

IMPROVING THE QUALITY OF DISTANCE AND BLENDED LEARNING

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This brief is one in a series aimed at providing K-12 education decision makers and advocates with an evidence base to ground discussions about how to best serve students during and following the novel coronavirus pandemic. [Click here](#) to learn more about the EdResearch for Recovery Project and view the set of COVID-19 response-and-recovery topic areas and practitioner-generated questions.

CENTRAL QUESTION

How can schools provide high-quality distance and blended learning during the pandemic?

KEY INSIGHTS

Breaking Down the Issue

- With the abrupt end of in-person schooling in the spring of 2020, learning opportunities available to students varied enormously with some students receiving almost no distance instruction and others engaging in meaningful learning.
- Student engagement in available distance learning opportunities was uneven and inequitable in the spring, partially but not entirely due to students' challenges in accessing online learning.
- The move to distance learning reduces opportunities for many of the crucial social aspects of learning.
- Early elementary children and vulnerable student populations are most at risk from the move to a distanced setting.

Strategies to Consider

- Access to individual devices and broadband technology is an important but not sufficient step toward high-quality distance learning.
- Successful implementation of distance learning depends on the extent to which schools and teachers shift to new pedagogies, such as the flipped classroom model, to ensure strong lesson design.
- Synchronous class time is most effective when it is built around small-group peer interactions and direct teacher-to-student feedback.
- Teachers will need additional daily planning time and training to redesign instruction and make the substantial instructional shifts necessary to provide high-quality learning experiences.
- Students need reserved time to connect socially in ways that build community and engagement.
- Priority for in-person schooling should be given to the students who are likely to struggle most with distance learning, including younger students and students with IEPs.

Strategies to Avoid

- Distance learning will likely be unsuccessful if teachers ask students to watch expository instruction for multiple hours each day.
- Punitive practices for students who are not meeting expectations for attendance or engagement can be inequitable and will likely discourage student engagement even further.

Although there is a substantial and relevant evidence base around key principles of teaching and learning, distance and blended learning have never been implemented at the scale they will be in some or all of the 2020-21 school year. Much of the research base comes from studies of older students and particular instances where teachers and students self-selected into online or blended learning options. As a result, the evidence in this brief includes a mix of rigorous evidence extant studies and data from interviews with practitioners who described their learnings from informal experimentation during the spring of 2020 and expert researchers who thought about how rigorous research likely applies to the current context.

BREAKING DOWN THE ISSUE

With the abrupt end of in-person schooling in the spring of 2020, learning opportunities available to students varied enormously with some students receiving almost no online instruction and others engaging in meaningful learning.

■ States and districts set varied minimum requirements for instruction in the spring, creating vastly different student experiences.

- According to an [analysis of spring reopening plans](#) by the Center on Reinventing Public Education (CRPE), only one-third of U.S. districts' initial distance learning plans required teachers to provide distance instruction, track student engagement, or monitor academic progress for all students.
- CRPE's analysis showed that, in the spring of 2020, just 8% of districts required teachers to deliver synchronous instruction, with affluent districts more likely to require live instruction than high-poverty districts.
- Preliminary results from an [ongoing national review of district requirements](#) found that districts on average expected students to spend less time on instructional activities than the instructional minutes required by states for typical instruction, with averages ranging from 2.2 hours/day for grades K-2 to 3.9 hours/day for grades 9-12.
- Both analyses found significant disparities in educational opportunity based on poverty levels. Across multiple items, higher poverty and more rural districts had lower expectations for student learning. For example, the [national review](#) of requirements found that 8% of low poverty districts compared to 29% of high-poverty districts expected distance learning in grades K-5 to primarily involve reviewing content taught earlier (6% and 23% respectively for grades 6-12).
- When states set basic requirements for instruction, they [generally increased educational opportunities](#) for students relative to states that gave districts broad local discretion about how much instruction to provide and how to provide it.

