-all approach and that educators needed to be nimble in responding to the needs of their students in the rapidly changing conditions wrought by school closures.

Sometimes this meant check-ins via video or collaborative projects that required interaction between students who were otherwise isolated. Sometimes this meant offering a check-in form via a survey tool to get a sense of students' emotional state on any given day, as Noemi Ortiz, the special education high school teacher, described. Sometimes it meant surveying or communicating more often with parents and caregivers. In some cases, this outreach to families became a first step toward promoting what researchers Christina Cipriano and Gabrielle Rappolt-Schlitmann describe as "teacher-parent-student solidarity" in an article for our series.

Whatever the case, educators stressed that now more than ever, tech was a tool to achieve a larger goal such as better connectedness, improved engagement, or better learning outcomes, not the endgame. Having access to a variety of tech products–whether video, surveying tools, or parent communication tools—gave educators additional flexibility in achieving these aims.

WHEN EVENTS ECLIPSE RESEARCH AND PRODUCT DEVELOPMENT

What role does research play at a moment when events on-the-ground are eclipsing both research and product development processes? In normal times, research often informs product development, but the type and application of that research varies widely. Companies aren't always clear about the role that research plays in their product development process, and commentators have taken the edtech industry to task for slapping "research-backed" labels on their products with abandon and peppering their marketing materials with dubious claims about products' efficacy. These claims are both designed to convince administrators to purchase products and to grant the products a "strong" evidence rating according to the federal Every Student Succeeds Act (ESSA), which determines product purchasing requirements using federal funds.

In a piece for our series, Megan Silander and Naomi Hupert, researchers at the Center for Children and Technology at the Education Development Center offered a primer for educators frustrated by product claims masquerading as research. They detailed the important questions that educators must ask in assessing research on edtech tools. They explained that while it can take considerable time to do this due diligence, the alternative is even worse: investment in an expensive product that does not help students' learning. Silander and Hupert provide places to access information and evidence and questions to assess how rigorous the research is.

Questions to Evaluate Edtech Research

- **Does the study design provide a compelling comparison group?**
- **How does the study measure success?**
- **Who did the research?**
- **How much learning happened during the study?**
- **Who participated in the study?**

From Megan Silander and Naomi Hupert, "The Best Edtech for Students Is Backed by Research. Here's What to Look For," EdSurge, Feb. 6, 2020.

In our interviews with product developers, we found a wide range of approaches to research, ranging from consideration of learning science principles in product design, to user testing, to efficacy studies. It's important to recognize that these forms of research aren't necessarily ways of measuring product efficacy as Silander and Hupert were detailing. Instead, we were trying to capture what "research" meant to product developers and how they used and thought about research in their product development process. The approaches to research that product developers offered were often partly determined by the stage and resources of the company, though we saw examples of earlier stage companies also partnering with universities to conduct efficacy trials.

	Common types of research mentioned in interviews with product developers
MORE INTENSIVE RESEARCH ↕ LESS INTENSIVE RESEARCH	Efficacy trials
	User research
	A/B testing of product features
	Consideration of user data in product design
	Consideration of learning science principles in product design

Note: Data compiled from interviews with 14 product developers. See the methodology for product developer interview purpose and administration.

With such varying approaches to research, and with the details or application of that research sometimes unclear, educators are sometimes uncertain about whether the products that they're using are "research-backed." One study found that, while educators overwhelmingly view educational technology as valuable, they are unlikely to agree that there is a lot of information available about products' effectiveness. Teresa Simmons, the middle and high school technology teacher, voiced a perspective that we heard repeatedly throughout our interviews. "Where would I go to look at educational research that validated using one product over something else? I don't know that that research exists." The problem seems to be partially rooted in the differences between how educators, product developers, and educational researchers are thinking about research and what constitutes a "research-backed" practice. The field would do well to embrace the work of educational researchers, educators, and product developers who are trying to align on that issue.

