



THE STATE OF THE GLOBAL EDUCATION CRISIS:

A PATH TO RECOVERY

A JOINT UNESCO, UNICEF, AND WORLD BANK REPORT



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UNESCO ISBN: 978-92-3-100491-9

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ACKNOWLEDGEMENTS

First and foremost, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Children’s Fund (UNICEF), and the World Bank would like to thank all the ministries of education, teachers, and families that have worked tirelessly to protect the learning of millions of students during the pandemic.

This report was prepared by a core team consisting of the following colleagues: UNESCO (Borhene Chakroun, Gwang-Chol Chang), UNICEF Headquarters (Suguru Mizunoya, Nicolas Reuge), UNICEF Office of Research – Innocenti (Matt Brossard, Jessica Lynn Bergmann), and the World Bank (João Pedro Azevedo, Halsey Rogers,

Ellinore Ahlgren, Marie-Helene Cloutier), under the overall guidance of Stefania Giannini, Robert Jenkins, and Jaime Saavedra. The team thanks Omar Arias, Ciro Avitabile, Luis Crouch, Laura Gregory, Shwetlena Sabarwal, Yevgeniya Savchenko, Norbert Schady, Lars Sondergaard, Nobuyuki Tanaka, Alfonso Sanchez, and Michael Crawford for their inputs and comments. The support of communication colleagues Cynthia Guttman, Ann Marie Wilcock, Kristyn Schrader-King, and Stefano De Cupis was greatly appreciated. Production assistance was provided by Nancy Vega (UNICEF). We apologize for any omissions and express our sincerest thanks to everyone, whether named here or not, who graciously gave their time and expertise.

FOREWORD

The global disruption to education caused by the COVID-19 pandemic constitutes the worst education crisis on record. Most countries in the world closed schools and higher education institutions as part of their strategies to combat the pandemic. The costs have been immense. The magnitude of the shock is still not fully understood, but emerging evidence is deeply concerning. *The State of the Global Education Crisis: A Path to Recovery* takes stock of the state of education around the world after prolonged school closures that affected nearly all the world's students and offers a set of recommendations for the recovery. The paper presents updated global simulations of learning losses and a review of the evidence, to date, of actual measures of learning losses due to COVID-19. These data show substantial losses in math and reading, in high-, middle-, and low-income countries alike, that disproportionately affect the most marginalized students.

As education systems pivoted to remote learning in early 2020, many moved quickly to deploy multi-modal strategies like online, TV, and radio education, as well as print materials and instant messaging, to promote learning continuity. However, the quality of remote learning initiatives varied greatly, as did access, with marginalized students often least likely to access remote learning opportunities. This crisis has in many ways exacerbated existing inequalities in education, which is why a focus on equity and learning recovery is paramount as children return to school.

With [Mission: Recovering Education 2021](#), UNESCO, UNICEF, and the World Bank joined forces to provide guidance and support to countries navigating the crisis. The collaboration of the three organizations is ongoing as education systems continue to weather the storm of the unfolding pandemic. Reopening schools, assessing students' learning levels and wellbeing, and teaching



This crisis has in many ways exacerbated existing inequalities in education, which is why a focus on equity and learning recovery is paramount as children return to school.

students at their current levels of learning will be crucial. Introducing a learning recovery program composed of evidence-based strategies to boost learning can help bring students back up to speed. The success of learning recovery will largely depend on the teachers who are on the front lines of delivering learning recovery programs and supporting students' wellbeing; those teachers need our support. Implementing such programs will require significant political and financial commitment to strengthen education systems' capacity and invest well in their future. To date, less than three percent of governments' stimulus packages have been allocated to education; and in low- and lower-middle-income countries, the share is less than one percent. Much more funding will be needed for immediate learning recovery, let alone for the transformed education that the world's children and youth deserve and need.

The State of the Global Education Crisis: A Path to Recovery provides a stark reality check for education systems worldwide and presents a menu of policy actions for recovering learning and using this crisis as an opportunity to reinvent education—to make it more resilient, more equitable, and more efficient in delivering learning for all. This opportunity must be seized. Now is the time to act, to prevent this generation of students from suffering permanent losses in their learning and future productivity, and to protect their ability to participate fully in society.

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EXECUTIVE SUMMARY

The global disruption to education caused by the COVID-19 pandemic is without parallel, and its effects on learning have been severe. The crisis brought education systems across the world to a halt, with school closures affecting more than 1.6 billion learners. While nearly every country in the world offered remote learning opportunities for students, the quality and reach of such initiatives varied greatly, and they were at best partial substitutes for in-person learning. Now, 21 months later, schools remain closed for millions of children and youth, and millions more are at risk of never returning to education. Growing evidence on the impacts of school closures on children’s learning depicts a harrowing reality. Learning losses have been large and inequitable: recent learning assessments show that children in many countries have missed out on most or all of the academic learning they would ordinarily have acquired in

school, with younger and more marginalized children often missing out the most. Students in São Paulo (Brazil) learned only 28 percent of what they would have in face-to-face classes and the risk of dropout increased more than threefold. In rural Karnataka (India), the share of grade three students in government schools able to perform simple subtraction fell from 24 percent in 2018 to only 16 percent in 2020. The global learning crisis has grown by even more than previously feared: this generation of students now risks losing \$17 trillion in lifetime earnings in present value as a result of school closures, or the equivalent of 14 percent of today’s global GDP, far more than the \$10 trillion estimated in 2020. In low- and middle-income countries, the share of children living in Learning Poverty—already over 50 percent before the pandemic—will rise sharply, potentially up to 70 percent, given the long school closures and the varying quality and effectiveness of remote learning.

The crisis exacerbated inequality in education. Globally, full and partial school closures lasted an average of 224 days. But in low- and middle-income countries, school closures often lasted longer than in high-income countries, and the response was typically less effective. Teachers in many low- and middle-income countries received limited professional development support to transition to remote learning, leaving them unprepared to engage with learners and caregivers. At home, households' ability to respond to the shock varied by income level. Children from disadvantaged households were less likely to benefit from remote learning than their peers, often due to a lack of electricity, connectivity, devices, and caregiver support. The youngest students and students with disabilities were largely left out of countries' policy responses, with remote learning rarely designed in a way that met their developmental needs. Girls faced compounding barriers to learning amidst school closures, as social norms, limited digital skills, and lack of access to devices constrained their ability to keep learning.

Progress made for children and youth in other domains has stagnated or reversed. Schools ordinarily provide critical services that extend beyond learning and offer safe spaces for protection. During school closures, children's health and safety was jeopardized, with domestic violence and child labor increasing. More than 370 million children globally missed out on school meals during school closures, losing what is for some children the only reliable source of food and daily nutrition. The mental health crisis among young people has reached unprecedented levels. Advances in gender equality are threatened, with school closures placing an estimated 10 million more girls at risk of early marriage in the next decade and at increased risk of dropping out of school.