Student engagement in available distance learning opportunities was uneven and inequitable in the spring, partially but not entirely due to students' challenges in accessing online learning.

■ The National Center for Education Statistics released a [report](#) in April 2020 estimating that 14% of all children ages 3-18 do not have internet access at home.

- About 40% of students without access are unlikely to be able to gain home access on their own due to cost (34%) or lack of connectivity where they live (4%). Additionally, 17% of students ages 3-18 live in a household without a computer.
- Access to the internet and a home computer varies by income and race, with lower income families and Native American, Black, and Latino/a families least likely to have home access to the technology needed to participate in online education.

■ Teachers surveyed across the spring identified student access to distance learning as a primary issue going forward.

- On a [survey](#) of more than 25,000 teachers in Tennessee, more than half of teachers placed “barriers preventing students from accessing distance learning” as a top concern for extended school closures. These results were not driven only by teachers in distance or low-resourced areas but were consistent across geographical regions.
- In the spring of 2020, many districts tried to provide families with devices for home learning and tried approaches to make Wi-Fi hotspots available. Unpublished interviews conducted by Policy Analysis for California Education (PACE) suggest that families with multiple students found themselves either sharing an insufficient number of devices or running up against the limits of their bandwidth as they tried to participate in online learning.

■ Home assignment completion varied systematically by race and income in the spring, even among students who had access to distance learning platforms.

- [Data from Los Angeles Unified School District](#) (LAUSD) showed that 97% of students were active at least once online, but only 91% of middle school and 93% of high school students submitted an assignment online at least once. Approximately 80% of secondary students participated in distance learning at least once a week, with Black and Hispanic students participating at rates about 20% lower than their White and Asian peers. Data from other areas, including [Boston](#), Massachusetts, and [Clark County](#), Nevada suggest that these data are typical.
- For some subgroups in LAUSD, many more students logged in to their learning management system and viewed content than turned in assignments. For example, 98% of English learners in middle school logged in, 92% viewed content, but only 81% submitted assignments at least once during the spring of 2020. Trends were similar for English learners in high school, for students in foster care, and for students with disabilities.
- The relatively steep drop-off from the percentage of students who were able to log in to those who submitted an assignment suggests that technology access is not the sole factor limiting student engagement.

The move to distance learning reduces opportunities for many of the crucial social aspects of learning.

■ In a distanced setting that is not directly designed around student relational needs, students will not have typical social interactions, and teachers and other school personnel will be less likely to access basic information about students’ home lives that enable them to respond as they typically would to students in crisis.

- Unpublished interviews conducted by PACE found that teachers found it challenging to replace all of the informal ways that they typically orchestrate the social and community dimensions of their classrooms when they transferred to a distance/blended environment in the spring of 2020.
- In the [Centers for Disease Control’s revised guidance](#) on reopening schools (July 2020) students’ socioemotional wellness is cited as one of the main benefits of reopening schooling in person.

■ [The National Commission on Social, Emotional, and Academic Development](#) summarized a substantial research base showing that learning is inherently social, making it impossible to separate out the social dimensions of schools from the academic dimensions.

- Attending to students’ cognitive needs also [requires](#) attending to their socioemotional needs.
- Researchers from [RAND](#) and [Policy Analysis for California Education](#) are among the many experts who have found that students’ socioemotional development is critical for long-term success and academic achievement.

Early elementary children and vulnerable student populations are most at risk from the move to a distanced setting.

- **Research has shown that students, especially younger students, can only effectively engage with synchronous learning for a limited time before they experience attention fatigue.**
 - Younger students are still developing self-regulation and attention skills they need to benefit from online instruction.
 - These grades provide students with foundational literacy and numeracy skills.
- **The Center on Reinventing Public Education’s analyses of spring reopening plans showed that few districts had concrete plans for addressing the specific needs of students with disabilities or English language learners.**

STRATEGIES TO CONSIDER

Access to individual devices and broadband technology is an important but not sufficient step toward high-quality distance learning.