Making the Most of Research

Many educators who participated in our project seconded Simmons' view that they weren't always able to find the research that was most useful to them or that fit their circumstance—an attitude that is itself reflected in research.

Part of the problem is that educators with whom we engaged for this project often had a narrow vision of research—more often seeing it as a journal article or a symposium presentation, rather than being transmitted through more accessible and educator-directed ways (e.g., a math teacher's discussion of how he applied brain sciences principles

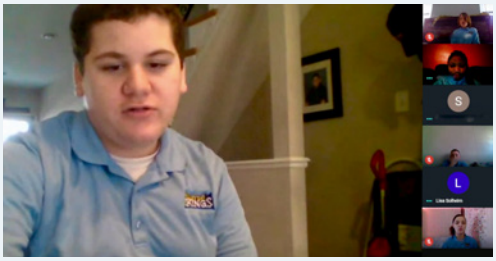
Reporting Remotely

The datelines for many of our reported stories have reflected the tumultuous change that K-12 schooling saw during the 2019-2020 school year. The series began with dispatches filed from schools in Newport Beach, Calif., Washington, D.C., and Chicago. But literal school visits became impossible after March 2020, when schools shuttered their doors amid the COVID-19 pandemic.

Our reporters found innovative approaches for deep reporting when in-person contact with sources wasn't possible. In one case, a reporter had already conducted an in-person visit before schools closed. The dateline to the story reflected the follow-up interviews and class visits that the reporter conducted remotely: Morrisville, Pa. / Zoom.

In other cases, reporters relied on sources to take pictures to illustrate their experiences. For other stories, reporters conducted multiple rounds of interviews and attended classes that met remotely.

The result was deeply reported pieces that showcased different voices and models for responding to this unprecedented crisis.



Left: A picture taken by a source for a reported story on school districts' food service programs during the pandemic

Right: A screenshot from a live video lesson in a reported story on trauma-informed care

to implement a program of frequent retrievals, spacing, interleaving, and discriminating between similar looking problems, or a webinar where experts speak to educators about how they can draw on online learning research to improve remote instruction). Our Virtual Learning Circles brought educators together to talk about articles in our series that show how research can be used in practice and to let educators reconsider their own role in contributing to and leveraging research.

LOOKING FOR ALTERNATIVE MODELS FOR MEASURING PROGRESS

Educators engaged in this project also rarely viewed themselves as researchers, but the reality is that many educators measure student progress by examining qualitative and quantitative data, then changing their approach based on these data. In short, they are conducting research. When we asked 37 participants in Virtual Learning Circles to rank the factors that influence their decision to make changes in their practice, two of the top three choices—observing my students and analyzing data generated by my students—constituted research activities performed by the educator.

	In general, what prompts your decision to make a change in your practice? Please rank the following in order from 1 (most important) to 6 (least important), marking any factors that don't apply with N/A.
MOST IMPORTANT ↕ LEAST IMPORTANT	Observing my students
	Feedback from students
	Analyzing data generated by my students
	Hearing about a new practice
	Feedback from administrator(s)
	Feedback from parents

Note: Ordered list was constructed based on the responses of 37 virtual learning circle participants. See the methodology for details on survey purpose and administration.

In our larger survey of educators, respondents indicated that they were using a variety of techniques to measure student progress with the instructional technology most critical to their practice. In follow-up interviews, many educators provided examples of how they used that information to make changes to their practice.

	How do you typically monitor student progress with use of the product? Select all that apply.	Examples of action taken based on approach to monitoring student progress
Above 50% of respondents	By observing students as they use the product	Select students who demonstrate mastery of a content area (as shown through use of a technology) to help struggling classmates
	By analyzing data generated through use of the product	Implement a different usage model for the technology (e.g., more practice with a curricular tool to achieve content mastery)
50%		
Below 50% of respondents	By looking at data generated through use of the product against other data sources	Coordinate with teachers in other disciplines on challenges and on parent outreach
	By administering a formative assessment after use of the product	Identify and work with students who need help understanding taught concepts or the technology

Note: The ordered list was constructed based on the responses of 341 survey respondents, in which respondents could select all methods that applied. Note that respondents may have interpreted the question differently. In follow-up interviews, some educators explained that they answered the question based on how they measured students' progress toward mastery of the technology. Other educators explained that they answered the question based on how they measured students' learning progress. See the methodology for details on survey purpose and administration. The examples appearing in the second column are compiled from interviews with educators.

