



COVID-19 RESEARCH RESOURCES IN PIRLS 2021

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COVID-19 Research Resources in PIRLS 2021

Introduction

Overview

On March 11, 2020, the World Health Organization officially declared COVID-19 a global pandemic,¹ causing one of the largest disruptions to schooling in history.² The United Nations reported that 94% of the world's student population in more than 190 countries experienced school closures due to the pandemic. School closures had a wide-ranging impact on children and adolescents, affecting not only learning but also students' mental well-being, health, and nutrition.³ The COVID-19 pandemic introduced unprecedented challenges for education research and large-scale assessments of student populations. Both schools and researchers were forced to modify their usual practices to protect the health and safety of students and other members of school communities.

Disruptions to data collection processes can be especially problematic in large-scale international assessments that study trends within and across countries, such as PIRLS 2021. This report provides researchers with an overview of information about the COVID-19 pandemic that is available through the PIRLS 2021 data. As noted in the [PIRLS 2021 International Results in Reading](#), neither PIRLS 2021 data nor any other cross-sectional international large-scale assessment can be used to make causal inferences about the effect of the COVID-19 pandemic on students' reading achievement, such as "learning loss." However, PIRLS 2021 offers rich contextual information about students' instruction and learning during the pandemic, including their home and school environments and the broader national education systems. The immense disruptions to schooling worldwide during the pandemic period are also important to keep in mind when interpreting the PIRLS 2021 results.

This report begins by describing how the COVID-19 pandemic necessitated modifications to the original plans for the PIRLS 2021 assessment, which have implications for interpreting PIRLS 2021 results. The report continues with an overview of the different types of contextual data related to the COVID-19 pandemic that are included in the [PIRLS 2021 International Database](#). COVID-related items from the PIRLS 2021 home and school questionnaires and their international average results are presented. Information about COVID-19 available in the

[PIRLS 2021 Encyclopedia](#) and some key themes are also presented. Finally, the report concludes with key takeaways for researchers wishing to use PIRLS 2021 data.

PIRLS 2021 and the COVID-19 Pandemic

The onset of the COVID-19 pandemic coincided with the field test for PIRLS 2021, which was scheduled for March and April of 2020. The field test precedes the main data collection and is an early opportunity to evaluate the psychometric properties of assessment and questionnaire items to inform revisions if needed. This was a period of rapid COVID-19 spread worldwide;⁴ therefore, only 19 of the 57 PIRLS 2021 countries could conduct the field test. Despite these participation challenges, available data were used to evaluate item quality for the PIRLS 2021 reading achievement test and context questionnaires and prepare for the full-scale data collection. Additional details about data collected in the PIRLS 2021 field test can be found in Chapters 1 and 2 of [Methods and Procedures: PIRLS 2021 Technical Report](#).

The ongoing nature of the COVID-19 pandemic also necessitated significant modifications to the PIRLS 2021 data collection timeline. Originally, PIRLS 2021 data collection was scheduled for October through December 2020 for Southern Hemisphere countries and March through June 2021 for Northern Hemisphere countries. As shown in Exhibit 1, reprinted from the [PIRLS 2021 International Results in Reading](#) for ease of reference, many countries could conduct PIRLS 2021 data collection on the original timeline. However, some countries in both hemispheres were forced to delay PIRLS 2021 data collection in response to the severity of the COVID-19 pandemic and the disruptions it exerted on their educational systems.

Exhibit 1: Countries by Chronological Order of Data Collection

According to Original Plan			
Assessed Fourth Grade Students at the End of the School Year Five year trend from PIRLS 2016			
October–December 2020 Southern Hemisphere	February–July 2021 Northern Hemisphere		
New Zealand	Albania	Hong Kong SAR	Serbia
Singapore	Austria	Italy	Slovak Republic
	Azerbaijan	Jordan	Slovenia
	Belgium (Flemish)	Kosovo	Spain
	Belgium (French)	Macao SAR	Sweden
	Bulgaria	Malta	Turkiye
	Chinese Taipei	Montenegro	Uzbekistan
	Cyprus	Netherlands	Benchmarking Participants
	Czech Republic	North Macedonia	Alberta, Canada
	Denmark	Norway (5)	British Columbia, Canada
	Egypt	Oman	Newfoundland & Labrador, Canada
	Finland	Poland	Moscow City, Russian Federation
	France	Portugal	
	Germany	Russian Federation	

Delayed Assessment		
Assessed Fourth Grade Cohort at the Beginning of the Fifth Grade		
September–December 2021 Northern Hemisphere		
Bahrain	Lithuania	Benchmarking Participants
Croatia	Morocco	Quebec, Canada
Georgia	Northern Ireland	Abu Dhabi, UAE
Hungary	Qatar	Dubai, UAE
Ireland	Saudi Arabia	
Kazakhstan	United Arab Emirates	
Latvia	United States	

Assessed One Year Later	
Assessed Fourth Grade Students at the End of the School Year Six year trend from PIRLS 2016	
August–December 2021 Southern Hemisphere	April–July 2022 Northern Hemisphere
Australia	England
Brazil	Iran, Islamic Rep. of
South Africa	Israel
Benchmarking Participant	
South Africa (6)	

Note. Reprinted from Mullis, I. V. S., von Davier, M., Foy, P., Fishbein, B., Reynolds, K. A., & Wry, E. (2023). *PIRLS 2021 International Results in Reading*. Boston College, TIMSS & PIRLS International Study Center. <https://doi.org/10.6017/lse.tpisc.tr2103.kb5342>

Three Southern Hemisphere and three Northern Hemisphere countries delayed PIRLS 2021 data collection by a full calendar year. These countries did not assess the students originally sampled for PIRLS 2021 but administered the assessment to the following year's fourth-grade cohort. For these six countries, any country trends in reading achievement for PIRLS 2021 are six-year rather than five-year trends typically reported between successive PIRLS assessment cycles.

Fourteen Northern Hemisphere countries and three benchmarking participants delayed PIRLS 2021 data collection by about half of a calendar year, administering the assessment to students at the beginning of fifth grade rather than the end of fourth grade. These countries assessed the original PIRLS 2021 cohort of students, but the students were, on average, six months older than the fourth-grade students assessed in the PIRLS 2021 countries where administration was either not delayed or was delayed by a full year (see details in the [PIRLS 2021 International Results in Reading](#)). Similarly, these students were, on average, six months older than the fourth-grade students assessed in these countries in previous cycles of PIRLS. This age difference, and the unknown impact of any activities over the summer months, likely has implications for interpreting PIRLS 2021 trends in these countries, and any trend results should be interpreted cautiously for the countries that tested on a delayed schedule. Caution should also be taken in comparing the reading achievement of these countries to the average reading achievement of countries that assessed fourth-grade students.

The [PIRLS 2021 International Results in Reading](#) describes these different groups of countries. Delayed countries' results are footnoted or annotated accordingly to alert readers to these differences in data collection periods across countries. The "About PIRLS 2021" section of the [PIRLS 2021 International Results in Reading](#) provides further details.

PIRLS 2021 Data on COVID-19

PIRLS 2021 collected data related to the COVID-19 pandemic from several groups of respondents through three instruments. These instruments are:

- PIRLS 2021 Home Questionnaire
- PIRLS 2021 School Questionnaire
- PIRLS 2021 Curriculum Questionnaire

The Home Questionnaire was completed by the parents or guardians of students participating in PIRLS 2021 and captured information related to students' home environments and early learning experiences, as well as their parents' perceived impact the pandemic had on their child's learning. The School Questionnaire was completed by principals of the schools sampled for PIRLS 2021 and collected information about school characteristics and school closures related to the pandemic. Finally, the Curriculum Questionnaire was completed by representatives from the countries participating in PIRLS 2021. The Curriculum Questionnaire gathers country-level data related to educational policies and practices. For additional information about these questionnaires, see the [PIRLS 2021 Context Questionnaires](#) and the [PIRLS 2021 Context Questionnaire Framework](#).

Although the data collected by these questionnaires are useful for characterizing students' educational experiences during the pandemic, there are several important caveats for analyzing the data and interpreting the results. In line with the original PIRLS 2021 data collection schedule, context questionnaires were finalized in August 2020. At this point, the scale of disruption from the COVID-19 pandemic was not known. Therefore, there are some limitations to the data collected from these items. Specific considerations for each item are noted in the sections below. Full details about the development of the PIRLS 2021 Context Questionnaires are available in Chapter 2 of [Methods and Procedures: PIRLS 2021 Technical Report](#).

COVID-19 Data from the PIRLS 2021 Home Questionnaire

Students' parents or guardians responded to several items about the COVID-19 pandemic in the PIRLS 2021 Home Questionnaire. These items collected information about whether or not children stayed home from school during the pandemic, educational resources provided by schools and families during this time, and perceptions of the pandemic's impact on children's learning progress. These items appeared at the end of the Home Questionnaire. The following exhibits present each of these items or item sets, titled with the variable name(s) used in the [PIRLS 2021 International Database](#), followed by the international average results. Countries had the opportunity to adapt the questionnaire items to fit their particular contexts; these country-specific adaptations are presented in Supplement 2 of the [PIRLS 2021 User Guide for the International Database](#).

Exhibit 2: Child Stayed Home Because of COVID-19 Pandemic (ASBH19)

About the Item	
Did your child stay home at any time because of the COVID-19 pandemic?	
Yes	No
↓	↓
☐	☐
(If No, thank you for completing this questionnaire)	

ASBH19 asked parents if their child stayed home at any time because of the COVID-19 pandemic. There are several features to note about this item. First, the item does not provide information about why a child might have stayed home from school. Children may have stayed home because schools were utilizing remote instruction, school-level quarantine policies, parental discretion, or other reasons. It is also important to note that this item serves as a filter for the other remaining COVID-19 items in the Home Questionnaire. If a parent indicated that their child did not stay home from school because of the pandemic, they did not respond to subsequent questionnaire items about the topic.

Exhibit 3 shows the international average responses to ASBH19. On average, the large majority of students (86%) stayed home at some point for reasons related to the COVID-19 pandemic. This highlights the immense disruption of the pandemic to students' learning experiences.

Exhibit 3: Child Stayed Home Because of COVID-19 Pandemic (International Average for ASBH19)

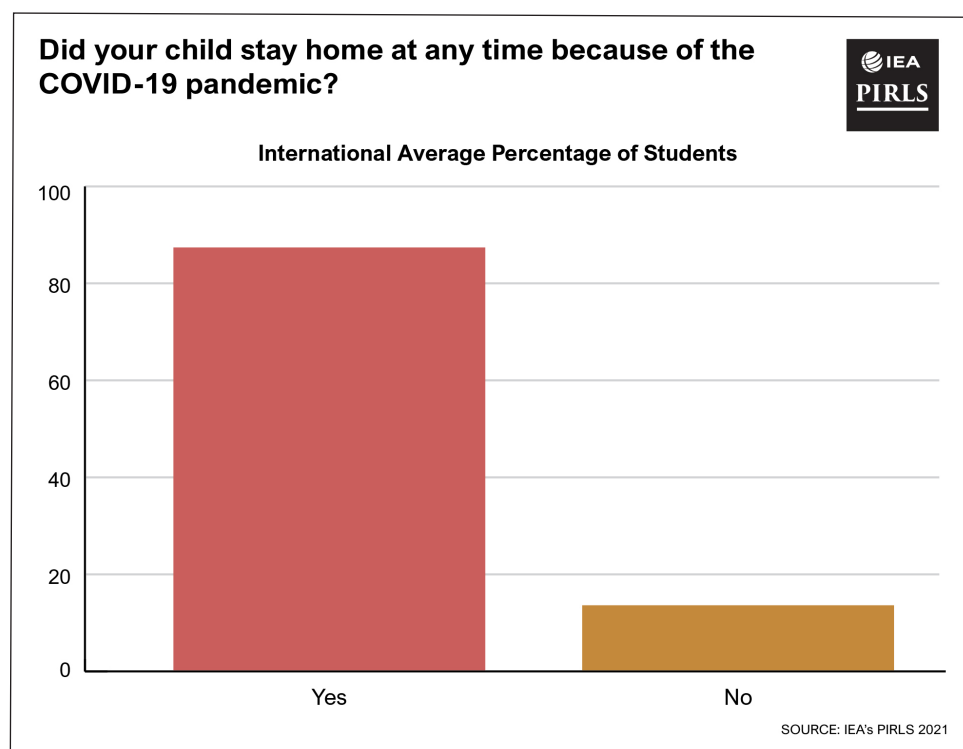


Exhibit 4 shows items ASBH20A, ASBH20B, and ASBH20C, which asked parents what resources the school provided for their child when they were home from school. Parents were asked about both paper-based and online learning activities, as well as extra reading assignments.

Exhibit 4: School Engagement with Home-Based Learning (ASBH20A, ASBH20B, ASBH20C)

About the Items

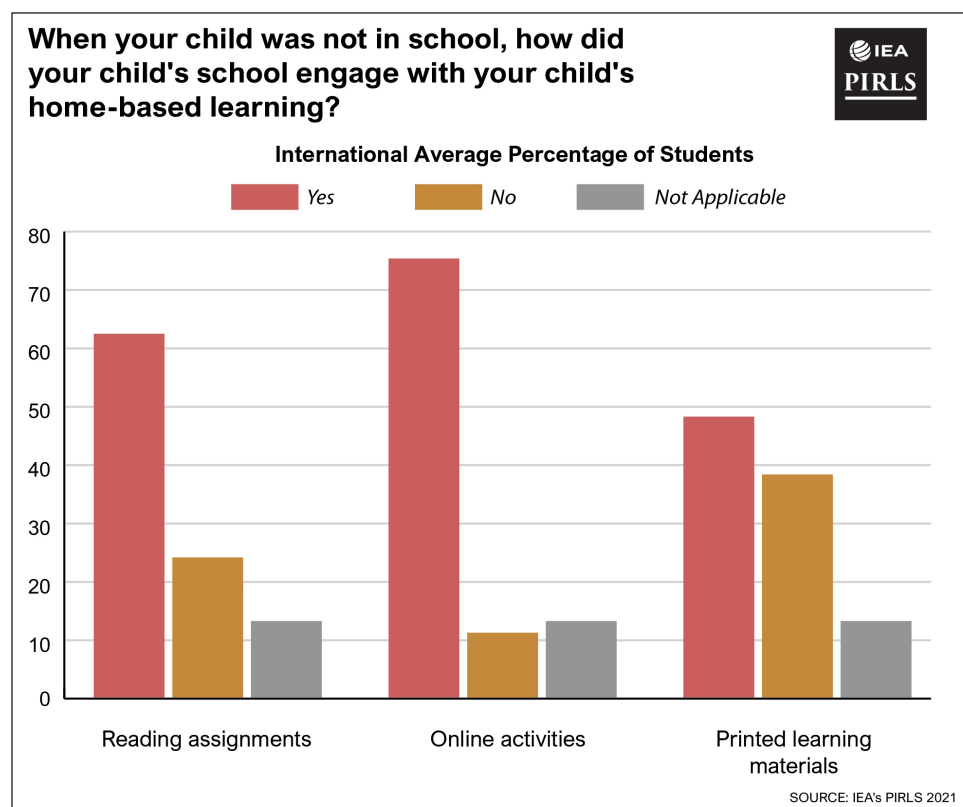
When your child was not in school, how did your child's school engage with your child's homebased learning?

	Yes	No
Reading assignments -----	☐	☐
Online activities -----	☐	☐
Printed learning materials -----	☐	☐

Exhibit 5 shows the international average percentages of students whose schools provided these three types of home-based learning resources. On average, over 75 percent of parents reported that the school provided online activities for their children during the pandemic. More than 60 percent said their children received reading assignments, while slightly less than 50 percent reported receiving printed learning materials. These results illustrate the proliferation of online learning worldwide during the pandemic. Students with “Not Applicable” results for

these items are those whose parents indicated that they did not stay home from school during the pandemic on ASBH19.

Exhibit 5: School Engagement with Home-Based Learning (International Averages for ASBH20A, ASBH20B, ASBH20C)



The items in Exhibit 6, ASBH21A, ASBH21B, ASBH21C, and ASBH21D, asked parents to indicate whether or not they provided additional educational resources when their child was home from school because of the COVID-19 pandemic. Similar to resources provided by the school, parents were asked about both digital and paper-based resources. ASBH21A and ASBH21B refer to material objects, while ASBH21C and ASBH21D refer to different educational activities.

Exhibit 6: Additional Educational Resources Provided by Parents/Guardians (ASBH21A, ASBH21B, ASBH21C, ASBH21D)

About the Items

Did you provide additional educational resources for your child during the pandemic?

Yes No

Books ☐ ☐

Digital devices ☐ ☐

Digitally-based learning activities ☐ ☐

Online instruction or tutoring ☐ ☐

Exhibit 7 shows the international average results for educational resources parents provided their children during the pandemic. As in Exhibit 5, students with “Not Applicable” results for these items are those whose parents indicated that they did not stay home from school during the pandemic in ASBH19. On average, a small majority of parents reported providing books and digital devices for their children (approximately 60% and 55%, respectively). Digitally-based learning activities and online tutoring were less common but were still provided by over 40 percent of parents, on average.

