

Reimagining Schools? Undoing Disparities in Student Engagement



University of California, Berkeley
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Key Findings

Berkeley researchers tracked the life of 18 charter schools as they remained largely shuttered, offering classes online during the pandemic. Our in-depth conversations with principals and teachers, plus analysis of 44 taped Zoom classes, identified threats to the equitable participation of all students. Key findings include:

- Educators worried much about the uneven engagement of students, making adjustments to the school day and creating small-group or individual tutoring sessions for pupils needing additional support.
- Up to one-third of enrolled students missed the typical online class, based on observations of taped Zoom sessions. Nearly one-fifth of pupils turned off their camera during some portion of the class.
- Teachers deployed interactive pedagogical practices to engage students, typically aided by digital tools. Three-fifths of observed class time involved verbal interaction between the teacher and pupils, working through, for instance, elements of stories or expressive writing, perhaps attacking math problems (in fifth and sixth grades).
- Novel digital tools helped teachers follow each child's work on-screen and individually tailor questions and scaffolding. Creative software added music and animation to lessons, along with video clips that brought topics to life for students.
- Boys voiced comments and questions at a rate that exceeded their representation in online classes, relative to girls. This same form of bias in audible participation was apparent for White students, relative to Black and Latino peers. Larger classroom samples are required to establish generalizable patterns.
- Most principals advanced equitable participation by arranging afternoon tutorial sessions, curating innovative digital tools, and establishing tighter ties with families. Two-thirds of principals worked to improve the continuous assessment of students.

Revisiting Inequality in Classrooms

The pace of student learning fell or flattened as the nation's schools closed during the pandemic. We know that children in low-income families attended online classes less often, hosted by schools that remained shuttered longer, compared with schools serving middle-class youngsters. In turn, learning loss was most severely felt by poor children.¹

But disparities in student engagement and achievement are far from new in America's public schools. Long before COVID-19, children of color and those raised in poor households displayed lower rates of school attendance and uneven participation inside traditional classrooms.² The nation's educators have made zero progress in narrowing racial disparities in reading and math proficiencies overall since the 1980s.³

So, how can educators and policy makers at state and local levels combat disparities in the opportunity to learn and address learning loss inside schools? To inform this question, we traced online teaching in 18 California charter schools, 2020-21, interviewing teachers and observing their Zoom sessions. We aimed to understand how engagement might vary by children's race or ethnicity, and between girls and boys – offering school-level evidence on these topics:

- How did student engagement vary among schools and students, including rates of pupil attendance, variation in student talk, and when viewing children online?
- Did the frequency of student talk vary by the race and gender of children?
- What methods did teachers deploy to enliven classes and increase student participation online?
- How did principals restructure the school day to provide adequate support for English learners and students with disabilities?

This brief is forward looking. It's ever more urgent that educators gauge and address disparities in pupil engagement as schools reopen and many maintain an online option. Charter schools already provide a variety of hybrid options for students and families seeking non-traditional schooling. We highlight the practices of the inventive teachers we observed, along with digital tools they deployed to enhance pedagogy and rethink the school day.

“I’ve had students with brothers and sisters in the background, one child holding his baby sister during class.”

– Dreama, fifth-grade

Uneven Student Engagement

One first step is to assess where student participation breaks down, whether online or back in regular classrooms. Our study inside 18 charter schools and 44 classroom sessions yielded distinct indicators of pupil engagement. We describe our sampling procedure and properly securing videotaped Zoom sessions in a Technical Report.⁴ The study focused on fifth and sixth-grade teachers and classrooms, although several class sessions came from higher grade levels.

Online attendance and visual presence. About one-third (36%) of enrolled students did not attend online classes,

averaging across the 44 videotaped segments that we collected from teachers (each lasting 25-45 minutes). This may overstate the absence rate, since several teachers split their full class into two sessions; we may not have captured every companion session. Still, many enrolled students missed online classes. Just under one-fifth (17%) of students in attendance turned-off their video camera during part of their class session. Measurement error did arise when teachers shared their screen for instructional tasks and “gallery view” was clicked off. A significant count of students with cameras-off participated verbally in class sessions or in the “chat room”.

Which students speak-up? We analyzed various pieces of data from each of the 44 recorded Zoom sessions, classes in English-language arts or mathematics. For example, we tallied each utterance voiced by a student, whether he or she was asking a question, commenting on the lesson, or responding to a prompt from the teacher.