The COVID-19 crisis forced the global education community to learn some critical lessons, but also highlighted that transformation and innovation are possible. Despite the shortcomings of remote learning initiatives, there were bright spots and innovations. Remote and hybrid education, which became a necessity when the pandemic hit, has the potential to transform the future of learning if systems are strengthened and technology is better leveraged to complement skilled and well-supported teachers.

Building on the close collaboration of UNESCO, UNICEF, and the World Bank under the [Mission: Recovering Education](#), this report presents new evidence on the severity of the learning losses incurred during school closures and charts a path out of the global education crisis, towards more effective, equitable, and resilient education systems.

Reopening schools should be countries' highest priority.

The cost of keeping schools closed is steep and threatens to hamper a generation of children and youth while widening pre-pandemic disparities. Reopening schools and keeping them open should therefore be the top priority for countries, as growing evidence indicates that with adequate measures, health risks to children and education staff can be minimized. Reopening is the single best measure countries can take to begin reversing learning losses.



Reopening schools should be countries' highest priority. The cost of keeping schools closed is steep and threatens to hamper a generation of children and youth while widening pre-pandemic disparities.

To tackle the learning crisis, countries must first address the learning data crisis, by assessing students' learning levels.

While substantial losses in reading and math have now been documented in several countries and show variations across countries, grades, subjects and students characteristics, evidence on learning loss generally remains scarce. It is critical for policymakers, school administrators, and teachers to have access to learning data that reflect their context, and for learning data to be disaggregated by various sub-groups of students, so that they can target instruction and accelerate students' learning recovery.

To prevent learning losses from accumulating once children are back in school, countries should adopt learning recovery programs consisting of evidence-based strategies.

Evidence from past disruptions to education, such as the 2005 Pakistan earthquake, show that without remedial measures, learning losses may grow even after children return to school, if the curriculum and teaching do not adjust to meet students' learning needs. Learning recovery programs can prevent this and make up the losses with a contextually appropriate mix of proven techniques for promoting foundational learning: consolidating the curriculum, extending instructional time, and making learning more efficient through targeted instruction, structured pedagogy, small-group tutoring, and self-guided learning programs. In addition to recovering lost learning, such measures can improve learning outcomes in the long run, by improving systems' responsiveness to students' learning needs. But countries must act now to make that happen, taking advantage of the opportunity to improve their systems before the learning losses become permanent.

Beyond addressing learning losses, addressing children's socioemotional losses is essential. School closures not only disrupted education, but also affected the delivery of essential services, including school feeding, protection and psychosocial support, impacting the overall wellbeing and mental health of children. Reopening schools and supporting them to provide comprehensive services promoting wellbeing and psychosocial support is a priority. This will happen only if teachers are adequately equipped and trained to support the holistic needs of children. All teachers should be supported and prepared for remedial education, mental health and psychosocial support, and remote learning.

Building back better requires countries to measure how effective their policy responses are at mitigating learning

loss and to analyze their impact on equity—and then to use what they learn to keep improving. Improving systems to generate timely and reliable data is critical to evaluate policy responses and generate lessons learned for the next disruption to education. The implementation gap between policy and improved student learning requires more research to understand what works and how to scale what works to the system level.

Countries have an opportunity to accelerate learning and make schools more efficient, equitable, and resilient by building on investments made and lessons learned during the crisis. Now is the time to shift from crisis to recovery—and beyond recovery, to resilient and transformative education systems that truly deliver learning and wellbeing for all children and youth.



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PART 1

INTRODUCTION

Even before COVID-19 hit, the world was already experiencing a learning crisis. 258 million primary- and secondary-school age children and youth were out of school.¹ Many children who were in school were learning very little: 53 percent of all ten-year-old children in low- and middle-income countries were experiencing Learning Poverty, meaning that they were unable to read and understand a simple age-appropriate text at age 10.² The learning crisis was already distributed unequally and disproportionately affected the most vulnerable children. In low-income countries, the Learning Poverty rate was close to 90 percent, compared with just nine percent in high-income countries.³ Globally, the average learning adjusted years of schooling (LAYS) stood at just 7.9 years, reinforcing that for many of the world’s children and youth, schooling is not the same as learning.⁴

A MOUNTING CRISIS WITHIN A CRISIS

COVID-19 resulted in an unprecedented disruption to education worldwide, affecting more than 1.6 billion students and amplifying the pre-existing learning crisis. Education systems have attempted to mitigate the effects of school closures by implementing a range of remote learning modalities to support students continued learning, including online platforms, TV and radio programming, and take-home print packages. But the deployment, uptake, and effectiveness of such programs has varied greatly, and in most countries, offered an inadequate substitute for in-person learning.⁵

In early 2020, there were warnings of the detrimental effects that school closures resulting from the COVID-19 pandemic could have, risking reversing decades of advancement in education and hindering progress toward the Sustainable

Development Goals. Simulations showed that school closures of just seven months could lead to a ten percent increase in the share of students in Learning Poverty and cost this generation of students \$10 trillion in lifetime earnings.^{6,7} An estimated 24 million students from pre-primary to tertiary were deemed at risk of permanently dropping out of school.⁸ As countries moved into a second year of the pandemic and school closures for many countries continued, potential losses in learning and life-time earnings were expected to grow. A mounting body of evidence confirms that learning losses as a result of COVID-19 school closures are real, with stark disparities for marginalized students worldwide. Globally, 27 percent of country education systems remained fully or partially closed as of September 2021, some still without plans for reopening.⁹

In addition to the effects on learning, the COVID-19 health crisis directly affected children, youth, and their families along multiple dimensions. Nearly five million individuals have died due to COVID-19, and more than one million children around the world have lost a parent or caregiver to COVID-19.^{10,11} Restrictions on mobility and economic activity that were put in place to mitigate the health impacts of the pandemic have led to huge economic disruption, with an estimated 124 million people pushed into poverty.¹² At the same time, countries experienced economic contractions and budget cuts, creating a perfect storm that disproportionately affected vulnerable populations and widened inequities across countries and within countries. A growing concern is that the recovery may be similarly inequitable¹³ and that the effects of COVID-19 will be long-lasting.

MISSION: RECOVERING EDUCATION 2021

At the beginning of the COVID-19 pandemic, the World Bank, UNICEF, and UNESCO partnered to monitor national education responses to school closures and support policymakers to assess the global impacts of the pandemic. The first joint report, published in October 2020, offered analysis on the actions that countries took to implement remote learning, the support they offered to parents and teachers, their plans and safety measures for school reopening, and the financial resources they needed for the national education response to the pandemic. The early survey results illustrated how COVID-19 could widen inequities between and within countries, as a result of lost opportunities for learning.¹⁴ Eight months further into the pandemic, the second joint report published in June 2021 provided a progress report on school closures and reopenings, measures education systems had taken for assessing student learning and learning loss, and policies

countries adopted to boost access to and effectiveness of remote learning.¹⁵

With the future of an entire generation at stake, the World Bank, UNICEF, and UNESCO launched [Mission: Recovering Education 2021](#) focused on three priorities: (1) bringing all children back to schools, (2) recovering learning losses, and (3) preparing and supporting teachers. We joined forces to help governments and school authorities achieve this critical mission and engaged with governments to prioritize education financing for these three objectives. We provided technical assistance and financial support for the return to school, for supporting classroom activities to accelerate learning and implement remedial education schemes, and for supporting teachers' professional development. Our three organizations remain committed to sounding the alarm on the urgency of the crisis in education, and this report highlights the growing evidence of learning losses and widening inequalities, together with the need to take immediate actions to recover learning and build more equitable, efficient and resilient learning systems.

