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Prepared for a Pandemic?

How Schools' Preparedness Related to Their Remote Instruction During COVID-19

The emergence of coronavirus disease 2019 (COVID-19) in the United States in spring 2020 forced nearly all U.S. schools to transition rapidly to remote learning. Unsurprisingly, schools were unequally prepared to meet this challenge. Findings from the RAND Corporation's nationally representative surveys of K–12 grade public school teachers and principals, as well as information from school websites collected in spring 2020, highlight substantial disparities in schools' curriculum coverage, access to technology, and teacher training on remote learning topics (Center on Reinventing Public Education, 2020; Hamilton, Kaufman, and Diliberti, 2020; Harris et al., 2020).

A minority of U.S. public schools were prepared for a crisis on the level of COVID-19. During the 2017–2018 school year, only 46 percent of U.S. public schools had a written plan for dealing with a pandemic (Kemp, 2020). Public information was lacking as well; in 2016, only 38 states had a publicly available school health emergency plan (Uscher-Pines et al., 2018). In 2017, RAND researchers asked school and health officials how their schools could be prepared to continue teaching during prolonged building closures. Interviewees indicated that to provide quality instruction, they needed sufficient online infrastructure, including learning management systems (LMSs), home internet access for students, and teachers and families trained in using online instruction before the onset of a crisis. Interviewees also said that it would take substantial lead time for schools to shift to online instruction for the first time (Schwartz et al., 2020). (Anecdotal evidence shows that schools that used online instruction before the COVID-19 pandemic were better positioned to switch to remote learning once on-the-ground instruction stopped [Eroh, 2020].)

How did schools' pre-pandemic preparation affect their transitions to remote learning? In this Data Note, we present descriptive evidence about how schools' pre-pandemic planning translated into remote learning practices and principals' confidence in student achievement during the COVID-19 pandemic. Our findings are based on a survey that we administered to a nationally representative sample of 957 public school principals via the RAND American Educator Panels (AEP).

In this survey, we asked principals about the infrastructure preparations that their schools had made before the COVID-19 pandemic (see Table 1). Specifically, we asked principals whether, before the pandemic started, their schools had undertaken the following five practices:

1. providing devices (e.g., laptops, tablets) to at least those students who need them
2. training teachers on delivering online instruction
3. using an LMS
4. providing fully online or blended learning courses
5. establishing plans to deliver instruction during a prolonged school closure.¹

TABLE 1

School Preparedness Levels Before the COVID-19 Pandemic

		Indicators of Preparedness					Number of Indicators	
		Provided Devices to at Least Students in Need	Provided Teacher Training on Delivering Online Instruction	Used an LMS	Offered Fully Online or Blended Learning Courses	Had Plans for Delivering Instruction During a Prolonged School Closure	Zero Indicators	All Five Indicators
All schools	Total (n = 955)	64%	47%	45%	44%	20%	16%	7%
School grade level	Elementary (n = 489)	54%	39%	38%	28%	19%	24%	5%
	Secondary (n = 466)	75%	56%	54%	62%	22%	6%	10%
Urbanicity	City (n = 220)	62%	50%	49%	47%	17%	14%	7%
	Suburb (n = 311)	64%	44%	47%	35%	20%	16%	8%
	Town/Rural (n = 392)	65%	47%	42%	48%	24%	17%	8%
Percentage of students eligible for free or reduced-price lunch	Zero to 25% (n = 193)	68%	42%	54%	32%	21%	14%	6%
	More than 75% (n = 207)	60%	43%	41%	45%	19%	20%	8%
Percentage of non-White students	Zero to 25% non-White (n = 331)	66%	41%	44%	41%	20%	17%	6%
	More than 75% non-White (n = 229)	63%	49%	47%	45%	19%	16%	9%
Student enrollment	Fewer than 300 students (n = 207)	65%	41%	38%	45%	17%	15%	6%
	1,000 or more students (n = 128)	68%	58%	56%	65%	25%	8%	14%

NOTE: These data are based on responses to a survey in which respondents were asked "Please indicate whether your school did any of the following before the COVID-19 pandemic emerged."

We also asked principals about aspects of their schools' remote instruction during the COVID-19 pandemic, including whether teachers graded students' work and whether principals had concerns about their schools' equitable provision of instruction. Principals also predicted how achievement for various student subgroups would differ in the coming school year compared with fall 2019.

We then investigated the relationship between these preparedness indicators and COVID-19 remote instruction practices, as well as the relationship between preparedness indicators and principals' predictions of student achievement. In our statistical models investigating these relationships, we controlled for school demographics, such as school grade level and urbanicity, that our previous research

has shown were related to differences in COVID-19 instruction (Hamilton, Kaufman, and Diliberti, 2020).