This way of monitoring progress and adjusting practice is more timely than the traditional barometer for success—summative assessments and high-stakes tests that are typically administered annually and whose results cannot be applied in real time. In addition, these assessments are generally not designed to reflect social-emotional growth and can lag as an indicator when students need academic or emotional support.[8] Indeed, some educators who

[8] The influential report, "From a Nation at Risk to a Nation at Hope," explains the consensus of experts about the relationship between social-emotional learning and traditional assessments: "While assessments of learning settings should be part of accountability systems, individual student data that directly measure social, emotional, and cognitive skills and competencies should not be used as a metric in accountability systems. Until we have tools that we are confident adequately capture these skills and attributes in ways that are sensitive to age, developmental stage, and context, and commit to using the measures appropriately for improvement, we risk putting more weight on these measures than is useful" (p. 41).

participated in our Virtual Learning Circles felt that the goals of social-emotional learning and testing were antithetical to one another. As Ruth Brewington, a middle school librarian in Louisiana explained it during a conversation about the value of play, "They are tested too much. We have to bring joy to their lives." Other participants nodded in agreement, and voiced hope that the decision to forgo testing in many states amid the pandemic offered an opportunity to rethink how success was measured, what form of alternative assessments might make sense, and how to build social-emotional growth into such assessments.

EDUCATORS AS RESEARCHERS—AND NOT

Educators identified an additional problem in making sense of research: they often don't see their communities in the research design. During an EdSurge Research-hosted Virtual Learning Circle, Kateri Simpson, a counselor and internship coordinator at a public high school in Oakland, Calif., explained this problem. "A lot of the research is being done in such different contexts that it's hard to see how it's applicable. I just don't know how to implement it in my context. But I don't want to use that as an excuse. I would like to see more research done by folks of color and in low-income schools." Simpson's remark is a good reminder that there often remains a stark divide between the educational research community and educators themselves. At the same time, many people in the educational research community are concerned with similar issues, and there is a growing movement to provide educators with the resources that they need to critically evaluate how to apply particular approaches in their classroom and communities.[9]

A lot of the research is being done in such different contexts that it's hard to see how it's applicable.

Kateri Simpson, high school counselor and internship coordinator in Oakland, Calif.

Other Virtual Learning Circle participants voiced concerns about the applicability of research to their own school communities. Some participants shared that they had tried to implement large initiatives—like a scheduling change or project-based learning—but had been told that their schools or districts lacked the resources to implement these policies or had had their

[9] Many of these efforts focus on edtech. Examples include the Edtech Evidence Exchange, the Edtech Rapid Cycle Evaluation Coach (RCE), and Digital Promise's Ed-Tech Pilot Framework. Crucially, all of these efforts involve educators in their research design process.

ideas shot down by vocal parents or dismissive school boards. They pointed out that these constraints are not always in place in private schools and affluent public schools like the ones that they read about in several EdSurge pieces.

Our project urged educators to wrestle with these omissions and to position themselves as members of the research community, not just as passive consumers of research. For example, Andrew Burnett wrote an article for our series that described his sabbatical from teaching in order to conduct educational research—and how that experience transformed his teaching when he returned to the classroom. Burnett wrote, "Today, my classroom looks vastly different than it did back in 2012." Drawing on research that he helped lead in collaboration with educational researchers based at a university, Burnett now gives students individual feedback via video after assessments and relies exclusively on students' self-assessments and the supporting evidence that they provide in assigning grades. In his classroom, students now learn in groups for more than half the class. Burnett credits these changes with giving students greater understanding and confidence in math. "I have seen a major shift in understanding by all of my students, particularly the 20 percent that struggled year after year in math." Applying research that he contributed to also changed Burnett. "I have always enjoyed teaching, but lately I am more excited to be teaching than at any point in my career," Burnett wrote.

