PANDEMIC LEARNING:

As Students Struggled to Learn, Teachers Reported Few Strategies as Particularly Helpful to Mitigate Learning Loss

CONTENTS

PANDEMIC LEARNING

As Students Struggled to Learn, Teachers Reported Few Strategies as Particularly Helpful to Mitigate Learning Loss

Why GAO Did This Study

The COVID-19 pandemic disrupted learning for millions of students, educators, and families who had to navigate modified in-person and virtual schooling, often in difficult circumstances. The pandemic's effects continue to reverberate across the nation and produce challenges for schools that will likely be felt for years to come. In many respects, the 2020-21 school year offered useful insights that may help schools, educators, and parents in the future.

The CARES Act includes a provision for GAO to report on its ongoing COVID-19 monitoring and oversight efforts. GAO also conducted this work in response to a provision in the conference report accompanying the National Defense Authorization Act of Fiscal Year 2021. This report, which is the first in a series of reports, examines (1) obstacles to learning during school year 2020-21, and (2) strategies to mitigate learning loss. GAO examines these topics overall, by grade level, and by instructional model (in-person, virtual, or hybrid).

To address these objectives, GAO contracted with Gallup to (1) conduct a nationally representative survey of K-12 public school teachers and (2) arrange virtual discussion groups with teachers, principals, and parents of K-12 students. GAO also held two additional discussion groups, one with teachers and one with parents of students in Department of Defense Education Activity schools. GAO analyzed the resulting survey data and discussion group responses. To view more technical details on GAO's methods, see https://www.gao.gov/products/GAO-22-105817.

View GAO-22-104487. For more information, contact Jacqueline M. Nowicki at (617) 788-0580 or nowickij@gao.gov.

What GAO Found

During the 2020-21 school year, students in all grade levels, whether learning in person or virtually, struggled with many obstacles. These ranged from lack of appropriate workspaces and adequate support to competing demands on their time, disengagement, and absences. Such obstacles hindered student learning, according to GAO's nationwide survey of K-12 public school teachers and discussion groups with teachers, principals, and parents (see figure).

In particular, a higher percentage of teachers who taught students in virtual or hybrid (mix of virtual and in-person) environments consistently reported that their students experienced learning difficulties than teachers in an in-person environment. For example, an estimated 60 percent of teachers in a virtual environment had students who had more difficulty understanding lessons than in a typical year, compared to 37 percent of teachers in an in-person environment. Differences in the responses between virtual and in-person environments could reflect the instructional setting and other factors that GAO did not measure, such as school resources or certain student characteristics. In addition, obstacles affecting students varied by grade level. For example, 92 percent of grades 9-12 teachers who had students who made less academic progress compared to a typical year indicated that social or emotional issues were contributors compared to 83 percent of grades 3-8 teachers and 69 percent of K-2 teachers.

Teachers used many strategies to mitigate learning loss. They reported that two strategies in particular helped at least half their students make academic progress: live instruction and technology apps or platforms. Specifically, 85 percent of teachers who taught students fully or partially in person indicated that live instruction helped many of their students. In contrast, 56 percent of teachers who taught students virtually all or part of the time indicated that live virtual instruction (i.e., synchronous learning) helped many of their students. Regarding technology, nearly two-thirds of teachers who used apps or platforms for students to submit their assignments and to provide feedback thought it was helpful for many of their students. Teachers used many other strategies as well, but they were generally helpful to fewer students and used less often. One notable exception was asynchronous learning, in which students work independently without live instruction. This strategy was used regularly by 69 percent of teachers, yet fewer than 40 percent thought it helped at least half of their students.

Obstacles to Learning during School Year 2020-21

- ⚠ Absence from school or class
- ⚠ Being distracted/busy providing assistance to siblings or younger students
- ⚠ Difficulty completing class assignments
- ⚠ Difficulty completing homework
- ⚠ Difficulty getting assistance, support, or supervision at their workspace
- ⚠ Difficulty obtaining supplies or educational materials
- ⚠ Difficulty understanding lessons
- ⚠ Difficulty using devices or other technology
- ⚠ Disruptive behaviors
- ⚠ Failing a class or being significantly behind
- ⚠ Focus or attention issues
- ⚠ Lack of a dedicated device to use for learning
- ⚠ Lack of adequate breakfast/lunch
- ⚠ Lack of an appropriate workspace
- ⚠ Lack of reliable internet service
- ⚠ Late arrival to or early departure from class
- ⚠ Limited or no class participation
- ⚠ Signs of emotional distress

Shaded obstacles indicate a majority of teachers reported that this was a learning obstacle for more of their students during the 2020-21 school year compared to a typical pre-pandemic school year.

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE

441 G St. N.W.
Washington, DC 20548

May 10, 2022

Congressional Committees

For over 2 years, the COVID-19 pandemic has disrupted learning for millions of students, educators, and families. Its effects continue to reverberate across the nation and schools will likely feel these effects for years to come. Most schools across the country faced temporary closures, abrupt transitions to virtual learning, and difficulty adapting to rapidly changing state and federal guidance on appropriate health and safety measures in classrooms. As the pandemic continued into the fall of 2020, many schools and districts faced tough decisions about how to educate students while minimizing the spread of COVID-19. As conditions changed over time, many districts and schools continually re-evaluated trade-offs between these two sometimes seemingly conflicting goals, making choices they determined best suited the needs and interests of their own communities. Many continued virtual learning for much of the 2020-21 school year, despite its challenges, given health and safety indicators in their communities.

As schools and districts struggled to operate amid uncertainty and difficult circumstances, students were, not unexpectedly, profoundly affected. For example, as we recently reported, nearly half of all K-12 public school teachers nationwide had at least one student who never showed up for class during the 2020-21 school year. For the majority of these teachers, this was more than is typically the case in a normal school year.[1] In many respects, the 2020-21 school year offers important insights into the struggles and successes students, educators, and parents faced.

The CARES Act includes a provision for GAO to report on its ongoing monitoring and oversight efforts related to the COVID-19 pandemic.[2] As part of our body of work to understand the impact of COVID-19 on public K-12 education, we are issuing a series of reports in the spring of 2022 that highlight key findings from our nationally generalizable survey of general education teachers and discussion groups with teachers, principals, and parents. Specifically, these reports cover teaching and learning during the pandemic; how it affected certain vulnerable populations like English learners; and potential implications for the future.

This report examines: (1) obstacles to learning and (2) strategies to mitigate learning loss that teachers found helped more or fewer students. We examine the topics overall, by grade level, and by instructional model–virtual, in-person, or hybrid (a combination of the two).

Scope and Methodology

GAO contracted with Gallup to (1) conduct a nationally representative survey of elementary and secondary public school teachers between June 18 and July 9, 2021 and (2) arrange virtual discussion groups with teachers, principals, and parents. Our survey focused on general education teachers at the elementary, middle, and high school levels.[3] The survey asked teachers about their instructional models, adult support provided to their students, difficulties their students faced,

---

[1] GAO, *K-12 Education: An Estimated 1.1 Million Teachers Nationwide Had At Least One Student Who Never Showed Up for Class in the 2020-21 School Year*, GAO-22-104581 (Washington, D.C.: Mar. 23, 2022).

[2] Pub. L. No. 116-136, § 19010, 134 Stat. 281, 579-81 (2020).