Exhibit 7: Additional Educational Resources Provided by Parents/Guardians (International Averages for ASBH21A, ASBH21B, ASBH21C, ASBH21D)

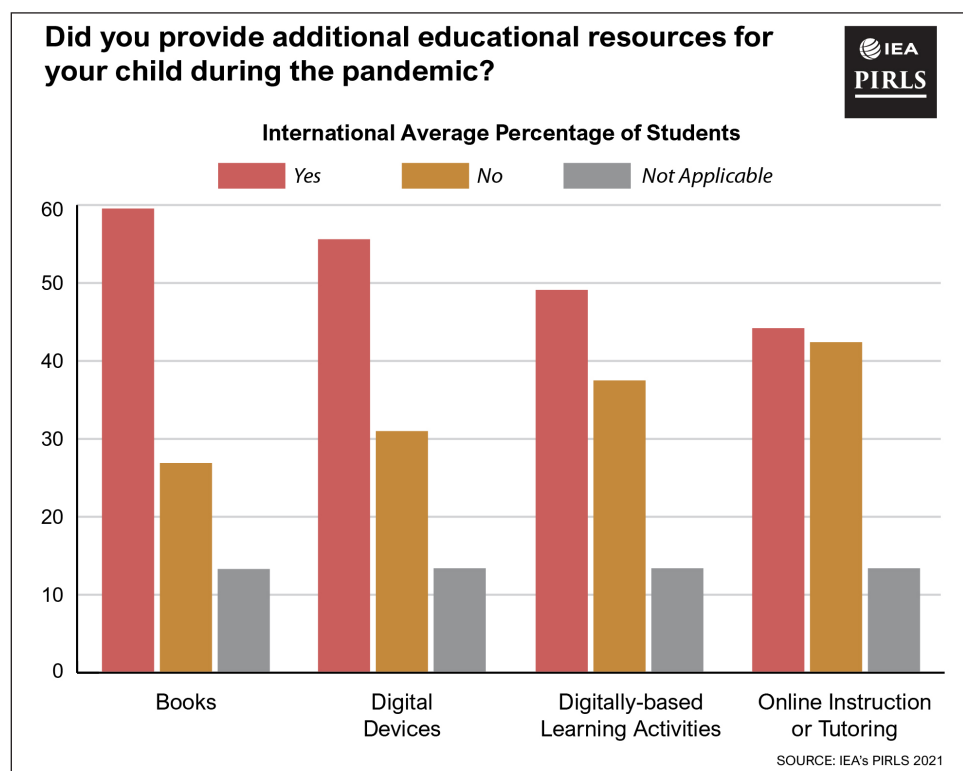


Exhibit 8 shows ASBH22, which prompted parents to reflect on whether or not the COVID-19 pandemic had negatively impacted their child's learning progress. It is important to note that this item captures parents' perceptions of how the pandemic impacted their child's learning; it does not necessarily reflect any particular measure of academic achievement.

Exhibit 8: Child's Learning Progress Adversely Affected (ASBH22)

About the Item

Do you think your child's learning progress has been adversely affected?

A lot ☐

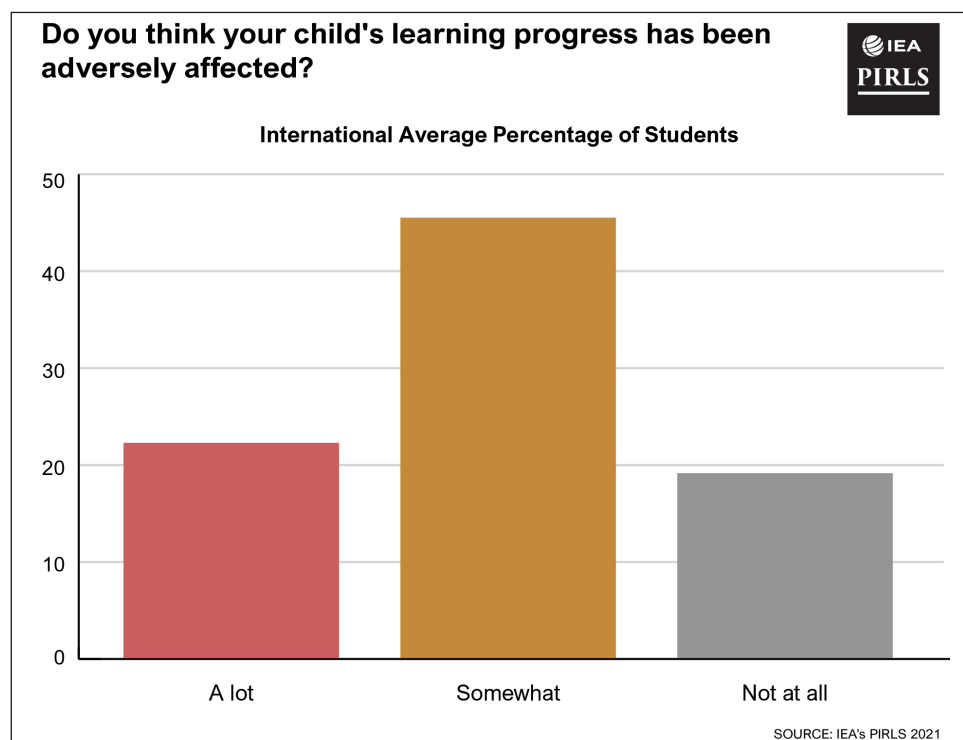
Somewhat ☐

Not at all ☐

Exhibit 9 shows the international average percentage of students according to their parents' responses to ASBH22. On average, 22 percent of students' parents reported that their learning

progress was adversely affected “a lot” and about 45 percent of students’ parents reported their learning progress was adversely affected “somewhat.” About 19 percent of students’ parents reported their learning progress was “not at all” adversely affected. As with prior exhibits, students with “Not Applicable” results are those whose parents indicated that they did not stay home because of the COVID-19 pandemic.

Exhibit 9: Child’s Learning Progress Adversely Affected (International Average for ASBH22)



These items can be complemented by other Home Questionnaire data to explore differences in educational resources and learning opportunities available to students at home during the pandemic. Recent research suggests that during periods of remote instruction, parental involvement in learning became increasingly important and likely exerted greater influence on students’ achievement and well-being.^{5,6} The strain on parents was found to be greater in under-resourced education systems where support for parents was lacking.⁷ Parents from a low socioeconomic background also experienced a heavier burden as they may have lacked adequate resources, time, and space at home to support their children’s learning.^{8,9} These issues can be further explored using PIRLS 2021 data to understand how students’ experiences at home differed across countries and how the influence of these differences may vary across educational settings.

COVID-19 Data from the PIRLS 2021 School Questionnaire

Principals of schools sampled for PIRLS 2021 responded to several items about the length of time normal school operations were impacted by the COVID-19 pandemic, as well as the types of resources provided to students and teachers during these times. These items appeared at the end of the School Questionnaire. Similar to the organization of the Home Questionnaire section

above, exhibits below show these items and their variable name(s) used in the [PIRLS 2021 International Database](#).

As discussed earlier in this report, some Northern Hemisphere countries had to delay data collection and administer the PIRLS 2021 assessment to students at the beginning of fifth grade rather than at the end of fourth grade. The TIMSS & PIRLS International Study Center requested that these countries adapt all school questionnaire items related to COVID-19 to refer to the “previous” academic year (2020 – 2021) rather than the “current” academic year, as is shown in the international versions of the items presented below. This change was requested to ensure that the information captured by the items was relevant to students’ fourth year of schooling. It also meant to facilitate principals’ response processes—for example, at the beginning of the academic year, it would not be possible to give a meaningful answer about how many weeks of instruction were impacted by the COVID-19 pandemic. These adaptations, as well as any other country-specific changes to the questionnaire items, are documented in Supplement 2 of the [PIRLS 2021 User Guide for the International Database](#). Although this adaptation improves data quality for schools it introduces some challenges for comparative analysis when schools with delayed data collection are compared to schools that did not experience delays. Although all principals are referring to the same calendar period in responding to this item, they are doing so at different points in time.

Exhibit 10 shows ACBG19, which asked principals to indicate how many weeks of normal primary school operations were affected by the COVID-19 pandemic. Several features of this item are worth noting. First, the item does not specify what it means for school operations to be affected by the pandemic. The item is intentionally broad to encompass the diversity of school responses to COVID-19 across the PIRLS 2021 countries. Effects of the pandemic on primary school operations could include social distancing measures imposed in classrooms, full interruption of in-person instruction, or other measures to prevent the spread of COVID-19. At the time of item development, broad patterns in the disruptions experienced by schools internationally were not apparent. Therefore, the questionnaires did not attempt to capture information about different types of disruptions. Instead, the PIRLS 2021 Curriculum Questionnaire (see below for more information) was used to explore countries’ diverse experiences during the pandemic.

Exhibit 10: Normal Primary School Operations Affected by COVID-19 Pandemic (ACBG19)

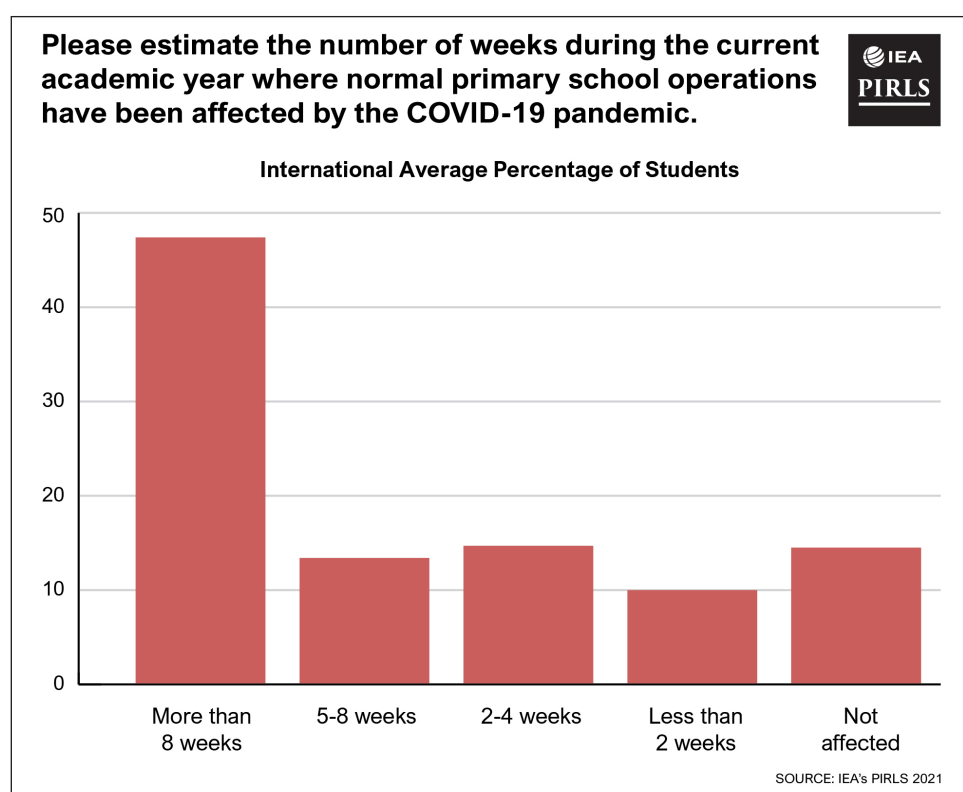
About the Item	
Please estimate the number of weeks during the current academic year where normal primary school operations have been affected by the COVID-19 pandemic.	
Normal primary school operations have not been affected by the COVID-19 pandemic -----	☐
Less than two weeks of instruction -----	☐
Two weeks to four weeks of instruction -----	☐
Five weeks to eight weeks of instruction -----	☐
More than eight weeks of instruction -----	☐

Also because of the unknown course of the pandemic at the time of item development, the ACBG19 item’s response options introduced a ceiling effect. The most extreme option principals

could select indicated that normal primary school operations were affected for “more than eight weeks.” As shown in Exhibit 11, 47 percent of students’ school principals selected this option and many of those may have experienced disruptions for longer than eight weeks. Still, given the available response options, this variation is not reflected in the data. Additionally, the nature of disruption may not have been constant across the entire period. Schools may have been closed for 2 weeks and reopened with social distancing precautions for 6 weeks, but this would not be reflected in the data.

In contrast to the 47 percent of students attending schools with instruction affected for “more than 8 weeks,” 14 percent of students attended schools where principals reported no disruptions to normal primary school operations. 10 percent, 15 percent, and 13 percent of students attended schools where normal operations were affected for less than 2 weeks, 2-4 weeks, and 5-8 weeks, respectively.

Exhibit 11: Students Attending Schools Where Normal Operations Were Affected by COVID-19 Pandemic (International Average for ACBG19)



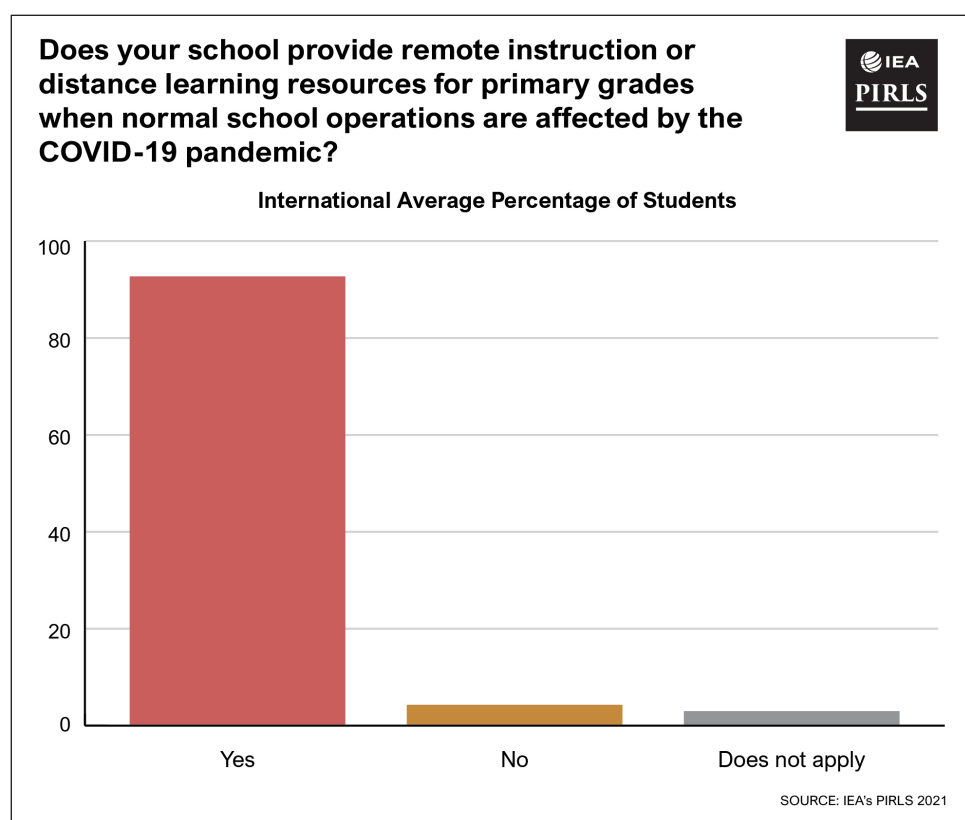
Many countries implemented remote instruction in response to the COVID-19 pandemic. ACBG20, shown in Exhibit 12, asked principals to report whether resources were provided to students and teachers to support remote instruction. ACBG20 serves as a filter to subsequent items asking about the types of support provided.

Exhibit 12: School Provides Remote Learning Resources (ACBG20)

About the Item	
Does your school provide remote instruction or distance learning resources for primary grades when normal school operations are affected?	
Yes-----	☐
No -----	☐
Does not apply -----	☐
(If No, or Does not apply, thank you for completing this questionnaire)	

Exhibit 13 shows that a large majority of students attended schools that provided remote instruction or distance learning resources for the students of primary grades when normal operations were disrupted (93%, on average).

Exhibit 13: School Provides Remote Learning Resources (International Average for ACBG20)



ACBG21A through ACBG21F, shown in Exhibit 14, asked principals to indicate if the school provided particular resources to support remote instruction. ACBG21A, ACBG21B, and ACBG21C all

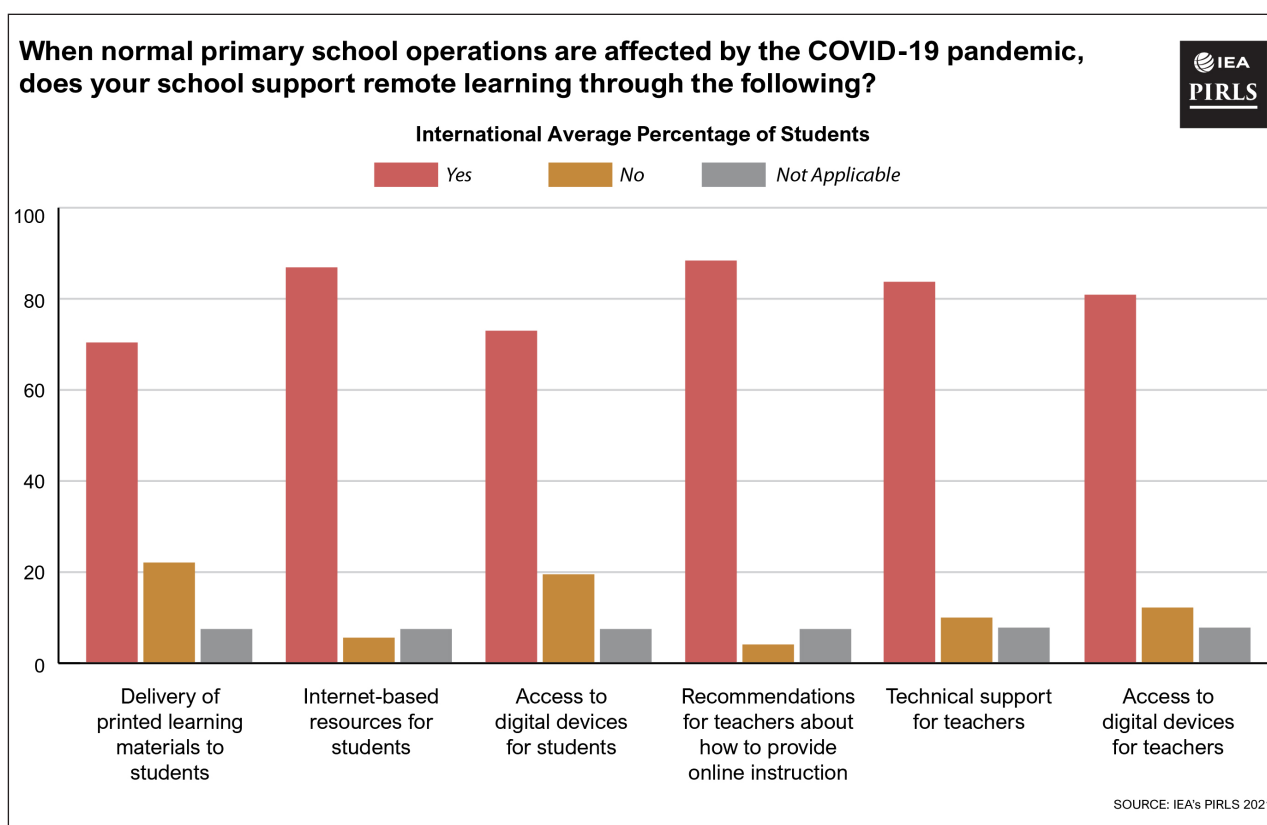
refer to resources that the school could provide for students, while ACBG21D, ACBG21E, and ABG21F refer to resources that the school could provide for teachers. Some resources include material objects, such as printed learning resources or digital devices. Others include supports for teachers to implement remote instruction, such as pedagogical recommendations or technical support.