REPORT OVERVIEW

This report spotlights how COVID-19 has deepened the education crisis and charts a course for creating more resilient education systems for the future. The next section documents COVID-19's impacts on learning levels by presenting updated simulations and bringing together the latest documented evidence on learning loss from over 28 countries. Section three explores how the crisis has widened inequality and had greater impacts on already disadvantaged children and youth. Section four reviews evidence on learning recovery from past crises and highlights current policy responses that appear most likely to have succeeded in stemming learning losses, while recognizing that the evidence is still in a nascent stage. The final section discusses how to build on the investments made and the lessons learned during the pandemic to accelerate learning recovery and emerge from the crisis with increased education quality, resilience, and equity in the longer term.



This report spotlights how COVID-19 has deepened the education crisis and charts a course for creating more resilient education systems for the future.



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PART 2

IMPACT OF COVID-19 ON LEARNING

To assess the impact of COVID-19 on learning, it is important to define what we mean by learning loss. This report defines the term “learning loss” as any loss of knowledge or skills and/or deceleration of or interruption to academic progress, most commonly due to extended gaps or discontinuities in a student’s education. Learning loss is not a new concept in the education policy debate and can be driven by summer breaks, interruptions to formal education, dropouts, school absence, and

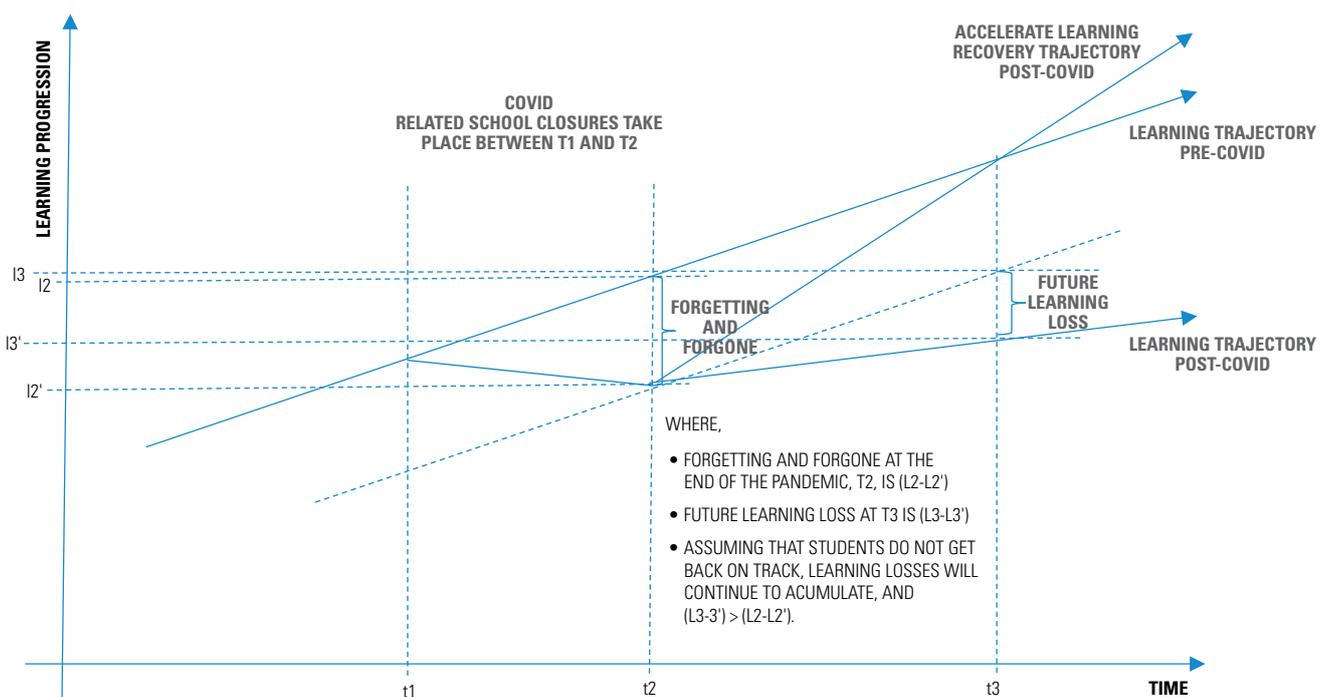
ineffective teaching. Various studies simulate the potential learning losses associated with the pandemic or, as data becomes available, report on the actual observed learning losses as systems reengage with students. Two main types of learning losses are often discussed in the literature: “forgetting,” which refers to the loss of previously acquired learning, and “forgone” learning, which means expected learning that does not take place as schools are closed to in-person learning. When estimating the “forgone” learning, some authors estimate a counterfactual using

empirical data, such as previous cohorts attained learning levels, while others use normative criteria such as grade-level expectations.¹⁶ To distinguish between empirical and normative counterfactuals, this paper refers to **learning losses** and **learning gaps**. While the former can be attributed to a shock such as COVID related school closures, the latter was a problem prior to the pandemic, as students in many systems were already performing below expectations. The focus of this report is learning losses, rather than learning gaps.¹⁷

On top of forgetting and forgone learning, additional learning losses could accumulate even after students return to school. Learning is a cumulative process, with new skills building on existing ones. Evidence from past emergencies documents that school closures often do long-term damage: affected cohorts of children end up with lower educational attainment, as well as lower earnings and higher unemployment in adulthood.^{18,19,20,21} Some evidence shows that part of the long-term losses are attributable to slower learning once children return to school.²² Consequently, learning losses associated with the pandemic may result in compounded negative consequences for this generation of students by harming

children's future learning trajectories. If children lost essential building blocks for future learning during school closures and are not helped to recover them, learning will continue at a slower pace than before. Figure 1 illustrates the elements described above using a hypothetical learning progression (slope) given by the **learning trajectory pre-COVID**. It shows that COVID-related school closures between period t_1 and t_2 can yield **learning losses** (both in terms of forgetting and forgone). Such losses can be measured at t_2 (present time) as schools reopen. Since learning is progressive, if it is not recovered, students might be pushed towards a new learning trajectory (**post-COVID learning trajectory**) with a flatter slope, which will result in a level of learning at t_3 that would be lower than would have been expected if students had remained at the pre-COVID rate of learning. This difference is referred to in the figure as future learning losses. The current crisis presents an opportunity, since to recover learning losses, students must be put on an **accelerated learning recovery trajectory**. This rate of learning can bring students back to the expected pre-pandemic learning levels at t_3 , and change the future expected learning levels of this generation beyond t_3 .

