



# Teaching Through a Global Pandemic



*COVID-19 Insights from the Tennessee Educator Survey*

*June 2020*

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## Introduction

On March 16, 2020, Tennessee Governor Bill Lee urged the closure of all school buildings in the state and subsequently recommended that all schools stay physically shuttered for the remainder of the 2019-2020 academic year due to the spread of the COVID-19 virus. With these unprecedented school closures, Tennessee educators had to fundamentally alter how they do their jobs, and have been facing tremendous challenges in terms of supporting their students and providing learning opportunities in new and different ways.

To understand more about how educators across the state have addressed these challenges during coronavirus-related school closures, we asked teachers and school leaders to report on their experiences during this time as part of the 2020 Tennessee Educator Survey. Between April 4 and May 1, over 25,000 educators responded to these questions, and over 10,000 teachers and school leaders provided open-ended comments on the most important resources needed to support students and provide remote learning. This brief analyzes educator responses to the COVID-19 survey questions and provides insights on how teachers and principals are working to support their students while school buildings are closed.

**Specifically, this brief focuses on four key findings from our analysis of the educator survey results:**

- 1 Student Access:** More than half of teachers identified access to remote learning or access to crucial services, like meals and counseling, as among their biggest concerns about students amid school closures.
- 2 Technological Needs:** More than three-quarters of teachers selected technological supports for remote learning (e.g., internet access and reliable devices) as the most helpful supports needed to promote educational access, and educators discussed the need for these supports to address educational inequities.
- 3 Guidance and Resources for Remote Learning:** Schools and districts were identified as important sources of guidance for teachers in planning remote learning. Teachers described additional instructional needs, such as teacher training on virtual learning and guidance for supporting students with disabilities and English learners.
- 4 Student Engagement:** More than two-thirds of teachers reported regularly sending electronic resources to promote remote learning, while one-quarter reported regularly planning virtual classes. This engagement varied across different types of districts.



## Our Data and Approach

This study used data from the 2020 Tennessee Educator Survey (TES), an annual survey administered by the Tennessee Education Research Alliance (TERA) in partnership with the Tennessee Department of Education (TDOE). The 2020 TES was already in the field at the time of the COVID-19 school closures. On April 4, TERA and TDOE re-deployed the TES with closure-related questions for teachers and leaders, and educators were given the opportunity to answer these questions until May 1. The new questions asked about educators' biggest concerns for students, guidance for planning remote learning, their engagement with students since school buildings closed, and the supports needed to provide remote learning.

Forty percent of Tennessee teachers responded to the COVID-19 survey questions along with 44 percent of school leaders. While our educator sample for this analysis is large, covering over 25,000 teachers and 1,500 principals and assistant principals, not all educators chose to respond to the survey. We have used analytic weighting in this analysis to better assert that these

results are broadly representative of all public school teachers and school leaders in Tennessee.

The survey also asked educators to respond to an open-ended question about the resources needed to support remote learning, and over 10,000 survey respondents provided written comments. We did an initial examination of these comments using natural language processing techniques to identify the most frequent and relevant words, compare the frequency of comments using keywords (e.g., student engagement, internet use), and cluster comments into central themes using a topical analysis.<sup>1</sup>

We merged survey responses with administrative data on schools from the 2018-2019 and 2019-2020 school years as well as publicly available data on broadband infrastructure from the Federal Communications Commission. This information permits us to examine how reported experiences vary across teacher, school, and district characteristics.

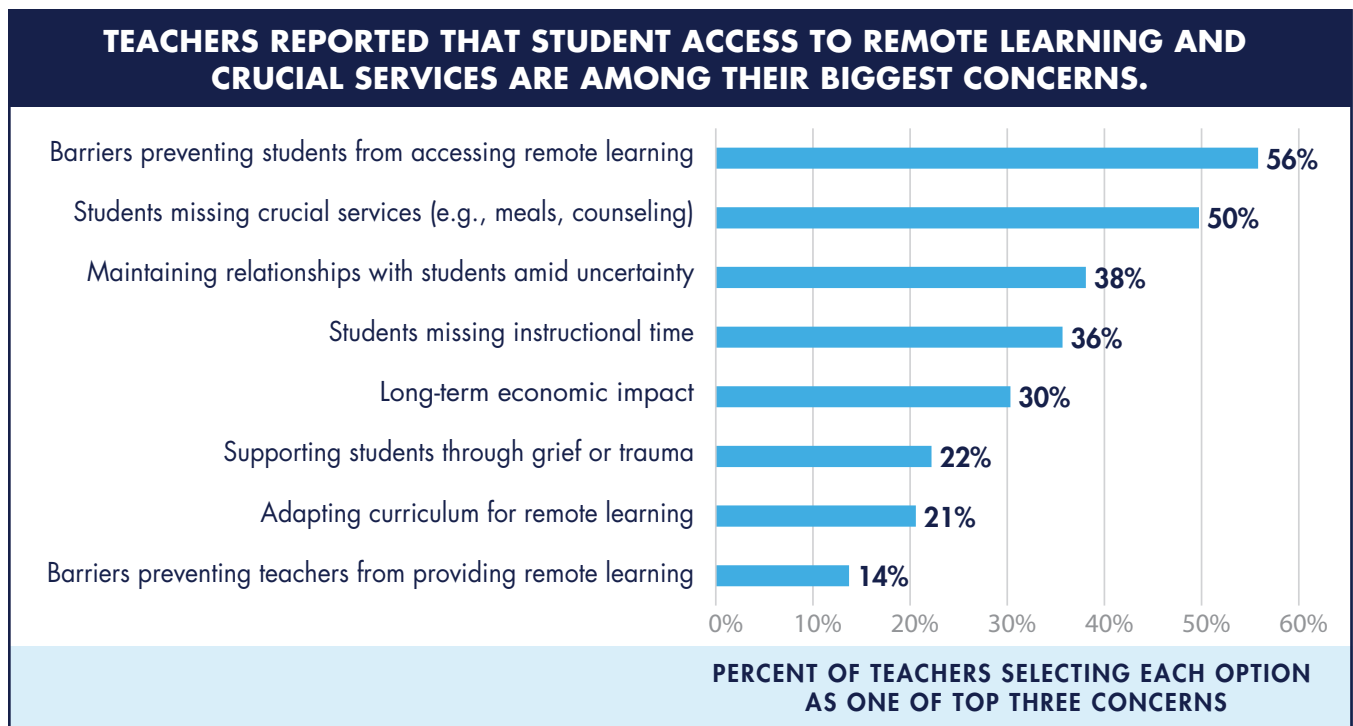
<sup>1</sup> For the topical analysis, we first pre-processed each comment by stripping punctuation, lowering case, and lemmatizing text. We then encoded text using a Bag-of-Words approach to vectorize text and created a sparse matrix that represents the entire vocabulary of words found in all the comments. Finally, we used Latent Dirichlet Allocation (LDA) as a topic discovery technique in order to examine the probability of a topic occurring within the text and the distribution of the cluster of words for that topic.