Exhibit 14: School Supports for Remote Learning (ACBG21A, ACBG21B, ACBG21C, ACBG21D, ACBG21E, ACBG21F)

About the Items		
Does your school support remote instruction or distance learning through any of the following?		
	Yes	No
Delivery of printed learning materials to students --	☐	☐
Internet-based resources for students -----	☐	☐
Access to digital devices for students -----	☐	☐
Recommendations for teachers about how to provide online instruction -----	☐	☐
Technical support for teachers -----	☐	☐
Access to digital devices for teachers -----	☐	☐

Exhibit 15 shows the international average results for each type of resource. On average, over 70 percent of students attended schools where principals reported supporting remote instruction by delivering printed materials to students, providing access to digital devices or providing access to internet-based resources. Over 80 percent of students attended schools where principals reported providing each of the three supports for teachers.

Exhibit 15: School Supports for Remote Learning (International Averages for ACBG21A, ACBG21B, ACBG21C, ACBG21D, ACBG21E, ACBG21F)



Additional data from the PIRLS 2021 School Questionnaire can be used in conjunction with these COVID-related items to explore the resources available to schools and education systems for responding to the pandemic. The questionnaire provides data on the availability of digital devices and resources in schools, their use in instruction, students' digital skills, access to digital devices, and their use for schoolwork. These provide opportunities for exploratory analysis of different measures that may correlate with school disruptions during the pandemic.

COVID-19 Data from the *PIRLS 2021 Encyclopedia*

Representatives from the PIRLS 2021 countries contributed to the [PIRLS 2021 Encyclopedia](#) by completing the PIRLS 2021 Curriculum Questionnaire and writing a chapter describing country-level educational policies and practices. Both of these contributions included information about how the COVID-19 pandemic disrupted the country's education system. The exhibits below show the curriculum questionnaire items (labeled with their variable names from the [PIRLS 2021 International Database](#)) related to the COVID-19 pandemic, as well as an overview of the different pandemic-related topics that countries discussed in their chapters.

Exhibit 16: School Closing/Reopening Procedures During COVID-19 Pandemic (COVID01)

About the Item	
Did all the schools with fourth grade students in your country follow the same closing and opening procedures in response to the COVID-19 pandemic?	
Yes	No
☐	☐

COVID01, shown in Exhibit 16 prompted country representatives to indicate whether or not all schools with fourth-grade students followed the same closing and opening procedures in response to the COVID-19 pandemic. Whether or not this was the case is likely related to the degree of centralization or size of the country's educational system; information about these factors is also available in the [PIRLS 2021 Encyclopedia](#).

Exhibit 17: Decision-Making Responsibility During the COVID-19 Pandemic (COVID02A, COVID02B, COVID02C, COVID02T)

About the Items				
What level of government in your country was responsible for making the following decision for schools with fourth grade students during the COVID-19 pandemic?				
	National	State/Provincial	Local	Decisions Made by Individual Schools
Closing schools	☐	☐	☐	☐
Format of remote instruction	☐	☐	☐	☐
Reopening schools	☐	☐	☐	☐
Please describe the separation or overlapping of decision-making responsibilities.				

Exhibit 17 shows COVID02A, COVID02B, and COVID02C, which asked country representatives to provide information about decision-making responsibility for closing and reopening schools, as well as the format of remote instruction when schools were closed. Exhibit 10 of the [PIRLS 2021 Encyclopedia](#) reports data from these items. COVID02T was an open-

response item that allowed country representatives to include more detailed descriptions of the separation or overlapping of decision-making responsibilities between schools and national and subnational authorities. Several countries described how these responsibilities and dynamics shifted over the course of the pandemic.

Country chapters in the Encyclopedia are the most detailed source of information about COVID-19 that are available in PIRLS 2021. These country-specific accounts include information on nationwide policies in response to the pandemic, as well as the variability and inequity of the pandemic's impact within countries. Some countries highlight the experiences of specific vulnerable populations, such as students from low socioeconomic backgrounds, students with special needs, rural populations, or ethnic minorities. These students faced more challenges in adapting to online instruction and, therefore, likely experienced more severe learning losses. Many countries describe an expectation of a widening gap between high- and low-achieving students because distance learning often could not accommodate the needs of struggling students.

The chapters also contain valuable information about the nature and extent of remote instruction implemented in individual countries – for example, radio, TV, and YouTube lessons launched by national governments and specific online platforms, as well as learning management systems for conducting remote lessons and providing online resources to students. Country chapters also discuss major challenges that schools, teachers, and students encountered, such as lack of digital literacy skills, limited access to digital devices, limited internet access, and lack of learning resources available at home. National governments provided a variety of supports to address these issues, including teacher training, subscriptions for online learning platforms, provision of digital devices, and grants for improving health and safety in schools.

Not all PIRLS 2021 countries discussed the same topics in their [PIRLS 2021 Encyclopedia](#) chapters. Although all countries use the same outline to guide the chapter writing process, authors were given some flexibility in reporting on the most relevant issues for the local context. Therefore, the information available on countries' responses to the pandemic reflects this variability and is not strictly comparable across all country chapters. Exhibit 18 summarizes recurring themes explored across the country chapters, although not every country discussed every theme.

Exhibit 18: Themes from the *PIRLS 2021 Encyclopedia* Chapters

COVID-19 and PIRLS 2021 Data Collection

The COVID-19 pandemic necessitated unique conditions of social distancing and school closures that created challenges for PIRLS 2021 data collection across countries. Common challenges reported in the [PIRLS 2021 Encyclopedia](#) chapters include school recruitment, training for school coordinators, test administration, and ensuring adequate participation of students, teachers, and parents. Chapters describe countries' strategies for addressing these challenges, such as shifting or expanding the testing window, conducting more testing sessions, and providing online training for coordinators.

Exhibit 18: Themes from the PIRLS 2021 Encyclopedia Chapters (Continued)**Characteristics of School Closures**

The nature of school closures varies widely across countries, but all schools experienced some type of disruption in their regular operation during the COVID-19 pandemic. The country chapters provide details on whether closures were centrally mandated (i.e., uniform across the country) or decided at a subnational level. Chapters also provide information about the length of school closures, severity of disruptions, and the processes for returning to in-person instruction.

Nature of Distance Learning

Countries and schools within countries varied greatly in processes for the delivery of remote instruction, often because of preparedness. These differences were especially apparent in the first year of the pandemic. Many country chapters discuss that schools were able to quickly shift to synchronous online instruction through Microsoft Teams, Zoom, Google Classroom, Webex, or other platforms. Other country chapters describe a more challenging process of switching to remote instruction. Because of the lack of access to technology and limited digital skills among teachers and students, these countries focused on providing printed learning materials to students. Many countries were able to reach their student populations (even in remote areas) through TV and radio lessons. Recorded lessons provided through YouTube and other web sources also provided important learning opportunities for students who were able to access them.

Access to Technology

Access to technology was a major barrier for students and teachers during periods when remote instruction was used. The extent of this problem varied widely between countries, as did the scale of governmental and non-governmental support to address gaps in access. In some countries, governments prioritized ensuring teachers' and students' universal access to technology. However, there were countries where access to digital devices remained an issue throughout the pandemic. Access to technology and the internet was the most widespread barrier that hindered students' access to education during the pandemic. In some countries, students received digital devices and internet access through schools or national programs. In other countries, the gap in access was too large to allow for large-scale synchronous online instruction, and therefore, asynchronous video lessons and printed learning materials were given priority.

Exhibit 18: Themes from the PIRLS 2021 Encyclopedia Chapters (Continued)**Support for Teachers**

In addition to the limited access to technology, countries reported that many teachers struggled to adapt to remote instruction because of limited digital skills and the lack of experience in online instruction. Country chapters discuss a wide range of supports to teachers to address these issues, including training in digital skills and online instruction, individual tutoring, resources in printed and digital formats, and access to recorded lessons that could supplement synchronous instruction.

Support for Parents/Families

Some countries provided families with training and instructional resources to help them support their children's learning at home. Many parents struggled to adequately support their children because they did not have the necessary resources, skills, space, or time. Several chapters discuss teachers' reports about increased influence of parental education level and home learning resources on students' outcomes. Many countries reported a widening gap between high- and low-achieving students during the pandemic.

Support for Schools

Chapters describe a variety of support mechanisms received by schools during the pandemic and throughout the return to in-person instruction. The most prevalent forms of support included guidelines and resources for ensuring safety and hygiene in schools, access to technology, access to online learning management systems and instructional platforms, and guidance and training in online instruction.

Negative Effects of the COVID-19 Pandemic on Student Learning

Most country chapters reported expectations of student learning losses due to disruptions caused by the COVID-19 pandemic. In some countries, national standardized assessments allowed a more concrete estimation of learning losses experienced by students. Countries also reported widening gaps in learning outcomes by socioeconomic status, with home environments exerting an ever-bigger influence on students' learning during school disruptions and closures.

Positive Effects of the COVID-19 Pandemic on Student Learning

A few countries reported some positive effects observed in the education system during remote instruction. In some cases, teachers and students' digital skills improved, allowing teachers to access a wider array of instructional resources and diversify their teaching. These countries speak about students' ability to access more diverse learning materials and some of them reported greater engagement in learning.

Exhibit 18: Themes from the PIRLS 2021 Encyclopedia Chapters (Continued)**Effects of the COVID-19 Pandemic on Student Well-Being**

Some countries carried out research concerning the psychological effects of the pandemic on student well-being. These countries speak about students' experiences of decreased motivation, loneliness, fatigue, anxiety, and depression. To counteract the negative psychological effects of isolation, some countries discuss initiatives such as online peer teaching programs, access to online counselors, and informal online social events for students.

Effects of the COVID-19 Pandemic on Education Policy

The pandemic highlighted the need for digitization in the national education system in many countries. Countries varied greatly in how prepared schools were to shift to online instruction. In some education systems, computers were widely used in teaching or large-scale national programs were underway to introduce computers into all classrooms. In these countries, the pandemic accelerated the process of digitization. In other countries, educational technology became a high priority only after the pandemic, and therefore, the shift to remote instruction proved to be more challenging. Chapters also discuss an increased policy focus on combatting inequality as the pandemic accentuated and, in some cases, widened the gaps in learning and outcomes.

National Assessments or Evaluations

Country chapters discuss national assessments and evaluation studies examining the pandemic's effects on learning, student well-being, school effectiveness, and other educational outcomes. These studies often rely on survey data, qualitative interviews, and focus group discussions, as well as national standardized assessments.

Country chapters in the [PIRLS 2021 Encyclopedia](#) offer rich data for contextualized analysis of within-country educational experiences during the pandemic. The nature and extent of school disruptions can be more thoroughly characterized in these reports because of the greater flexibility given to countries to describe their individual situations and experiences. Chapters provide background information for understanding students' learning environments during school disruptions. Whether students had access to synchronous online learning through digital platforms, YouTube video lessons, or asynchronous TV lessons can have substantial impact on learning outcomes and should be taken into account in any analysis of achievement data. Chapters also describe additional initiatives and programs implemented at national and subnational levels to support students' learning and well-being during periods of disrupted learning. These initiatives, which in some cases included targeted interventions for students with special needs and enrichment programs for advanced students, can inform the analysis of students' varying experiences during the pandemic. Country chapters offer insight into the national perspectives on the most acute effects of the pandemic on learning in the country, such as learning loss,

widened achievement gap between socioeconomic groups, engagement in learning, or student well-being. These reports can provide a starting point for exploring within-country experiences using PIRLS 2021 data.

Key Takeaways

Despite the challenges introduced by the COVID-19 pandemic, PIRLS 2021 was successful. Reading achievement and contextual data were collected in 58 countries and eight benchmarking entities, allowing for up to 20 years of reading achievement trends in some countries. PIRLS 2021 data can be a valuable resource for researchers wishing to characterize educational systems during some of the most difficult times of the COVID-19 pandemic.

- 1. PIRLS 2021 was a successful assessment cycle, but the results must be interpreted carefully.** Delays to countries' data collection timelines affect both within-country trends over time and cross-country comparisons.
- 2. The PIRLS 2021 Home and School Context Questionnaires provide some data about students' learning experiences during the COVID-19 pandemic.** These items are likely to be more useful for within-country analyses rather than cross-country comparisons.
- 3. The *PIRLS 2021 Encyclopedia* is a rich resource for qualitative information about how the COVID-19 pandemic impacted countries' education systems.** Country chapters touched on various themes about how the pandemic affected students' schooling. These chapters provide an important national context for any within-country analysis of PIRLS 2021 data.

Appendix A: About PIRLS 2021

The 2021 cycle of the Progress in International Reading Literacy Study (PIRLS 2021) aims to measure and compare the reading literacy of fourth-grade students around the world. PIRLS provides valuable insights into reading achievement differences and helps policymakers and educators understand factors contributing to students' reading abilities.

The data presented in this report come from the PIRLS 2021 reading assessment and Student Questionnaire. PIRLS 2021 also collected data from students, parents, teachers, and principals, and national policy-level data were provided by National Research Coordinators from the participating countries and benchmarking entities.

Many resources are available for obtaining more information about PIRLS 2021, accessing PIRLS 2021 data and conducting other analyses. These resources include:

- [PIRLS 2021 Assessment Frameworks](#) provide information about the PIRLS 2021 reading assessment, context questionnaires, and assessment design.
- [PIRLS 2021 International Results in Reading](#) provides a summary of participating countries' reading achievement, as well as information about how different contextual factors are related to students' reading achievement.
- [PIRLS 2021 Encyclopedia](#) contains information about national contexts for countries participating in PIRLS 2021, including a chapter written by each country describing its educational system and the national circumstances of the COVID-19 pandemic.
- [Methods and Procedures: PIRLS 2021 Technical Report](#) details instrument development, sample design and implementation, operations, and analytical procedures.
- [PIRLS 2021 Context Questionnaires](#) show all of the contextual items to which students, parents, school principals, teachers, and National Research Coordinators responded.
- [PIRLS 2021 International Database](#) includes data collected from the reading assessment and context questionnaires and achievement and contextual scale estimates for the 57 countries and 8 benchmarking entities that participated in PIRLS 2021. The accompanying User Guide provides information about database contents and analysis resources.
- [PIRLS Insights Series](#) is a set of reports exploring different educational research areas using PIRLS data. Reports in the series provide an in-depth examination of particular topics beyond what can be covered in the International Results.

Appendix B: Country-Level Results for PIRLS 2021 Context Questionnaire Items About COVID-19

Exhibit B.1: Child Stayed Home Because of COVID-19 Pandemic (ASBH19)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that Child Stayed Home	
	Yes	No
Albania	90 (1.0)	10 (1.0)
Austria	89 (0.5)	11 (0.5)
Azerbaijan	97 (0.6)	3 (0.6)
Bahrain	90 (0.7)	10 (0.7)
Belgium (Flemish)	100 (0.0)	0 ~
Belgium (French)	95 (0.5)	5 (0.5)
Brazil ✕	97 (0.3)	3 (0.3)
Bulgaria	86 (1.2)	14 (1.2)
Chinese Taipei	8 (0.4)	92 (0.4)
Croatia	100 (0.0)	0 ~
Cyprus	86 (0.7)	14 (0.7)
Czech Republic	100 (0.0)	0 ~
Denmark	97 (0.3)	3 (0.3)
Egypt	86 (1.0)	14 (1.0)
Finland	89 (0.5)	11 (0.5)
France	99 (0.2)	1 ~
Georgia	88 (0.6)	12 (0.6)
Germany	86 (0.8)	14 (0.8)
Hong Kong SAR	89 (0.5)	11 (0.5)
Hungary	79 (1.0)	21 (1.0)
Iran, Islamic Rep. of ✕	83 (1.4)	17 (1.4)
Ireland	100 (0.0)	0 ~
Israel ✕	80 (0.8)	20 (0.8)
Italy	93 (0.5)	7 (0.5)
Jordan	96 (0.6)	4 (0.6)
Kazakhstan	74 (1.3)	26 (1.3)
Kosovo	97 (0.4)	3 (0.4)
Latvia	96 (0.4)	4 (0.4)
Macao SAR	78 (0.6)	22 (0.6)
Malta	71 (1.4)	29 (1.4)
Montenegro	83 (0.7)	17 (0.7)
Morocco	88 (0.9)	12 (0.9)
North Macedonia	85 (0.9)	15 (0.9)
Northern Ireland	96 (0.5)	4 (0.5)
Norway (5)	95 (0.4)	5 (0.4)
Oman	87 (0.6)	13 (0.6)
Poland	79 (0.7)	21 (0.7)
Portugal	85 (0.8)	15 (0.8)
Qatar	86 (0.9)	14 (0.9)
Russian Federation	89 (1.4)	11 (1.4)
Saudi Arabia	88 (0.6)	12 (0.6)
Serbia	83 (1.3)	17 (1.3)
Slovak Republic	89 (0.7)	11 (0.7)
Slovenia	100 (0.0)	0 ~
South Africa ✕	68 (1.1)	32 (1.1)
Spain	94 (0.5)	6 (0.5)
Sweden	54 (1.6)	46 (1.6)
Turkiye	75 (1.4)	25 (1.4)
United Arab Emirates	84 (0.4)	16 (0.4)
Uzbekistan	94 (0.5)	6 (0.5)
International Average	86 (0.1)	14 (0.1)
Netherlands	93 (0.7)	7 (0.7)
New Zealand	100 (0.0)	0 ~
Lithuania	- -	- -
Australia ✕	- -	- -
England ✕	- -	- -
* Singapore	- -	- -
United States	- -	- -
Benchmarking Participants		
Alberta, Canada	86 (1.2)	14 (1.2)
British Columbia, Canada	82 (1.2)	18 (1.2)
Newfoundland & Labrador, Canada	92 (0.8)	8 (0.8)
Quebec, Canada	93 (0.6)	7 (0.6)
Moscow City, Russian Federation	91 (0.6)	9 (0.6)
South Africa (6) ✕	73 (1.2)	27 (1.2)
Abu Dhabi, UAE	83 (0.7)	17 (0.7)
Dubai, UAE	87 (0.7)	13 (0.7)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

* In Singapore, all primary schools were closed for a total of 4 weeks, during which all students shifted to full home-based learning, followed by fourth grade students alternating between home-based learning and returning to school for lessons on a weekly basis for 4 weeks. See *PIRLS 2021 Encyclopedia* for more details.