Conclusion

The COVID-19 pandemic has changed the way that educators operate, but it has not diminished the need for research-informed practice. Indeed, there is perhaps no moment that calls for greater need for teaching and learning practice to draw on what we know to be impactful approaches. Students, educators, and entire school communities face mental, physical, and emotional catastrophe brought on by the pandemic, and we can ill afford to haphazardly respond to the crisis. Yet, in this moment of crisis, it's often hard for educators and school leaders to investigate, select, and apply research-derived and -backed approaches with fidelity. In some cases, the circumstances that school communities now find themselves in bear little resemblance to the context in which research on teaching and learning was conducted.

Our project was already well underway when the pandemic unfolded and schools closed. We pivoted to document and study instances of emerging practices that educators are adopting, acknowledging that many of these efforts are still experimental, even if they are rooted in existing research about remote learning, social-emotional learning, or other relevant topics. Yet, even if we shifted our focus to the educators' and school communities' response to the pandemic, the underlying principles for this work remained intact. Indeed, these three principles took on greater urgency:

- The pandemic wreaked havoc on student and educator well-being, threatening a crisis of a previously unseen magnitude. Now more than ever, social-emotional learning is critical, and educators and school communities play an important role in empowering students' growth.
- During school closures and remote learning, instructional technology became indispensable for advancing teaching and learning. Given this increasing reliance on instructional technology, it's all the more important that educators and school communities are leveraging tools effectively in their practice and that tools are being designed for educators, using research.
- Research must inform practice, but research also needs to be actionable, accessible, and relevant for educators. The pandemic has highlighted instances in which practice that leverages research can also help to inform research agendas.

Educators don't need to go as far as taking a sabbatical to leverage research in their work. They can contribute to research in other ways. When educators conduct their own research in the classroom and engage with researchers outside of the classroom, they help keep the focus on how research is leveraged and applied in different settings. This, in turn,

suggests different questions and communities for researchers to investigate. Our four Virtual Learning Circles helped us to begin this conversation about how educators perceive research and to provide opportunities for using research. After the Virtual Learning Circles, participants submitted action plans about how to leverage research in their own practice. Most were tightly focused on a specific problem that they aimed to solve through a research-backed approach: offering more effective feedback to students, engaging in effective reading intervention practices, and advocating for guided play activities in the curriculum. The specificity of these plans suggests that the educators in our Virtual Learning Circles were interested in research as a mechanism for improving their own practice. Research that makes these links explicit and shows the relevance of findings is especially valuable to educators like the ones who attended our Virtual Learning Circles.

Opportunities like the Virtual Learning Circles also empower educators to make change and to take charge in their own communities. For example, two middle school teachers in Washington, D.C., overcame colleagues' resistance to pioneering a self-paced classroom model by drawing on research on child development and social-emotional skills such as intrinsic motivation and self-direction. Or take the case of the kindergarten teacher who is drawing on research showing the importance of both structured and free play for supporting the growth of the whole child. The teacher builds in time for play in the classroom even though it is out-of-sync with his school's philosophy. In such cases, research and evidence can be empowering for educators who wish to go against the grain and change their practice.

Expanding Reach

We want our stories to have broad reach, but there are some forms of impact that aren't measured in the number of eyeballs on a story, or the length of time that a reader spends with an article. Instead, we're interested in expanding our reach into new communities, furthering the relationship between researchers and educators. Here are a few examples of how our project has done just that:

Recognition by university researchers: EdSurge higher education reporter Rebecca Koenig explored the challenges that teacher preparation programs are facing during the COVID-19 pandemic and how they're pivoting to support students. In her story, Koenig unpacks existing research about online and blended learning and how the literature has led to the creation of several sets of standards for how to teach K-12 students effectively in online environments. Koenig's story was recently cited in a paper by Theresa A. Cullen from University of Oklahoma.