## 1

### **OVER HALF OF TEACHERS IDENTIFIED ACCESS TO REMOTE LEARNING OR ACCESS TO CRUCIAL SERVICES LIKE MEALS AND COUNSELING AS AMONG THEIR BIGGEST CONCERNS ABOUT STUDENTS AMID SCHOOL CLOSURES.**

To learn more about the challenges facing educators as they worked to support students at home, the survey asked both teachers and school leaders to identify their biggest concerns for students during the extended school closures from COVID-19. As illustrated in Figure 1, more than half of responding teachers chose either barriers to accessing remote learning (e.g., lack of internet access, technological problems) or students missing crucial services (e.g., subsidized meals, counseling) as one of their top three concerns. Similarly, 60 percent of responding school leaders identified teachers missing crucial services as one of their top two concerns. These patterns were strikingly consistent across the state. Teachers and leaders across different types of schools (e.g., elementary vs. high schools), geographic locations (e.g., rural vs. city), and district sizes (e.g., smallest vs. largest districts) identified the same issues as their biggest concerns.

**FIGURE 1**



## **Open-Ended Comments**

Educators expressed concern for the physical and mental health of students and their families in their open-ended comments. Teachers and leaders indicated that basic necessities—including adequate nutrition, security, and supervision—are crucial to ensure that students can successfully engage in remote learning. Our topical analysis also identified a clear pattern of clustered words, including “need,” “student,” “support,” “family,” “health,” “emotional,” and “mental.” In their comments, teachers mentioned the need for more counseling, emotional support, and mental health resources for students and families.

These concerns varied somewhat by school context. For example, teachers in schools serving more low-income students—as measured by the percentage of students eligible for subsidized meals—were more likely to mention food-related keywords (e.g., food, breakfast, lunch, meal) related to food insecurity and access to internet and technology. In contrast, teachers serving schools with fewer low-income students were more likely to mention health-related keywords (e.g., health, mental, counsel, trauma, sick).

“I have students whose parents are essential workers without childcare. I have students that do not feel safe and secure at home. I have students whose parents are unable to read themselves, and are not equipped to help their child log-on to online learning. It is SO MUCH more than just families that don’t have a laptop... I’m worried about the mental and physical health of these kids for years and years to come. Teachers will need so much professional help from school therapists, social workers, nurses, and social-emotional specialists.”

– *Elementary Teacher in Middle Tennessee*



“We have a very high poverty rate to begin with and the sheer number of families who need food is staggering. Without these basic needs, how can we expect students to log in online and learn? We have provided all who need a Chromebook with one; however our more rural areas simply don’t have internet access. Others who used to have access have had to cut it off due to layoffs. Despite these challenges, our students have been excited to participate in online learning and more than expected are finding ways to engage (such as sitting in the car in restaurant parking lots to complete assignments). Providing for our families will ultimately make learning possible.”