[3] We surveyed general education teachers who work in a public school and taught a core subject. For the purpose of this survey, core subjects included: elementary school, math, science, computer science/information technology, English/language arts/reading/writing, social studies and world/foreign languages or English language learning. For this work, we use the terms elementary, middle, and high school to refer to those teaching in grades K-5, 6-8, and 9-12, respectively.

their students' academic progress, strategies they used to mitigate learning loss, and the extent to which their students were engaged in learning, among other topics.[4] The initial sample was selected from two sources: the Gallup Panel, a probability based panel of U.S. adults, and a national list of teachers. The responses achieved our margin of error targets for key subgroups by location, participation in free or reduced-price lunch (FRPL) programs, grade level, and percentage of English learners. They were weighted to minimize bias independently for each source and for the sources combined. All estimates in this report have a margin of error less than or equal to +/- 10 percent at the 95 percent confidence level.

We analyzed the survey responses of 2,862 teachers, which are generalizable to the population of all K-12 general education public school teachers in the U.S.[5] This analysis included disaggregation for each key subgroup. We also developed a series of statistical models to describe the associations between teachers' use of various strategies to address learning loss and teachers' perceived effectiveness of the strategies. Our models estimated the probability that a teacher would report that "about half" or more of their students "improved their academic progress" differed by instructional models. We grouped responses to each question, in order to increase the sample sizes. We estimated these probabilities separately by grade level, in-person or hybrid and virtual instructional models, and a three-way categorization of the school's FRPL participation. We limited the survey respondents to those who responded to all relevant questions—a sub-sample that could vary across learning strategies.

To gain further insight into the topics covered in the survey, we held 18 virtual discussion groups with public school teachers (six groups), parents of students (six groups), and principals (six groups) between June 29 and July 14, 2021.[6] We contracted with Gallup to recruit and arrange the K-12 public school groups. In total, Gallup segmented participant category (teachers, parents, and principals) based on their school's geographic

---

[4] Many survey questions asked teachers to reflect on their experiences teaching virtually, in-person, or in a hybrid model. Teachers were instructed to answer these questions based on how their students learned for the majority of the year. Teachers who indicated they worked simultaneously with students learning fully in person and students learning fully virtually were randomly assigned to answer either the questions about teaching in a virtual environment or in person.

[5] Our survey results are based on the responses of 2,862 teachers who met our eligibility criteria of public school general education teachers of core subjects–selected from an initial sample of 45,792 teachers. The initial sample was selected from the Gallup Panel, a probability based panel of U.S. adults, and a national list of teachers. The overall response rate was 8.2 percent (using the American Association for Public Opinion Research's response rate 3, which accounts for the estimated eligibility rate of non-respondents). Estimates for subpopulations of interest had margins of error ranging from plus or minus 2.9 to 7.2 percent, although margins for individual questions varied depending upon the number of responses. Gallup adjusted the survey weights to account for potential nonresponse bias by accounting for relevant school characteristics for non-respondents and re-weighting (post-stratifying) the sample to match the number and regional distribution of teachers and teacher demographics such as age, sex, and race. Weighting information came from the National Center for Education Statistics National Teacher and Principal Survey for 2017-2018. Based on the survey and weighting adjustment methods used, we determined that estimates from this survey are generalizable to the population of U.S. public K-12 general education teachers and are sufficiently reliable for the purposes of our report.

[6] After completing the survey, teachers answered additional screening questions to determine their eligibility, interest, and availability to participate in our discussion groups. In addition, to respond to a provision in the conference report accompanying the National Defense Authorization Act of Fiscal Year 2021 for GAO to examine virtual learning in Department of Defense Education Activity (DODEA) schools, we held two additional discussion groups–one with DODEA teachers and one with parents of students in DODEA schools. For the DODEA discussion groups, we selected a non-generalizable sample from DODEA's Southeast district in the U.S., which had the highest percentage of stateside students in full-time virtual status as of October 2020. To solicit participants for our discussion groups, we asked DODEA to send an email to teachers and parents in that district to inform them of our request. We considered five factors in selecting participants: (1) military installation within the Southeast district, (2) grade levels teachers taught or grade level students were in, (3) subjects teachers taught, (4) gender of teachers and parents, and (5) race or ethnicity of teachers and parents. The findings from those two discussion groups are incorporated into this report, and are not generalizable to other DODEA teachers and parents. DODEA teachers participated in discussion groups only; no DODEA teachers completed the teacher survey.

location (urban, suburban, or rural), with two groups for each participant type and location. Teachers participating in the groups had also responded to our generalizable teacher survey. GAO moderators structured and guided the discussions using a standardized list of questions to encourage participants to share their thoughts and experiences on students' learning during school year 2020-21 and strategies used to mitigate learning loss. We developed discussion guides tailored to each stakeholder group (teachers, principals, and parents) without Gallup's input. Prior to conducting any of the discussion groups with participants recruited by Gallup, we pretested our discussion guide with one teacher, two parents, and two principals. Discussion groups were held by video conference in the evenings and lasted one hour each to accommodate the schedules of participants. The contractor also created a written transcript of each group. To select discussion group comments for the report, we first analyzed and coded the transcripts from these discussion groups for common themes among the groups. We then compared these themes with our survey results to identify comments that were illustrative of the key themes across the survey and discussion group analyses. Comments, information, and views obtained from these discussion groups are not generalizable to other educators and parents.[7]

Additional technical details about our scope and methodology are provided in GAO-22-105817, which offers supplementary material for all of our pandemic learning loss work. It includes information such as survey terminology, the survey's sample frame, margin of error and minimum sample size requirements, sample weighting, analysis approach, regression modeling, and discussion group recruitment and logistics. It also includes a copy of the survey instrument and survey results in aggregate for all closed-ended questions.

We conducted this performance audit from August 2020 to May 2022 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Pandemic Instructional Models

Throughout the 2020-21 school year, teachers, administrators, and policymakers were continually challenged to make decisions about whether to keep schools open for in-person learning, close their school buildings (completely or on certain days) and revert to virtual instruction, or use some combination of the two. In our nationally generalizable survey, we asked teachers to identify which of the following four models they taught in for the majority of the 2020-21 school year.[8]

- **In-person:** teaching and learning occur in the same classroom.
- **Virtual:** teaching and learning occur via information technology (hardware and software), including video or audio conferencing and document sharing; could be supplemented with printed assignments and could be synchronous (real time) or asynchronous (accessed at any time).
- **Hybrid:** teaching and learning occur in person on certain days of the week and virtually on other days.
- **Mixed:** teachers present lessons simultaneously to students learning in person and to those learning virtually. (These teachers were randomly assigned to answer some survey questions about teaching in either a virtual environment or in-person.)

According to our survey, we estimate that about 25 percent of teachers taught full time in person for the majority of the school year, meaning that the other 75 percent of teachers nationwide taught in a virtual environment (partially or full time, for some or all of their students) for the majority of the school year (see figure below).

---

[7] We similarly analyzed teacher responses to our open-ended survey questions to select comments that were illustrative of key themes. We defined a common theme as one identified in 20 separate teacher survey responses. These comments are not generalizable to other teachers.

[8] Our analyses are not designed to estimate causal effects of particular learning models. We do not address, assess, or form conclusions about the health and safety measures taken by schools, districts, or states, including decisions to use any particular mode of instruction, in this body of work. Instead, we focus on how, in retrospect, these different instructional models related to students' learning.

Estimated Percentage of Public K-12 Teachers That Used Each Instructional Model for the Majority of the 2020-21 School Year

Type of learning

Type of learning	Percent
Full-time in-person	25
Full-time virtual	28
Hybrid	20
A mix of learning	27

Percent

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 2 percent at the 95 percent confidence level. Some survey questions asked teachers to reflect on their experiences teaching in the instructional model in which they spent the majority of the year. The 27 percent of teachers who indicated they used a mix of instructional models for the majority of the year were randomly assigned to reflect on either their virtual or in person experiences.