FIGURE 1. Learning trajectories pre- and post-COVID, showing implications of current learning losses on future learning



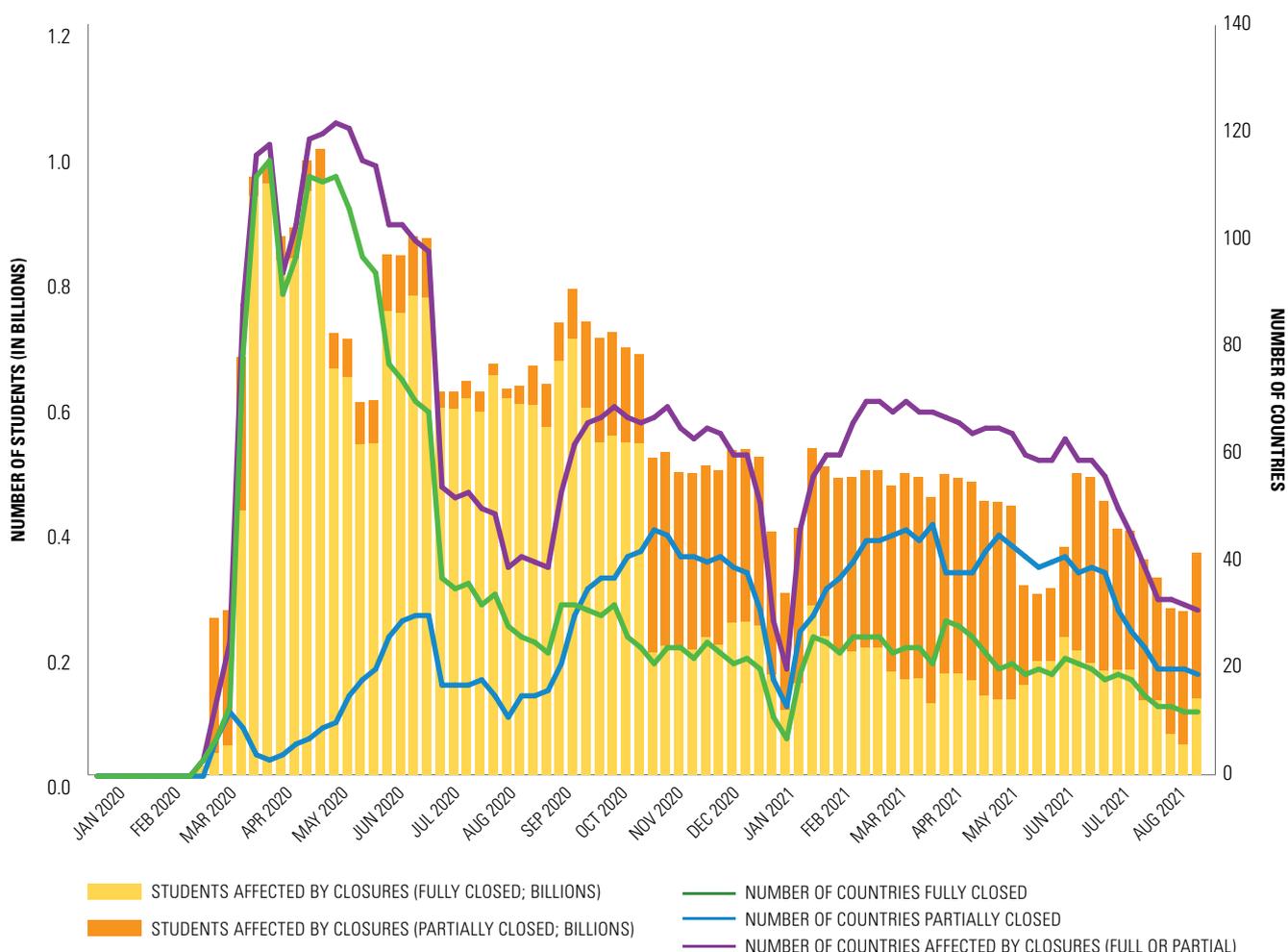
Source: authors' illustration.

2.1 UPDATED GLOBAL SIMULATIONS SHOW LEARNING LOSSES LARGER THAN FEARED

The quantity of schooling lost is momentous. At its peak, school closures affected 1.6 billion children in 188 countries,²³ with over one billion of these children living in low- and middle-income countries. Globally, from late February 2020 until early August 2021, education systems were on average fully closed for 121 instructional days and partially closed for 103 days, with the world's poorest children disproportionately affected.²⁴ While some countries quickly reopened schools, many kept all schools closed for exceptionally long periods or reopened, but only partially. For example, some education systems reopened but offered access to face-to-face schooling only in certain areas, to certain grades, or to all students on a part-time basis, adopting a hybrid model where students rotate in receiving in-person instruction.

Simulations at the end of 2020, 9 months into the pandemic, suggested that school closures lasting seven school months could cost this generation of students an estimated \$10 trillion in lifetime earnings in present value in the intermediate scenario—or as much as \$16 trillion under a pessimistic scenario. World Bank simulations in 2020 expected to see a global loss of 0.9 learning-adjusted years of schooling (LAYS), driving the global average down from 7.8 LAYS to 6.9 LAYS.²⁵ Under this scenario, a typical student would lose \$25,000 in lifetime earnings in present value terms, and this generation of students could lose an estimated \$16 trillion in earnings. And with that duration of school closures, learning poverty was expected to increase by 10 percentage points, reaching 63 percent.²⁶

FIGURE 2. Hundreds of millions of students in low- and middle-income countries have been affected by full and partial school closures since the start of the pandemic



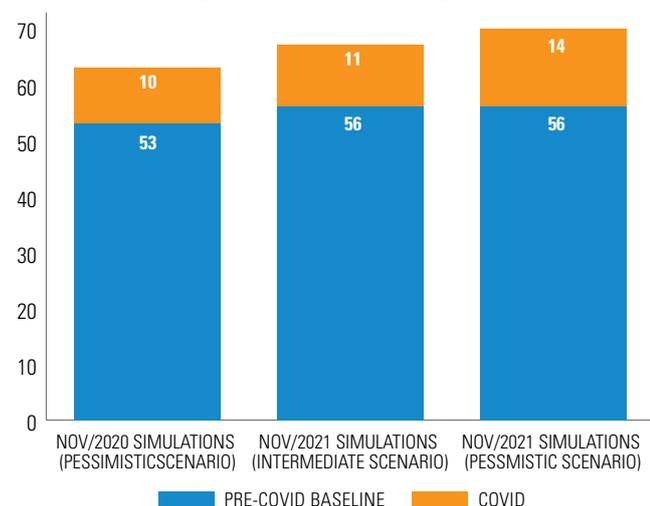
Source: authors' calculations using UNESCO school closure database.

Updated learning loss simulations show that results under a pessimistic scenario are worse and this generation of students could lose \$17 trillion in lifetime earnings at present value.²⁷ This projected loss is equivalent to 14 percent of today's global GDP. The new simulations indicate a shift in the distribution of learning losses by income groupings: a larger share of losses is now expected to have taken place in middle-income countries, because their reported school closures have been longer than those in high- and low-income countries.