– *Elementary Principal in East Tennessee*



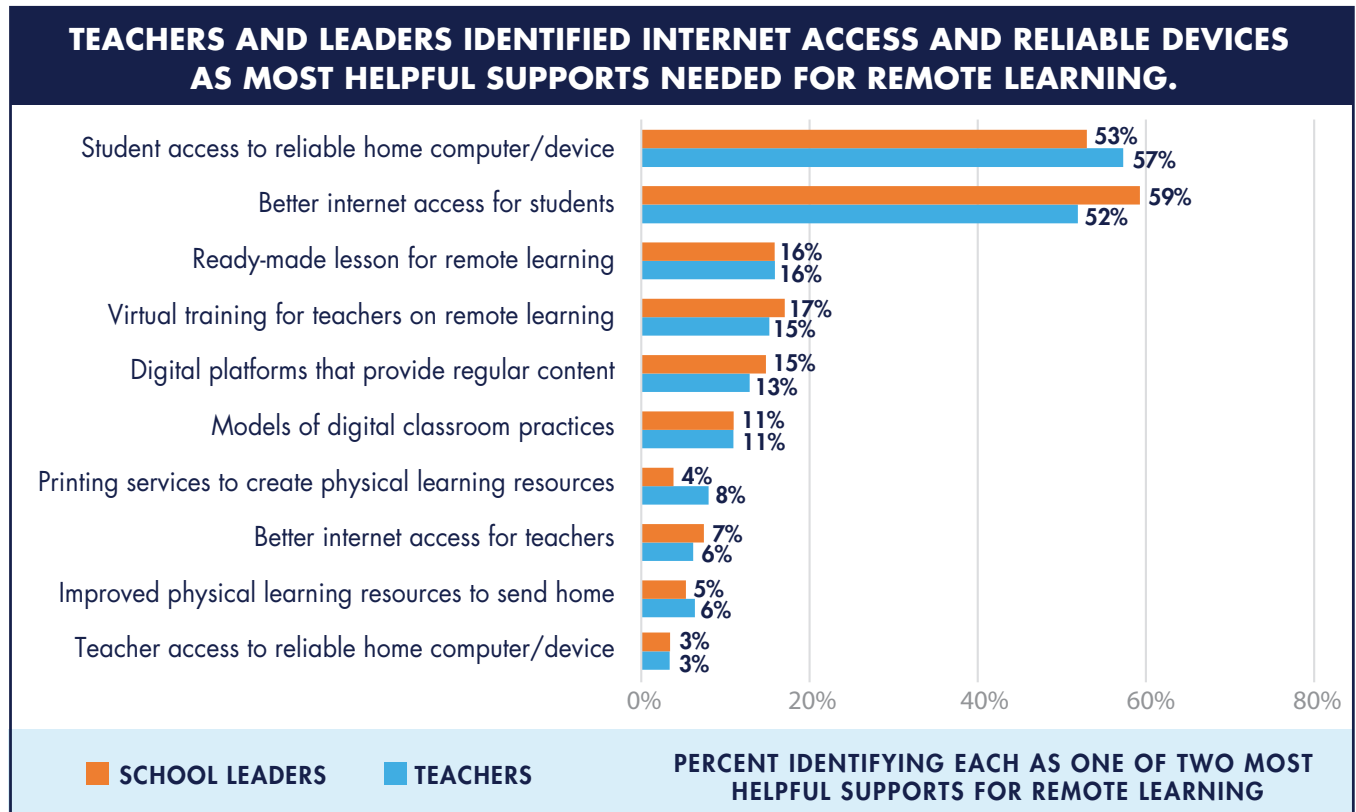
# 2

## MORE THAN THREE-QUARTERS OF TEACHERS SELECTED TECHNOLOGICAL SUPPORTS FOR REMOTE LEARNING (E.G., INTERNET ACCESS AND RELIABLE DEVICES) AS THE MOST HELPFUL SUPPORTS NEEDED TO PROMOTE EDUCATIONAL ACCESS, AND EDUCATORS DISCUSSED THE NEED FOR THESE SUPPORTS TO ADDRESS EDUCATIONAL INEQUITIES.



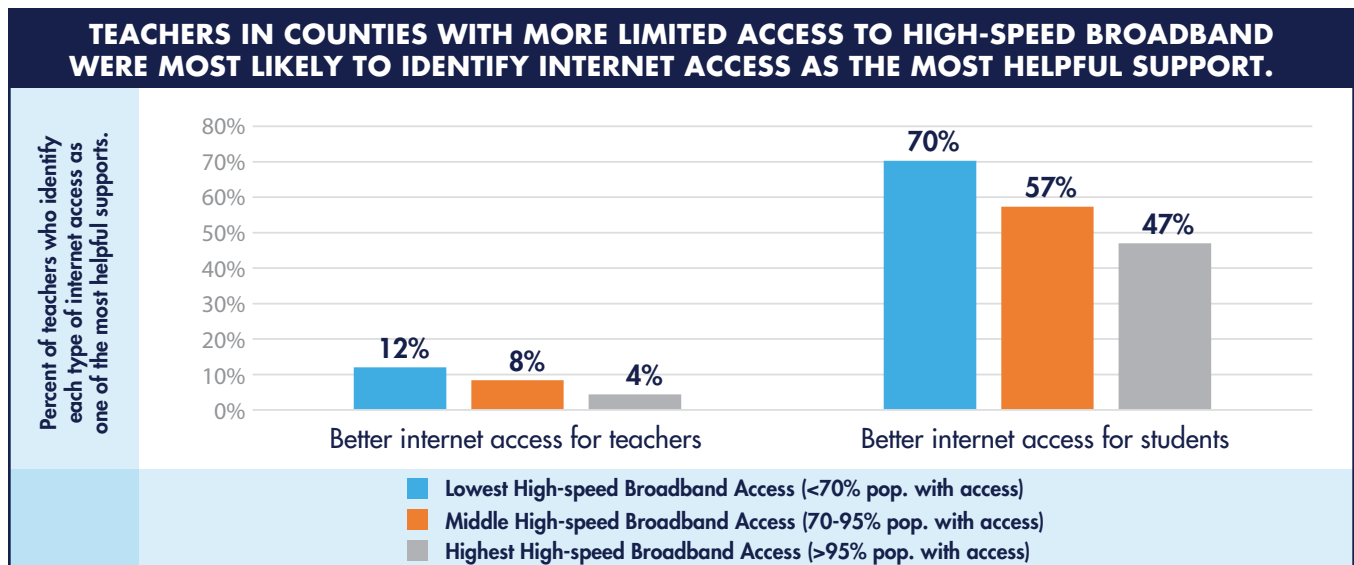
To better understand what educators need to successfully provide learning opportunities for students at home, the survey asked teachers and school leaders to select the top two most helpful supports needed for remote learning. Overall, more than three-quarters of educators identified better internet access and/or reliable devices for students as the most helpful supports needed for remote learning (see Figure 2). Similarly, within the open-ended comments, 75 percent of educator comments included keywords related to technology (e.g., computer, device, phone) or internet (e.g., internet, online, virtual).

**FIGURE 2**



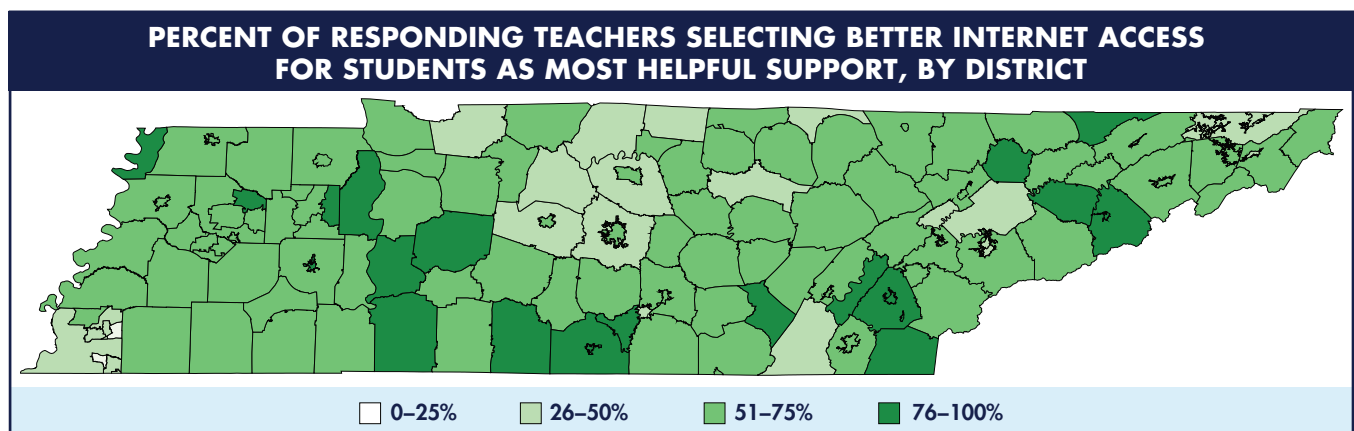
In rural communities, which tend to have less access to high-speed broadband, more than two-thirds of educators reported that better internet access is needed to support remote learning (as compared to about half of educators in urban and suburban communities). To better illustrate how teachers' reported needs for remote learning varied based on access to high-speed broadband, Figure 3 breaks down educator responses based on their county's level of access to high-speed broadband as measured by the Federal Communications Commission. In the 35 counties in which the lowest percentage of the population has access to high-speed broadband<sup>2</sup>, 70 percent of teachers identified better internet access for students and 12 percent of teachers identified better internet access for teachers as one of the most helpful supports needed for remote learning.