Exhibit B.2: School Engagement with Home-Based Learning – Reading Assignments (ASBH20A)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that School Provided Reading Assignments		
	Yes	No	Not Applicable
Albania	54 (1.4)	37 (1.5)	10 (1.1)
Austria	75 (0.8)	14 (0.6)	11 (0.5)
Azerbaijan	39 (1.4)	58 (1.3)	3 (0.7)
Bahrain	69 (1.1)	22 (0.7)	10 (0.7)
Belgium (Flemish)	80 (1.0)	20 (1.0)	0 ~
Belgium (French) r	63 (1.2)	32 (1.1)	5 (0.5)
Brazil ✕	59 (1.6)	38 (1.5)	3 (0.3)
Bulgaria	78 (1.3)	8 (0.5)	14 (1.2)
Chinese Taipei	6 (0.4)	2 ~	92 (0.4)
Croatia	62 (1.1)	38 (1.1)	0 ~
Cyprus	59 (0.9)	27 (0.7)	14 (0.7)
Czech Republic r	81 (1.1)	19 (1.1)	0 ~
Denmark	92 (0.5)	5 (0.4)	3 (0.3)
Egypt	57 (1.5)	28 (1.3)	15 (1.1)
Finland	86 (0.6)	3 (0.2)	11 (0.5)
France	69 (1.0)	30 (1.0)	1 ~
Georgia	32 (1.2)	56 (1.2)	12 (0.6)
Germany s	82 (0.8)	4 (0.5)	14 (0.8)
Hong Kong SAR	72 (1.0)	17 (0.8)	11 (0.5)
Hungary r	51 (1.3)	28 (0.8)	21 (1.0)
Iran, Islamic Rep. of ✕	39 (1.7)	44 (1.4)	17 (1.4)
Ireland	74 (0.9)	26 (0.9)	0 ~
Israel ✕ s	52 (1.0)	28 (0.9)	20 (0.8)
Italy	67 (0.8)	25 (0.7)	8 (0.5)
Jordan	43 (1.5)	53 (1.5)	4 (0.6)
Kazakhstan	62 (1.1)	11 (0.7)	27 (1.3)
Kosovo	57 (1.1)	40 (1.1)	4 (0.4)
Latvia	75 (1.1)	21 (1.0)	4 (0.4)
Macao SAR	59 (0.7)	19 (0.6)	22 (0.6)
Malta r	46 (1.2)	24 (1.2)	29 (1.4)
Montenegro	30 (0.7)	53 (0.9)	17 (0.7)
Morocco r	56 (1.5)	29 (1.3)	15 (1.1)
North Macedonia	34 (1.4)	51 (1.3)	15 (0.9)
Northern Ireland s	82 (1.1)	13 (0.9)	4 (0.5)
Norway (5)	83 (0.6)	12 (0.5)	5 (0.4)
Oman	76 (0.8)	11 (0.6)	13 (0.6)
Poland	62 (1.0)	17 (0.7)	21 (0.7)
Portugal	63 (0.9)	22 (0.7)	15 (0.8)
Qatar r	66 (1.3)	20 (0.9)	14 (0.9)
Russian Federation	65 (1.5)	23 (0.9)	12 (1.4)
Saudi Arabia r	68 (1.1)	20 (0.9)	12 (0.6)
Serbia	50 (1.3)	34 (1.2)	17 (1.4)
Slovak Republic	74 (1.2)	15 (1.1)	11 (0.7)
Slovenia r	84 (0.8)	16 (0.8)	0 ~
South Africa ✕ r	50 (1.1)	18 (0.9)	33 (1.1)
Spain	67 (1.1)	27 (1.0)	6 (0.5)
Sweden s	40 (1.5)	14 (0.8)	46 (1.6)
Turkiye	71 (1.4)	4 (0.4)	25 (1.4)
United Arab Emirates s	70 (0.6)	13 (0.5)	16 (0.4)
Uzbekistan	58 (1.4)	36 (1.5)	6 (0.5)
International Average	62 (0.2)	24 (0.1)	14 (0.1)
Netherlands x	81 (1.1)	13 (1.0)	7 (0.7)
New Zealand x	71 (1.1)	29 (1.1)	0 ~
Lithuania y	- -	- -	- -
Australia ✕	- -	- -	- -
England ✕	- -	- -	- -
Singapore	- -	- -	- -
United States	- -	- -	- -
Benchmarking Participants			
Alberta, Canada s	79 (1.4)	7 (0.8)	14 (1.2)
British Columbia, Canada s	71 (1.4)	11 (1.0)	18 (1.2)
Newfoundland & Labrador, Canada s	75 (1.4)	18 (1.4)	8 (0.8)
Quebec, Canada s	76 (1.2)	17 (1.0)	7 (0.6)
Moscow City, Russian Federation	78 (0.8)	13 (0.5)	9 (0.6)
South Africa (6) ✕ r	53 (1.1)	18 (0.8)	28 (1.2)
Abu Dhabi, UAE x	68 (1.0)	15 (0.7)	17 (0.7)
Dubai, UAE x	76 (0.8)	11 (0.8)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.3: School Engagement with Home-Based Learning – Online Activities (ASBH20B)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that School Provided Online Activities		
	Yes	No	Not Applicable
Albania	77 (1.3)	14 (1.0)	10 (1.1)
Austria	61 (2.1)	28 (2.0)	11 (0.5)
Azerbaijan	80 (1.1)	16 (1.1)	3 (0.6)
Bahrain	84 (0.8)	6 (0.4)	10 (0.7)
Belgium (Flemish)	90 (0.7)	10 (0.7)	0 ~
Belgium (French) r	55 (2.4)	41 (2.3)	5 (0.5)
Brazil ✕	75 (2.6)	23 (2.6)	3 (0.3)
Bulgaria	80 (1.2)	6 (0.9)	14 (1.2)
Chinese Taipei	5 (0.4)	3 (0.2)	92 (0.4)
Croatia	92 (0.8)	8 (0.8)	0 ~
Cyprus	77 (0.9)	9 (0.5)	14 (0.7)
Czech Republic r	96 (0.4)	4 (0.4)	0 ~
Denmark	94 (0.4)	3 (0.3)	3 (0.3)
Egypt	38 (1.9)	47 (1.7)	15 (1.1)
Finland	85 (0.6)	4 (0.5)	11 (0.5)
France	75 (1.4)	24 (1.4)	1 ~
Georgia	82 (0.8)	6 (0.5)	12 (0.6)
Germany s	68 (1.6)	18 (1.5)	14 (0.8)
Hong Kong SAR	84 (0.7)	6 (0.4)	11 (0.5)
Hungary r	71 (1.1)	8 (0.6)	21 (1.0)
Iran, Islamic Rep. of ✕	78 (1.5)	5 (0.8)	17 (1.4)
Ireland	94 (0.6)	6 (0.6)	0 ~
Israel ✕ s	70 (1.1)	10 (0.7)	20 (0.8)
Italy	86 (0.8)	6 (0.6)	8 (0.5)
Jordan	76 (1.1)	19 (1.0)	4 (0.6)
Kazakhstan	71 (1.2)	3 (0.3)	27 (1.3)
Kosovo	84 (0.7)	13 (0.6)	3 (0.4)
Latvia	92 (0.5)	5 (0.3)	4 (0.4)
Macao SAR	69 (0.7)	9 (0.4)	22 (0.6)
Malta r	66 (1.4)	4 (0.5)	29 (1.4)
Montenegro	80 (0.7)	3 (0.3)	17 (0.7)
Morocco r	46 (2.0)	39 (2.1)	15 (1.1)
North Macedonia	78 (1.0)	8 (0.7)	15 (0.9)
Northern Ireland s	92 (0.8)	4 (0.6)	4 (0.5)
Norway (5)	91 (0.5)	3 (0.4)	5 (0.4)
Oman	82 (0.7)	5 (0.3)	13 (0.6)
Poland	78 (0.7)	1 ~	21 (0.7)
Portugal	82 (0.8)	3 (0.3)	15 (0.8)
Qatar r	79 (1.1)	7 (0.6)	14 (0.9)
Russian Federation	82 (1.5)	6 (0.5)	11 (1.4)
Saudi Arabia r	76 (1.1)	12 (0.8)	12 (0.6)
Serbia	78 (1.4)	5 (0.5)	17 (1.4)
Slovak Republic	80 (1.1)	9 (1.0)	11 (0.7)
Slovenia r	92 (0.5)	8 (0.5)	0 ~
South Africa ✕ r	22 (1.3)	45 (1.3)	33 (1.1)
Spain	86 (0.8)	8 (0.6)	6 (0.5)
Sweden s	29 (1.7)	24 (1.2)	46 (1.6)
Turkiye	62 (1.5)	13 (1.2)	25 (1.4)
United Arab Emirates s	79 (0.5)	5 (0.2)	16 (0.4)
Uzbekistan	83 (0.8)	11 (0.7)	6 (0.5)
International Average	75 (0.2)	12 (0.1)	14 (0.1)
Netherlands x	88 (0.9)	5 (0.7)	7 (0.7)
New Zealand x	97 (0.5)	3 (0.5)	0 ~
Lithuania y	--	--	--
Australia ✕	--	--	--
England ✕	--	--	--
Singapore	--	--	--
United States	--	--	--
Benchmarking Participants			
Alberta, Canada s	81 (1.9)	5 (1.7)	14 (1.2)
British Columbia, Canada s	77 (1.5)	5 (0.8)	18 (1.2)
Newfoundland & Labrador, Canada s	91 (0.9)	2 ~	8 (0.8)
Quebec, Canada s	88 (0.8)	5 (0.5)	7 (0.6)
Moscow City, Russian Federation	88 (0.6)	2 ~	9 (0.6)
South Africa (6) ✕ r	22 (1.5)	50 (1.6)	28 (1.2)
Abu Dhabi, UAE x	77 (0.9)	6 (0.4)	17 (0.7)
Dubai, UAE x	84 (0.6)	3 (0.4)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.4: School Engagement with Home-Based Learning – Printed Learning Materials (ASBH20C)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that School Provided Printed Learning Materials		
	Yes	No	Not Applicable
Albania	26 (1.4)	64 (1.6)	10 (1.1)
Austria	86 (0.7)	4 (0.4)	11 (0.5)
Azerbaijan	14 (1.0)	83 (1.2)	3 (0.7)
Bahrain	56 (1.5)	34 (1.1)	10 (0.7)
Belgium (Flemish)	86 (0.8)	14 (0.8)	0 ~
Belgium (French) r	77 (1.1)	18 (1.1)	5 (0.5)
Brazil ✕	65 (2.0)	33 (1.9)	3 (0.3)
Bulgaria	38 (2.0)	48 (1.7)	14 (1.2)
Chinese Taipei	5 (0.3)	2 ~	92 (0.4)
Croatia	33 (1.0)	67 (1.0)	0 ~
Cyprus	64 (1.1)	22 (0.7)	14 (0.7)
Czech Republic r	76 (1.4)	24 (1.4)	0 ~
Denmark	71 (1.4)	26 (1.4)	3 (0.3)
Egypt	34 (1.6)	51 (1.5)	15 (1.1)
Finland	61 (1.2)	28 (1.1)	11 (0.5)
France	85 (0.9)	14 (0.9)	1 ~
Georgia	17 (1.2)	70 (1.3)	12 (0.6)
Germany s	83 (0.9)	3 (0.4)	14 (0.8)
Hong Kong SAR	68 (1.0)	21 (0.8)	11 (0.5)
Hungary r	36 (1.2)	43 (1.0)	21 (1.0)
Iran, Islamic Rep. of ✕	22 (1.5)	61 (1.6)	17 (1.4)
Ireland	56 (1.2)	44 (1.2)	0 ~
Israel ✕ s	37 (1.0)	43 (1.0)	20 (0.8)
Italy	53 (1.0)	40 (1.0)	8 (0.5)
Jordan	37 (1.4)	58 (1.5)	4 (0.6)
Kazakhstan	50 (1.1)	24 (1.1)	27 (1.3)
Kosovo	20 (0.9)	76 (0.9)	4 (0.4)
Latvia	44 (1.5)	53 (1.5)	4 (0.4)
Macao SAR	49 (0.7)	29 (0.6)	22 (0.6)
Malta r	51 (1.3)	19 (1.2)	29 (1.4)
Montenegro	29 (0.8)	54 (0.8)	17 (0.7)
Morocco r	29 (1.7)	56 (1.7)	15 (1.1)
North Macedonia	20 (1.1)	65 (1.2)	15 (0.9)
Northern Ireland s	80 (1.1)	15 (1.1)	4 (0.5)
Norway (5)	43 (1.3)	52 (1.3)	5 (0.4)
Oman	59 (1.0)	28 (0.8)	13 (0.6)
Poland	26 (1.0)	53 (1.0)	21 (0.7)
Portugal	55 (0.9)	30 (0.8)	15 (0.8)
Qatar r	56 (1.4)	30 (1.0)	14 (0.9)
Russian Federation	29 (1.5)	60 (1.9)	11 (1.4)
Saudi Arabia r	54 (1.4)	34 (1.3)	12 (0.6)
Serbia	24 (1.3)	59 (1.6)	17 (1.4)
Slovak Republic	54 (1.3)	34 (1.3)	11 (0.7)
Slovenia r	62 (1.2)	38 (1.2)	0 ~
South Africa ✕ r	37 (1.0)	30 (1.0)	33 (1.1)
Spain	53 (1.1)	41 (1.2)	6 (0.5)
Sweden s	34 (1.5)	20 (1.0)	46 (1.6)
Turkiye	55 (1.6)	20 (1.2)	25 (1.4)
United Arab Emirates s	55 (0.8)	29 (0.7)	16 (0.4)
Uzbekistan	38 (1.6)	56 (1.6)	6 (0.5)
International Average	48 (0.2)	38 (0.2)	14 (0.1)
Netherlands x	82 (1.5)	12 (1.2)	7 (0.7)
New Zealand x	47 (1.8)	53 (1.8)	0 ~
Lithuania y	--	--	--
Australia ✕	--	--	--
England ✕	--	--	--
Singapore	--	--	--
United States	--	--	--
Benchmarking Participants			
Alberta, Canada s	62 (2.3)	24 (2.2)	14 (1.2)
British Columbia, Canada s	63 (1.7)	19 (1.3)	18 (1.2)
Newfoundland & Labrador, Canada s	46 (1.8)	46 (2.1)	8 (0.8)
Quebec, Canada s	64 (1.4)	29 (1.2)	7 (0.6)
Moscow City, Russian Federation	29 (0.8)	61 (0.9)	9 (0.6)
South Africa (6) ✕ r	36 (1.3)	35 (1.3)	29 (1.2)
Abu Dhabi, UAE x	54 (1.2)	29 (1.1)	17 (0.7)
Dubai, UAE x	57 (0.9)	30 (1.0)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.5: Additional Educational Resources Provided by Parents/Guardians – Books (ASBH21A)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