Spreading the news: When our editor reached out to Tim Klein, who authored a story challenging grades, Klein replied, "Sorry for the delay. I have had a few speaking requests at virtual conferences as a result [of writing and publishing this article], and schools are reaching out to identify best practices in fostering intrinsic motivation."

One Virtual Learning Circle participant explained the power of having such evidence at-hand when making a change to her practice. In a follow-up survey she wrote, "I sent out a survey to all educators and used that to back my theory. I did rely on a gut instinct. It made it easier to approach my supervisor when I had data backing up that gut."

When we empower educators to make changes to their practice based on research and evidence or give them opportunities to work with educational researchers, we are also changing the perception of research and its potential for impact. The educational research community is a key part of this process, and many organizations—such as the American Educational Research Association—are working hard to make connections between researchers, educators, and product developers. This work is critical because it offers a way to unify around common conceptions of what research is and to more effectively apply pressure to systems—schools, districts, products, and others—to listen and rethink their approaches.

This project offers one way to make research more accessible, spotlighting specific practices and amplifying the voices of educators. But there are many more ways of doing this vital work. That is especially important right now, in the midst of a global pandemic that has thrown many conventions for teaching and learning out the window. At this critical time, educators have an opportunity to leverage research, but they are also learning by doing.

From Reading to Action

We're also interested in learning whether and how articles in the series are an impetus for change. Are educators inspired to revise a lesson, change up their next interaction with a student, or design a professional development session? We found that Virtual Learning Circle participants are making small and large changes to their practice after reading articles in our series. Here are a few examples in the words of Virtual Learning Circle participants:

Planning for remote learning: "We are currently building a model for starting the school year under remote learning circumstances in case it is needed. One of the resources we are using to help provide insights and research to back up our decision making is [the article on student engagement during remote learning by Kristin Kipp and Kerry Rice]."

Feedback and professional development: "In his article, Andrew Burnett wrote about student feedback; I started making changes to the way I was providing feedback to my teachers as part of my professional development sessions. I also led the teachers through providing feedback to students using a variety of platforms in order to enrich student learning, especially during remote learning."

Documenting those efforts and understanding their impact will be essential for supporting learning and the whole child in the months and years to come. This documentation will also be important for educational researchers who are seeking to understand the impact of the pandemic on teaching and learning—and how we can move forward together.

Our current moment presents enormous challenges, and we should be clear that COVID-19 and the deeply entrenched inequities that the global pandemic has exposed are tragedies for our students, educators, and school communities. But they also offer an opportunity to rethink teaching and learning practice in service of the whole child, the role that research can and should play in that transformation, and how we can support our educators and schools as they work to meet the moment. That is incredibly difficult, but deeply needed work. The stories and people that we have glimpsed through this project make us optimistic that the work can be done.

For Further Investigation

Educators are doing important work under challenging circumstances. We need to develop research that responds to educators' realities and needs, and in which educators can participate.

Partnerships Between Educators and Researchers. Whether it was through engaging with writers in a Virtual Learning Circle or participating in research interviews, educators relished the opportunity to share their reflections on teaching and learning practice. And they voiced the wish for more such opportunities to influence and be part of research. We need more opportunities for educators and researchers to collaborate.

Prioritizing Educator Wellness. We know that educators are struggling with stress and demoralization. That's especially true now with school closures, transitions to remote learning, and acute concerns about the health and well-being of students and their families.

There's a great need to go beyond this painful reality to assess how school communities can support educator wellness. Breathing exercises are great, but they only get educators so far in dealing with the significant challenges that they face.

Deeper Coverage. Our research revealed that educators are inundated with resources—especially during this period of school closures. Educators have so much to do, and they're wary of materials that purport to offer "best practices" without acknowledgment of the significant challenges that educators face.

They're craving quality over quantity: coverage that goes deep by examining how educators and school communities are approaching challenges, the advances and setbacks that they encounter along the way, and the changes that they make over time.