**FIGURE 3**



To more clearly show how these needs vary regionally, Figure 4 maps the percentage of responding teachers in each school district who selected better internet access for students as being one of the two most helpful supports for remote learning. There are 19 districts across the state in which more than 75 percent of responding teachers identified better internet access for students as one of the most helpful supports for remote learning; all of these are smaller districts located in rural communities. Although educators in urban and suburban communities also noted a need for better internet access (citing the financial cost in their open-ended comments), teachers and leaders in rural communities reported that internet access is slow, unreliable, expensive, or simply unavailable.

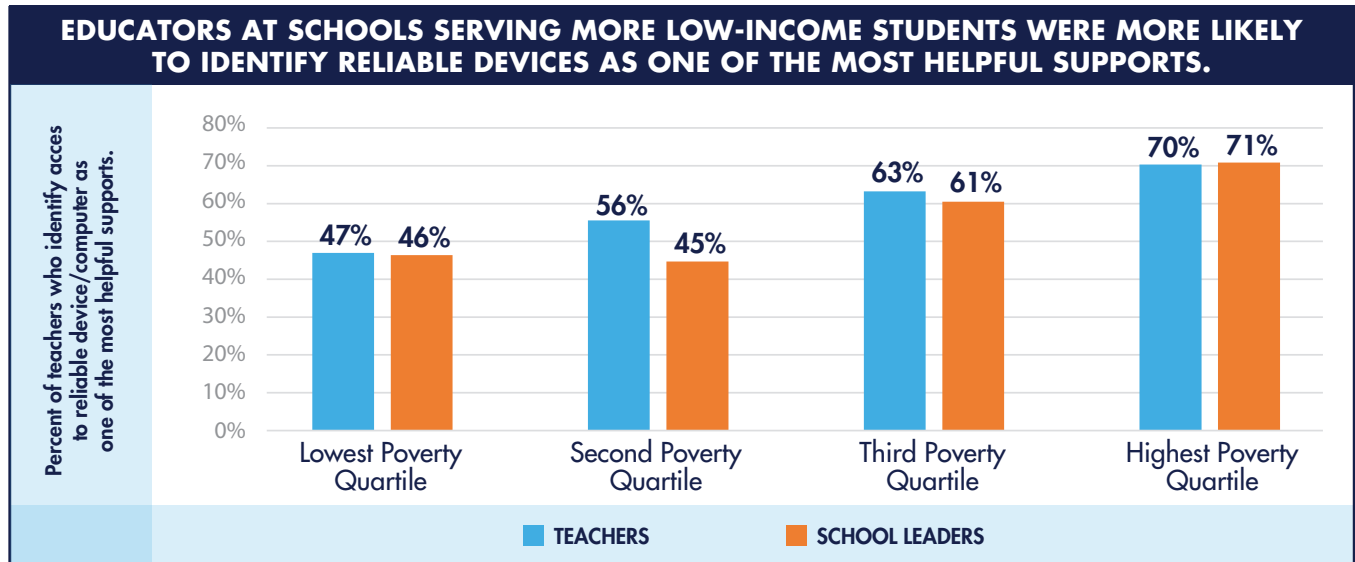
**FIGURE 4**



<sup>2</sup> We used county-level data published by the Federal Communications Commission in the 2019 Broadband Deployment Report. This data estimates the percentage of the population within a county that had coverage for fixed broadband services at speeds of 25 Mbps/3 Mbps, the FCC's current benchmark for a high-speed connection. This data is estimated based on reporting by internet providers and may underestimate actual access. The FCC reports that, overall, 98.5% of Tennesseans living in urban areas have coverage for high-speed broadband services while 77% of Tennesseans in rural areas have such coverage. For more information on broadband access in Tennessee, see the 2017 report by the Tennessee Advisory Commission on Intergovernmental Relations.

Many educators across different contexts identified student access to devices (e.g., home computer, tablet, Chromebook) one of the most helpful supports needed for remote learning. Educators in schools serving more low-income students were even more likely to identify this need. Figure 5 illustrates these differences based on four quartiles which categorize schools based on the percentage of students eligible for subsidized meals during the 2019-2020 academic year. Nearly three-quarters of teachers and leaders in schools that serve the most low-income students reported that access to devices is one of the most helpful supports, compared to less than half of educators in schools with the fewest low-income students.

**FIGURE 5**



Elementary educators were also more likely to identify reliable devices as an important support needed for remote learning, especially when compared to high school educators. This suggests that elementary schools, especially those serving low-income students, may not have devices that they could readily provide to students to use at home for remote learning.

“Resources needed would be those to narrow the digital divide among our students. I teach and live in a rural area with less than sufficient internet access. Many people with access complain that it is too slow to handle things such as video conferencing. I also know that the majority of our students lack access to devices such as computers and tablets.”