Across these classes we recorded 18 discrete instances of student talk per session, on average, equaling one instance of verbal participation every two minutes during class. This may not seem very frequent, indicating a low level of interaction. Yet, the most common online activity featured interaction between teacher and students, puzzling through a reading, writing, or math task together. This reflected steady engagement of students amidst often sporadic pupil utterances or conversation online.

We observed wide variation among classes in the frequency of student talk, as seen in Figure 1. The count of student utterances ranged from zero in heavily didactic classes to 12 instances every 10 minutes for interactive online sessions. We sampled equal counts of racially diverse versus less diverse schools. But no significant differences were observed between these two groups of schools in the frequency of student talk.

“The past year has been tough, but it forced me to rethink my teaching practices.”

- Elizabeth, eighth-grade teacher

Figure 1. Count of student utterances every 10 minutes online, split by more or less diverse student enrollments

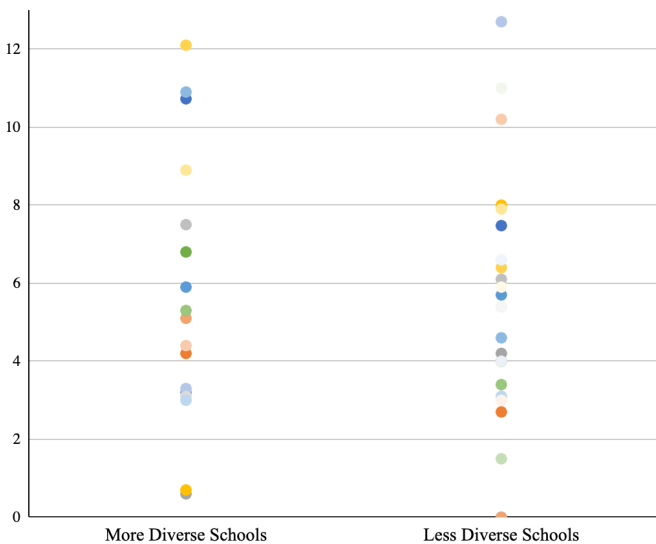
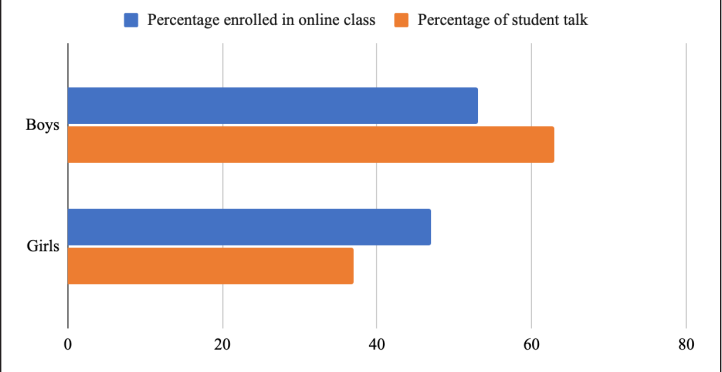


Figure 2. Percentage student talk for girls and boys relative to their representation in class



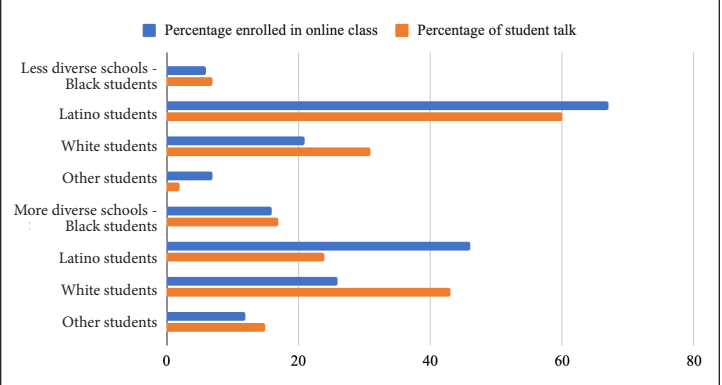
White students also tended to talk more than their proportional representation in online classes. They comprised 23% of classroom enrollments, on average, while making up 34% of pupils expressing utterances in class – at least among those voicing the first three instances of student talk captured through the class recordings (Figure 3). This over-representation generally came at the expense of talk and participation by Latino peers. Latino students represented 56% of class enrollments, on average, but comprised just 42% of early speakers in class sessions.

Gender and racial differences. We analyzed the gender and ethnic heritage (when possible) of each student who spoke-up during class sessions. Again, this may have been a pupil-initiated question, commenting during a social-emotional check-in, or a response to a direct question from the teacher. We then compared the gender and racial attributes of more talkative students, relative to each group’s representation in the class.