The technology needed for virtual instruction has existed for some time, but it was not used on such a wide scale until the COVID-19 pandemic. Virtual instruction can be provided in two formats: "asynchronous," whereby students work independently without real-time instruction (accessed at any time) or "synchronous," whereby teachers provide real-time instruction online (live instruction). Each format has advantages and disadvantages. For example, asynchronous instruction can be accessed at any time; however, because a teacher is not present in real-time, students may not receive answers to questions right away. In contrast, synchronous instruction provides real-time access to teachers, but technology problems can be a barrier to live engagement (see table below).

Description of Asynchronous and Synchronous Virtual Instruction Models

Asynchronous Virtual Instruction

- accessed at any time
- resources include recorded video instruction, online activities and assignments, and hard copy materials
- can accommodate a household's schedule and multiple students in a home sharing a device at different times
- students work at their own pace, but there can be a time lag between accessing materials and getting answers to any questions
- students may not be able to interact with peers

Synchronous Virtual Instruction

- accessed live at a specific time
- resources include live virtual classroom instruction, office hours for questions, and small group meetings
- provides opportunities for engagement with teachers and peers in real-time, and this communication may strengthen relationships and develop a sense of community
- technical problems can be a barrier to real-time engagement

Source: Insight Policy Research, American Institutes for Research, and U.S. Department of Education: *Promising Practices Brief: Improving Student Engagement and Attendance During COVID-19 School Closures*, 2020. | GAO-22-104487
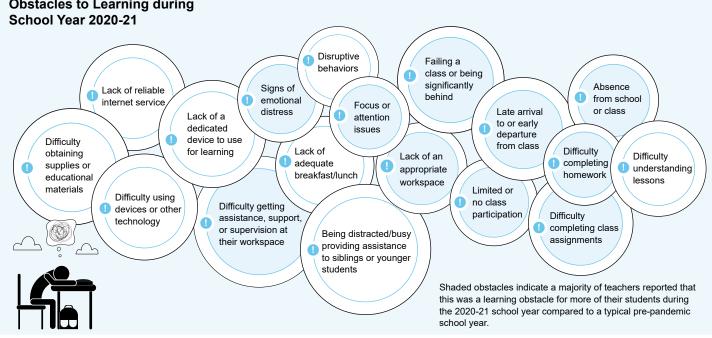
OBSTACLES TO LEARNING
During the Pandemic

The 2020-21 School Year Presented Many Obstacles for Students

Students struggled with a plethora of obstacles that hindered their learning and contributed to learning loss during the 2020-21 school year (see figure below). Some of these obstacles emerged during the pandemic, while others were preexisting and worsened during the pandemic. A higher percentage of teachers who taught virtually or in a hybrid model for the majority of the school year consistently reported that their students experienced learning difficulties than teachers who taught in person the majority of the time.

Keep in Mind

The findings in this section are the result of our nationwide survey of K-12 teachers and discussion groups with teachers, principals, and parents and reflect their experiences during the 2020-21 school year. When we refer to a "virtual environment," we mean one in which students spent the majority of the year learning remotely. Similarly, "in person" means students spent the majority of the year learning in the classroom and "hybrid" refers to an environment in which students spent some days learning remotely and others in the classroom. We also defined a "typical school year" as a recent school year prior to the pandemic. Differences in the responses between virtual and in-person environments could reflect the instructional setting as well as other factors that we did not measure, such as school resources or certain student characteristics. (We did not design our analysis to estimate the causal effects of the environment.)

Obstacles to Learning during School Year 2020-21

- Lack of reliable internet service
- Disruptive behaviors
- Signs of emotional distress
- Failing a class or being significantly behind
- Absence from school or class
- Difficulty obtaining supplies or educational materials
- Lack of a dedicated device to use for learning
- Focus or attention issues
- Late arrival to or early departure from class
- Lack of adequate breakfast/lunch
- Lack of an appropriate workspace
- Difficulty completing homework
- Difficulty understanding lessons
- Difficulty using devices or other technology
- Difficulty getting assistance, support, or supervision at their workspace
- Limited or no class participation
- Being distracted/busy providing assistance to siblings or younger students
- Difficulty completing class assignments

Shaded obstacles indicate a majority of teachers reported that this was a learning obstacle for more of their students during the 2020-21 school year compared to a typical pre-pandemic school year.

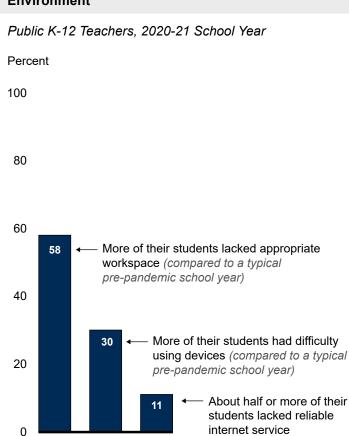Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The circle sizes do not represent the number of students who encountered the obstacles or the severity of the obstacles. Descriptions of obstacles come directly from questions asked in our nationwide survey of teachers. The margin of error for all percentages was less than or equal to +/- 3 percent at the 95 percent confidence level.

Lack of Tools and Space for Learning Virtually

Many students had trouble learning in the virtual environment. For example, students lacked appropriate workspaces (i.e., workspaces free from distractions) and reliable internet access (see figure below). We estimate that many teachers had students who lacked an appropriate workspace and had difficulties using technology, compared to a typical year.

Estimated Percentage of Teachers Who Had Students Who Faced Obstacles to Learning Related to the Virtual Environment

Public K-12 Teachers, 2020-21 School Year

Percent

58 ← More of their students lacked appropriate workspace *(compared to a typical pre-pandemic school year)*

30 ← More of their students had difficulty using devices *(compared to a typical pre-pandemic school year)*

11 ← About half or more of their students lacked reliable internet service

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 3 percent at the 95 percent confidence level.

What We Heard

" …[on] virtual days the program that the school district was using wasn't very user friendly so a lot of times the students couldn't access what they needed to access."

– Suburban Parent

"We are in such a rural spot with tons of hills and about half of our kids don't have internet access that's adequate to even be able to use Teams and our school was using Teams throughout the year. So we had to learn basically how to create an internet web that was able to get out to these kids on a regular basis and still deliver instruction to the kids that were in school and to the kids who were out of school."

– Rural Principal

" The challenges included…there's three people in a two bedroom apartment of less than a thousand square feet all trying to be on different Zooms at the same time and have class and that creates all kinds of issues."

– Urban Parent

" [My children's] school required them to turn their laptops back in when they went back in person, but when [the school] kept switching back to virtual they had to be re-issued laptops….sometimes [my] children ended up not having class some days due to [the] school not being able to finish distributing the laptops."

– Department of Defense Education Activity Parent

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.
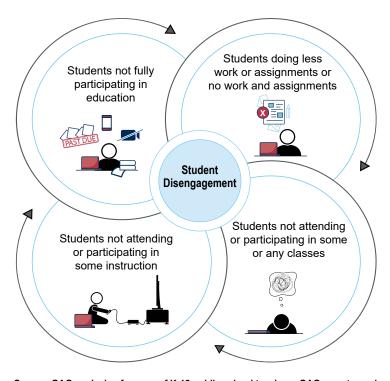
Student Disengagement

DEFINITION: Disengaged Student

In our survey we defined a disengaged student as one whose learning or grades were substantially affected due to limited participation in class.

Student disengagement was pervasive, took various forms, and contributed to learning loss (see figure below).