To be sure, educators want to help achieve quick wins—whether it's guidance on implementing a one-time classroom activity, or ideas for a professional development session. But they're in it for the long haul, and they know that quick wins are just the beginning.

Appendices

Appendix A: Methodology

This project consisted of six elements. First, we conducted a literature review to inform the various activities associated with this project. This literature review involved research related to whole child education, how educators are leveraging research in their practice, and educators' use of instructional technology. Second, we published more than 50 stories between September 2019 and September 2020. Third, we conducted a survey of 676 educators, 531 of whom met the criteria for participation (October 2019). Fourth, we conducted interviews with 14 educators between December 2019 and March 2020. Fifth, we conducted interviews with 12 edtech product developers between April and June 2020. Sixth, we convened two Virtual Learning Circles in May 2020 and another two in July 2020 and conducted a follow-up to 40 educators who participated in Virtual Learning Circles (May and July 2020).

EDUCATOR SURVEY

We aimed to conduct a survey with 350 educators who use instructional technology in their classroom. We defined instructional technology as software products that are primarily used to facilitate teaching and learning. We specified that instructional technology can have curriculum and/or content within the platform or can be products to support third party content (e.g., learning management systems). We excluded hardware (e.g., Chromebooks, laptops, tablets, etc.) in our definition of instructional technology.

Using convenience sampling, we administered a survey to 676 educators: 126 responses came from educators who responded to outreach from EdSurge newsletters and emails, and 550 responses came from educators who were recruited by a survey paneling company. We excluded respondents who did not give their consent to participate in the survey or who indicated that they did not use instructional technology in the classroom or other learning environment. Therefore, we had 531 valid survey responses, which we included in our analysis.

The goals for the 44-question survey were twofold: (1) to provide the EdSurge Research team with information about how educators are thinking about their teaching practice and the role of technology in that practice; and (2) to identify technological products and features that are most helpful to educators. The survey included consent to participate and skip logic structure. Testing indicated that the survey could be completed within 15 minutes.

Survey respondents who consented to participate in the survey and completed the survey had the opportunity to enter their email addresses in a lottery for a $50 Amazon gift card.

To analyze the collected survey data, we employed cross-tabulation analysis and applied filters. We applied tags to categorize free-response questions. We have presented information about data analysis techniques alongside survey data that is presented in this report in the form of tables, charts, and graphs.

VIRTUAL LEARNING CIRCLES AND FOLLOW-UP SURVEY

We conducted four Virtual Learning Circles that ranged in length from 60 to 90 minutes. Two Virtual Learning Circles were on the topic of Play. Two Virtual Learning Circles were on the topic of the Learning Sciences. Participants were asked to read three articles (two from our EdSurge series and one additional research article) in advance of the conversation, participate in the Virtual Learning Circle, and complete a follow-up survey.

We recruited participants from a list of 1082 individuals who had registered for Teaching and Learning Circles in our two previous phases of this project. We received interest forms from 134 individuals. Of these, we selected 12-15 participants for each Virtual Learning Circle, looking for diversity in geography, school type, and role. Ultimately, 8-12 educators participated in each Virtual Learning Circle. Altogether, 40 people participated in Virtual Learning Circles.

We administered a follow-up survey to Virtual Learning Circle participants. The survey was sent to participants the day after each event, and respondents typically had five days to complete the survey. The 34-question survey was designed to provide the EdSurge Research team with information about educators' experience at the Virtual Learning Circle; how educators make decisions to change their practice; how educators use research in their practice; and whether and how the experience of reading EdSurge articles for this series and participating in a Virtual Learning Circle impacted educators' thinking and actions. The survey included consent to participate and skip logic structure. Testing indicated that the survey could be completed within 30-45 minutes.

We received valid responses from 40 Virtual Learning Circle participants, representing a 100 percent response rate.

Participants who completed all elements of the Virtual Learning Circle (pre-work, participation in facilitated conversation, and follow-up survey) were awarded a $150 Amazon gift card as an incentive for participation.