Key Findings

- **Of the five pre-pandemic preparedness indicators, schools were most likely to have provided devices for students; they were least likely to have plans for a prolonged school closure.** Yet having (or not having) a plan for prolonged school closure was the indicator that was most predictive of principals' expectations about student achievement in fall 2020 (relative to fall 2019) for various student subgroups.

- **Most principals (84 percent) reported that their schools had at least one preparedness indicator in place pre-pandemic—but very few principals (7 percent) reported their schools had all five.**
- **More secondary schools than elementary schools had indicators of preparedness.** Only 6 percent of secondary school principals said their schools had none of the five indicators in place before COVID-19 struck, compared with 24 percent of elementary school principals.
- **The level of school poverty was not correlated with the number of pre-COVID-19 preparedness indicators schools had at the outset of COVID-19.**
- **Principals in more-prepared schools (as measured by the number of preparedness indicators that schools had in place pre-pandemic) were more likely to assign letter grades to students during the pandemic, even after controlling for differences in school characteristics.** As shown in Figure 1, schools with all five indicators in place pre-pandemic were 20 percentage points more likely to assign letter grades during the pandemic than schools with zero indicators in place pre-pandemic.
- **Principals in more-prepared schools were less concerned about failing to provide equitable instruction to all students.** Some 44 percent of principals in schools that had zero preparedness indicators in place pre-pandemic reported that concern about providing equitable instruction to all students was a major limitation on the amounts or types of distance learning material that they provided. After controlling for differences in school characteristics, schools with three and four preparedness indicators were 13 and 16 percentage points, respectively, more likely to indicate that this concern was not a major limitation than schools with zero indicators in place (see Figure 2). Whether schools provided devices for students was the most predictive preparedness indicator of whether

FIGURE 1

More-Prepared Schools Were More Likely to Assign Letter Grades During the COVID-19 Pandemic

Probability of assigning students letter grades during the pandemic (relative to principals reporting zero indicators)



NOTE: This figure presents the difference in likelihood of assigning students letter grades during the pandemic relative to principals in schools reporting zero indicators in place.

* Principals in schools with this number of preparedness indicators in place were significantly more likely to have their teachers assign letter grades than principals in schools with zero indicators in place ($p < 0.05$).

principals were concerned about providing equitable instruction.

- **Principals in more-prepared schools were less likely to predict lower future achievement for students from low-income families and students experiencing homelessness.** However, they were not less likely to predict lower achievement (at statistically significant levels) for other disadvantaged student subgroups, including low-achieving students, students with disabilities, and English language learners.²

These results indicate that schools that were more prepared to deliver online instruction were also more comfortable continuing to assess student learning with letter grades during the COVID-19 pandemic and had fewer concerns about equitable instruction.

It is important to remember that, although principals' perceptions are useful in understanding the relationships between preparedness and response, our findings are descriptive in nature and do not establish causal evidence. Our analyses specifically cannot account for unmeasured factors,

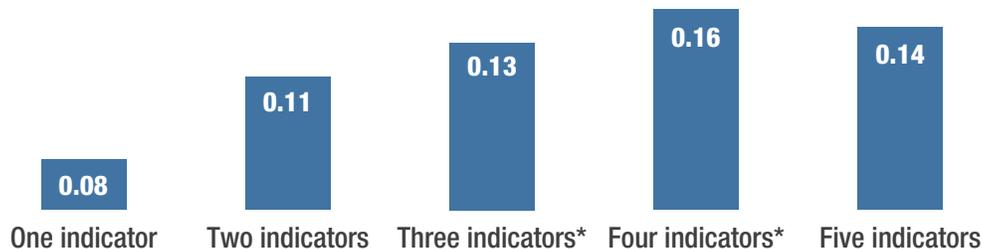
such as school resource levels, that are likely related to both pre-COVID-19 preparedness and responses to the pandemic. This analysis might simply suggest that principals who were better prepared for online instruction during COVID-19 tend to be more optimistic about online instruction and student learning than other principals.

Of the five preparedness indicators included in this analysis, no single indicator of emergency preparedness fully predicted schools' abilities to deliver remote instruction. Instead, the combination of these indicators might be most important to school success—a finding which is consistent with the feedback that we received from school and health experts in 2017. As many schools begin the 2020–2021 school year with partially or fully remote instruction, it will be important to continue to document schools' instructional practices to fully understand the conditions that are needed to ensure equitable access to high-quality instruction. Only then will we understand what is necessary to support student learning during prolonged school closures.

FIGURE 2

Principals in More-Prepared Schools Have Less Concern About Their Ability to Provide Equitable Instruction to All Students

Probability of principals indicating that providing equitable instruction was not a major limitation during the COVID-19 pandemic (relative to principals reporting zero indicators)



NOTE: This figure presents the difference in likelihood of principals indicating that providing equitable instruction was not a major limitation during the pandemic relative to principals in schools reporting zero indicators in place.

* Principals in schools with this number of preparedness indicators in place were significantly more likely to say that concerns about providing equitable instruction were not a major limitation than principals in schools with zero indicators in place ($p < 0.05$).