Examples of Forms of Student Disengagement in School

Students not fully participating in education

Students doing less work or assignments or no work and assignments

Student Disengagement

Students not attending or participating in some instruction

Students not attending or participating in some or any classes

Source: GAO analysis of survey of K-12 public school teachers, GAO reports, and National Center on Safe Supportive Learning Environments website. | GAO-22-104487

What We Heard

"In my opinion, this was one of the major barriers that…hindered us from meeting with as much success as I think that we might have been able to make had [I] been…able to actually look at the child. …40 to 60% of students who were logged in for attendance were what I call ghosts meaning you were logged into the computer, your computer was on mute, [and] you weren't interrupting anyone. But I really do not believe that you were sitting actually at the screen paying attention and/or participating online at all. So I think that that was definitely one of the huge pitfalls that spilled over from the previous year that had really nothing to do with education, but education suffered greatly."

– Suburban Teacher

"But the biggest obstacle when it come[s] to the students was getting them logged on, on time, getting them on camera and getting them engaged. It was really a struggle. I would go in the classroom and see teachers trying to do everything to engage students, but the students were virtually away from them, and they couldn't."

– Urban Principal

Student Disengagement (continued)

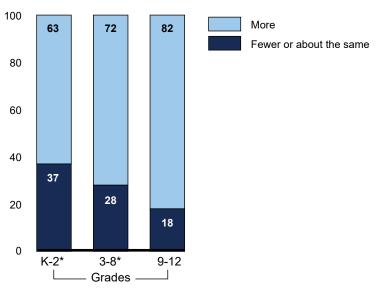Student disengagement was a major obstacle to learning, according to our estimates.

- The vast majority of K-12 teachers (**85 percent**) had at least one disengaged student and nearly three-quarters had more disengaged students than during a typical school year.

- High school teachers reported higher levels of student disengagement than K-2 or 3-8 teachers (see figure below).

- Teachers who taught virtually (**90 percent**) more commonly had at least one disengaged student than those who taught in-person (**78 percent**).[9]

Estimated Percentage of Teachers Who Had More Disengaged Students

Public K-12 Teachers by Grade Level, 2020-21 School Year Compared to a Typical Pre-pandemic School Year

Percent

Grades	More	Fewer or about the same
K-2*	63	37
3-8*	72	28
9-12	82	18

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: *There is no significant statistical difference between grade levels K-2 and 3-8. The margin of error for all percentages was less than or equal to +/- 8 percent at the 95 percent confidence level.

---

[9] An estimated 85 percent of teachers who taught in hybrid had at least one disengaged student, but there is no significant statistical difference between hybrid and virtual or hybrid and in-person.

What We Heard

"Well,…mostly I teach seniors and…those virtual students…took advantage of virtual. So they took a job locally. And sometimes they work fulltime. Instead of attending school virtually they decided to go to work and not do schoolwork. So that's the biggest challenge for me to make sure not only [that] they check in weekly. They do check in weekly to make sure they [are] counted as attending school. But they don't turn in any work."

– Rural Teacher

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.

Absences

What We Heard

Many teachers had more students who were absent or missed instruction compared to a typical year (see figure below). We estimate that almost two-thirds of teachers had more students who were absent compared to a typical year, with **38 percent** having had students with somewhat more absences and **25 percent** having had students with many more absences. Teachers who taught in a hybrid model **(69 percent)** more commonly had more students who were absent compared to a typical year than those who taught in-person **(58 percent)**.

Estimated Percentage of Teachers Who Had More Students Who Were Absent

Public K-12 Teachers, 2020-21 School Year Compared to a Typical Pre-pandemic School Year

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: *There is no significant statistical difference between Much Less and Somewhat Less. The margin of error for all percentages was less than or equal to +/- 3 percent at the 95 percent confidence level.

" What continued to be a significant problem that impacted learning loss was student attendance…the number of class absences… it's impossible for kids to learn if they're not participating and they just weren't."

– Rural Principal

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487
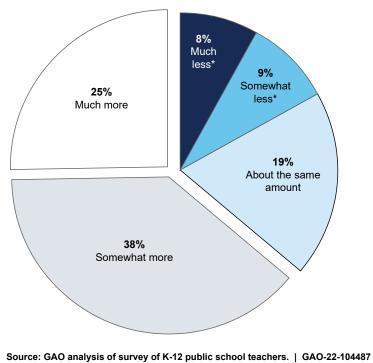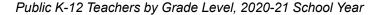
Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.

Competing Demands on Time

Teachers reported students had responsibilities that interfered with their learning. We estimate that more than half of teachers with disengaged students had students whose responsibilities providing care to a family member interfered with learning and nearly one-third had students whose work commitments competed with learning time. While caring for family interfered with learning across grade levels (see figure below), significantly higher percentages of high school teachers observed this challenge than did teachers of younger students.

Estimated Percentage of Teachers Who Had Disengaged Students for Whom Providing Care to a Family Member Interfered with Learning

Public K-12 Teachers by Grade Level, 2020-21 School Year

Percent

Grades	Somewhat or a significant factor	Not at all or not much of a factor
K-2	27	73
3-8	56	44
9-12	71	29

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 10 percent at the 95 percent confidence level.

What We Heard

"I teach ninth through twelfth—and …a lot of them were… being told [by their parents]… they have to go to work. And they said we know that you have [to]… get your work done, but you have your three siblings over here and somebody's gotta watch them. So while those other kids—the second, third, fourth, fifth graders were being observed and, for lack of a better term, babysat during their virtual meetings, my kids weren't getting any of their work done."

– Rural Teacher

"[T]here were many instances where older kids had to sacrifice their education to help their younger siblings due to limited tech, or because both parents were working, or because caretakers got sick or passed away."

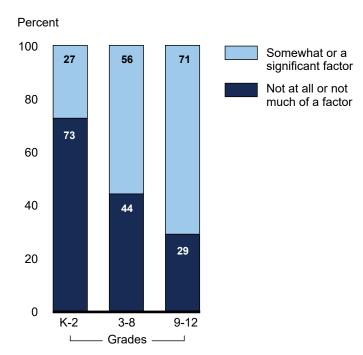**– Department of Defense Education Activity Teacher**

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.

Difficulty Getting Support

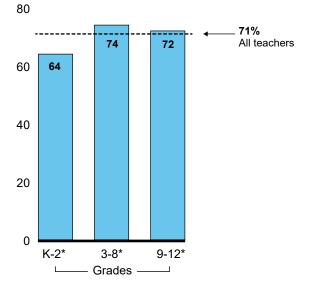We estimate that teachers had many students who did not receive adequate support for virtual learning.

- Nearly three-quarters of teachers (**71 percent**) said less than half of their students who needed substantial support received enough support during the school day. These percentages were relatively consistent across grade levels (see figure below).

- Almost **80 percent** of teachers had less than half of their students who needed substantial support receive enough support after school with things like homework.

Estimated Percentage of Teachers Who Had Less than Half of Their Students Who Needed Substantial Support Receive Enough Support during the School Day to Learn Virtually

Public K-12 Teachers by Grade Level, 2020-21 School Year

Percent

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: *There is no significant statistical difference between grade levels K-2, 3-8, and 9-12. The margin of error for all percentages was less than or equal to +/- 9 percent at the 95 percent confidence level.

What We Heard

❝ So my son's stepfather was working from home, so he was trying to work, watch a two year old and answer questions [for my 11 year old son]. [W]hen [my 11 year old] wanted that extra hand of help, [but my husband] wasn't really available…[my son] was calling me when I was at work trying to figure it out. Plus trying to keep a two year old out of a room to let your 11 year old focus doesn't work very well because he just wants to be with his brother.❞

– Rural Parent

❝ We had a hard time because parents were working – we didn't have anybody to monitor the young kids and often they would have their older siblings that were trying to monitor while also trying to do their own classwork. That made it really difficult for them.❞

– Rural Teacher

❝ The thing that I found to be the biggest challenge was that we had no regular teachers from the school. Everything was done online and … you couldn't ask any questions at the time you needed help. But with mine being that he's, you know, in high school, he decided that he was going to turn to YouTube to help him to figure out some of the things simply because mom and dad was working all through the pandemic.❞

– Urban Parent

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.