To analyze the Virtual Learning Circle conversations, we reviewed recordings and notes of each conversation and identified themes across and within conversations. We also analyzed body language of participants to assess level of agreement during discussions.

To analyze the follow-up survey, we read all free-response questions and identified themes and common sentiments across responses. Because the sample size was small, we did not apply tags. In certain cases, we compared individual participants' survey responses to comments that they made during the Virtual Learning Circle conversation in order to assess whether the participant had a change in understanding, approach, or attitude. We also used the survey responses to understand the context (e.g., demographics and teaching setting) for participants' comments in Virtual Learning Circle conversations. For questions that we also asked in last year's post-Teaching and Learning Circle survey, we compared summary responses from last year to summary responses from this year.

EDUCATOR INTERVIEWS

We interviewed 14 educators for this project. The goal of these interviews was twofold: to provide additional insight on anecdotes written in survey comments and—in interviews conducted in March 2020—to understand the effect of school closures on teaching practice.

Interviewees were sourced from survey respondents who agreed to be contacted. This option was only made available to educators who accessed the survey through the EdSurge newsletter, as responses collected via the survey sampling company did not permit collecting personal identifying information. We aimed to select educators who described interesting practices and perspectives related to the use of education technology and whole child education, looking for diversity in geography, school type, and role.

We developed a standardized interview protocol and used it to conduct video interviews that ranged in duration from 45 to 60 minutes. Answers were recorded by notetaking and review of the recording, which was filmed with consent of the participants.

Each interviewee received a $50 Amazon gift card as an incentive for participation.

To analyze the educator interviews, we reviewed recordings and notes of conversations to identify the prevalence of particular sentiments and themes. We analyzed the interviews at both the question level (by comparing responses across the set of interviews in response to individual questions) and across entire interviews (by comparing summaries of the interviews).

PRODUCT DEVELOPER INTERVIEWS

We interviewed 12 product developers for this project. The goal of these interviews was threefold: to understand the areas of overlap and divergence in how product developers and educators think about the role of instructional technology; to understand how product developers perceived and used research in their product development process; and to collect emerging insights about how school closures and the transition to remote teaching was affecting the product development process and use of edtech products.

In seeking interviews, we considered the following criteria: the instructional technology products that survey respondents and educator interviewees most frequently listed as important for their teaching practice; balance of instructional technology product categories (e.g., learning management systems, curricular products, etc.) across the list of interviewees; balance between sizes of companies across the list of interviewees; and balance between the business models across the list of interviewees.

We sought interviews with chief product officers, directors of product, chief academic officers, directors of curriculum, and others in leadership positions who could speak authoritatively about product development in their organizations.

We developed a standardized interview protocol and used it to conduct video interviews that ranged in duration from 45 to 60 minutes. Answers were recorded by notetaking and review of the recording, which was filmed with consent of the participants.

To analyze the product developer interviews, we reviewed recordings and notes of conversations to identify the prevalence of particular sentiments and themes. We analyzed the interviews at both the question level (by comparing responses across the set of interviews in response to individual questions) and across entire interviews (by comparing summaries of the interviews).