In the pessimistic scenario, Learning Poverty is expected to increase to as much as 70 percent in low- and middle-income countries. In both new simulated scenarios, remote learning is expected to have performed in the same way, and in line with the pessimistic scenario of November 2020, and schools are assumed to be fully closed.²⁸ Results by income groups (see Figure A.1 in the appendix) indicate that Learning Poverty is likely to worsen most in upper- and lower-middle-income countries; Learning Poverty might increase up to 23 and 10 percentage points respectively. In contrast, in low-income countries, Learning Poverty might increase only 1 percentage point (although starting from a very high base of 90 percent).

Many education systems have reopened schools, even if partially, which may help prevent further losses. In the intermediate scenario of potential learning losses by August 2021, schools are assumed to be partially opened, mitigation measures are assumed to be slightly more effective and an average of 25 percent of students assumed to be back in schools during the weeks in which the system is partially closed. In this scenario, LAYS is expected to have fallen from 7.8 to 7.1, with \$12 trillion losses in lifetime earnings and Learning Poverty expected to have increased to 67 percent (see Figure 3). In this report we are giving more weight to the pessimistic scenario, because: (1) we have no reliable evidence that remote learning during the pandemic has effectively mitigated learning losses in the majority of countries²⁹; and (2) most evidence from middle-income countries suggest that that partial school reopening has often benefited a negligible share of the student population.

FIGURE 3. Learning Poverty is likely to get worse



Notes: (1) results for low- and middle-income countries; (2) Nov/2020 pessimistic scenario assumes 70 percent of school closure and about 10 percent of the learning losses while schools are closed will be fully mitigated in high-income countries, but in the developing world, 7 percent as described in Azevedo (2020); (3) Nov/2021 simulations build on the same remote learning effectiveness parameters as in Azevedo (2020), however, actual length of school closure information builds on UNESCO database (as used in Figure 2); Intermediate scenario: partial reopening is assumed to be at 50 percent of the system; Pessimistic scenario: Partial reopening is assumed to be negligible, or that the system was fully closed. For details on the November/2021 simulation update see Azevedo, Cloutier et al (2021). (4) baseline learning poverty values reflected July 1st, 2021 country updates and revisions (see Azevedo, Montoya et al (2021) for details). This update included the latest data for Sub-Saharan Africa and East Asia and the Pacific.



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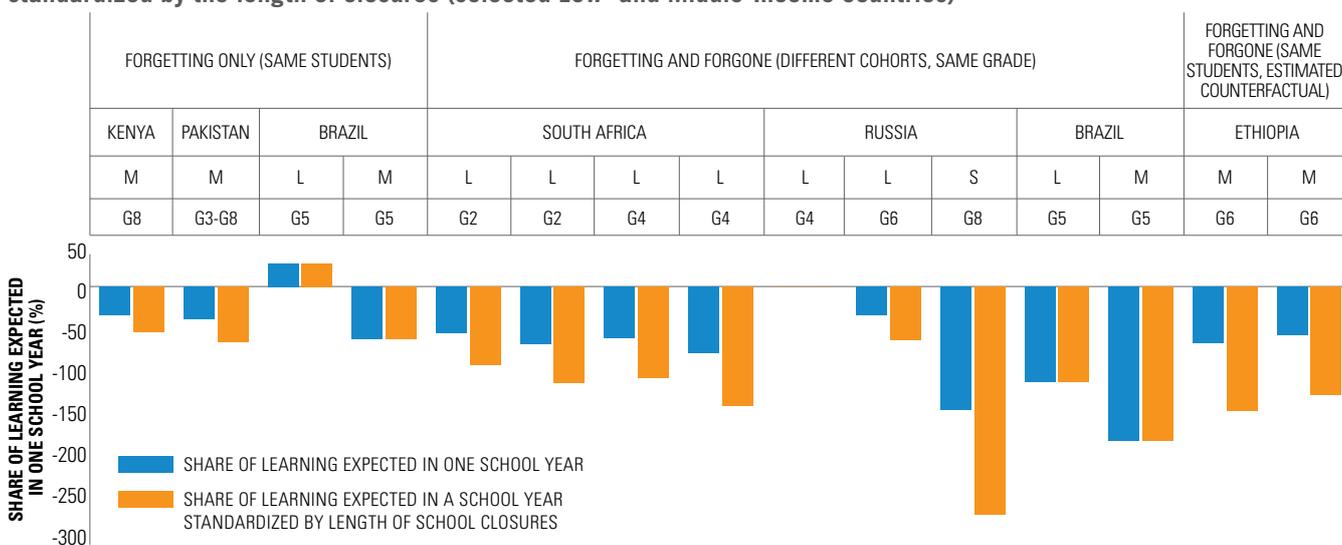
2.2 GROWING EVIDENCE CONFIRMS LEARNING LOSSES ARE REAL

Studies from low- and middle-income countries show major systemwide learning losses. Results from two states in **Mexico** show significant learning losses in reading and in math for students aged 10-15. The estimated learning losses range from 0.34 - 0.45 standard deviations in reading and 0.62 – 0.82 standard deviations in math, varying by students’ socioeconomic status, gender, and age.³⁰ The study confirms that the share of students who cannot not read or understand a simple text is set to increase markedly, rising by 15 percentage points for students of high socioeconomic status and 25 percentage points for students of low socioeconomic status, aligned with the simulation results. In rural **Pakistan**, results for primary students in grades 1-5 declined in math, as well as in reading in Urdu/Sindhi/Pashto, but remained flat in English.³¹ In **Russia**, school closures in one region had heterogenous impacts on learning across grades. While there were no observed learning losses in reading among fourth graders, sixth graders lost the equivalent of 3-4 months of learning and eighth graders lost the equivalent of nearly a year and half of learning in science literacy.³² In **South Africa**, early-grade students suffered learning losses in reading after missing on average 60 percent of school days in 2020. Second graders experienced losses of between 57 and 70 percent of a year of learning. Fourth graders experienced losses of between 62 and 81 percent of a year of learning.³³ While girls in South Africa typically outperform boys in reading, evidence indicates that learning losses in English

for fourth graders were 27 percent higher for girls than boys. In **Kenya**, a non-representative sample of motivated primary school children who maintained use of the online Math-Whizz tutoring platform before and during the pandemic via Project iMlango lost an equivalent of three and a half months of learning in math.³⁴ Primary school children in **Ethiopia** learned only 30-40 percent as much in math as they would during a normal year, and the learning gap between urban and rural students increased.³⁵ In **Ghana**, evidence suggests that inequalities in learning outcomes were exacerbated during the pandemic. Students of higher socioeconomic status outperformed students of lower socioeconomic status in math and reading, which may be a result of their higher engagement rates in remote learning and their schools and caregivers providing more support during school closures.³⁶

Figure 4 below highlights some of the learning losses from selected low-and-middle income countries, presented in terms of the share of a school year’s worth of learning each loss represents. Evidence from some countries suggest that on average, the learning losses are roughly proportional to the length of school closures. However, there is a great deal of heterogeneity, as illustrated in the figure below. Note that the studies that gathered data on learning loss are measuring learning in different grades, for different subjects, at different scales, with varying timelines and have relied on different designs (see footnote of Figure 4 for more details). However, the main takeaway remains: children around the world have experienced substantial learning losses.