Social or Emotional Issues

We estimate that nearly two-thirds of teachers (**61 percent**) had more students who showed signs of emotional distress than in a typical year. In addition, among those teachers who had students who made less academic progress compared to a typical year, the vast majority said social or emotional issues were a contributing factor to the lack of progress. These issues were especially common in high school (see figure below).

Estimated Percentage of Teachers Who Reported That Social or Emotional Issues Contributed to Their Students Having Made Less Progress

Public K-12 Teachers Who Had Students Who Made Less Academic Progress, by Grade Level, 2020-21 School Year Compared to a Typical Pre-pandemic School Year

Percent

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 8 percent at the 95 percent confidence level.

What We Heard

"For my children in particular, some of the self-starting that is required for virtual learning is very difficult. Especially in subject areas that they did not desire to be working in they had a hard time keeping up with the work, having the motivation or having the wherewithal to actually contact the … teacher to ask questions… It was very difficult for them to have the emotional and social maturity to take advantage of that on their own without somebody prompting them to do it. I think that was probably our biggest single struggle with my children. The stress alone was astonishing to them. As we got further…along, they got more and more depressed about the environment and having to do everything virtual, and their grades sunk in a number of ways. Not because they didn't understand the material but often because they just didn't do the work that was affiliated with it."

– Urban Parent

"It was hard for virtual students to make friends and be social with classmates…the repeated changes made during the pandemic and changes to schedules kept breaking up any social circles or interactions that existed previously."

– Department of Defense Education Activity Teacher

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487
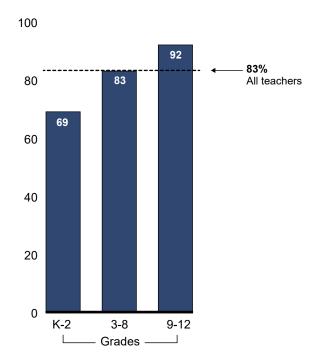
Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.

Difficulty Understanding Lessons

We estimate that teachers across all instructional models – in person, virtual, and hybrid – had students with more difficulty understanding their lessons than in a typical year. The differences were particularly acute for those in virtual or hybrid models (see figure below).

Estimated Percentage of Teachers Who Had Students with More Difficulty Understanding Lessons

Public K-12 Teachers by Instructional Model, 2020-21 School Year Compared to a Typical Pre-pandemic School Year

Percent

	More	Less or about the same
Full-time in-person	37	63
Full-time virtual*	60	40
Hybrid*	59	41

Learning

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: *There is no significant statistical difference between full-time virtual learning and hybrid learning in which students may attend school in person on certain days of the week and virtually on other days. The margin of error for all percentages was less than or equal to +/- 5 percent at the 95 percent confidence level. Some survey questions asked teachers to reflect on their experiences teaching in the instructional model in which they spent the majority of the year. The 27 percent of teachers who indicated they used a mix of instructional models for the majority of the year were randomly assigned to reflect on either their virtual or in person experiences.

What We Heard

"And…virtually it was—and hybrid—it was a complete wash. Like the kids who didn't have someone sitting with them the entire day like they may as well have just put on the TV and done something else. And they may as well have gone somewhere. Like there was nothing they were learning in school. And part of that was because of the modality of virtual learning, part of that was the communication from teachers where parents didn't know where to send their kids for each different Zoom meeting or Google classroom meeting. Part of it was all the apps are just…confusing interfaces for a first grader and a parent who doesn't…spend all day hanging out in Google Suites. [I]t's just one confusing mess for everybody. And…they weren't learning anything in the virtual classes."

– Urban Teacher

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487
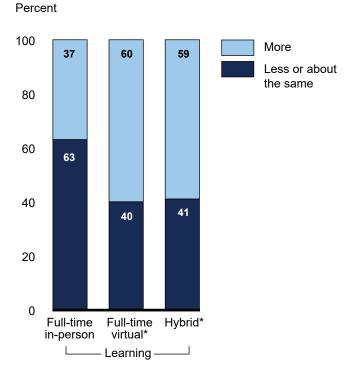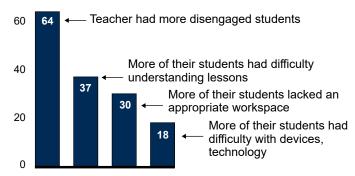
Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.

In-Person Obstacles

While in-person instruction was less disruptive than virtual or hybrid instruction, educators noted that in-person pandemic restrictions, such as masking and social distancing, created difficulties for student learning.[10] For example, according to a few principals and teachers in our discussion groups, small group work was not feasible or was not effective with social distancing requirements. A couple of principals and teachers also shared that teaching language development was more difficult with mask requirements. Further, our survey showed that teachers who spent the majority of the year teaching in person had more students who faced various obstacles to learning, compared to a typical year (see figure below).

Estimated Percentage of Teachers Who Reported Having Students Who Faced Obstacles to In-Person Learning

In-person Public K-12 Teachers Comparing the 2020-21 School Year to a Typical Pre-pandemic Year

Percent

- 64 ← Teacher had more disengaged students
- 37 ← More of their students had difficulty understanding lessons
- 30 ← More of their students lacked an appropriate workspace
- 18 ← More of their students had difficulty with devices, technology

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 5 percent at the 95 percent confidence level. Some survey questions asked teachers to reflect on their experiences teaching in the instructional model in which they spent the majority of the year. The 27 percent of teachers who indicated they used a mix of instructional models for the majority of the year were randomly assigned to reflect on either their virtual or in person experiences.

---

[10] These difficulties were noted by teachers in open-ended survey responses and educators in our discussion groups.

What We Heard

"I teach a lot in small group[s] and between the masks and the Plexiglass dividers, teaching math and trying to show them…where they messed up in a problem or just being able to communicate clearly with them was really difficult with all of those things in the way. …I kind of felt like we weren't able to get that small group instruction like we usually do so that was the biggest effect that I saw."

– Rural Teacher

"Something I didn't expect to have happen was we were in person for most of the year, but we had such strict mitigation strategies that we weren't allowed to put students in groups to work. We weren't allowed to have them sit very close to each other. And so it was really difficult for us to do what we know is great learning strategies and teaching strategies. So we had to come up with different ways to try to reach kids."

– Suburban Principal

Source: Discussion groups with principals and parents of students in public K-12 schools and parents of students in Department of Defense Education Activity schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by principals and parents in GAO discussion groups and are not generalizable.
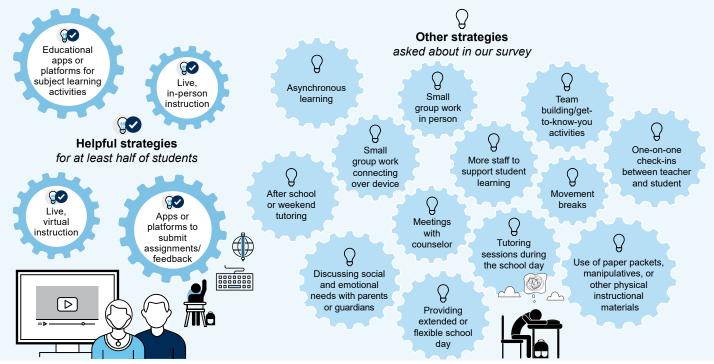
SECTION 2 | STRATEGIES TO MITIGATE Learning Loss

While They Used Many Different Learning Loss Strategies, Teachers Reported Only Two Were Helpful for at Least Half of Their Students across All Instructional Models

While teachers used numerous strategies to mitigate learning loss, and many were helpful for particular situations or student groups, only a few helped at least half of their students, according to our survey estimates. For the strategies that were helpful to fewer students, most were used infrequently, except for one—asynchronous instruction. In addition, for many strategies, the proportion of students helped varied by instructional model (see figure below).