– *Middle School Teacher in West Tennessee*

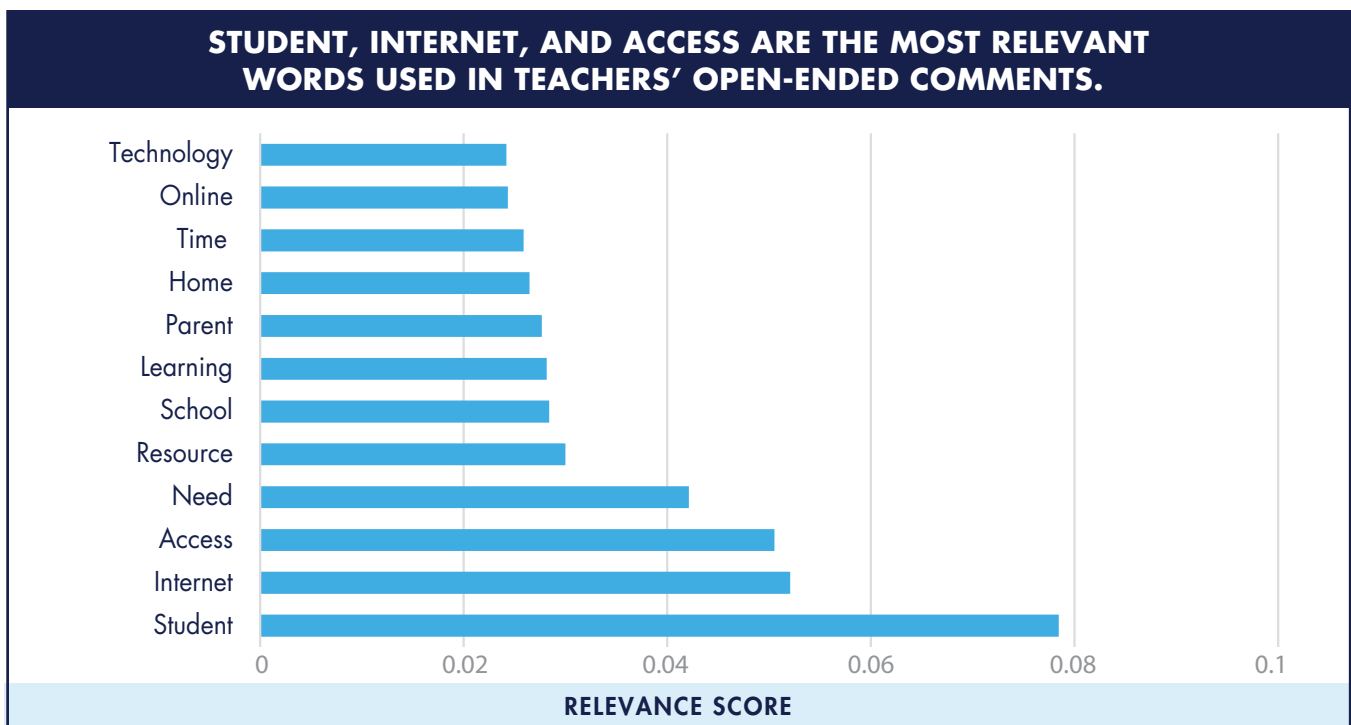


## Open-Ended Comments

In their written comments, teachers and principals further expressed their concerns about how this digital divide may widen existing educational disparities. As illustrated in Figure 6, “internet” and “access” were two of the most relevant words throughout the comments.<sup>3</sup> Our topical analysis also found a very clear and common theme related to concerns over internet and technological access.

While teachers across all contexts mentioned internet access and technology (75 percent of teachers’ open-ended comments included technology- or internet-related words), teachers in certain contexts were more likely to mention certain technological concerns. Teachers in schools with the most students eligible for subsidized meals mentioned technology-related words (e.g., computer, device, phone) almost twice as often as teachers in schools serving the fewest eligible students. In addition, teachers in rural districts mentioned the internet-related keywords more than teachers in any other geographic location. Finally, educators also reported that some students can only access remote learning through phones and that parents are concerned about their use of minutes.

**FIGURE 6**



“Being in a rural county, many students do not have access to technology and/or internet. A parent’s cell phone is not sufficient technology for many of our students. Additionally, as an elementary school, we do not have the technology that we can send home with our families. If we had the technology, we could have more opportunities to teach virtually. I understand this is an economic issue, but it is costly to mail packets home to parents who choose not to come to the school to pick up the packets. I don’t know that there is a good answer, but even if COVID-19 wasn’t an issue, lack of technology in a rural area is still a concern.”

– **Elementary Principal in Middle Tennessee**

<sup>3</sup> Relevance is measured using the Average Term Frequency – Inverse Document Frequency Score, an analytic technique that identifies and discriminates which specific words are most important across all open-ended responses