FIGURE 4. Changes in learning as shares of learning normally expected in one school year, non-standardized and standardized by the length of closures (selected Low- and Middle-Income countries)



Notes: (1) “Forgetting” refers to learning that students forgot during school closures, while “forgone” learning refers to learning that would normally take place but did not take place during school closures. While most studies report them in a combined measurement, some distinguish between the two, and a few only measured the forgetting; (2) Some studies track the results of the same students before and during the pandemic (using a panel or pseudo-panel design), while others compare the results of the same grade across different cohorts, a pre-pandemic cohort compared to a cohort affected by the pandemic (using a repeated cross-sections design); (3) G refers to grade, and the number denotes which grade. E.g., G2 = grade two; (4) L refers to language, M to math, S to science literacy; and (5) Selected countries are those for which the study provides data required to compute the effect in share of school year.

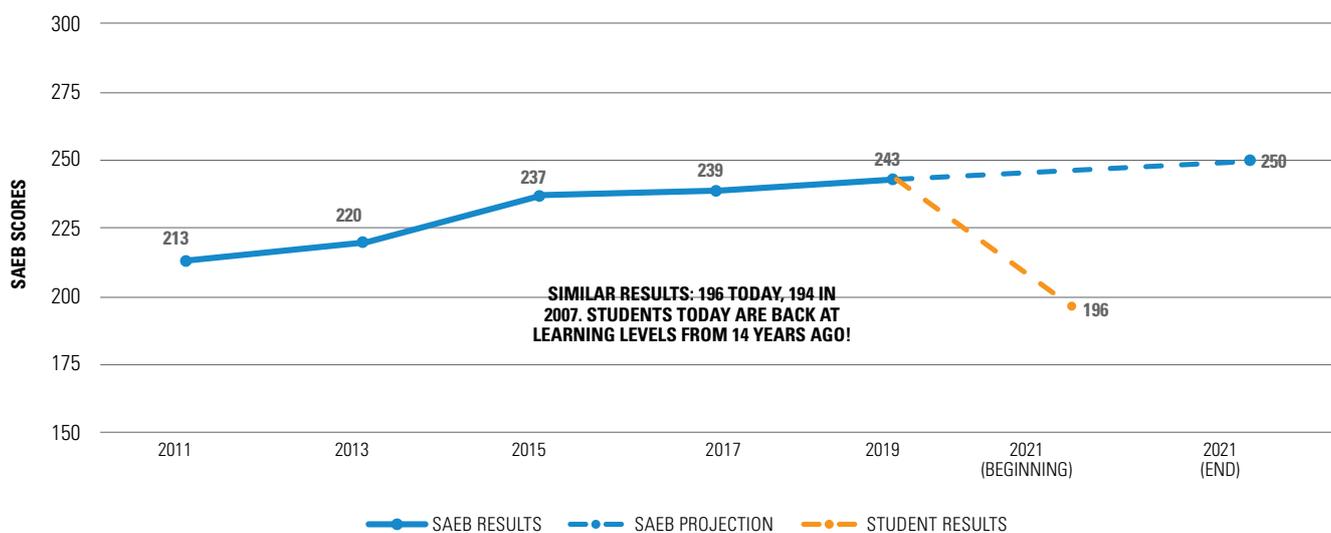
Source: Authors’ calculations using data from multiple studies, all available in Table 1 in the appendix.

Detailed data from São Paulo state in Brazil demonstrate the erosion of learning progress during school closures.

A study from **São Paulo** in **Brazil**, shows that on average, students learned only 28 percent of what they would have in face-to-face classes and the risk of dropout increased more than threefold.³⁷ São Paulo's state-wide exams in 2021 show learning losses across the board, with the 2021 cohorts

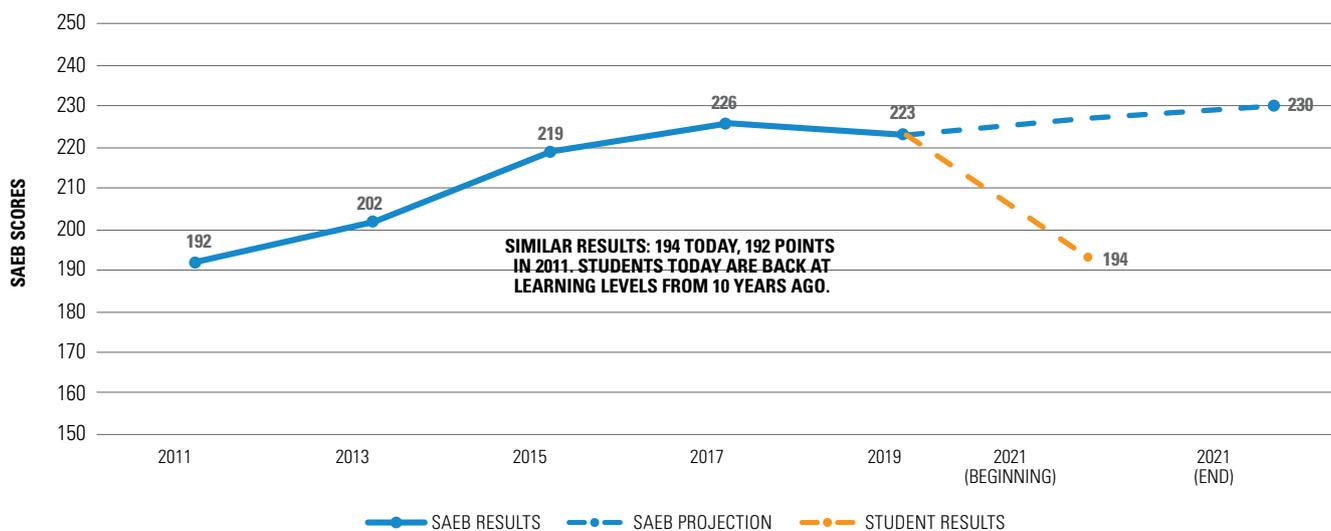
scoring lower than the 2019 cohort in every grade, with larger losses for younger students.³⁸ Figure 5a illustrates the learning trajectory for fifth graders in Portuguese, while Figure 5b shows math. These results are particularly striking, as they illustrate how the shock has eliminated a decade or more of steady learning progress.

FIGURE 5A: São Paulo: Timeline for 5th grade students in Math, National Basic Education Assessment System (SAEB) vs. sample evaluation



Source: authors' calculations using data from SEDUC-SP, 2021.