Keep in Mind

The findings in this section are the result of our nationwide survey of K-12 teachers and discussion groups with teachers, principals, and parents, and reflect their experiences during the 2020-21 school year. When we refer to a "virtual environment," we mean one in which students spent the majority of the year learning remotely. Similarly, "in person" means students spent the majority of the year learning in the classroom and "hybrid" refers to an environment in which students spent some days learning remotely and others in the classroom. We also defined a "typical school year" as a recent school year prior to the pandemic. Differences in the responses between virtual and in-person environments could reflect the instructional setting as well as other factors that we did not measure, such as school resources or certain student characteristics. (We did not design our analysis to estimate the causal effects of the environment.)

Strategies to Mitigate Learning Loss by Their Helpfulness for at Least Half of Their Students, According to Teachers
2020-21 School Year

Helpful strategies
for at least half of students

- Educational apps or platforms for subject learning activities
- Live, in-person instruction
- Live, virtual instruction
- Apps or platforms to submit assignments/feedback

Other strategies
asked about in our survey

- Asynchronous learning
- Small group work in person
- Team building/get-to-know-you activities
- Small group work connecting over device
- More staff to support student learning
- One-on-one check-ins between teacher and student
- After school or weekend tutoring
- Meetings with counselor
- Movement breaks
- Discussing social and emotional needs with parents or guardians
- Tutoring sessions during the school day
- Use of paper packets, manipulatives, or other physical instructional materials
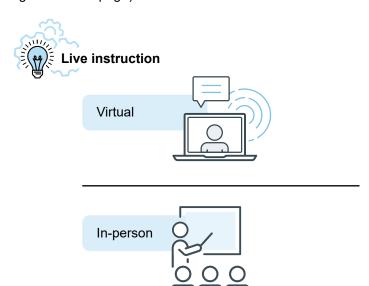- Providing extended or flexible school day

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The figure is based on the perceptions, experiences, and observations of teachers from our nationwide survey of K-12 teachers. The margin of error for all percentages was less than or equal to +/- 10 percent at the 95 percent confidence level.

Live Instruction

We estimate that almost all teachers regularly used live instruction, either virtually (synchronous) or in person, and that it helped at least half of their students make academic progress.[11] Significantly more teachers found in-person instruction helpful compared to virtual live instruction (see figure on next page).

Live instruction

Virtual

In-person

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

---

[11] The majority of teachers who used virtual instruction thought it was helpful for at least half of their students. However, we estimate it was significantly less helpful for teachers in a hybrid environment compared to teachers in a virtual environment. More teachers in a hybrid environment found in-person instruction helpful compared to virtual instruction.

" What We Heard

" Synchronous instruction was the most helpful in my classroom because I could see and respond to student needs and questions as they were developing. "

– Urban Teacher

" The synchronous instruction helped a lot. Because at the end of last school year we…just [had] teachers post assignments, post videos—kids watched them whenever, submitted an assignment on email or on Google Classroom and things. And we learned that the kids wanted a schedule. And so having the synchronous instruction, having that delivery, was valuable. "

– Rural Principal

" But I felt like just them coming in person was – the difference was night and day. "

– Urban Teacher

" I felt…the burnout from looking at the screen all day—teachers trying to teach them—they check out after a while. And, you know, if they were in person the teacher could say or do certain activities and, you know, just break up the day and that wasn't happening. "

– Urban Principal

Source: Discussion groups with public K-12 school teachers and principals. | GAO-22-104487

Notes: The selected comments reflect themes discussed by teachers and principals in GAO discussion groups and are not generalizable.

Synchronous instruction is live instruction that happens in real time between teachers and their students.

Live Instruction (continued)

Estimated Percentage of Teachers Who Used Live Instruction as a Strategy to Mitigate Learning Loss

2020-21 School Year

Virtual, live instruction

Strategy used at least once or twice a week

91%

Strategy improved academic progress for at least half of their students

56%

In-person, live instruction

Strategy used at least once or twice a week

92%

Strategy improved academic progress for at least half of their students

85%

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 3 percent at the 95 percent confidence level. These measures are based on teachers' perceptions. We asked teachers how many of their students were helped by each of the learning loss strategies they reported using. Some survey questions asked teachers to reflect on their experiences teaching in the instructional model in which they spent the majority of the year. The 27 percent of teachers who indicated they used a mix of instructional models for the majority of the year were randomly assigned to reflect on either their virtual or in person experiences.

Q&A
QUESTION BOX

What does "students were helped" by a strategy or "their academic progress improved" mean?

To determine whether teachers perceived particular strategies to be helpful to their students, we asked the following two questions:

- *Approximately, how often during this school year have you used the following strategies to support learning or address learning loss?*

- *How many of your students improved their academic progress as a result of each of the following strategies?*

Our estimates reflect that the majority of teachers who used the strategy found the strategy helped at least half of their students. For more details on survey questions and responses, see GAO-22-105817.

We did not ask the teachers to use assessment (or standardized test) data, in part because assessments are often not designed to evaluate the effectiveness of any specific strategy.

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Technology for Learning Activites or Assignments and Feedback

Similarly, we estimate teachers who used technology for learning activities or assignments and feedback perceived that the strategy mitigated learning loss for at least half of their students (see figure below). Most teachers regularly used various apps and technology platforms—either to help students with subject matter learning or to allow their students to submit assignments and receive feedback. Examples include:

- Using an app on their tablets or computers to do reading or math exercises.

- Submitting assignments via a learning platform; for example, educators and parents mentioned Google Classroom (see discussion group quotation), and the teacher can use it to grade the assignments and provide feedback within the platform.

Estimated Percentage of Teachers Who Used Technology as a Strategy to Mitigate Learning Loss

2020-21 School Year

Educational apps or platforms for subject learning activities

Strategy used at least once or twice a week

77%

Strategy improved academic progress for at least half of their students

56%

Apps or platforms to submit assignments and provide feedback

Strategy used at least once or twice a week

89%

Strategy improved academic progress for at least half of their students

65%

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 3 percent at the 95 percent confidence level. These measures are based on teachers' perceptions. We asked teachers how many of their students were helped by each of the learning loss strategies they reported using.

What We Heard

" …as far as the students that were in the classroom, we basically did everything as if we were virtual because [there] was not too much one-to-one contact. Even though…I had [a] small group…we would be behind plexiglass, we would have a face shield, a mask—so on and so forth. And any assignment that we had we did not do any paper/pencil transfer. Everything was done through Google Classroom, Nearpod, Schoolnet and things of that nature. So in that respect that was kind of a good thing because when we were doing like Google Classroom, I could actually look on the screen and see everyone working in real time and I was able like to capture those moments in real time and tell them well you need to go back and maybe look at this or you need to go back, you know, and look at that."

– Urban Teacher

" One thing that I thought they did well—it was more the school, not necessarily the teacher even though she did make the assignments—is they used a platform…So my child was able to work at a pace higher than what she normally would have been able to do in a general education setting."

– Urban Parent

Source: Discussion groups with teachers and parents of students in public K-12 schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by teachers and parents in GAO discussion groups and are not generalizable.