Endnotes

¹Other important preparedness indicators—such as the percentage of students who have home internet access—exist in addition to our five preparedness indicators. In our survey, only 55 percent of principals said that 90 percent or more of their students had access to the internet at home during the pandemic. We do not have data on how many of these students had access to the internet at home before the pandemic began.

²In our analysis of the relationship between schools' preparedness and principals' predictions of achievement in fall 2020, we generally found a consistent pattern of an inverse relationship across various student subgroups; fewer principals in schools with more preparedness indicators said that they anticipated lower or much lower student achievement in fall 2020. Although not all of these relationships were significant after controlling for school characteristics, they provide suggestive evidence that principals in more-prepared schools had fewer reservations about student achievement in the coming school year.

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How This Analysis Was Conducted

In this Data Note, we use responses from a nationally representative survey of 957 public school principals administered via the AEP in late April and early May 2020 (for more information, see Hamilton et al., 2020).

To isolate the relationship between schools' preparation indicators and the outcomes of interest, we controlled for school grade level, urbanicity, charter school status, district enrollment, percentage of non-White students, and percentage of students eligible for free or reduced-price lunch. We relied on self-reported survey data from principals to categorize school grade levels. Principals in schools that served kindergarten through fifth grade were placed in the elementary group; those serving sixth through 12th grade were placed in the secondary group. Principals who reported working in schools with both elementary and secondary grades were assigned to the group that included the majority of grades that their school served. Principals of schools with an equal number of elementary and secondary grades were assigned to the secondary group. We obtained data on all other school demographics by linking survey data to the 2018–2019 Common Core of Data from the U.S. Department of Education.

Results for the analysis on student achievement were based on the survey item “Please estimate how student achievement might differ in fall 2020 compared with fall 2019 for each of the following student subgroups: all students, low-achieving students, high-achieving students, students from low-income families, students with disabilities, English language learners, and students experiencing homelessness.” Respondents were asked to select one of the following response options: “much lower than in fall 2019,” “somewhat lower than in fall 2019,” “about the same as in fall 2019,” “somewhat higher than in fall 2019,” “much higher than in fall 2019,” and “N/A; None of the students at my school are in this group.”

For Figure 1, the results were based on the survey item “Please indicate what type of feedback or grades students receive on their work while your school building is closed.” Respondents were asked to “select all that apply” for the following response options: “Teachers are monitoring completion but not providing feedback,” “Students receive feedback on their work, but no grade,” “Students receive pass or fail grades,” and “Students receive letter grades.” This figure presents results from a linear regression in which the outcome variable took a value of one if the principal reported that their school did assign students letter grades (regardless of whether other options were selected as well). Schools' levels of preparation were measured on an index of zero to five, with schools receiving one point for each indicator that they had in place pre-pandemic.

For Figure 2, the results were based on the survey item “Please indicate the extent to which each factor has limited the amount or type of distance learning materials you've been able to provide to students while your school building has been closed: Concerns about providing equitable instruction to all students (e.g., students with disabilities).” Respondents were asked to select one of the following response options: “not a limitation,” “minor limitation,” and “major limitation.” This figure presents results from a linear regression in which the outcome variable took a value of one if the principal reported that concern about providing equitable instruction was only a minor limitation or not a limitation. Schools' levels of preparation were measured on an index of zero to five, with schools receiving one point for each indicator that they had in place pre-pandemic.

About the AEP Data Note Series

The AEP Data Note series is intended to provide brief analyses of teacher and school leader survey results of immediate interest to policymakers, practitioners, and researchers. If you would like to know more about the data set, please visit *COVID-19 and the State of K-12 Schools: Results and Technical Documentation from the Spring 2020 American Educator Panels COVID-19 Surveys* (RR-A168-1, www.rand.org/t/RR-A168-1) for more information on survey recruitment, administration, and sample weighting. If you are interested in using AEP data for your own analysis or reading other AEP-related publications, please email aep@rand.org or visit www.rand.org/aep.

About This Report

The American Educator Panels (AEP) are nationally representative samples of teachers and school leaders across the country.

We are extremely grateful to the U.S. public school teachers and leaders who have agreed to participate in the panels. Their time and willingness to share their experiences are invaluable for this effort and for helping us understand more about how to better support their hard work in schools. We also thank our reviewers, Betheny Gross and Andrew McEachin, for helpful feedback that improved this report, and we thank Jessica Wolpert and Monette Velasco for their support in producing this report.

This study was undertaken by RAND Education and Labor, a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decisionmaking. More information about RAND can be found at www.rand.org. Questions about this report should be directed to mdiliber@rand.org, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

Funding

Funding for this research was provided by gifts from RAND supporters and income from the operation of RAND Education and Labor.

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Published by the RAND Corporation, Santa Monica, Calif.
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