FIGURE 5B: São Paulo: Timeline for 5th grade students in Language, National Basic Education Assessment System (SAEB) vs. sample evaluation in São Paulo

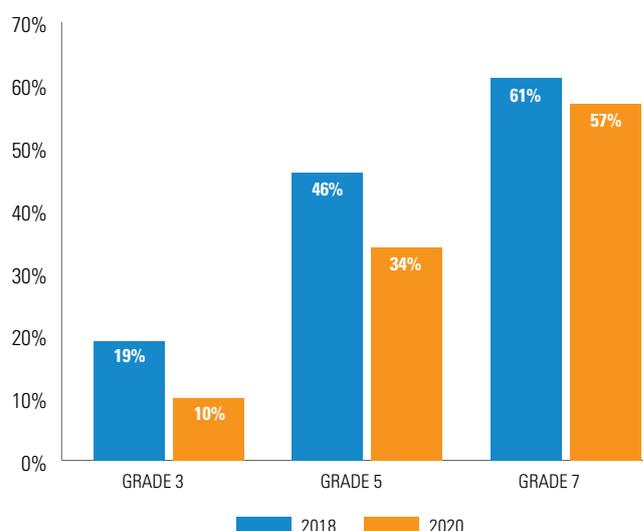


Source: authors' calculations using data from SEDUC-SP, 2021.

Beyond São Paulo, in a group of Brazilian states, the share of second graders who are off-track to become fluent readers increased from 52 percent to 74 percent, supporting the notion that the pre-pandemic learning crisis has worsened during the COVID-related school closures. With the support of civil society organizations, the Secretary of Education of ten Brazilian states decided to participate in a foundational skill assessment of second grade students.³⁹ The main objective of this exercise was to define the baseline for the recovery as schools reopen and to use this information to define strategies to mitigate learning losses. The study showed that 74 percent of second graders are pre-readers (meaning they can only read a maximum of 9 words per minute); this is a much higher share than in 2019, where 52 percent of 2nd graders were classified as pre-readers.

Data from Annual Status of Education Report (ASER) assessments in rural Karnataka in India illustrates large learning losses in math and reading, with the share of grade three children in government schools able to perform simple subtraction falling from 24 percent in 2018 to only 16 percent in 2020.⁴⁰ Figure 6 shows learning losses in reading in Karnataka across grades between 2018 and 2020.

FIGURE 6. Karnataka, India: a decline in the share of students able to read a grade 2 level text, by grade



Source: World Bank analysis of data from Pratham, Annual Status of Education Report, Karnataka Rural, 2021

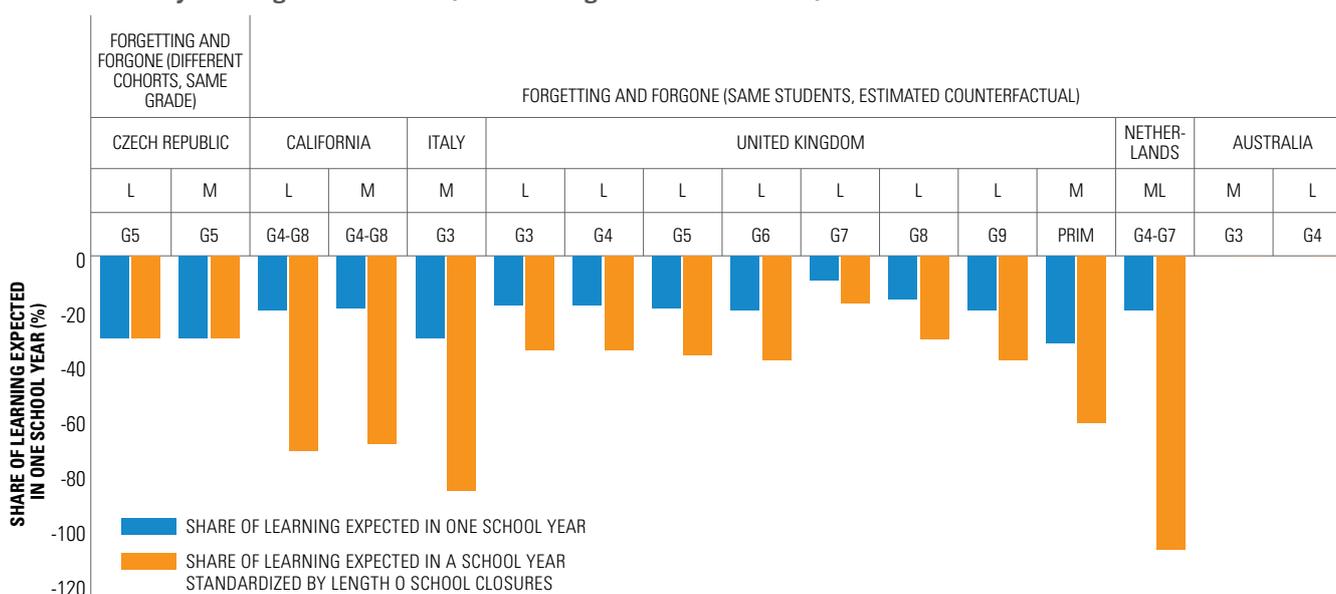


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Even in high-income countries able to quickly organize real-time online instruction, learning losses appear substantial. While the focus of this report is on low- and middle-income countries, there is also value in learning from patterns observed in some high-income countries. In **Belgium**, where schools were closed or partially closed for one third of the school year in 2020, evidence from standardized tests implemented before and after the start of the pandemic suggests losses of 0.17 standard deviations for math and 0.19 standard deviations for language, with larger learning losses in schools with high proportions of disadvantaged students.⁴¹ In the **United Kingdom**, results from autumn 2020 showed a learning loss in reading akin to two months of learning, among both primary and secondary students.⁴² Data from an 8-week school shutdown in the **Netherlands** show a learning loss equivalent to 20 percent of a school year.⁴³ Evidence from **Italy** compares results in math for grade three students affected by the pandemic compared to a previous cohort. Students performed 0.19 standard deviations worse in math compared to the pre-covid cohort.⁴⁴ Evidence from across the **United States** mirror the situation in Europe, with significant learning losses in math and reading.^{45,46} In **Texas**, only 30 percent of third graders tested at or above grade level in math in 2021, compared to 48 percent in 2019.⁴⁷ Similar learning losses have also been observed in **California**,⁴⁸ **Colorado**,⁴⁹ **Tennessee**,⁵⁰ **North Carolina**,⁵¹ **Ohio**,⁵² **Virginia**,⁵³ and **Maryland**.⁵⁴ Figure 7 illustrates learning losses in selected high-income countries, expressed in terms of the share of the school year that each loss represent.