Other Helpful Strategies

In our survey, we asked teachers to describe other strategies that helped their students make academic progress.[12] Some common themes that emerged from these responses included:

- Building relationships or social-emotional connections with students

- Holding office hours or one-on-one check-ins; being available to answer questions

- Providing frequent feedback to students on work

- Setting expectations and standards

- Having flexibility—e.g., with deadlines or assignment types

- Providing in-person instruction when possible

- Involving parents or guardians

- Having small groups or class sizes

What We Heard

In our two discussion groups with Department of Defense Education Activity (DODEA) parents and teachers, participants generally described teaching strategies similar to our public K-12 discussion groups. DODEA discussion group participants found the following strategies particularly helpful for addressing learning loss among their students:

Flexible schedules for assignments and instruction

Parent and family involvement in learning

Small group instruction or tutoring

Source: Discussion groups with teachers and parents of students in DODEA schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by teachers and parents in GAO discussion groups and are not generalizable.

---

[12] We analyzed open-ended survey responses to the question "What other strategies were most useful for helping your students make academic progress?" and identified common themes. A common theme is one mentioned in at least 20 teacher survey responses.

Asynchronous Instruction

Teachers indicated that several strategies, including asynchronous instruction, helped fewer than half of their students make academic progress. Teachers generally used these strategies infrequently. However, 69 percent of teachers used asynchronous instruction regularly—at least once or twice a week (see figure below).[13]

Estimated Percentage of Teachers Who Used Asynchronous Instruction as a Strategy to Mitigate Learning Loss

2020-21 School Year

Asynchronous instruction

Strategy used at least once or twice a week

69%

Strategy improved academic progress
for at least half of their students

38%

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

Note: The margin of error for all percentages was less than or equal to +/- 3 percent at the 95 percent confidence level. These measures are based on teachers' perceptions. We asked teachers how many of their students were helped by each of the learning loss strategies they reported using.

Educators and parents in our discussion groups also shared stories about how asynchronous instruction resulted in student disengagement and was perceived to be less effective than other learning loss strategies. However, educators also reported asynchronous instruction helped students make academic progress in certain scenarios. For example, some English learners benefited from the ability to watch recorded lessons at their own pace.

---

[13] We used statistical models to analyze whether teachers reported that a particular strategy helped at least half of their students, holding constant teacher circumstances, such as the percentage of high-poverty students a teacher may have had. These models confirmed our findings on the helpfulness of asynchronous instruction. We estimated that about 34 percent of teachers in virtual or hybrid environments reported asynchronous instruction helped most of their students.

What We Heard

" …we allowed them to log on whenever they could to try to increase student engagement so that if they were working, they could log on, you know, in the evening and get their work done then by watching the videos and stuff...but they just didn't feel like doing it. And so they just took vacation. "

– Rural Teacher

" So we had about three months of the hybrid model and what we found with the hybrid model is when our students were at home for their two days a week – they had two days in person—two days at home—then everybody was online on Mondays – during those asynchronous days at home, students—they didn't participate, they didn't login, they didn't engage. "

– Suburban Teacher

Source: Discussion groups with public K-12 school teachers. | GAO-22-104487

Note: The selected comments reflect themes discussed by teachers in GAO discussion groups and are not generalizable.

Examples of asynchronous instruction activities include:

- Watching recorded videos
- Participating in self-paced online activities and assignments
- Working on hard copy packets and worksheets

Other Strategies

Teachers used another six strategies that some found helpful in mitigating learning loss for at least half of their students. These strategies were generally used infrequently (i.e., less than once a week).

- After-school or weekend tutoring (**26 percent** of teachers who used the strategy found it helpful for at least half of their students)
- One-on-one or small group meetings with counselors (**28 percent**)
- Team building/"get-to-know-you" activities (**32 percent)**
- Extended school day or flexible school day (e.g., allowing students to learn during times other than the typical school day hours) (**32 percent**)
- Discussing social/emotional needs with parents or guardians (**35 percent**)
- Small group work over devices (either remote or in person) (**37 percent**)

❝ What We Heard

❝ I know for me on this end in years past we were required to do, you know, tutoring twice a week. This year, again because of the facts of everything that we went through with the pandemic I did tutoring every day. And I did it twice a day. I did it before or after school and then I did it during lunchtimes [as] well because students ate lunch in our classroom. ❞

– Suburban Teacher

❝ You know, some, we would do tutoring sessions from 4 to 6. I had a teacher who loved to do a tutoring session from 8 p.m. to 10 p.m. So those students that did have to get those jobs or those students that, you know, just slept late, you know, let's be honest, and that's the time they wanted to work we were able to meet those needs. I'm lucky that our district was able to provide, you know, that teacher extra stipend to work those hours or we could be a little flexible with his daily schedule. So I think that really helped out those kids a lot. ❞

– Rural Principal

Source: Discussion groups with public K-12 school teachers and principals. | GAO-22-104487

Note: The selected comments reflect themes by teachers and principals in GAO discussion groups and are not generalizable.

Learning Loss Mitigation Strategies by Instructional Model

Our survey showed that certain other strategies helped students make academic progress depending on whether the students were in person, hybrid, or virtual.

Some strategies were generally helpful to at least half of students, according to most teachers, when learning in person:[14]

- small group work in person,
- use of paper packets or other physical materials, and
- one-on-one check-ins.

Teachers in virtual and hybrid environments generally did not find strategies that helped at least half of their students make academic progress. The majority of these teachers found the following strategies helped fewer than half of their students:[15]

- increased number of teachers or staff to support student learning,
- individual or small group tutoring sessions during the school day,
- movement breaks,
- providing a flexible school day,
- use of paper packets or other physical materials (only teachers in a virtual environment (not hybrid)), and
- small group work in person (only teachers in a virtual environment (not hybrid)).[16]

---

[14] Our statistical modeling found similar patterns, holding constant teachers' circumstances. These results were statistically significant at the 95 percent confidence level.

[15] These results were statistically significant at the 95 percent confidence level.

[16] A majority of teachers in a hybrid environment found that small group work in person was helpful to at least half of their students. All teachers were asked about small group work in person, even those who spent the majority of the school year in a virtual environment.

What We Heard

"…even though they think they can do well virtually…[what's] best is like one-to-one in person tutoring or learning."

– Rural Teacher

"…we were in hybrid – the benefit…was that when they were in person, I felt like the teacher was able to then talk to them directly about this is the paper that you're going to need virtually tomorrow, these are the workbook sheets that you're going to need. And they could show it to them in person and really organize what they were going to need the next day…So there was a lot less questions when we did have the virtual days to know these are exactly what pieces of paper you need to bring home for tomorrow and, you know, what exactly to work on."

– Suburban Parent

Source: Discussion groups with teachers and parents of students in public K-12 schools. | GAO-22-104487

Note: The selected comments reflect themes discussed by teachers and parents in GAO discussion groups and are not generalizable.

Learning Loss Mitigation Strategies by Instructional Model (continued)

We also asked teachers about using physical materials and movement breaks for mitigating learning loss. By holding teachers' circumstances constant, we estimate that:

- Teachers in an in-person environment who used **paper packets or other physical materials** had a greater chance of reporting that these helped at least half of their students compared to teachers in virtual or hybrid environments.

    - Among elementary school teachers, those with in-person students had a **68 percent** chance of reporting paper packets helped at least half of their students compared to a **50 percent** chance for teachers with virtual or hybrid students.

    - Among middle and high school teachers, those with in-person students had a **61 percent** chance of reporting paper packets helped at least half of their students compared to a **34-38 percent** chance for teachers with virtual or hybrid students.