▢ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that Parents Provided Books		
	Yes	No	Not Applicable
Albania	68 (1.7)	22 (1.5)	10 (1.1)
Austria	64 (0.8)	26 (0.8)	11 (0.5)
Azerbaijan	59 (1.3)	38 (1.3)	3 (0.6)
Bahrain	63 (1.2)	27 (1.0)	10 (0.7)
Belgium (Flemish)	64 (1.0)	36 (1.0)	0 ~
Belgium (French) r	74 (0.9)	21 (0.8)	5 (0.5)
Brazil s	67 (1.3)	30 (1.2)	3 (0.3)
Bulgaria	50 (1.2)	36 (1.7)	14 (1.2)
Chinese Taipei	5 (0.4)	2 ~	93 (0.4)
Croatia	48 (1.2)	52 (1.2)	0 ~
Cyprus	58 (0.9)	28 (0.7)	14 (0.7)
Czech Republic r	66 (0.9)	34 (0.9)	0 ~
Denmark	74 (0.8)	24 (0.7)	3 (0.3)
Egypt	55 (1.7)	30 (1.6)	14 (1.1)
Finland	72 (0.7)	17 (0.5)	11 (0.5)
France	78 (0.9)	21 (0.9)	1 ~
Georgia	69 (0.8)	19 (0.7)	12 (0.6)
Germany s	65 (1.1)	21 (0.9)	14 (0.8)
Hong Kong SAR	62 (1.0)	27 (0.9)	11 (0.5)
Hungary r	53 (1.2)	26 (0.8)	21 (1.0)
Iran, Islamic Rep. of s	49 (1.3)	34 (1.6)	17 (1.4)
Ireland	82 (0.9)	18 (0.9)	0 ~
Israel s	45 (1.0)	35 (1.0)	20 (0.8)
Italy	54 (0.8)	38 (0.7)	8 (0.5)
Jordan	44 (1.3)	51 (1.3)	4 (0.6)
Kazakhstan	65 (1.3)	8 (0.5)	27 (1.3)
Kosovo	75 (0.9)	22 (0.9)	4 (0.4)
Latvia	56 (1.1)	41 (1.1)	4 (0.4)
Macao SAR	52 (0.7)	26 (0.6)	22 (0.6)
Malta r	59 (1.3)	11 (0.8)	29 (1.4)
Montenegro	39 (0.9)	44 (0.8)	17 (0.7)
Morocco r	49 (2.0)	36 (1.8)	15 (1.1)
North Macedonia	59 (1.4)	26 (1.2)	15 (1.0)
Northern Ireland s	79 (0.8)	17 (0.9)	4 (0.5)
Norway (5)	46 (0.9)	48 (0.8)	5 (0.4)
Oman	65 (0.9)	22 (0.8)	13 (0.6)
Poland	72 (0.8)	7 (0.5)	21 (0.7)
Portugal	59 (1.0)	25 (0.8)	15 (0.8)
Qatar r	57 (1.4)	29 (1.1)	14 (0.9)
Russian Federation	69 (1.5)	19 (0.7)	12 (1.4)
Saudi Arabia r	56 (1.1)	32 (1.0)	12 (0.7)
Serbia	46 (1.3)	38 (1.3)	17 (1.4)
Slovak Republic	57 (1.5)	32 (1.5)	11 (0.7)
Slovenia r	68 (0.9)	32 (0.9)	0 ~
South Africa s	54 (1.0)	13 (0.8)	33 (1.1)
Spain	71 (0.9)	24 (0.8)	6 (0.5)
Sweden s	22 (0.9)	32 (1.3)	47 (1.6)
Turkiye	62 (1.7)	13 (1.3)	25 (1.4)
United Arab Emirates s	63 (0.8)	20 (0.6)	16 (0.4)
Uzbekistan	78 (1.0)	16 (0.8)	6 (0.5)
International Average	59 (0.2)	27 (0.1)	14 (0.1)
Netherlands x	57 (1.5)	36 (1.4)	7 (0.7)
New Zealand x	84 (0.8)	16 (0.8)	0 ~
Lithuania y	- -	- -	- -
Australia s	- -	- -	- -
England s	- -	- -	- -
Singapore	- -	- -	- -
United States	- -	- -	- -
Benchmarking Participants			
Alberta, Canada s	73 (1.4)	14 (1.2)	14 (1.2)
British Columbia, Canada s	73 (1.4)	10 (0.7)	18 (1.2)
Newfoundland & Labrador, Canada s	81 (1.1)	12 (0.8)	8 (0.8)
Quebec, Canada s	71 (1.1)	22 (1.0)	7 (0.6)
Moscow City, Russian Federation	77 (0.7)	13 (0.4)	9 (0.6)
South Africa (6) s	56 (1.3)	15 (1.0)	28 (1.2)
Abu Dhabi, UAE x	61 (1.3)	22 (1.0)	17 (0.7)
Dubai, UAE x	69 (1.1)	18 (0.8)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.6: Additional Educational Resources Provided by Parents/Guardians – Digital Devices (ASBH21B)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that Parents Provided Digital Devices		
	Yes	No	Not Applicable
Albania	52 (1.7)	38 (1.5)	10 (1.1)
Austria	68 (1.2)	22 (1.1)	11 (0.5)
Azerbaijan	29 (1.3)	68 (1.4)	3 (0.7)
Bahrain	63 (1.0)	27 (0.7)	10 (0.7)
Belgium (Flemish)	72 (0.9)	28 (0.9)	0 ~
Belgium (French) r	51 (1.2)	44 (1.1)	5 (0.5)
Brazil ✕	61 (1.9)	36 (1.8)	3 (0.3)
Bulgaria	65 (1.3)	21 (1.1)	14 (1.2)
Chinese Taipei	5 (0.4)	2 ~	93 (0.4)
Croatia	81 (0.9)	19 (0.9)	0 ~
Cyprus	55 (0.9)	31 (0.8)	14 (0.7)
Czech Republic r	54 (1.0)	46 (1.0)	0 ~
Denmark	83 (0.6)	15 (0.6)	3 (0.3)
Egypt	25 (1.6)	61 (1.6)	15 (1.1)
Finland	82 (0.7)	7 (0.5)	11 (0.5)
France	63 (0.8)	36 (0.8)	1 ~
Georgia	21 (1.0)	67 (1.0)	12 (0.6)
Germany s	74 (1.0)	12 (0.7)	14 (0.8)
Hong Kong SAR	62 (1.0)	27 (0.9)	11 (0.5)
Hungary r	75 (1.2)	5 (0.5)	21 (1.0)
Iran, Islamic Rep. of ✕	27 (1.5)	56 (1.7)	17 (1.4)
Ireland	82 (0.7)	18 (0.7)	0 ~
Israel ✕ s	46 (1.1)	34 (1.0)	20 (0.8)
Italy	62 (0.9)	30 (0.7)	8 (0.5)
Jordan	33 (1.3)	63 (1.3)	4 (0.6)
Kazakhstan	53 (1.1)	20 (1.0)	27 (1.3)
Kosovo	48 (1.2)	48 (1.2)	4 (0.4)
Latvia	70 (1.1)	26 (1.0)	4 (0.4)
Macao SAR	47 (0.7)	32 (0.6)	22 (0.6)
Malta r	53 (1.1)	17 (1.3)	29 (1.4)
Montenegro	47 (0.8)	35 (0.8)	17 (0.7)
Morocco r	25 (1.6)	61 (1.9)	15 (1.1)
North Macedonia	58 (1.5)	27 (1.3)	15 (1.0)
Northern Ireland s	71 (1.1)	25 (1.1)	4 (0.5)
Norway (5) r	34 (1.1)	61 (1.1)	5 (0.4)
Oman	51 (1.0)	36 (0.9)	13 (0.6)
Poland	70 (0.8)	10 (0.6)	21 (0.7)
Portugal	66 (0.8)	19 (0.6)	15 (0.8)
Qatar r	64 (1.3)	22 (1.0)	14 (0.9)
Russian Federation	65 (1.7)	23 (1.1)	12 (1.4)
Saudi Arabia r	60 (1.2)	28 (1.1)	12 (0.7)
Serbia	57 (1.2)	27 (1.1)	17 (1.4)
Slovak Republic	63 (1.5)	26 (1.5)	11 (0.7)
Slovenia r	80 (0.7)	20 (0.7)	0 ~
South Africa ✕ r	24 (1.0)	44 (1.1)	33 (1.1)
Spain	78 (0.7)	16 (0.6)	6 (0.5)
Sweden s	26 (1.3)	27 (1.1)	47 (1.6)
Türkiye	45 (1.5)	30 (1.6)	25 (1.4)
United Arab Emirates s	67 (0.6)	17 (0.5)	16 (0.4)
Uzbekistan	32 (1.6)	62 (1.5)	6 (0.5)
International Average	55 (0.2)	31 (0.2)	14 (0.1)
Netherlands x	62 (1.9)	31 (1.8)	7 (0.7)
New Zealand x	81 (0.9)	19 (0.9)	0 ~
Lithuania y	--	--	--
Australia ✕	--	--	--
England ✕	--	--	--
Singapore	--	--	--
United States	--	--	--
Benchmarking Participants			
Alberta, Canada s	72 (1.6)	14 (1.5)	14 (1.2)
British Columbia, Canada s	69 (1.2)	13 (0.8)	18 (1.2)
Newfoundland & Labrador, Canada s	80 (1.2)	12 (1.0)	8 (0.8)
Quebec, Canada s	72 (1.2)	21 (1.0)	7 (0.6)
Moscow City, Russian Federation	75 (0.8)	15 (0.5)	9 (0.6)
South Africa (6) ✕ r	25 (1.4)	47 (1.5)	28 (1.2)
Abu Dhabi, UAE x	65 (1.0)	17 (0.7)	17 (0.7)
Dubai, UAE x	73 (0.7)	14 (0.6)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.7: Additional Educational Resources Provided by Parents/Guardians – Digitally-based Learning Activities (ASBH21C)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that Parents Provided Digitally-based Learning Activities		
	Yes	No	Not Applicable
Albania	38 (1.6)	52 (1.6)	10 (1.1)
Austria	57 (1.2)	32 (1.1)	11 (0.5)
Azerbaijan	34 (1.4)	62 (1.5)	3 (0.7)
Bahrain	61 (1.0)	30 (0.7)	10 (0.7)
Belgium (Flemish)	67 (1.1)	33 (1.1)	0 ~
Belgium (French) r	44 (1.1)	52 (1.1)	5 (0.5)
Brazil ∞	53 (1.4)	44 (1.4)	3 (0.3)
Bulgaria	59 (1.1)	27 (1.1)	14 (1.2)
Chinese Taipei	3 (0.3)	4 (0.3)	93 (0.4)
Croatia	63 (1.2)	37 (1.2)	0 ~
Cyprus	50 (0.9)	36 (0.8)	14 (0.7)
Czech Republic r	62 (0.9)	38 (0.9)	0 ~
Denmark	67 (0.8)	30 (0.8)	3 (0.3)
Egypt	26 (1.8)	59 (1.7)	15 (1.1)
Finland	64 (1.0)	25 (0.8)	11 (0.5)
France	56 (1.0)	43 (1.0)	1 ~
Georgia	20 (0.9)	68 (1.0)	12 (0.6)
Germany s	62 (1.2)	25 (1.1)	14 (0.8)
Hong Kong SAR	53 (1.0)	36 (0.9)	11 (0.5)
Hungary r	52 (1.2)	27 (0.9)	21 (1.0)
Iran, Islamic Rep. of ∞	22 (1.2)	61 (1.4)	17 (1.4)
Ireland	70 (1.1)	30 (1.1)	0 ~
Israel ∞ s	49 (1.2)	31 (0.9)	20 (0.8)
Italy	53 (0.9)	39 (0.8)	8 (0.5)
Jordan	33 (1.1)	63 (1.1)	4 (0.6)
Kazakhstan	44 (1.2)	30 (1.1)	27 (1.3)
Kosovo	38 (1.1)	58 (1.1)	4 (0.4)
Latvia	61 (0.9)	35 (0.8)	4 (0.4)
Macao SAR	44 (0.7)	34 (0.7)	22 (0.6)
Malta r	48 (1.5)	23 (1.4)	29 (1.4)
Montenegro	42 (0.8)	41 (0.8)	17 (0.7)
Morocco r	28 (1.6)	57 (2.0)	15 (1.1)
North Macedonia	43 (1.3)	42 (1.3)	15 (1.0)
Northern Ireland s	63 (1.2)	32 (1.2)	4 (0.5)
Norway (5) r	37 (1.0)	58 (1.0)	5 (0.4)
Oman	54 (0.9)	33 (0.9)	13 (0.6)
Poland	67 (0.9)	12 (0.7)	21 (0.7)
Portugal	64 (0.9)	21 (0.7)	15 (0.8)
Qatar r	54 (1.1)	32 (1.1)	14 (0.9)
Russian Federation	65 (1.6)	23 (0.9)	12 (1.4)
Saudi Arabia r	55 (1.2)	33 (1.2)	12 (0.7)
Serbia	48 (1.3)	35 (1.2)	17 (1.4)
Slovak Republic	50 (1.4)	39 (1.6)	11 (0.7)
Slovenia r	67 (0.9)	33 (0.9)	0 ~
South Africa ∞ r	25 (1.0)	42 (1.2)	33 (1.1)
Spain	68 (0.8)	26 (0.7)	6 (0.5)
Sweden s	19 (1.0)	34 (1.1)	47 (1.6)
Turkiye	36 (1.5)	39 (1.7)	25 (1.4)
United Arab Emirates s	62 (0.7)	22 (0.6)	16 (0.4)
Uzbekistan	35 (1.5)	59 (1.6)	6 (0.5)
International Average	49 (0.2)	38 (0.2)	14 (0.1)
Netherlands x	50 (1.5)	44 (1.5)	7 (0.7)
New Zealand x	65 (1.1)	35 (1.1)	0 ~
Lithuania y	--	--	--
Australia ∞	--	--	--
England ∞	--	--	--
Singapore	--	--	--
United States	--	--	--
Benchmarking Participants			
Alberta, Canada s	64 (1.5)	22 (1.6)	14 (1.2)
British Columbia, Canada s	66 (1.2)	16 (0.9)	18 (1.2)
Newfoundland & Labrador, Canada s	75 (1.4)	17 (1.1)	8 (0.8)
Quebec, Canada s	69 (0.9)	24 (0.8)	7 (0.6)
Moscow City, Russian Federation	76 (0.8)	15 (0.6)	9 (0.6)
South Africa (6) ∞ r	29 (1.1)	42 (1.3)	28 (1.2)
Abu Dhabi, UAE x	60 (1.0)	22 (0.8)	17 (0.7)
Dubai, UAE x	66 (0.8)	21 (0.9)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.8: Additional Educational Resources Provided by Parents/Guardians – Online Instruction or Tutoring (ASBH21D)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Reports that Parents Provided Online Instruction or Tutoring		
	Yes	No	Not Applicable
Albania	57 (1.5)	33 (1.4)	10 (1.1)
Austria	17 (1.0)	72 (1.1)	11 (0.5)
Azerbaijan	70 (1.3)	27 (1.3)	3 (0.6)
Bahrain	49 (0.8)	41 (0.8)	10 (0.7)
Belgium (Flemish)	53 (1.4)	47 (1.4)	0 ~
Belgium (French) r	8 (0.5)	87 (0.6)	5 (0.5)
Brazil ✕	40 (1.5)	57 (1.5)	3 (0.3)
Bulgaria	48 (1.1)	38 (1.3)	14 (1.2)
Chinese Taipei	3 (0.3)	5 (0.3)	93 (0.4)
Croatia	19 (0.8)	81 (0.8)	0 ~
Cyprus	64 (1.0)	22 (0.8)	14 (0.7)
Czech Republic r	57 (1.0)	43 (1.0)	0 ~
Denmark	64 (1.0)	33 (1.0)	3 (0.3)
Egypt	53 (1.7)	32 (1.5)	15 (1.1)
Finland	70 (0.6)	18 (0.7)	11 (0.5)
France	7 (0.5)	92 (0.6)	1 ~
Georgia	52 (1.1)	36 (1.0)	12 (0.6)
Germany s	10 (0.7)	76 (0.9)	14 (0.8)
Hong Kong SAR	63 (1.0)	26 (0.8)	11 (0.5)
Hungary r	28 (1.0)	51 (1.1)	21 (1.0)
Iran, Islamic Rep. of ✕	39 (1.5)	44 (1.6)	17 (1.4)
Ireland	50 (0.9)	50 (0.9)	0 ~
Israel ✕ s	32 (0.9)	47 (1.0)	20 (0.8)
Italy	43 (0.8)	49 (0.8)	8 (0.5)
Jordan	67 (1.3)	29 (1.2)	4 (0.6)
Kazakhstan	47 (1.2)	26 (1.1)	27 (1.3)
Kosovo	66 (1.1)	30 (1.0)	4 (0.4)
Latvia	75 (1.0)	22 (0.9)	4 (0.4)
Macao SAR	53 (0.8)	26 (0.6)	22 (0.6)
Malta r	37 (1.0)	33 (1.3)	29 (1.4)
Montenegro	62 (0.8)	21 (0.6)	17 (0.7)
Morocco r	47 (2.1)	38 (2.4)	15 (1.1)
North Macedonia	16 (1.1)	69 (1.3)	15 (1.0)
Northern Ireland s	36 (1.0)	59 (1.1)	4 (0.5)
Norway (5) r	25 (0.9)	70 (0.9)	5 (0.4)
Oman	46 (1.0)	41 (1.0)	13 (0.6)
Poland	54 (1.1)	26 (0.8)	21 (0.7)
Portugal	67 (0.8)	18 (0.6)	15 (0.8)
Qatar r	58 (1.4)	28 (1.1)	14 (0.9)
Russian Federation	45 (1.4)	43 (1.2)	12 (1.4)
Saudi Arabia r	61 (1.3)	27 (1.3)	12 (0.7)
Serbia	52 (1.4)	31 (1.8)	17 (1.4)
Slovak Republic	69 (1.1)	20 (1.0)	11 (0.7)
Slovenia r	10 (0.5)	90 (0.5)	0 ~
South Africa ✕ r	22 (0.9)	46 (1.2)	33 (1.1)
Spain	52 (0.9)	43 (0.9)	6 (0.5)
Sweden s	8 (0.7)	45 (1.4)	47 (1.6)
Turkiye	34 (1.7)	41 (1.8)	25 (1.4)
United Arab Emirates s	45 (0.6)	38 (0.6)	16 (0.4)
Uzbekistan	61 (1.4)	33 (1.4)	6 (0.5)
International Average	44 (0.2)	42 (0.2)	14 (0.1)
Netherlands x	29 (1.4)	65 (1.4)	7 (0.7)
New Zealand x	31 (1.2)	69 (1.2)	0 ~
Lithuania y	- -	- -	- -
Australia ✕	- -	- -	- -
England ✕	- -	- -	- -
Singapore	- -	- -	- -
United States	- -	- -	- -
Benchmarking Participants			
Alberta, Canada s	35 (1.4)	51 (1.7)	14 (1.2)
British Columbia, Canada s	38 (1.3)	45 (1.5)	18 (1.2)
Newfoundland & Labrador, Canada s	45 (1.2)	47 (1.1)	8 (0.8)
Quebec, Canada s	44 (1.1)	49 (1.1)	7 (0.6)
Moscow City, Russian Federation	60 (1.0)	31 (0.8)	9 (0.6)
South Africa (6) ✕ r	20 (1.0)	52 (1.4)	28 (1.2)
Abu Dhabi, UAE x	46 (1.1)	37 (0.8)	17 (0.7)
Dubai, UAE	45 (1.3)	42 (1.2)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.9: Child's Learning Progress Adversely Affected (ASBH22)