- **Funding for device and broadband access is crucial at the state and federal levels, but case studies suggest that investments in instructional quality are likely to offer equal payoff for districts.**
 - The first finding of a recent report summarizing 60 literature reviews on distance learning by the Education Endowment Foundation is that while access to technology is critical because so much distance learning is online, “teaching quality is more important than how lessons are delivered.”
 - Based on unpublished interviews conducted in spring 2020 with rural educational leaders and urban teachers working with students who did not have sufficient access to participate in fully online instruction, we have seen strong evidence of high-quality distance learning for students with intermittent access to devices and the internet. Partnerships with public television stations, the provision of hot spots for weekly uploads and downloads, conference calls on phones for group projects, and providing links to videos and lectures on YouTube (which can be viewed on cell phones) are among the approaches we heard to ensure that students with limited technology had access to a range of media to support their learning.

Successful implementation of distance learning depends on the extent to which schools and teachers shift to new pedagogies, such as the flipped classroom model, to ensure strong lesson design.

- **According to a meta-analysis of 176 high-quality studies of online and blended learning, effective instruction in distanced settings means giving students a blend of expository, active, and interactive learning while taking several key dimensions of the landscape into account:**
 - Proportion of instruction at a distance versus in-person: If in-person instruction is limited, use it for learning opportunities where a physical presence may matter most (e.g., lab experiments) or for those students whose needs make in-person connection more critical (e.g., some students with IEPs, English learners)
 - Synchronicity: Use asynchronous time largely for expository instruction (e.g., videos or texts to explain ideas and model process in advance of synchronous time) and use synchronous time for interactive instruction (e.g., discussion, group work).

- Technologies used: While the technologies used for distance learning have received great interest, they are only one of several dimensions of distance learning. Our interviews yielded anecdotes of how partnerships with [public television stations](#), creation of flash drives loaded with content, as well as the use of paper “packets” combined with phone calls among students and teachers can be used to create engaging distance instruction when online learning is not feasible.
- **The strongest evidence base for successful online approaches comes from approaches such as the flipped classroom model, which suggests sequencing expository, active, and interactive experiences as a model of instructional design. The principles of this model can be applied to COVID-related distance/blended learning.**
 - A [meta-analysis of 114 studies](#) found modest positive effects of flipped classrooms, though the results varied based on how the [flipped classroom model](#) was implemented. Importantly, however, studies of flipped classrooms typically are in secondary or post-secondary education and synchronous instructional time is typically in person. Nonetheless, if synchronous instructional time is limited, the flipped approach has been [used online](#) and could offer promise for how to structure a mix of synchronous and asynchronous learning opportunities effectively.
 - This model starts with teaching content with at-distance, asynchronous expository instruction, by using pre-recorded lectures, videos, or textbooks. Students do a task that serves as practice, formative assessment, and motivation for engagement prior to synchronous instruction.
 - Teachers begin synchronous instruction with small chunks of strategic reteaching in areas where formative assessment showed common misconceptions.
 - Teachers then use the majority of the [synchronous time](#) for interactive instruction, promoting student engagement as well as [learning](#), while students tackle [higher order tasks](#) interactively.

Synchronous class time is most effective when it is built around small-group peer interactions and direct teacher-to-student feedback.