- Among middle school teachers, those with in-person students had a **40 percent** chance of reporting at least half of their students were helped by **movement breaks** compared to a **26 percent** chance for teachers with virtual or hybrid students.[17]

---

[17] These differences are statistically significant at the 95 percent confidence level.

Q&A
QUESTION BOX

How did we use statistical models to account for teachers' circumstances?

We used statistical models to analyze whether teachers reported that a particular strategy helped at least half of their students, holding constant teacher circumstances, such as the percentage of high-poverty students a teacher may have had. Due to the sample sizes of the subgroups, we created reliable estimates by grouping grade-level bands K-5, 6-8, and 9-12. We used grade-level bands for our statistical models that were different than for other estimates, in order to increase our sample sizes and obtain reliable estimates. We also combined teachers in virtual and hybrid environments into one group and compared them to teachers in an in-person environment.

Source: GAO analysis of survey of K-12 public school teachers. | GAO-22-104487

We are sending copies of this report to the Secretary of Education, Secretary of Defense, and appropriate congressional committees. In addition, this report is available at no charge on the GAO website at http://www.gao.gov. If you or your staff members have any questions concerning this report, please contact me at (617) 788-0580 or nowickij@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on page 22 of this report.

Sincerely yours,

Jacqueline M. Nowicki, Director

Education, Workforce, and Income Security Issues

List of Committees

The Honorable Patrick Leahy
Chairman
The Honorable Richard Shelby
Vice Chairman
Committee on Appropriations
United States Senate

The Honorable Jack Reed
Chairman
The Honorable James M. Inhofe
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Ron Wyden
Chairman
The Honorable Mike Crapo
Ranking Member
Committee on Finance
United States Senate

The Honorable Patty Murray
Chair
The Honorable Richard Burr
Ranking Member
Committee on Health, Education,
Labor and Pensions
United States Senate

The Honorable Gary C. Peters
Chairman
The Honorable Rob Portman
Ranking Member
Committee on Homeland Security and
Governmental Affairs
United States Senate

The Honorable Rosa L. DeLauro
Chair
The Honorable Kay Granger
Ranking Member
Committee on Appropriations
House of Representatives

The Honorable Adam Smith
Chairman
The Honorable Mike Rogers
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable Robert C. "Bobby" Scott
Chairman
The Honorable Virginia Foxx
Republican Leader
Committee on Education and Labor
House of Representatives

The Honorable Frank Pallone, Jr.
Chairman
The Honorable Cathy McMorris Rodgers
Republican Leader
Committee on Energy and Commerce
House of Representatives

The Honorable Bennie G. Thompson
Chairman
The Honorable John Katko
Ranking Member
Committee on Homeland Security
House of Representatives

The Honorable Carolyn B. Maloney
Chairwoman
The Honorable James Comer
Ranking Member
Committee on Oversight and Reform
House of Representatives

The Honorable Richard E. Neal
Chairman
The Honorable Kevin Brady
Republican Leader
Committee on Ways and Means
House of Representatives

GAO Related Products

K-12 Education: An Estimated 1.1 Million Teachers Nationwide Had At Least One Student Who Never Showed Up for Class in the 2020-21 School Year. GAO-22-104581. Washington, D.C.: March 23, 2022.

K-12 Education: Department of Education Should Help States Address Student Testing Issues and Financial Risks Associated with Virtual Schools, Particularly Virtual Charter Schools. GAO-22-104444. Washington, D.C.: January 31, 2022.

COVID-19: Additional Actions Needed to Improve Accountability and Program Effectiveness of Federal Response. GAO-22-105051. Washington, D.C.: October 27, 2021.

COVID-19: Sustained Federal Action Is Crucial as Pandemic Enters Its Second Year. GAO-21-387. Washington, D.C.: March 31, 2021.

COVID-19: Urgent Actions Needed to Better Ensure an Effective Federal Response. GAO-21-191. Washington, D.C.: November 30, 2021.

Distance Learning: Challenges Providing Services to K-12 English Learners and Students with Disabilities during COVID-19. GAO-21-43. Washington, D.C.: November 19, 2020.

Disaster Recovery: COVID-19 Pandemic Intensifies Disaster Recovery Challenges for K-12 Schools. GAO-21-62R. Washington, D.C.: October 14, 2020.

COVID-19: Federal Efforts Could Be Strengthened by Timely and Concerted Actions. GAO-20-701. Washington, D.C.: September 21, 2020.

Data Security: Recent K-12 Data Breaches Show That Students Are Vulnerable to Harm. GAO-20-644. Washington, D.C.: September 15, 2020.

COVID-19: Opportunities to Improve Federal Response and Recovery Efforts. GAO-20-625. Washington, D.C.: June 25, 2020.

GAO Contact and Staff Acknowledgments

Jacqueline M. Nowicki

Director, Education, Workforce, and Income Security Issues, nowickij@gao.gov, (617) 788-0580

Staff Acknowledgments

In addition to the above, Nagla'a El-Hodiri (Assistant Director), Jennifer Gregory (Analyst in Charge), Sherri Doughty, Maria Gadel, Aaron Karty, Kirsten Lauber, Jessica Mausner, Jason "Jay" Palmer, Sara Rizik, Paras Sharma, and Curtia Taylor made key contributions to this report. Jim Ashley, Elizabeth Calderon, Jill Lacey, Abigail Loxton, Almeta Spencer, Jeff Tessin, Kathleen van Gelder, and Khristi Wilkins also made contributions to this report.

Congressional Relations

A. Nicole Clowers, Managing Director, ClowersA@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800, U.S. Government Accountability Office, 441 G Street NW, Room 7149, Washington, DC 20548

Strategic Planning and External Liaison

Stephen J. Sanford, Managing Director, spel@gao.gov, (202) 512-4707, U.S. Government Accountability Office, 441 G Street NW, Room 7814, Washington, DC 20548
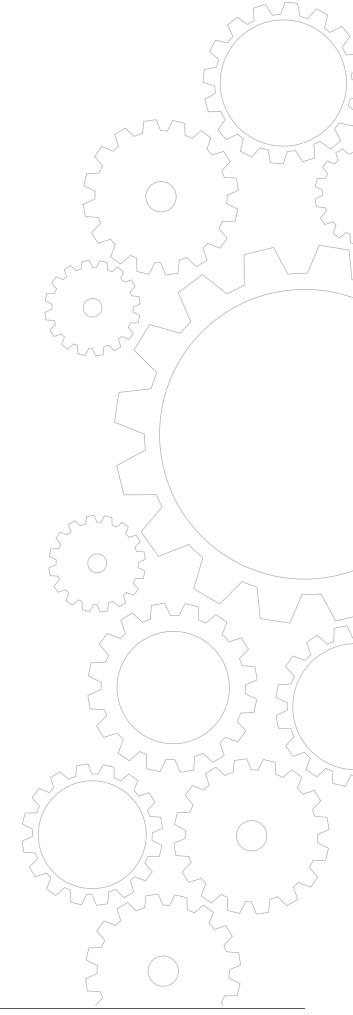
Connect with GAO

Connect with GAO on Facebook, Flickr, Twitter, and YouTube.

Subscribe to our RSS Feeds or Email Updates. Listen to our Podcasts.

Visit GAO on the web at https://www.gao.gov.

(104487)

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through our website. Each weekday afternoon, GAO posts on its website newly released reports, testimony, and correspondence. You can also subscribe to GAO's email updates to receive notification of newly posted products.

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, https://www.gao.gov/ordering.htm.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact FraudNet:
Website: https://www.gao.gov/about/what-gao-does/fraudnet

Automated answering system: (800) 424-5454 or (202) 512-7700

Please Print on Recycled Paper