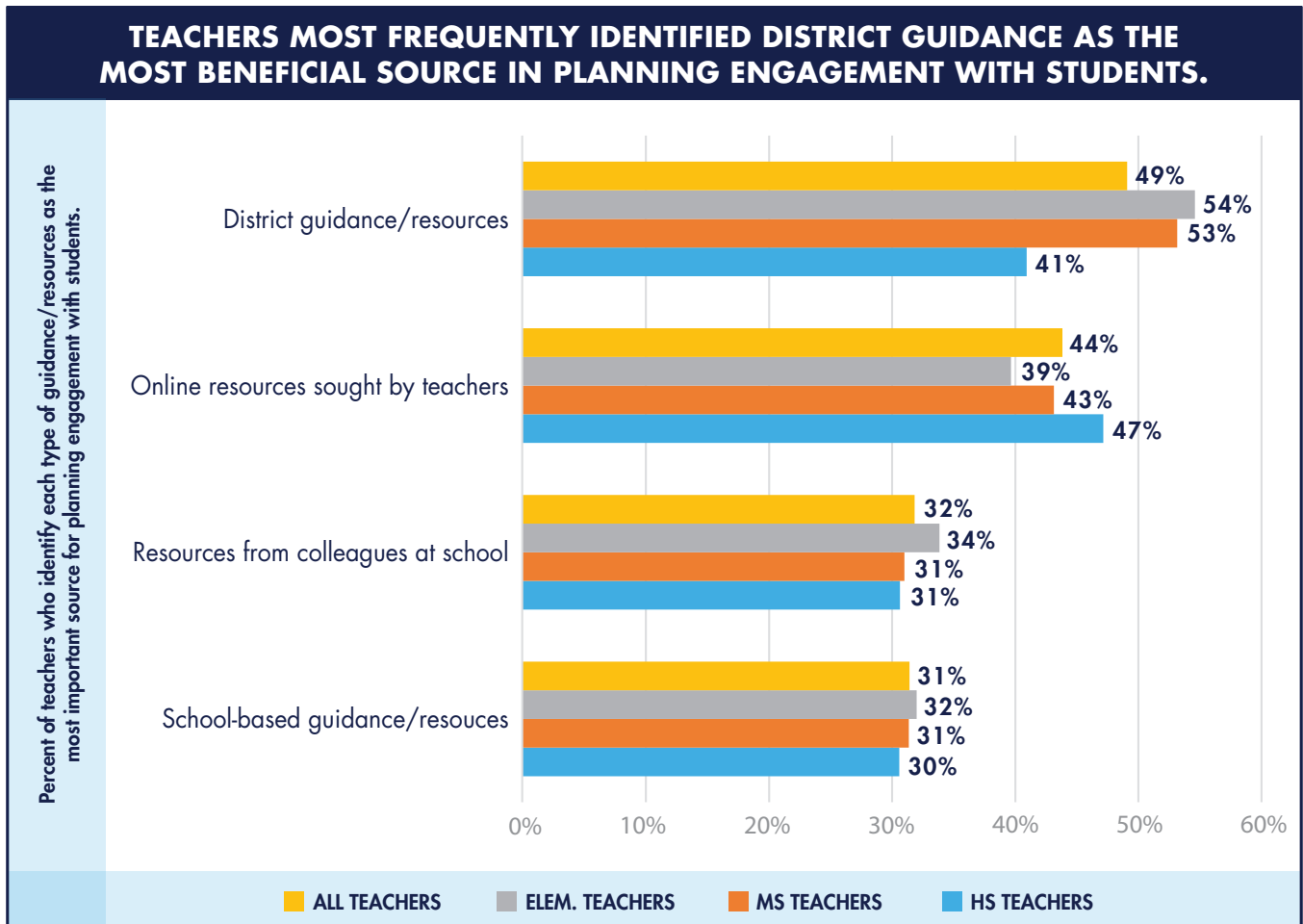
# 3

## SCHOOLS AND DISTRICTS WERE IDENTIFIED AS IMPORTANT SOURCES OF GUIDANCE FOR TEACHERS IN PLANNING REMOTE LEARNING. TEACHERS DESCRIBED ADDITIONAL INSTRUCTIONAL NEEDS, SUCH AS TEACHER TRAINING ON VIRTUAL LEARNING AND GUIDANCE FOR SUPPORTING STUDENTS WITH DISABILITIES AND ENGLISH LEARNERS.

To learn more about how teachers receive guidance and resources to plan and provide remote learning opportunities for students, the survey asked teachers to identify their most important sources of guidance during the school closures. Two-thirds of teachers identified school or district guidance as one of their top two sources. Teachers within the same school or district tended to report similar types of engagement, particularly when they reported on the use of physical learning resources or virtual classes). These patterns further suggest that teachers' planning is informed by school and district guidance.

However, almost half of teachers (44 percent) reported that general online resources that they have sought out themselves are also a top source of guidance. Figure 7 illustrates the percentage of teachers, by school level, who selected each source as one of their top two sources of guidance in planning remote learning. High school teachers were more likely than their elementary peers to identify such online resources as important sources of guidance, and the open-ended comments indicate that certain teachers felt they needed more guidance and resources.

**FIGURE 7**



## **Open-Ended Comments**

In their comments, teachers praised their school and district leaders for quickly providing general education materials and guidance to support remote learning. Yet some teachers and administrators expressed frustration with unclear expectations or cited ongoing professional development needs related to remote learning. Some teachers expressed a need for clearer and more consistent guidelines about their responsibilities for remote learning, including how and how often they should be engaging with students and specific guidelines for parent/student engagement. In our topical analysis, a clear pattern of clustered words emerged around additional needs for teacher training, including “learning”, “online”, “training”, “technology”, “resource”, and “virtual.” In their comments, teachers requested training on virtual learning resources and platforms, best practices and online teaching models, and increased technical support.

Teachers and leaders also called out the need for resources and guidance to support remote learning for certain student populations. In particular, educators requested clearer expectations about how to best serve students with disabilities, especially those with moderate to severe disabilities. Special education teachers indicated that many of the resources supplied by their school or district for remote learning are not appropriate for their students, and discussed the challenges faced by parents of special needs children trying to provide learning at home without the supports typically available at school. Moreover, both teachers and leaders noted the difficulties associated with supporting remote learning with English learners, especially in communicating with parents who do not speak or read English.

“As far as resources, I feel like our current curriculum designers really stepped up by providing quick, ready to use online/printed material for our students. My students recognize the material and are already familiar with how to access and look for information needed.”

– **Elementary Teacher in Middle Tennessee**

“I just need training and examples of online learning for my area of study. I have minimal experience with what an online class looks like, but I am willing to learn and implement.”

– **High School Teacher in West Tennessee**



“As a teacher of students with moderate to severe disabilities, I would like to have more information as to how to meet the specific needs of my students during distance-learning times. Many of my students are non-verbal and have little to no home support and/or no English-speaking parents in the home.”