- **Creating small group peer interactions should be a top priority in considering distance and blending instruction because of the role that interactive learning plays in supporting students’ access to rigorous learning opportunities.**
 - Students need synchronous individual or small group support [in addition to whole group distance instruction](#). Sometimes this might be provided when a teacher is working with one small group in a breakout room and other students are working independently in what some are [calling semi-synchronous](#) instruction (i.e., students are all in the video conference space but working independently, much like the independent practice in traditional, in-person instruction).
 - Synchronous online classes, where students have the ability to ask questions and [discuss](#) content with their teachers and peers, are likely better than videotaped lessons or [online resources](#) or packets at helping students learn content, especially when the latter expect students to work through content [individually](#).
 - Some peer interaction can be created asynchronously as well, using apps that allow students to [post videos](#) and comment on each other’s posts, using comments on Google Docs or message boards included in learning management systems, or providing opportunities for students to share work and receive feedback from peers.
- **Students need [real-time elaborated \(i.e., specific and actionable, not vague and general\) feedback on their work](#).**
 - A recent [study of distance learning among college students](#) found that the quality and timeliness of a teacher’s feedback was the most valued form of learning connection identified by students in distance learning.

- Effective feedback provides students with [two types of information](#): 1) verification that indicates whether an answer is correct, and 2) elaboration that provides information to guide the student towards the correct answer.
- A synthesis of four meta-analyses found that written feedback [improved student motivation and academic performance](#) when compared to only receiving grades.
- Some online tools enable real-time feedback by allowing teachers to see students working online, (e.g., Kami for ELA, Desmos for Math, polls in most videoconference platforms, Google Docs), but old-fashioned strategies such as giving students individual whiteboards that they could hold up to their camera could work similarly.

■ **One-on-one interventions in a virtual space, including tutoring and mentoring relationships, are likely to be necessary substitutes for the informal connections created during in-person school.**

- Research shows [strong positive effects of tutoring](#). Schools should consider tapping non-certified staff, community partners or other adults who can make a regular commitment to providing students with one-to-one support.
- The evidence base behind these one-to-one interventions is generally drawn from in-person interactions, suggesting that it will be important to monitor a range of different outcomes if districts attempt to enact distance versions of these approaches.

Teachers will need additional daily planning time and training to redesign instruction and make the substantial instructional shifts necessary to provide high-quality learning experiences.

■ **For teachers to shift their practice in the ways distance learning will require, teachers' schedules will need additional flexibility to allow for additional collaborative work time for planning and ongoing professional development.**

- No teachers in the current workforce were educated using strong distance learning pedagogies. Experts interviewed about teacher learning for the current context stressed the importance of providing and analyzing models of effective distance teaching, and providing professional development using these effective distance pedagogies, as foundational for enabling teachers to re-envision effective instruction.
- Professional development that supports teachers to make large shifts for distanced instruction is ongoing, [relevant](#) to their teaching assignment and instructional context, with [regular opportunities](#) for collaborative [reflection](#) and feedback on practice. Most professional development typically offered to teachers lacks these characteristics.

■ **Districts and schools can also work to support teachers' instructional planning and enable innovative role-sharing to provide teachers with the time they need to teach well under these new conditions.**

- States and districts can facilitate high-quality planning by collecting, vetting and curating instructional resources (e.g., high-quality videos or apps). For example, the [California Collaborative for Educational Excellence](#) convened a consortium of county offices of education to develop what will ultimately be nine-week units for most subject areas and grade levels. School districts are also hiring expert teachers over the summer to develop unit plans for distance learning for key content.
- Interviews also highlighted the way schools supported teachers to narrow their roles to make the time requirements more manageable, including relatively typical pre-existing practices (e.g., teachers at a grade- or subject-level who divide up planning for a multi-week unit so that each teacher planned only a portion of instruction) and innovative approaches to reallocating teaching responsibilities (e.g., one teacher creating video-based direct instruction models, while another provides feedback on student work, and a third does one-to-one phone outreach to families of students who were less engaged).

Students need reserved time to connect socially in ways that build community and engagement.

- **While the evidence base on building engagement in distance learning virtually is thin, there is a growing list of practitioner-tested practices that teachers believe are helping to build classroom community and personal connections among students.**
 - Some schools are finding that students actively participate in activities like “show and tell” and “spirit week” during COVID-19 virtual learning that give them opportunities to share their whole selves with classmates and create the social interactions necessary to form a positive learning environment.
 - Teacher-student relationships are key to engaging students in learning. Synchronous classes may also better develop strong teacher-student relationships than asynchronous courses, mainly through making the teacher more visible and accessible. As a result, every class should have synchronous instructional time (by video or phone if no in-person instruction is possible).