Students' Results based on Parents' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Parents' Perception of Learning Progress			
	Not at all Adversely Affected	Somewhat Adversely Affected	Adversely Affected A lot	Not Applicable
Albania	37 (1.7)	43 (1.7)	10 (1.2)	10 (1.1)
Austria	15 (0.9)	51 (1.0)	23 (1.0)	11 (0.5)
Azerbaijan	31 (1.3)	55 (1.3)	11 (0.7)	3 (0.6)
Bahrain	13 (0.6)	50 (1.0)	27 (1.0)	10 (0.7)
Belgium (Flemish)	18 (0.6)	64 (0.8)	18 (0.8)	0 ~
Belgium (French) r	20 (1.0)	52 (1.2)	24 (1.0)	5 (0.5)
Brazil ✕	11 (1.0)	49 (1.5)	37 (2.0)	3 (0.3)
Bulgaria	11 (0.7)	50 (1.2)	25 (1.1)	14 (1.2)
Chinese Taipei	3 (0.3)	4 (0.3)	1 ~	92 (0.4)
Croatia	15 (0.8)	52 (1.3)	33 (1.2)	0 ~
Cyprus	15 (0.7)	50 (0.8)	21 (0.7)	14 (0.7)
Czech Republic r	16 (0.8)	58 (0.9)	26 (0.8)	0 ~
Denmark	46 (1.0)	45 (0.9)	5 (0.4)	3 (0.3)
Egypt	12 (0.8)	45 (1.6)	29 (1.6)	15 (1.1)
Finland	62 (0.8)	25 (0.8)	2 ~	11 (0.5)
France	33 (0.9)	50 (0.7)	16 (0.8)	1 ~
Georgia	4 (0.4)	44 (1.0)	40 (1.1)	12 (0.6)
Germany s	12 (0.8)	47 (1.2)	27 (1.1)	14 (0.8)
Hong Kong SAR	5 (0.4)	51 (0.9)	33 (0.8)	11 (0.5)
Hungary r	14 (0.8)	41 (1.0)	25 (0.9)	21 (1.0)
Iran, Islamic Rep. of ✕	9 (0.6)	40 (1.1)	34 (1.4)	17 (1.4)
Ireland	25 (1.0)	58 (1.0)	17 (0.6)	0 ~
Israel ✕ s	13 (0.6)	38 (0.9)	30 (1.1)	20 (0.8)
Italy	26 (0.8)	53 (0.8)	13 (0.6)	8 (0.5)
Jordan	6 (0.6)	31 (1.5)	58 (1.6)	4 (0.6)
Kazakhstan	10 (0.6)	46 (1.2)	17 (0.7)	27 (1.3)
Kosovo	27 (1.1)	53 (1.1)	16 (0.9)	4 (0.4)
Latvia	17 (0.8)	53 (1.3)	27 (1.1)	4 (0.4)
Macao SAR	9 (0.4)	57 (0.8)	13 (0.6)	22 (0.6)
Malta r	17 (0.9)	43 (1.1)	10 (0.7)	29 (1.4)
Montenegro	5 (0.4)	40 (0.9)	38 (0.9)	17 (0.7)
Morocco r	14 (1.0)	39 (1.7)	32 (1.9)	15 (1.1)
North Macedonia	19 (1.0)	49 (1.3)	17 (1.1)	15 (1.0)
Northern Ireland s	11 (0.7)	54 (1.1)	31 (1.0)	4 (0.5)
Norway (5)	47 (1.3)	43 (1.1)	4 (0.4)	5 (0.4)
Oman	23 (0.9)	43 (0.9)	20 (0.9)	13 (0.6)
Poland	8 (0.6)	32 (0.9)	39 (1.2)	21 (0.7)
Portugal	16 (0.6)	55 (0.8)	14 (0.6)	15 (0.8)
Qatar r	16 (0.9)	42 (1.2)	28 (1.2)	14 (0.9)
Russian Federation	16 (0.9)	48 (1.6)	25 (1.2)	11 (1.4)
Saudi Arabia r	29 (1.0)	40 (1.1)	18 (0.9)	12 (0.7)
Serbia	12 (0.8)	49 (1.1)	22 (1.1)	17 (1.4)
Slovak Republic	19 (0.8)	53 (1.0)	17 (1.3)	11 (0.7)
Slovenia r	16 (0.7)	58 (0.9)	25 (0.9)	0 ~
South Africa ✕ r	12 (0.6)	22 (0.8)	34 (1.3)	33 (1.1)
Spain	14 (0.7)	56 (0.8)	24 (1.0)	6 (0.5)
Sweden s	34 (1.1)	18 (1.1)	2 ~	46 (1.6)
Turkiye	14 (1.2)	29 (1.2)	33 (1.8)	25 (1.4)
United Arab Emirates s	19 (0.4)	43 (0.5)	22 (0.4)	16 (0.4)
Uzbekistan	28 (1.4)	53 (1.5)	12 (0.8)	6 (0.5)
International Average	19 (0.1)	45 (0.2)	22 (0.1)	14 (0.1)
Netherlands x	35 (1.3)	49 (1.4)	9 (0.7)	7 (0.7)
New Zealand	49 (1.5)	40 (1.2)	10 (0.9)	0 ~
Lithuania y	- -	- -	- -	- -
Australia ✕	- -	- -	- -	- -
England ✕	- -	- -	- -	- -
Singapore	- -	- -	- -	- -
United States	- -	- -	- -	- -
Benchmarking Participants				
Alberta, Canada s	20 (1.2)	51 (2.0)	15 (1.3)	14 (1.2)
British Columbia, Canada s	26 (1.2)	46 (1.3)	10 (0.8)	18 (1.2)
Newfoundland & Labrador, Canada s	32 (1.3)	51 (1.4)	9 (1.0)	8 (0.8)
Quebec, Canada s	26 (1.0)	50 (1.1)	16 (0.8)	7 (0.6)
Moscow City, Russian Federation	18 (0.6)	47 (0.7)	25 (0.7)	9 (0.6)
South Africa (6) ✕ r	13 (0.8)	23 (1.0)	35 (1.2)	28 (1.2)
Abu Dhabi, UAE s	17 (0.7)	42 (0.8)	24 (0.8)	17 (0.7)
Dubai, UAE x	20 (1.0)	47 (1.0)	19 (0.8)	13 (0.7)

If students' parents answered "No" that their child did not stay home from school at any time during the COVID-19 pandemic (see Exhibit B.1), this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution.

A "y" indicates data are available for less than 40% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.10: Normal Primary School Operations Affected by the COVID-19 Pandemic (ACBG19)



Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by Number of Weeks Affected				
	School Operations Not Affected	Less than 2 Weeks of Instruction	2–4 Weeks of Instruction	5–8 Weeks of Instruction	More than 8 Weeks of Instruction
Albania	25 (3.8)	52 (4.3)	9 (2.8)	1 ~	13 (2.9)
Australia ✕	8 (1.5)	22 (1.8)	12 (2.1)	10 (2.0)	48 (2.4)
Austria	0 ~	1 ~	6 (2.3)	24 (3.7)	69 (3.9)
Azerbaijan	17 (3.0)	11 (2.7)	10 (2.0)	6 (1.8)	55 (3.9)
Bahrain	52 (2.9)	13 (1.8)	9 (1.1)	5 (1.0)	23 (2.4)
Belgium (Flemish)	3 (1.9)	21 (4.0)	29 (4.4)	12 (2.6)	34 (4.3)
Belgium (French)	4 (1.9)	14 (3.0)	58 (3.7)	13 (2.7)	10 (2.5)
Brazil ✕	19 (3.3)	6 (1.8)	6 (2.4)	3 (1.5)	65 (3.7)
Bulgaria	23 (3.6)	4 (1.8)	40 (4.5)	30 (3.9)	3 (1.3)
Chinese Taipei	77 (3.0)	19 (2.8)	3 (1.4)	1 ~	1 ~
Croatia	2 ~	5 (2.0)	26 (3.9)	33 (4.4)	35 (4.4)
Cyprus	2 ~	5 (1.6)	51 (3.8)	34 (4.2)	8 (2.4)
Czech Republic	0 ~	0 ~	0 ~	0 ~	100 (0.0)
Denmark	0 ~	1 ~	1 ~	8 (2.3)	91 (2.5)
Egypt	9 (1.9)	5 (1.9)	9 (2.5)	22 (3.4)	55 (3.7)
England ✕ r	26 (4.2)	11 (2.6)	6 (2.0)	16 (2.8)	42 (4.5)
Finland	17 (2.7)	11 (2.5)	10 (2.4)	14 (3.4)	47 (3.6)
France	3 (1.4)	50 (3.9)	20 (3.2)	9 (2.5)	18 (3.1)
Georgia	14 (2.4)	17 (2.7)	15 (2.9)	16 (2.9)	38 (3.3)
Germany r	0 ~	1 ~	0 ~	8 (2.0)	91 (2.0)
Hong Kong SAR	5 (1.9)	8 (2.3)	17 (3.3)	13 (2.7)	57 (4.0)
Hungary	0 ~	0 ~	3 (1.5)	36 (4.1)	61 (4.1)
Iran, Islamic Rep. of ✕	8 (2.2)	6 (1.7)	8 (1.8)	15 (3.4)	62 (4.0)
Ireland	0 ~	0 ~	0 ~	0 ~	100 (0.0)
Israel ✕ r	6 (2.0)	5 (1.8)	14 (2.8)	34 (3.7)	41 (4.2)
Italy	6 (1.7)	6 (2.0)	44 (3.8)	21 (3.4)	23 (3.1)
Jordan	11 (2.7)	7 (1.9)	13 (3.1)	7 (2.0)	63 (4.1)
Kazakhstan	35 (3.3)	8 (2.2)	9 (2.0)	15 (2.8)	32 (3.6)
Kosovo	9 (2.3)	39 (4.0)	38 (4.1)	4 (1.8)	10 (2.7)
Latvia	1 ~	1 ~	3 (1.7)	1 ~	93 (2.0)
Lithuania s	2 ~	1 ~	1 ~	7 (2.3)	90 (2.7)
Macao SAR	36 (0.1)	3 (0.0)	3 (0.0)	11 (0.0)	46 (0.1)
Malta	8 (4.4)	14 (4.9)	61 (7.6)	9 (3.5)	8 (3.6)
Montenegro	2 ~	6 (0.9)	14 (0.3)	40 (0.7)	38 (0.5)
Morocco	22 (3.2)	6 (1.9)	5 (1.9)	5 (1.5)	62 (3.8)
Netherlands r	3 (1.7)	2 ~	7 (2.4)	35 (5.7)	53 (6.1)
New Zealand r	0 ~	0 ~	0 ~	0 ~	100 (0.0)
North Macedonia	34 (3.5)	9 (2.4)	28 (4.6)	3 (1.7)	26 (4.1)
Northern Ireland	1 ~	0 ~	0 ~	8 (2.5)	92 (2.6)
Norway (5)	12 (2.6)	11 (2.6)	13 (3.0)	13 (2.9)	51 (4.1)
Oman	15 (2.5)	13 (2.4)	24 (3.1)	15 (2.3)	34 (3.5)
Poland	1 ~	1 ~	0 ~	0 ~	98 (1.2)
Portugal	6 (1.8)	4 (1.5)	8 (2.0)	44 (3.8)	37 (3.7)
Qatar	24 (3.5)	13 (2.9)	14 (2.7)	7 (1.8)	41 (3.4)
Russian Federation	61 (3.8)	14 (2.3)	20 (3.1)	2 ~	3 (1.1)
Saudi Arabia	22 (3.7)	13 (3.1)	12 (2.8)	12 (2.6)	40 (4.6)
Serbia	29 (3.9)	4 (1.6)	19 (3.0)	15 (2.8)	33 (4.2)
Slovak Republic	0 ~	3 (1.3)	12 (2.7)	37 (3.5)	48 (4.1)
Slovenia r	3 (2.0)	4 (1.5)	2 ~	8 (2.5)	83 (3.4)
South Africa ✕	16 (3.0)	15 (2.6)	28 (4.0)	14 (2.6)	28 (3.3)
Spain	34 (2.9)	18 (2.4)	18 (2.4)	13 (2.2)	17 (2.1)
Sweden r	34 (4.3)	12 (3.3)	10 (2.9)	10 (2.6)	34 (5.0)
Turkiye	3 (1.2)	3 (1.3)	3 (1.3)	8 (2.1)	83 (2.9)
United Arab Emirates s	45 (2.4)	15 (1.3)	8 (0.2)	6 (1.7)	26 (2.1)
United States	3 (1.9)	4 (2.1)	13 (3.8)	8 (3.2)	72 (5.6)
Uzbekistan	14 (3.2)	23 (3.9)	28 (3.3)	10 (2.2)	25 (3.7)
International Average	14 (0.3)	10 (0.3)	15 (0.4)	13 (0.4)	47 (0.4)
* Singapore	- -	- -	- -	- -	- -
Benchmarking Participants					
Alberta, Canada r	0 ~	14 (3.8)	37 (5.2)	13 (3.7)	37 (5.0)
British Columbia, Canada r	43 (4.7)	10 (2.8)	14 (3.3)	2 ~	31 (3.9)
Newfoundland & Labrador, Canada r	0 ~	1 ~	59 (7.7)	27 (5.5)	13 (6.0)
Quebec, Canada	14 (4.2)	24 (4.5)	23 (4.8)	21 (4.4)	18 (4.5)
Moscow City, Russian Federation	46 (3.5)	25 (3.2)	22 (3.1)	5 (1.8)	2 ~
South Africa (6) ✕	21 (3.9)	13 (2.7)	25 (3.3)	14 (3.0)	28 (3.5)
Abu Dhabi, UAE r	49 (3.0)	12 (1.1)	7 (0.3)	3 (1.0)	29 (2.6)
Dubai, UAE s	38 (0.4)	15 (0.2)	13 (0.3)	6 (0.3)	28 (0.3)

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

* In Singapore, all primary schools were closed for a total of 4 weeks, during which all students shifted to full home-based learning, followed by fourth grade students alternating between home-based learning and returning to school for lessons on a weekly basis for 4 weeks. See *PIRLS 2021 Encyclopedia* for more details.