– **Elementary Teacher in East Tennessee**

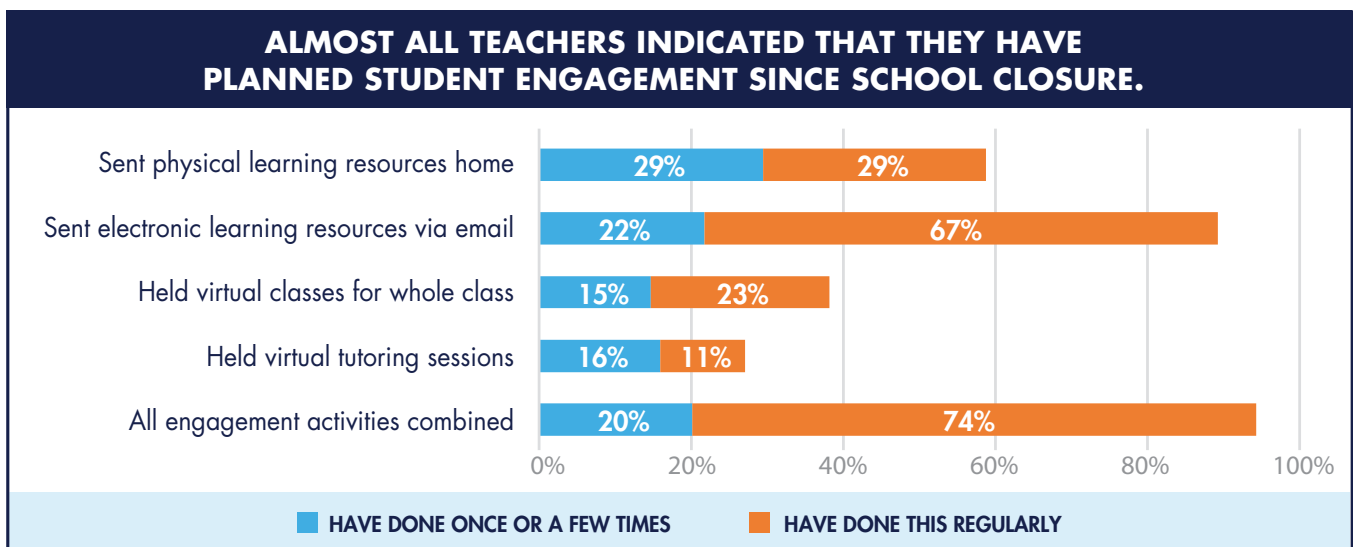


# 4

## MORE THAN TWO-THIRDS OF TEACHERS REPORTED REGULARLY SENDING ELECTRONIC LEARNING RESOURCES TO PROMOTE REMOTE LEARNING. FEWER TEACHERS HAVE BEEN SENDING PHYSICAL LEARNING RESOURCES OR ENGAGING IN VIRTUAL CLASSES, AND THIS ENGAGEMENT VARIED ACROSS TEACHING CONTEXTS.

With the closure of school buildings, educators have had to quickly pivot to offer remote learning opportunities on an unprecedented scale. The survey asked teachers to identify the ways in which they are supporting student learning remotely. Almost all responding teachers (96 percent) reported planning at least one type of student engagement since COVID-19 related closures. Two-thirds of teachers (67 percent) reported regularly sending home electronic learning resources via emails to students/parents while a much smaller percentage of teachers reported regularly sending home physical learning resources (29 percent) or engaging regularly in virtual classes or tutoring (23 percent and 11 percent, respectively). Figure 8 shows the percentage of responding teachers who reported engaging in each type of remote learning at least once or regularly.

**FIGURE 8**



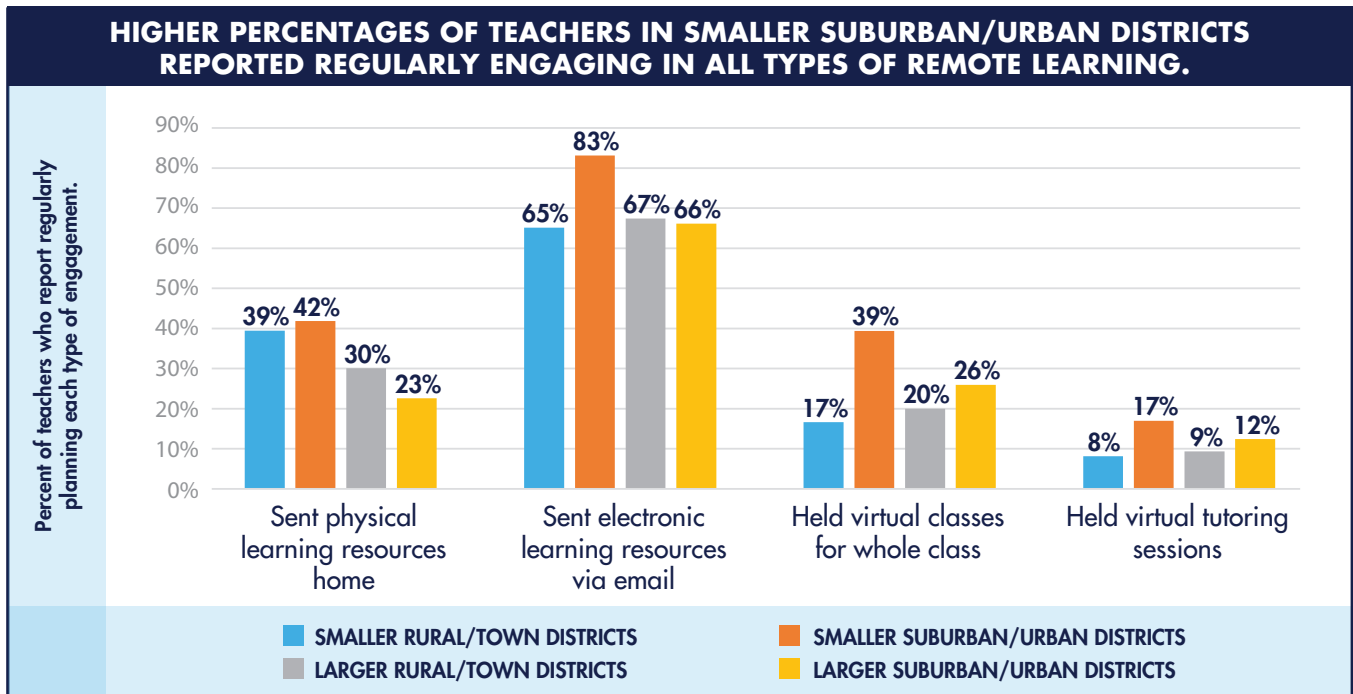
“During this time, teachers are struggling to stay connected to their students, while also trying to balance caring for their own children and/or managing working alongside a spouse also trying to work from home.”

– *Elementary Principal in Middle Tennessee*



Districts likely had different resources available to support remote learning, and teachers' reported engagement varied based on where they work. As shown in Figure 9, a higher percentage of teachers in smaller suburban/urban districts report regularly engaging in all four types of remote learning compared to teachers in other contexts.<sup>4</sup> Notably, smaller suburban/urban districts tend to serve fewer students who qualify for subsidized meals and tend to have higher per pupil expenditures.