Priority for in-person schooling should be given to the students who are likely to struggle most with distance learning, including younger students and students with IEPs.

- **The National Academy of Sciences suggests bringing back younger students and students with disabilities first for in-person learning due to these student groups' learning needs and ability to engage with distance learning.**
 - Surveys in several of the largest urban districts in California found that teachers would prefer priority for students returning to in-person schooling be given to primary students and special education students.
 - Determining which students should return to in-person schooling first should reflect the needs of the community. Schools in other countries have prioritized students ranging from the youngest to the oldest based on their needs and community values.
- **The vast majority of research about distance learning has been conducted on older students, suggesting that districts will need to tailor evidence-based approaches for younger students.**
 - Younger students need more frequent support and monitoring than older students. In addition to needing an adult physically present to ensure their safety, they have shorter attention spans than older students and require a more engaging presentation of material and activities to hold their attention.
 - Younger students can productively engage in learning in a digital environment. Evidence includes a randomized controlled trial of digital media designed to improve young (4-5 years old) students' science and engineering knowledge and practices. The app and related materials used short videos and games to engage students in science and engineering content. After eight weeks, the study found a positive impact on specific core physical science skills and student interest and engagement in science.
 - Because of the increased role that adults play in younger children's distance learning, schools should listen carefully as families describe their students' learning context (environment, caregivers), the resources they bring to support their children's learning, and any challenges families are facing that might affect the students.
 - Schools should also provide supports for families and caregivers to incorporate key literacy (e.g., daily reading) and mathematics content into their routines.

STRATEGIES TO AVOID

Distance learning will likely be unsuccessful if teachers ask students to watch expository instruction for multiple hours each day.

- In these times of great uncertainty, it is tempting to seek a schooling model that looks on its surface to be most like the in-person [model of schooling we know](#). If all students were required to “show up” in video screens all day long, the results would likely run fully counter to evidence on effective pedagogy for distance learning.
 - While it is possible to design a high-quality, all-day set of learning activities for students to engage in synchronously, such instructional models would likely require higher staff and substantially different pedagogical approaches – especially for younger students or students with special needs – than are within reach of most schools.

Punitive practices for students who are not meeting expectations for attendance or engagement can be inequitable and will likely discourage student engagement even further.

- During the spring of 2020, many districts struggled to engage all students in school, and some available data from California’s largest school districts suggests that variation in engagement was [correlated](#) with student characteristics (e.g., race, English learner status, IEP, homeless/foster student status, and socio-economic status) in ways that suggest broader systemic inequities and deepen existing disparities between high-risk student populations and their peers.
- Now more than ever, schools must be understanding of the barriers to learning that students face beyond the classroom.
 - Schools need to avoid practices that are [punitive](#), especially given students’ [unequal access to home-based academic supports](#) as well as to technology and the internet. Attendance Works has reframed its extant work on chronic absenteeism to focus on patterns of student non-engagement in school. The organization recommends that schools use [a range of strategies for engaging students](#) in school and create protocols that document breaks in engagement and to follow up with students and families of students who are not participating.
 - Schools will need to consider how to balance the [multiple purposes of grading](#) – motivation, feedback, and signaling students’ progress through school – to support student engagement. This means examining grading practices to ensure they are equitable across the range of experiences that students are facing and providing flexibility when necessary.

FOR MORE INFORMATION

More evidence briefs can be found at the [EdResearch for Recovery website](#). To receive updates and the latest briefs, [sign up here](#).

Briefs in this series will address a broad range of COVID-19 challenges across five categories:

- Student Learning
- School Climate
- Supporting All Students
- Teachers
- Finances and Operations

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