Exhibit B.11: School Provides Remote Learning Resources (ACBG20)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Remote Learning Resources		
	Yes	No	Does Not Apply
Albania	87 (3.1)	10 (2.7)	3 (1.5)
Australia ✕	94 (1.3)	3 (0.9)	3 (1.0)
Austria	97 (1.7)	1 ~	3 (1.6)
Azerbaijan	68 (3.6)	21 (3.2)	11 (2.1)
Bahrain	93 (1.4)	0 ~	7 (1.4)
Belgium (Flemish)	95 (2.4)	2 ~	4 (2.1)
Belgium (French)	87 (2.6)	11 (2.3)	3 (1.2)
Brazil ✕	98 (1.4)	1 ~	1 ~
Bulgaria	97 (1.5)	2 ~	1 ~
Chinese Taipei	83 (2.7)	7 (2.0)	10 (2.2)
Croatia	95 (2.0)	4 (1.8)	1 ~
Cyprus	99 (0.6)	0 ~	1 ~
Czech Republic	100 (0.0)	0 ~	0 ~
Denmark	100 (0.0)	0 ~	0 ~
Egypt	61 (3.8)	25 (3.4)	14 (2.4)
England ✕ s	99 (1.0)	0 ~	1 ~
Finland	90 (2.6)	3 (1.5)	7 (2.2)
France	97 (1.4)	2 ~	1 ~
Georgia	100 (0.0)	0 ~	0 ~
Germany r	99 (0.7)	1 ~	0 ~
Hong Kong SAR	98 (1.1)	2 ~	0 ~
Hungary	99 (0.8)	0 ~	1 ~
Iran, Islamic Rep. of ✕	97 (1.2)	2 ~	1 ~
Ireland	99 (0.6)	0 ~	1 ~
Israel ✕ r	90 (2.5)	8 (2.2)	2 ~
Italy	99 (0.6)	1 ~	0 ~
Jordan	93 (2.2)	6 (2.1)	1 ~
Kazakhstan	95 (1.4)	2 ~	3 (1.3)
Kosovo	91 (2.4)	7 (2.1)	2 ~
Latvia	100 (0.0)	0 ~	0 ~
Lithuania s	100 (0.0)	0 ~	0 ~
Macao SAR	99 (0.0)	0 ~	1 ~
Malta	100 (0.5)	0 ~	0 ~
Montenegro	100 (0.0)	0 ~	0 ~
Morocco	65 (3.7)	25 (3.4)	10 (2.2)
Netherlands r	99 (1.2)	0 ~	1 ~
New Zealand r	100 (0.4)	0 ~	0 ~
North Macedonia	100 (0.0)	0 ~	0 ~
Northern Ireland	100 (0.0)	0 ~	0 ~
Norway (5)	89 (2.6)	2 ~	9 (2.3)
Oman	97 (1.0)	3 (1.1)	0 ~
Poland	99 (0.7)	0 ~	1 ~
Portugal	99 (0.9)	1 ~	0 ~
Qatar	99 (0.5)	0 ~	1 ~
Russian Federation	97 (1.3)	2 ~	1 ~
Saudi Arabia	97 (1.6)	1 ~	2 ~
Serbia	97 (1.4)	0 ~	3 (1.4)
Slovak Republic	99 (0.7)	1 ~	0 ~
Slovenia r	100 (0.0)	0 ~	0 ~
South Africa ✕	31 (3.5)	56 (3.9)	13 (2.0)
Spain	98 (0.4)	0 ~	1 ~
Sweden r	48 (4.3)	15 (3.7)	37 (4.3)
Turkiye	88 (2.3)	12 (2.4)	1 ~
United Arab Emirates s	97 (1.0)	2 ~	1 ~
United States	100 (0.0)	0 ~	0 ~
Uzbekistan	96 (1.4)	3 (1.3)	2 ~
International Average	93 (0.2)	4 (0.2)	3 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	97 (1.9)	1 ~	2 ~
British Columbia, Canada r	77 (3.4)	10 (2.1)	13 (3.1)
Newfoundland & Labrador, Canada r	94 (2.9)	3 (1.0)	3 (2.7)
Quebec, Canada	91 (3.8)	2 ~	7 (3.5)
Moscow City, Russian Federation	100 (0.0)	0 ~	0 ~
South Africa (6) ✕	30 (3.9)	54 (4.6)	16 (3.5)
Abu Dhabi, UAE r	99 (0.0)	0 ~	1 ~
Dubai, UAE s	97 (0.1)	3 (0.1)	1 ~

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.12: School Supports for Remote Learning – Printed Materials for Students (ACBG21A)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

▢ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Printed Materials for Students		
	Yes	No	Not Applicable
Albania	52 (4.2)	34 (4.3)	13 (3.1)
Australia ✕	81 (2.7)	13 (2.3)	6 (1.3)
Austria	97 (1.7)	0 ~	3 (1.7)
Azerbaijan	21 (3.4)	46 (4.0)	32 (3.6)
Bahrain	53 (2.9)	39 (2.8)	7 (1.5)
Belgium (Flemish)	93 (2.6)	1 ~	5 (2.4)
Belgium (French)	86 (2.7)	1 ~	13 (2.6)
Brazil ✕	93 (2.2)	4 (1.7)	2 ~
Bulgaria	55 (3.5)	42 (3.4)	3 (1.5)
Chinese Taipei	73 (2.9)	10 (2.2)	17 (2.7)
Croatia	42 (4.2)	53 (4.3)	5 (2.0)
Cyprus	92 (2.0)	7 (1.9)	1 ~
Czech Republic	90 (2.4)	10 (2.4)	0 ~
Denmark	98 (1.3)	2 ~	0 ~
Egypt	45 (3.7)	16 (2.5)	39 (3.8)
England ✕ s	89 (3.0)	10 (2.9)	1 ~
Finland	76 (3.4)	14 (2.5)	10 (2.6)
France	92 (2.6)	6 (2.2)	3 (1.4)
Georgia	73 (3.2)	27 (3.2)	0 ~
Germany r	96 (1.5)	3 (1.3)	1 ~
Hong Kong SAR	85 (3.2)	13 (3.0)	2 ~
Hungary	72 (4.4)	27 (4.3)	1 ~
Iran, Islamic Rep. of ✕	76 (3.8)	21 (3.7)	3 (1.2)
Ireland	87 (3.1)	12 (3.1)	1 ~
Israel ✕ r	60 (3.9)	30 (3.4)	10 (2.5)
Italy	28 (3.4)	72 (3.5)	1 ~
Jordan	82 (3.4)	11 (2.6)	7 (2.2)
Kazakhstan	81 (2.7)	14 (2.4)	5 (1.4)
Kosovo	60 (4.7)	31 (4.5)	9 (2.4)
Latvia	83 (3.1)	17 (3.1)	0 ~
Lithuania s	60 (4.7)	40 (4.7)	0 ~
Macao SAR	27 (0.1)	72 (0.1)	1 ~
Malta	41 (7.5)	59 (7.6)	0 ~
Montenegro	87 (0.2)	13 (0.2)	0 ~
Morocco r	32 (4.7)	23 (3.9)	45 (4.7)
Netherlands r	91 (3.4)	8 (3.1)	1 ~
New Zealand r	87 (2.6)	13 (2.6)	0 ~
North Macedonia	83 (3.9)	17 (3.9)	0 ~
Northern Ireland	96 (1.9)	4 (1.9)	0 ~
Norway (5)	55 (4.5)	33 (4.0)	12 (2.6)
Oman	74 (3.3)	23 (3.1)	3 (1.0)
Poland	58 (3.8)	41 (3.7)	1 ~
Portugal	85 (2.7)	14 (2.7)	1 ~
Qatar	63 (3.6)	36 (3.6)	1 ~
Russian Federation	67 (3.6)	31 (3.5)	3 (1.3)
Saudi Arabia	81 (3.5)	16 (3.7)	3 (1.6)
Serbia	87 (2.9)	10 (2.5)	3 (1.4)
Slovak Republic	69 (3.4)	30 (3.5)	1 ~
Slovenia r	58 (4.3)	42 (4.3)	0 ~
South Africa ✕	25 (3.1)	6 (1.8)	69 (3.5)
Spain	75 (2.6)	23 (2.6)	2 ~
Sweden r	43 (4.3)	5 (2.0)	52 (4.3)
Turkiye	82 (2.9)	6 (1.8)	12 (2.3)
United Arab Emirates s	42 (2.5)	54 (2.4)	3 (1.0)
United States	90 (4.5)	10 (4.5)	0 ~
Uzbekistan	76 (3.5)	19 (3.5)	4 (1.4)
International Average	70 (0.5)	22 (0.4)	7 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	88 (3.2)	9 (2.6)	3 (1.9)
British Columbia, Canada r	57 (4.6)	20 (4.0)	23 (3.4)
Newfoundland & Labrador, Canada r	19 (6.3)	75 (6.9)	6 (2.9)
Quebec, Canada	64 (5.3)	27 (4.6)	9 (3.8)
Moscow City, Russian Federation	73 (3.4)	27 (3.4)	0 ~
South Africa (6) ✕	21 (3.0)	9 (2.9)	70 (3.9)
Abu Dhabi, UAE r	47 (3.0)	52 (3.0)	2 ~
Dubai, UAE s	32 (0.4)	64 (0.4)	3 (0.1)

If students' principals answered "No" or "Does not apply" to them item about provision of remote learning resources (see Exhibit B.11) this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.13: School Supports for Remote Learning – Internet-based Resources for Students (ACBG21B)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

▢ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Internet-based Resources for Students		
	Yes	No	Not Applicable
Albania	78 (3.5)	9 (2.5)	14 (3.2)
Australia ✕	94 (1.3)	0 ~	6 (1.3)
Austria	87 (3.1)	10 (2.7)	3 (1.7)
Azerbaijan	33 (3.5)	34 (3.6)	32 (3.6)
Bahrain	91 (1.6)	1 ~	7 (1.5)
Belgium (Flemish)	93 (2.7)	2 ~	5 (2.4)
Belgium (French)	72 (3.8)	15 (3.1)	13 (2.6)
Brazil ✕	88 (3.2)	10 (2.9)	2 ~
Bulgaria	94 (2.1)	3 (1.5)	3 (1.5)
Chinese Taipei	80 (3.0)	3 (1.3)	17 (2.7)
Croatia	92 (2.4)	3 (1.4)	5 (2.0)
Cyprus	95 (2.0)	5 (1.9)	1 ~
Czech Republic	100 (0.0)	0 ~	0 ~
Denmark	99 (0.8)	1 ~	0 ~
Egypt	50 (3.9)	11 (2.4)	39 (3.8)
England ✕ s	98 (1.4)	1 ~	1 ~
Finland	88 (2.8)	3 (1.2)	10 (2.6)
France	89 (2.3)	9 (2.0)	3 (1.4)
Georgia	96 (1.4)	3 (1.4)	0 ~
Germany r	93 (1.7)	6 (1.6)	1 ~
Hong Kong SAR	98 (1.1)	0 ~	2 ~
Hungary	97 (1.8)	2 ~	1 ~
Iran, Islamic Rep. of ✕	89 (2.1)	7 (1.7)	3 (1.2)
Ireland	99 (0.8)	1 ~	1 ~
Israel ✕ r	89 (2.6)	1 ~	10 (2.5)
Italy	99 (0.6)	0 ~	1 ~
Jordan	80 (3.3)	13 (2.9)	7 (2.2)
Kazakhstan	94 (1.5)	1 ~	5 (1.4)
Kosovo	80 (4.0)	11 (3.3)	9 (2.4)
Latvia	98 (1.1)	2 ~	0 ~
Lithuania s	98 (1.6)	2 ~	0 ~
Macao SAR	96 (0.0)	3 (0.0)	1 ~
Malta	99 (0.0)	0 ~	0 ~
Montenegro	95 (0.1)	5 (0.1)	0 ~
Morocco r	52 (4.5)	4 (1.6)	44 (4.5)
Netherlands r	99 (1.2)	0 ~	1 ~
New Zealand r	98 (1.2)	2 ~	0 ~
North Macedonia	82 (3.2)	18 (3.2)	0 ~
Northern Ireland	99 (0.9)	1 ~	0 ~
Norway (5)	89 (2.6)	0 ~	11 (2.6)
Oman	91 (2.1)	6 (1.9)	3 (1.0)
Poland	94 (2.1)	6 (2.0)	1 ~
Portugal	99 (0.9)	0 ~	1 ~
Qatar	99 (0.6)	0 ~	1 ~
Russian Federation	94 (1.6)	3 (1.4)	3 (1.3)
Saudi Arabia	92 (2.4)	5 (2.1)	3 (1.6)
Serbia	72 (3.6)	25 (3.6)	3 (1.4)
Slovak Republic	82 (3.4)	17 (3.3)	1 ~
Slovenia r	98 (1.1)	2 ~	0 ~
South Africa ✕	13 (2.2)	17 (3.0)	70 (3.5)
Spain	98 (0.6)	1 ~	2 ~
Sweden r	47 (4.3)	1 ~	52 (4.3)
Turkiye	70 (3.6)	17 (3.1)	12 (2.3)
United Arab Emirates s	96 (1.0)	1 ~	3 (1.0)
United States	100 (0.0)	0 ~	0 ~
Uzbekistan	81 (3.1)	14 (2.9)	4 (1.4)
International Average	87 (0.3)	6 (0.2)	7 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	97 (1.9)	0 ~	3 (1.9)
British Columbia, Canada r	76 (3.5)	1 ~	23 (3.4)
Newfoundland & Labrador, Canada r	93 (2.9)	1 ~	6 (2.9)
Quebec, Canada	90 (3.9)	1 ~	9 (3.8)
Moscow City, Russian Federation	99 (0.8)	1 ~	0 ~
South Africa (6) ✕	14 (2.5)	14 (3.0)	71 (3.9)
Abu Dhabi, UAE r	98 (0.1)	0 ~	2 ~
Dubai, UAE s	96 (0.1)	1 ~	3 (0.1)

If students' principals answered "No" or "Does not apply" to them item about provision of remote learning resources (see Exhibit B.11) this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.14: School Supports for Remote Learning – Digital Devices for Students (ACBG21C)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

▢ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Digital Devices for Students		
	Yes	No	Not Applicable
Albania	67 (3.7)	19 (3.4)	14 (3.2)
Australia ✕	76 (3.1)	18 (2.9)	6 (1.3)
Austria	36 (4.6)	60 (4.6)	3 (1.7)
Azerbaijan	21 (3.1)	46 (3.5)	33 (3.6)
Bahrain	70 (2.8)	23 (2.5)	7 (1.5)
Belgium (Flemish)	88 (3.4)	6 (2.5)	5 (2.4)
Belgium (French)	17 (3.1)	70 (3.7)	13 (2.6)
Brazil ✕	42 (4.2)	56 (4.0)	2 ~
Bulgaria	91 (2.5)	6 (2.1)	3 (1.5)
Chinese Taipei	56 (3.7)	27 (3.2)	17 (2.7)
Croatia	88 (2.7)	7 (2.1)	5 (2.0)
Cyprus	93 (2.0)	6 (1.9)	1 ~
Czech Republic	98 (0.7)	2 ~	0 ~
Denmark	96 (1.9)	4 (1.9)	0 ~
Egypt	18 (2.7)	43 (4.0)	39 (3.8)
England ✕ s	96 (1.7)	3 (1.4)	1 ~
Finland	89 (2.6)	1 ~	10 (2.6)
France	40 (4.4)	57 (4.3)	3 (1.4)
Georgia	78 (3.3)	22 (3.3)	0 ~
Germany r	78 (3.0)	21 (2.9)	1 ~
Hong Kong SAR	88 (2.4)	11 (2.2)	2 ~
Hungary	88 (2.9)	11 (2.8)	1 ~
Iran, Islamic Rep. of ✕	77 (3.3)	20 (3.1)	3 (1.2)
Ireland	84 (3.2)	15 (3.3)	1 ~
Israel ✕ r	85 (2.8)	5 (1.2)	10 (2.5)
Italy	98 (0.7)	1 ~	1 ~
Jordan	63 (3.8)	29 (3.0)	7 (2.2)
Kazakhstan	94 (1.5)	1 ~	5 (1.4)
Kosovo	65 (4.6)	26 (4.7)	9 (2.5)
Latvia	98 (1.2)	2 ~	0 ~
Lithuania s	99 (0.5)	1 ~	0 ~
Macao SAR	19 (0.1)	80 (0.1)	1 ~
Malta	87 (4.5)	12 (4.5)	0 ~
Montenegro	73 (0.7)	27 (0.7)	0 ~
Morocco r	32 (4.3)	24 (3.3)	44 (4.5)
Netherlands r	98 (1.2)	0 ~	1 ~
New Zealand r	79 (3.4)	21 (3.4)	0 ~
North Macedonia	74 (4.0)	26 (4.0)	0 ~
Northern Ireland	90 (3.0)	10 (3.0)	0 ~
Norway (5)	88 (2.7)	1 ~	11 (2.6)
Oman	67 (3.2)	30 (3.1)	3 (1.0)
Poland	95 (1.7)	5 (1.6)	1 ~
Portugal	94 (1.6)	5 (1.4)	1 ~
Qatar	88 (2.3)	12 (2.3)	1 ~
Russian Federation	80 (3.4)	17 (3.1)	3 (1.3)
Saudi Arabia	71 (3.9)	26 (3.8)	3 (1.6)
Serbia	64 (3.9)	33 (3.8)	3 (1.4)
Slovak Republic	77 (3.5)	23 (3.4)	1 ~
Slovenia r	99 (0.9)	1 ~	0 ~
South Africa ✕	7 (2.0)	23 (3.1)	70 (3.4)
Spain	83 (2.4)	15 (2.4)	2 ~
Sweden r	44 (4.1)	3 (1.6)	52 (4.3)
Turkiye	62 (3.9)	26 (3.6)	12 (2.3)
United Arab Emirates s	85 (1.5)	12 (1.1)	3 (1.0)
United States	99 (1.4)	1 ~	0 ~
Uzbekistan	57 (4.2)	39 (4.2)	4 (1.4)
International Average	73 (0.4)	19 (0.4)	7 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	94 (2.8)	3 (2.1)	3 (1.9)
British Columbia, Canada r	71 (4.0)	6 (2.3)	23 (3.4)
Newfoundland & Labrador, Canada r	93 (2.9)	1 ~	6 (2.9)
Quebec, Canada	89 (4.0)	2 ~	9 (3.8)
Moscow City, Russian Federation	100 (0.0)	0 ~	0 ~
South Africa (6) ✕	7 (2.2)	22 (3.5)	71 (3.9)
Abu Dhabi, UAE r	90 (1.2)	8 (1.1)	2 ~
Dubai, UAE s	77 (0.3)	19 (0.3)	3 (0.1)

If students' principals answered "No" or "Does not apply" to them item about provision of remote learning resources (see Exhibit B.11) this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.15: School Supports for Remote Learning – Remote Instruction Recommendations for Teachers (ACBG21D)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