**FIGURE 9**



Access to high-speed broadband, especially in many rural communities, likely limited schools' ability to offer virtual learning opportunities. Teachers in smaller districts in rural areas were least likely to report regularly engaging in virtual classes or tutoring. Even when teachers offer virtual classes or tutoring, it may be difficult for students to participate. Of those teachers who indicated that they had planned virtual classes or tutoring, 61 percent identified student attendance and 45 percent identified lack of internet access for students as major challenges for providing remote instruction through this method. This suggests that, even when teachers are regularly offering virtual classes, other barriers may be preventing students from participating. Taken together, these results indicate that many Tennessee students—and particularly those in smaller, rural districts—had few regular opportunities to interact remotely with their teachers or classmates.



<sup>4</sup> Smaller districts are defined as districts with fewer than 15 schools. Geographic location are defined by district locale codes from the National Center for Educational Statistics.

## **Open-Ended Questions**

Educator responses highlighted differences in resources and responsibilities that may affect how teachers can engage in remote learning with their students. For example, teachers in certain subjects—especially career and technical education, visual arts, and performing arts—expressed frustration that virtual engagement was difficult and that most remote learning tools were not appropriate for their subjects. Teachers in early grades were also more likely to mention keywords related to curriculum and materials in their comments, and they sometimes indicated that the engagement strategies or suggestions provided by their district did not work well for younger children.

Teachers also expressed frustration with district mandates that prohibited certain types of engagement (such as the introduction of new material) or unclear communication about grading and student attendance.

Our topical analysis identified a pattern of clustered words related to accountability, including “student”, “work”, “assignment”, “grade”, “complete”, “accountable”, and participation.” Within these comments, teachers expressed concern about how district mandates or unclear expectations related to grading and attendance may have depressed student engagement in remote learning.

Finally, teachers who are themselves caring for children at home face additional challenges in offering remote learning opportunities for their students. Leaders noted that certain teachers had struggled to provide remote learning opportunities, citing both childcare and technological barriers (e.g., weak internet access, slow computers, or lack of training on virtual classroom tools).



“I teach CTE and adapting a hands-on course to online is extremely challenging. Students do not have access to the software we use in the lab or the equipment we use in the shop. I know all CTE teachers are facing similar challenges with adapting from hands on to really hands off. The students sign up for CTE for the experiences, and I feel we are not able to offer anything close to the classroom/shop online.”

– *High School Teacher in East Tennessee*

# CONCLUSIONS AND IMPLICATIONS

Educators, schools, and districts have faced immense challenges with the closure of school buildings during the COVID-19 pandemic. Our findings, which summarize responses from over 25,000 educators across Tennessee, speak to these ongoing challenges and point to several critical barriers to quality remote learning that will remain salient if school buildings are unable to fully open for the 2020-2021 academic year. Based on this analysis, we discuss three areas of needs cited by educators in their survey responses.



**Schools, districts, communities, and students need continued and likely additional resources for crucial services such as meals and counseling.**

The pandemic has heightened existing educational inequalities and educators need additional resources to support the most marginalized students and families. Fifty percent of teachers and 60 percent of school leaders identified students missing crucial services as one of their top concerns, and adequately responding to these heightened needs will likely require additional investment in counselors, meals, and other critical services to ensure that all students are able to access services regularly and safely.



**For all students to have access to remote learning, increased access to reliable internet and devices is needed, especially in rural communities.**

Our findings show that Tennessee's broadband infrastructure is a major barrier to remote learning, especially for rural areas. Teachers in rural areas with lower broadband access are less likely to report regularly engaging with students digitally. Teachers also identified concerns with student access to devices for remote learning, especially in elementary schools. As a result, students are likely experiencing differences in opportunities to engage in remote learning. Greater coordination and additional governmental and community investment in remote learning infrastructure appears necessary to bridge this digital divide.



**Educators need clear and consistent guidance about remote learning and additional supports for students with special needs.**

Educators expressed numerous concerns that should be addressed if remote learning continues for the next academic year, including:

- **Clear plans related to student attendance and accountability for remote learning.** While recognizing the unprecedented nature of this crisis, many educators asked for greater clarity about grading, student engagement, and accountability for learning. Some expressed frustration that only a subset of students were attending virtual classes or completing remote work, and attributed this lack of engagement to unclear or inconsistent expectations about grading and introducing new material.
- **Guidance and additional resources for providing special education services, especially for students with moderate to severe disabilities.** Educators request clear guidance from the state about how to provide services for these students, cite the need for additional resources, and express concern that parents are overwhelmed with caring for special needs students at home.
- **Additional resources for students and subjects that are not well served by the general education resources typically available for remote learning.** Educators recognized how general education resources for remote learning do not work equally well for all students or subjects. In particular, educators requested additional assistance in supporting English learners, preschool and early elementary students, and specialized subjects such as visual arts or career and technical education.

# FUTURE RESEARCH



## Local Innovations

*In their comments, educators identified several creative solutions for serving student and educator needs being implemented by their school districts including:*



### Providing critical supports for students and families.

- *Sending school buses with supplies into neighborhoods to distribute meals or learning resources to students without transportation.*



### Expanding technological access to remote learning, such as:

- *Partnering with internet providers to offer free/discounted internet subscriptions or to create mobile, community hotspots.*
- *Providing smart phones with pre-paid data plans to students in areas without internet access.*
- *Covering the costs of teachers' internet subscriptions or data plans.*

As the COVID-19 pandemic continues to unfold, TERA plans to continue documenting educator experiences and policy responses in partnership with the Tennessee Department of Education. We will engage in further research to study the effects of COVID-19 on students, teachers, and schools. Over the next few months, we plan to continue analyzing this survey data for additional insights on issues around student remote learning access, especially as it relates to available infrastructure. We also plan to systematically collect information on district responses to coronavirus-related closures that can be connected to this survey data. Finally, we aim to collect future survey and interview data on the experiences and challenges of teachers, students, and parents engaging in remote learning.

# REFERENCES

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