We discovered tentative evidence that boys speak-up with lopsided frequency, relative to their representation vis-à-vis girls in online sessions. Boys comprised 53% of class enrollments, while speaking in 63% of recorded instances (Figure 2). In contrast, girls made up 47% of students enrolled in online sessions, while participating verbally in 37% of recorded instances.

Our samples of classrooms and kids are modest in size. Future research should assess whether these revealed biases are statistically significant in larger counts of classrooms as schools reopen. Earlier studies have discovered similar patterns, where student talk varies by gender and race.⁵ This will surely remain one location in which inequities persist, unless educators assess and remedy such threats to fairness.

Figure 3. Student talk by ethnicity in less and more diverse schools, relative to enrollment representation



“We tried to make it less complex, since they have so many things going on.”

- Jessica, sixth-grade teacher

How Teachers Advance Engagement

Teachers in our study varied widely in how they engaged students online. During Zoom sessions, many attended to less vocal students, including kids who kept their cameras off for long stretches of time. The distribution of student engagement across racial groups depended in part on the school’s demographic composition. Sampled charter schools serve widely diverse families; richly integrated classrooms offer greater complexity in which students actively participate.⁶ But when a single ethnic group dominates class enrollment, race may not be a factor in shaping the distribution of engaged students.

How teachers engage kids must be set within the sequence of activities organized for a 30 to 45-minute class session. We recorded the count of minutes and seconds allocated to each of six common classroom tasks. Nearly three-fifths (59%) of class time involved exercises or tasks performed by students, typically in concert with the teacher. This included reading stories out loud, and asking questions about events, characters, or tensions that emerged in stories.

In math classes, several teachers used Peardeck or similar software to view each student’s work on a single screen, making individually tailored questions or coaching easily possible. Other tools, such as Freckle, allowed for easy assessment of each child’s proficiency level, followed by individually tailored exercises pegged to the student’s competencies.

Just one-fifth of class time involved didactic delivery of new material by the teacher, primarily serving fifth

and sixth-grade students. About 12% of online time was allocated to clarifying daily or weekly schedules for kids, or simply being off-task where the teacher was getting organized or dealing with wi-fi snafus. Several teachers readily used the chat room, encouraging kids to ask questions or respond to one another. Still, use of chat or breakout rooms was infrequent, making-up 3% of classroom time on average.

More frequently, teachers deployed interactive methods to invite students into the conversation. Digital tools at times enhanced participation by less vocal students. Several teachers used digital “white boards” to foster brainstorming by students, after new material had been introduced (Figure 4). This lesson focused on how cities prepare for unexpected disasters, quite apropos during a global pandemic.

After reading through a short narrative, the teacher asked students to clarify the main theme and supporting data. Students posted sticky-tags on the electronic whiteboard, prompting additional discussion of the text during the Zoom session. Alternating between students independently working through material and returning to a whole-class conversation helped to actively involve all students.