▢ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Remote Instruction Recommendations for Teachers		
	Yes	No	Not Applicable
Albania	83 (3.1)	3 (1.4)	13 (3.1)
Australia ✕	91 (2.1)	4 (1.6)	6 (1.3)
Austria	86 (3.0)	11 (2.5)	3 (1.7)
Azerbaijan	65 (3.8)	3 (1.4)	32 (3.6)
Bahrain	91 (1.5)	2 ~	7 (1.5)
Belgium (Flemish)	88 (3.1)	7 (2.4)	5 (2.4)
Belgium (French)	58 (3.8)	29 (3.8)	13 (2.6)
Brazil ✕	89 (3.3)	9 (3.0)	2 ~
Bulgaria	96 (1.7)	1 ~	3 (1.5)
Chinese Taipei	82 (2.8)	1 ~	17 (2.7)
Croatia	93 (2.2)	1 ~	5 (2.0)
Cyprus	98 (1.1)	2 ~	1 ~
Czech Republic	100 (0.0)	0 ~	0 ~
Denmark	97 (1.4)	3 (1.4)	0 ~
Egypt	54 (3.8)	7 (1.9)	39 (3.8)
England ✕ s	97 (1.5)	2 ~	1 ~
Finland	87 (3.0)	3 (1.5)	10 (2.6)
France	57 (4.5)	41 (4.3)	3 (1.4)
Georgia	99 (0.6)	1 ~	0 ~
Germany r	85 (2.6)	14 (2.7)	1 ~
Hong Kong SAR	98 (1.1)	0 ~	2 ~
Hungary	97 (1.5)	2 ~	1 ~
Iran, Islamic Rep. of ✕	95 (1.6)	2 ~	3 (1.2)
Ireland	97 (1.4)	2 ~	1 ~
Israel ✕ r	88 (2.6)	2 ~	10 (2.5)
Italy	96 (1.8)	4 (1.7)	1 ~
Jordan	87 (3.1)	6 (2.2)	7 (2.2)
Kazakhstan	94 (1.6)	1 ~	5 (1.4)
Kosovo	86 (2.7)	5 (1.3)	9 (2.4)
Latvia	100 (0.0)	0 ~	0 ~
Lithuania s	100 (0.2)	0 ~	0 ~
Macao SAR	98 (0.0)	0 ~	1 ~
Malta	99 (0.0)	0 ~	0 ~
Montenegro	100 (0.0)	0 ~	0 ~
Morocco r	51 (4.5)	5 (1.8)	44 (4.5)
Netherlands r	97 (1.7)	2 ~	1 ~
New Zealand r	95 (1.9)	5 (1.9)	0 ~
North Macedonia	93 (2.5)	7 (2.5)	0 ~
Northern Ireland	96 (1.8)	4 (1.8)	0 ~
Norway (5)	85 (3.0)	4 (1.6)	11 (2.6)
Oman	95 (1.6)	2 ~	3 (1.0)
Poland	98 (1.3)	1 ~	1 ~
Portugal	97 (1.2)	1 ~	1 ~
Qatar	99 (0.6)	0 ~	1 ~
Russian Federation	95 (1.5)	2 ~	3 (1.3)
Saudi Arabia	96 (1.9)	1 ~	3 (1.6)
Serbia	96 (1.6)	1 ~	3 (1.4)
Slovak Republic	97 (1.6)	2 ~	1 ~
Slovenia r	100 (0.0)	0 ~	0 ~
South Africa ✕	15 (2.5)	15 (2.8)	70 (3.4)
Spain	96 (0.9)	2 ~	2 ~
Sweden r	44 (4.4)	4 (1.1)	52 (4.3)
Turkiye	88 (2.3)	0 ~	12 (2.3)
United Arab Emirates s	96 (1.0)	0 ~	3 (1.0)
United States	99 (1.3)	1 ~	0 ~
Uzbekistan	94 (1.6)	2 ~	4 (1.4)
International Average	88 (0.3)	4 (0.2)	7 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	94 (2.8)	3 (2.0)	3 (1.9)
British Columbia, Canada r	73 (3.6)	4 (2.0)	23 (3.4)
Newfoundland & Labrador, Canada r	94 (2.9)	0 ~	6 (2.9)
Quebec, Canada	89 (4.0)	2 ~	9 (3.8)
Moscow City, Russian Federation	100 (0.0)	0 ~	0 ~
South Africa (6) ✕	17 (2.7)	12 (2.9)	71 (3.9)
Abu Dhabi, UAE r	98 (0.1)	0 ~	2 ~
Dubai, UAE s	96 (0.1)	1 ~	3 (0.1)

If students' principals answered "No" or "Does not apply" to them item about provision of remote learning resources (see Exhibit B.11) this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.16: School Supports for Remote Learning – Technical Support for Teachers (ACBG21E)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

■ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Technical Support for Teachers		
	Yes	No	Not Applicable
Albania	59 (3.9)	27 (3.9)	14 (3.1)
Australia ✕	92 (1.8)	3 (1.3)	6 (1.3)
Austria	65 (4.2)	32 (3.9)	3 (1.7)
Azerbaijan	47 (4.0)	21 (3.1)	32 (3.6)
Bahrain	91 (1.6)	2 ~	7 (1.5)
Belgium (Flemish)	85 (3.4)	10 (2.8)	5 (2.4)
Belgium (French)	48 (4.1)	39 (3.9)	13 (2.6)
Brazil ✕	72 (4.5)	25 (4.3)	2 ~
Bulgaria	93 (2.0)	4 (1.6)	3 (1.5)
Chinese Taipei	82 (2.8)	1 ~	17 (2.7)
Croatia	93 (2.2)	1 ~	5 (2.0)
Cyprus	90 (2.5)	9 (2.4)	1 ~
Czech Republic	100 (0.0)	0 ~	0 ~
Denmark	97 (1.3)	3 (1.3)	0 ~
Egypt	47 (4.0)	14 (2.7)	40 (3.8)
England ✕ s	95 (2.1)	4 (1.8)	1 ~
Finland	90 (2.6)	0 ~	10 (2.6)
France	26 (3.3)	71 (3.1)	3 (1.4)
Georgia	93 (2.0)	7 (2.0)	0 ~
Germany r	74 (3.2)	25 (3.2)	1 ~
Hong Kong SAR	98 (1.1)	0 ~	2 ~
Hungary	98 (1.2)	1 ~	1 ~
Iran, Islamic Rep. of ✕	85 (2.9)	12 (2.7)	3 (1.2)
Ireland	85 (3.2)	15 (3.2)	1 ~
Israel ✕ r	84 (3.0)	7 (1.6)	10 (2.5)
Italy	97 (1.0)	2 ~	1 ~
Jordan	85 (3.1)	8 (2.4)	7 (2.2)
Kazakhstan	93 (1.7)	1 ~	5 (1.4)
Kosovo	69 (4.7)	22 (4.1)	9 (2.4)
Latvia	100 (0.0)	0 ~	0 ~
Lithuania s	100 (0.0)	0 ~	0 ~
Macao SAR	95 (0.0)	4 (0.0)	1 ~
Malta	97 (1.8)	3 (1.9)	0 ~
Montenegro	95 (0.1)	5 (0.1)	0 ~
Morocco r	36 (4.6)	20 (3.6)	44 (4.5)
Netherlands r	88 (3.8)	11 (3.7)	1 ~
New Zealand r	86 (3.1)	14 (3.1)	0 ~
North Macedonia	89 (3.1)	11 (3.1)	0 ~
Northern Ireland	92 (2.3)	8 (2.3)	0 ~
Norway (5)	86 (2.9)	3 (1.4)	11 (2.6)
Oman	94 (1.8)	3 (1.4)	3 (1.0)
Poland	94 (2.1)	6 (2.0)	1 ~
Portugal	92 (2.1)	7 (2.0)	1 ~
Qatar	98 (0.9)	1 ~	1 ~
Russian Federation	93 (1.8)	4 (1.4)	3 (1.3)
Saudi Arabia	93 (2.5)	3 (1.9)	3 (1.6)
Serbia	92 (2.0)	5 (1.7)	3 (1.4)
Slovak Republic	97 (1.0)	2 ~	1 ~
Slovenia r	100 (0.0)	0 ~	0 ~
South Africa ✕	17 (2.5)	13 (2.6)	70 (3.4)
Spain	92 (1.7)	6 (1.7)	2 ~
Sweden r	44 (4.6)	3 (2.0)	52 (4.3)
Turkiye	83 (2.7)	5 (1.8)	12 (2.3)
United Arab Emirates s	96 (1.0)	1 ~	3 (1.0)
United States	98 (1.5)	2 ~	0 ~
Uzbekistan	77 (3.2)	19 (3.3)	4 (1.4)
International Average	83 (0.4)	9 (0.3)	7 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	95 (2.7)	3 (1.9)	3 (1.9)
British Columbia, Canada r	76 (3.6)	1 ~	23 (3.4)
Newfoundland & Labrador, Canada r	91 (3.1)	3 (1.8)	6 (2.9)
Quebec, Canada	87 (4.3)	4 (2.3)	9 (3.8)
Moscow City, Russian Federation	100 (0.0)	0 ~	0 ~
South Africa (6) ✕	19 (2.8)	11 (2.7)	71 (3.9)
Abu Dhabi, UAE r	97 (0.1)	2 ~	2 ~
Dubai, UAE s	96 (0.1)	1 ~	3 (0.1)

If students' principals answered "No" or "Does not apply" to them item about provision of remote learning resources (see Exhibit B.11) this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Exhibit B.17: School Supports for Remote Learning – Digital Devices for Teachers (ACBG21F)

Students' Results based on Principals' Reports

Assessed Fourth Grade Students at the End of the School Year

✕ Assessed one year later than originally scheduled

▢ Delayed Assessment of Fourth Grade Cohort at the Beginning of Fifth Grade

Country	Percent of Students by School Provision of Digital Devices for Teachers		
	Yes	No	Not Applicable
Albania	62 (3.9)	25 (3.4)	14 (3.1)
Australia ✕	93 (1.5)	1 ~	6 (1.3)
Austria	67 (4.1)	29 (3.8)	3 (1.7)
Azerbaijan	38 (3.7)	29 (3.2)	32 (3.6)
Bahrain	86 (2.1)	7 (1.6)	7 (1.5)
Belgium (Flemish)	91 (3.0)	4 (1.9)	5 (2.4)
Belgium (French)	31 (4.0)	56 (4.1)	13 (2.6)
Brazil ✕	69 (4.5)	29 (4.3)	2 ~
Bulgaria	96 (1.8)	1 ~	3 (1.5)
Chinese Taipei	70 (3.7)	13 (2.8)	17 (2.7)
Croatia	93 (2.2)	1 ~	5 (2.0)
Cyprus	87 (2.9)	13 (2.9)	1 ~
Czech Republic	100 (0.0)	0 ~	0 ~
Denmark	99 (0.8)	1 ~	0 ~
Egypt	26 (3.4)	34 (3.7)	39 (3.8)
England ✕ s	98 (1.4)	1 ~	1 ~
Finland	90 (2.6)	0 ~	10 (2.6)
France	56 (3.7)	41 (3.9)	3 (1.4)
Georgia	90 (2.4)	10 (2.4)	0 ~
Germany r	68 (3.0)	31 (3.0)	1 ~
Hong Kong SAR	96 (1.7)	3 (1.4)	2 ~
Hungary	99 (0.8)	0 ~	1 ~
Iran, Islamic Rep. of ✕	77 (3.0)	19 (2.8)	3 (1.2)
Ireland	95 (1.8)	4 (1.7)	1 ~
Israel ✕ r	79 (3.2)	11 (2.3)	10 (2.5)
Italy	95 (1.7)	4 (1.6)	1 ~
Jordan	82 (3.5)	11 (2.7)	7 (2.2)
Kazakhstan	91 (2.1)	4 (1.6)	5 (1.4)
Kosovo	69 (4.5)	22 (3.9)	9 (2.4)
Latvia	100 (0.0)	0 ~	0 ~
Lithuania s	100 (0.2)	0 ~	0 ~
Macao SAR	82 (0.1)	17 (0.1)	1 ~
Malta	96 (1.8)	3 (1.8)	0 ~
Montenegro	87 (0.7)	13 (0.7)	0 ~
Morocco r	43 (4.7)	13 (2.7)	44 (4.5)
Netherlands r	99 (1.2)	0 ~	1 ~
New Zealand r	91 (2.6)	8 (2.6)	0 ~
North Macedonia	83 (2.7)	17 (2.7)	0 ~
Northern Ireland	97 (1.6)	3 (1.6)	0 ~
Norway (5)	89 (2.6)	0 ~	11 (2.6)
Oman	47 (3.2)	49 (3.2)	3 (1.0)
Poland	94 (2.1)	6 (2.0)	1 ~
Portugal	82 (2.8)	17 (2.6)	1 ~
Qatar	98 (0.7)	1 ~	1 ~
Russian Federation	94 (1.3)	3 (1.4)	3 (1.3)
Saudi Arabia	35 (4.4)	62 (4.7)	3 (1.6)
Serbia	94 (2.0)	4 (1.5)	3 (1.4)
Slovak Republic	98 (0.9)	1 ~	1 ~
Slovenia r	100 (0.0)	0 ~	0 ~
South Africa ✕	16 (2.5)	15 (2.8)	70 (3.4)
Spain	93 (1.6)	6 (1.5)	2 ~
Sweden r	48 (4.3)	0 ~	52 (4.3)
Turkiye	76 (3.2)	12 (2.3)	12 (2.3)
United Arab Emirates s	94 (1.0)	2 ~	3 (1.0)
United States	100 (0.0)	0 ~	0 ~
Uzbekistan	71 (3.9)	24 (3.8)	4 (1.4)
International Average	80 (0.4)	12 (0.3)	7 (0.2)
Singapore	- -	- -	- -
Benchmarking Participants			
Alberta, Canada r	96 (2.5)	2 ~	3 (1.9)
British Columbia, Canada r	75 (3.7)	2 ~	23 (3.4)
Newfoundland & Labrador, Canada r	94 (2.9)	0 ~	6 (2.9)
Quebec, Canada	90 (3.9)	1 ~	9 (3.8)
Moscow City, Russian Federation	100 (0.0)	0 ~	0 ~
South Africa (6) ✕	18 (2.9)	12 (2.9)	71 (3.9)
Abu Dhabi, UAE r	96 (0.1)	2 ~	2 ~
Dubai, UAE s	92 (0.3)	5 (0.3)	3 (0.1)

If students' principals answered "No" or "Does not apply" to them item about provision of remote learning resources (see Exhibit B.11) this item was considered "Not Applicable."

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

An "s" indicates data are available for at least 50% but less than 70% of the students.

A tilde (~) indicates insufficient data to report result. A dash (-) indicates comparable data not available.

Appendix C: Country Reporting of PIRLS 2021 Data Related to COVID-19

In preparing this report, the TIMSS and PIRLS International Study Center contacted PIRLS 2021 National Research Coordinators (NRCs) and requested citations for any national reports using the PIRLS 2021 contextual items related to COVID-19. NRCs provided the citations listed below. This is likely not an exhaustive list of national publications that utilize the items discussed in this report, but these references provide a starting point for looking at these items in a more contextualized manner and considering country-specific educational contexts during the pandemic.

England

Lindorff, A., Stiff, J., Kayton, H. (2023). *PIRLS 2021: National Report for England*. Department of Education. https://assets.publishing.service.gov.uk/media/646220f3427e41000cb43766/PIRLS_2021_-_national_report_for_England_May_2023.pdf

Ireland

Delaney, E., McAteer, S., Delaney, M., McHugh, G., & O'Neill, B. (2023). *PIRLS 2021: Reading results for Ireland*. Dublin: Educational Research Centre. https://www.erc.ie/wp-content/uploads/2023/05/PIRLS-2021_Reading-Results-for-Ireland.pdf

Pitsia, V., McAteer, S., McHugh, G., & Delaney, E. (2024). *PIRLS 2021: Exploring the contexts for reading of primary school pupils in Ireland*. Dublin: Educational Research Centre.

Macao SAR

Education and Youth Development Bureau (DSEDJ). (2023) *PIRLS 2021 Macao SAR National Report*.

Northern Ireland

Classick, R., Aston, K., Guevara Duque, M. J., Flemons, L., Faulkner-Ellis, H., Liht, J., Boyd, S., Sizmur, J., Twist, L. (2023). *PIRLS 2021 in Northern Ireland: Reading Attainment*. Slough: NFER. <https://www.education-ni.gov.uk/sites/default/files/publications/education/PIRLS%202021%20in%20Northern%20Ireland%20Full%20Report.pdf>

United States

NCES. (2023). *PIRLS 2021 U.S. Highlights Web Report*. U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics. <https://nces.ed.gov/surveys/pirls/pirls2021/index.asp>

References

- 1 McNeil, D. G. Jr. (2020, March 11). Coronavirus Has Become a Pandemic, W.H.O. Says. *The New York Times*. <https://www.nytimes.com/2020/03/11/health/coronavirus-pandemic-who.html>
- 2 United Nations. (2020). *Policy Brief: Education during COVID-19 and beyond*. <https://unsdg.un.org/resources/policy-brief-education-during-covid-19-and-beyond>
- 3 UNICEF. (2021). *COVID-19 and School Closures: One year of education disruption*. UNICEF. <https://data.unicef.org/resources/one-year-of-covid-19-and-school-closures/>
- 4 CDC. (2023, March 15). *CDC Museum COVID-19 Timeline*. Centers for Disease Control and Prevention. <https://www.cdc.gov/museum/timeline/covid19.html>
- 5 Treviño, E., Miranda, C., Hernández, M., & Villalobos, C. (2021). Socioeconomic Status, Parental Involvement and Implications for Subjective Well-Being During the Global Pandemic of Covid-19. *Frontiers in Education*, 6. <https://www.frontiersin.org/articles/10.3389/feduc.2021.762780>
- 6 Rousoulioti, T., Tsagari, D., & Giannikas, C. N. (2022). Parents' New Role and Needs During the COVID-19 Educational Emergency. *Interchange (Toronto, Ont. : 1984)*, 53(3–4), 429–455. <https://doi.org/10.1007/s10780-022-09464-6>
- 7 Andrew, A., Cattan, S., Costa Dias, M., Farquharson, C., Kraftman, L., Krutikova, S., Phimister, A., & Sevilla, A. (2020). Inequalities in Children's Experiences of Home Learning during the COVID-19 Lockdown in England. *Fiscal Studies*, 41(3), 653–683. <https://doi.org/10.1111/1475-5890.12240>
- 8 Bacher-Hicks, A., Goodman, J., & Mulhern, C. (2021). Inequality in household adaptation to schooling shocks: Covid-induced online learning engagement in real time. *Journal of Public Economics*, 193, 104345. <https://doi.org/10.1016/j.jpubeco.2020.104345>
- 9 Jæger, M. M., & Blaabæk, E. H. (2020). Inequality in learning opportunities during Covid-19: Evidence from library takeout. *Research in Social Stratification and Mobility*, 68, 100524. <https://doi.org/10.1016/j.rssm.2020.100524>



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