Appendix B: Stories

9/4/19	Everyone Has Invisible Bias. This Lesson Shows Students How to Recognize It.
9/6/19	How Our Summer Program Uses Deeper Learning to Reach Struggling Students
9/16/19	Inside the School Where Every Student Gets Their Own Teacher
9/18/19	What This Teacher Learned from Visiting 20 Schools Effectively Supporting Kids of Color
9/18/19	Counselor-to-Student Ratios are Dangerously High. Here's How Two Districts Are Tackling It.
10/8/19	How Intrinsic Motivation Helps Students Manage Digital Distractions
10/11/19	A New Approach to Discipline Slashed Suspension Rates and Transformed This DC School
11/14/19	I'm a Peace Teacher. Here's How Brain Science Helps My Kids Handle Conflict.
11/15/19	Rethinking Recess Leads to Results On and Off the Playground
11/21/19	I Took a Break From the Classroom to Help Do Research. It Made Me a Stronger Teacher.
12/11/19	Parents Don't Need to Be Coding Experts, Just Willing to Learn With Their Children
1/15/20	Why These Educators Meet Regularly to Align Instruction with Mind, Brain, and Education Research
2/4/20	Play Is Disappearing From Kindergarten. It's Hurting Kids.
2/6/20	The Best Edtech for Students Is Backed by Research. Here's What to Look For.
2/7/20	Yes, I Hug My Students. Research Says You Should Too.
2/18/20	My Greatest Teaching Problem Was Feedback. Here's How Research Helped Me Solve It.
2/28/20	This District Helps Young Kids Identify Their Interests — and Ideal Careers
3/4/20	This Large District Uses 4 Questions to Teach Every Educator How the Brain Learns
3/4/20	Why Research Says Adolescence Is the Right Time to Focus on Social Action
3/18/20	Teacher, Interrupted: Leaning into Social-Emotional Learning Amid the COVID-19 Crisis
4/6/20	Innovative Schools Find Lessons — and Opportunities — in Remote Learning
4/7/20	Teachers Are Anxious and Overwhelmed. They Need SEL Now More Than Ever.
4/24/20	Five Ways Mindfulness Can Support Educators During a Crisis
4/28/20	How 3 Techniques From Cognitive Psychology Reinvigorated My Math Classroom
5/4/20	How Long Should a Remote School Day Be? There's No Consensus

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5/6/20	How Can Educators Tap Into Research To Increase Engagement During Remote Learning?
5/13/20	How Online Learning Research Can Improve Remote Instruction
5/18/20	The 'Unsung Heroes' Keeping Students and Families Fed During School Closures
5/20/20	How Virtual One-To-One Meetings Are Helping Us Build a Strong Online Classroom
5/21/20	Grades Fail at Motivating Students. Intrinsic Motivation Works Better.
5/21/20	How to Foster a Positive School Climate in a Virtual World
5/28/20	Pandemic May (Finally) Push Online Education Into Teacher Prep Programs
6/1/20	Why Middle Schoolers Thrive in a Self-Paced Classroom
6/4/20	Special Ed Students Have Lost Many Services. Here's How SEL Strategies Can Help.
6/9/20	How One School Is Delivering Trauma-Informed Care From Afar
6/10/20	How Brain Research Helped Retool Our School Schedule for Remote Learning
6/11/20	With Innovation and Empathy, Remote Learning Becomes Accessible for All Students
6/16/20	What Learning Python Taught Me About Computer Science Education for Young Children
6/22/20	How School Crisis Counselors Help Students Cope With Death and Grief, Virtually
6/24/20	SEL Can Help Special Educators Address Rapidly Evolving Remote Learning Requirements
6/25/20	Feeling Nostalgic for In-Person Schooling? That May Hurt Our Chance to Rethink It.
7/1/20	Teachers Are Living in a Tinderbox of Stressful Conditions. These Scientific Approaches Can Help.
7/2/20	How Districts Can Develop a Comprehensive Plan for Remote Learning Come Fall
7/8/20	SEL Skills Are More Vital Than Ever. Here's How to Choose the Right Tools.
7/16/20	The Pandemic's Toll on School Leaders Is Palpable. Here's What's Needed for a Successful School Year.
7/29/20	Districts Pivot Their Strategies to Reduce Chronic Absenteeism During Distance Learning
8/6/20	Let's Help Teachers Grow by Coaching — Not Micromanaging — Them
8/11/20	'If I Could Handle This, I Can Handle Anything': First-Year Teachers Reflect on the Pandemic
8/11/20	Starting a Teaching Career When a Pandemic Hits
8/19/20	Schools Will Never Return to Business as Usual. Here's How They Can Make the Most of Our New Reality.
9/16/20	What Should Recess — and Play — Look Like in a Socially Distanced World?

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