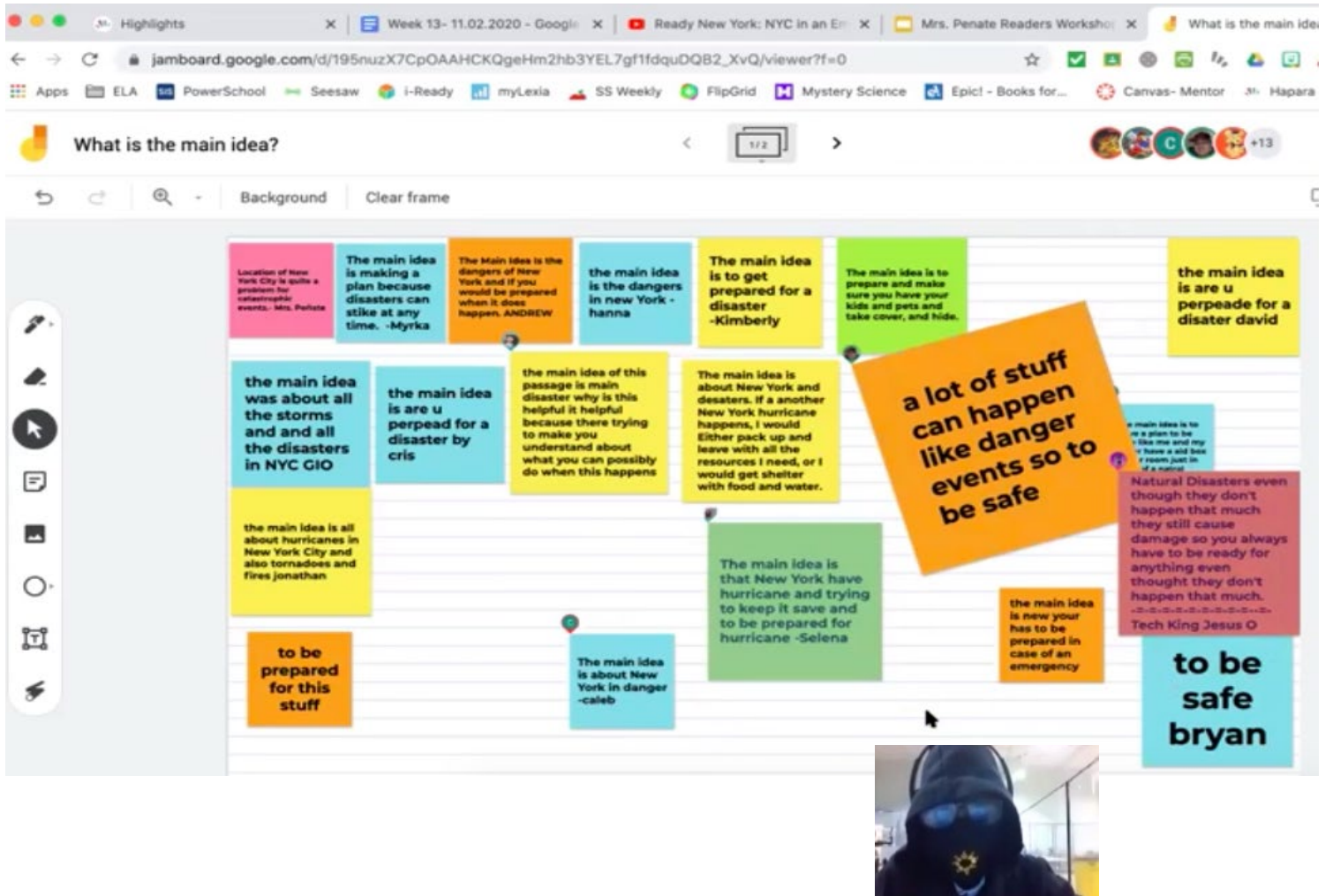
“They are using virtual white boards and using Nearpod and Pear Deck – all sorts of new tools.”

- Principal commenting on her teachers

Boosting Engagement: Principals Rethink the School Day

Charter-school principals, worried over disparities in kids’ engagement, devised several ameliorative strategies. Rearranging the school day – focusing whole-class instruction in the morning – offered one notable structural shift.

Figure 4.



This, in turn, freed teacher time to facilitate small groups or individual tutorials, mostly for English learners, pupils with disabilities, or students needing social-emotional check-ins. Teachers verified that one-fourth to half their workday was dedicated to these smaller, more tailored sessions. A few principals reassigned clerical and even cafeteria staff to become teacher aides – reportedly valued by these staffers who prized closer relationships with students.

Principals spent considerable time during the shutdown, they said, to deepen trust and ties with families. Here too, digital tools like Google Classroom proved beneficial – a one-stop location for class materials, assessment tools,

and daily learning activities. A significant count of parents or guardians faced daunting challenges with job losses, watching after multiple children, and illness among family members.

Most principals and teachers said they had reduced the number of learning aims for each curricular unit. Learning standards set by the state remained sacred in the eyes of most educators, but the curriculum became slimmer, as principals tried to engage all students with modest yet clear learning objectives. How teaching and learning accordions back out, as most students return to in-person classrooms, remains an open question.

Notes

¹ Consistent evidence details how disadvantaged students have experienced the most severe learning loss (Kogan & Lavertu, 2021; Pier et al., 2021), in part due to longer school closures in urban school districts (Hill, Gao & Lafortune, 2021; Will, 2020).

² For a review of work on student attendance rates, see Hamlin (2021).

³ See trends by racial group for the National Assessment of Educational Progress (2021).

⁴ Fuller, B., Bridges, M., Du, K., & Pardos, Z. (2021). *Managing remote teaching, innovating in classrooms*. Berkeley: University of California, Graduate School of Education.

⁵ See, for example, Cooper Stoll (2013), Reinholz & Shah (2018).

⁶ Those campuses designated as “more diverse” were comprised of one-third Latino, one-third White, and 13% Black students on average. Our subsample of “less diverse” schools, nine of the 18, served students of whom two-thirds were Latino and one-fifth were White.

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For more information and the full Technical Report: *Digital Learning in Diverse Schools*, b_fuller@berkeley.edu