Younger learners were adversely affected and typically had greater losses. Evidence from **São Paulo** and **Karnataka** illustrated in Figures 5-6 show greater losses among the earlier grades. Similarly, an eight-week school shutdown in **Switzerland** showed that primary school students learned more than twice as fast when attending school in-person compared to remote learning during school closures.⁵⁵ By contrast, Swiss secondary students did not experience any significant decline in learning pace. Likewise, results from **Mexico** and the **United States** show larger absolute losses for students in the earlier grades.^{56,57,58} Comparably, sixth graders in **Uganda** experienced learning losses in math and English language compared to previous cohorts, while tenth grade students made gains.⁵⁹ There may be multiple reasons behind this pattern: younger learners have less foundational knowledge to fall back on than older students; they require more learning support, making them less suited for remote learning; and they often make larger learning gains than older students while in school, meaning there is more potential learning to lose when schools close. However, when learning is measured relative to typical gains, emerging evidence suggests older students are doing worse in some cases, such as in the United States and the state of **São Paulo**.^{60,61} Results from **Russia** go against the overall trend, with older students experiencing large declines and younger students less affected or showing no loss at all.⁶²

FIGURE 7. Changes in learning as shares of learning normally expected in one school year, non-standardized and standardized by the length of closures (selected High-Income countries)



Notes: (1) “Forgetting” refers to learning that students forgot during school closures, while “forgone” learning refers to learning that would normally take place but did not take place during school closures. While most studies report them in a combined measurement, some distinguish between the two, and a few only measured the forgetting; (2) Some studies track the results of the same students before and during the pandemic (using a panel or pseudo-panel design), while others compare the results of the same grade across different cohorts, a pre-pandemic cohort compared to a cohort affected by the pandemic (using a repeated cross-sections design); (3) G refers to grade, and the number denotes which grade. E.g., G2 = grade two; (4) L refers to language, M to math, S to science literacy; and (5) Selected countries are those for which the study provides data required to compute the effect in share of school year.

Source: authors’ calculations using data from multiple studies, all available in Table 1 in the appendix.

Learning impacts seem to vary by subject, with students often recording greater losses in math than in reading. For example, in rural **Pakistan**, there were some small losses in reading in home languages and math, while the share of children who could read sentences in English held steady between 2019 and 2021.⁶³ The evidence from **Mexico, São**

Paulo, Brazil, and **Uganda** all shows greater losses in math than reading.^{64,65,66} This finding is in line with some of the existing literature on summer learning loss.⁶⁷ A potential reason may be less exposure to math than reading in daily life outside school, another may be that caregivers are less able to support students in math than reading.

TABLE 1. Unequal learning losses—Who is losing the most in low- and middle-income countries?

DIMENSION OF INEQUALITY	EXAMPLES
Geography	<p>Bigger losses for students in rural and disadvantaged areas: <i>Ethiopia:</i> Learning of primary students in rural areas was one-third of the normal rate, compared with less than half in urban areas; evidence of widening gap the pre-primary level too <i>Kenya (EdTech program participants):</i> Larger losses for students in “hardship” areas; slightly larger losses for rural schools</p>
Gender	<p>Bigger losses for girls: <i>South Africa:</i> Learning losses for girls were 20 percent and 27 percent higher than for boys in home language and English reading, respectively, in Grade 4; and girls lost 9 words per minute in reading speed, vs. 6 words per minute for boys <i>Pakistan (ASER districts):</i> Learning losses were larger for girls than for boys across nearly all competencies and grades <i>Mexico (citizen-led assessment, 2 states):</i> Larger learning losses for girls than boys (among low-income households, and in reading among high-incomes households)</p> <p>Bigger losses for boys: <i>Pakistan (small private-school sample):</i> Boys suffered absolute losses, and bigger losses relative to expected learning gains, whereas girls have not lost much relative to expected learning gains</p> <p>No differential impact: <i>Ethiopia:</i> No widening of gaps in primary or pre-primary</p>
Age / Grade	<p>Bigger losses for students in earlier grades: <i>Pakistan (ASER districts):</i> Larger learning losses for Grade 1 and 3 students than for Grade 5 students in all 3 subjects: math, reading (Urdu), and English <i>Kenya (EdTech program participants):</i> Larger losses for Grades 4 and 6 than for Grade 8 <i>Brazil (São Paulo):</i> Larger absolute losses for grade 5 than for grades 9 and 12 <i>Uganda:</i> Learning losses in grade 6, but learning gains in grade 10 <i>India (Karnataka):</i> Larger losses in grades 3 and 5 than in grade 7 <i>Mexico:</i> Larger losses were observed for ages 10 and 11 than for ages 12-15</p> <p>Bigger losses for students in later grades: <i>Russia (Krasnoyarsk):</i> No learning loss in grade 4, 3-4 months of learning lost in grade 6, and 1.5 years of learning lost in grade 8</p>
Public/private	<p>Bigger losses for public-school students: <i>Pakistan (ASER districts):</i> Larger losses for students attending government schools than for those attending private schools</p>
Pre-pandemic learning levels	<p>Mixed evidence: <i>South Africa:</i> In grade 2, more severe impact on the least proficient students than on those with higher initial reading proficiency; but in grade 4, larger impact on those with higher initial proficiency <i>Pakistan (ASER districts):</i> Larger losses for previously high- and low-performing students than for medium-performing</p>
Socioeconomic status	<p>Bigger losses for lower-SES students <i>Pakistan (small private-school sample):</i> Poorest children suffered absolute losses in learning and are far behind expected learning; richer students stayed roughly in line with expectations <i>Mexico (citizen-led assessment, 2 states):</i> Larger learning losses for low-SES students</p> <p>No impact: <i>Russia (Krasnoyarsk):</i> No observed increase in inequality in learning losses (although SES still determinant of learning levels) <i>Uruguay:</i> No observed increase in SES inequality in learning losses</p>

Note: For sources, see citations in the body of this paper.



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Disadvantaged students were disproportionately affected by learning losses. Evidence from **Italy** shows that among children of low-educated parents, high-performing students and girls experienced greater losses during the pandemic.⁶⁸ In the **United Kingdom**, secondary schools serving students from disadvantaged backgrounds had learning losses in reading 50 percent higher than those serving fewer students from disadvantaged backgrounds.⁶⁹ Historically marginalized and economically disadvantaged students had larger declines relative to more advantaged peers in the **United States** as well.^{70,71,72} In **Czech Republic**, students lost the equivalent of about three months of learning during the first year of the pandemic, based on tests in the Czech language and mathematics administered in 2020 and 2021 in grade five.⁷³ Among schools with below-average results in 2020, the schools attended by more children with university educated parents saw their results fall significantly less than schools with less educated parents, highlighting the role parents played in stemming learning loss during school closures. In line with the findings from the Czech Republic, learning losses observed in the **Netherlands** were 60 percent larger among students from less-educated homes,⁷⁴ fueling concerns of the unequal impact of the pandemic, even in countries with high levels of equality and near universal broadband access. The pre-pandemic literature on summer learning loss offers a plausible explanation for this trend: learning resources can be considered in terms of a “resource faucet”, which is flowing for all students while in school, but which slows or stops completely for students from disadvantaged backgrounds during out-of-school periods.⁷⁵

In a few countries, the data indicates no learning losses or even small gains. For example, in **Uruguay**, there were marginal improvements for grade three and grade six students in math and reading between 2017 and 2020.⁷⁶ In **Uganda**, grade 10 students held steady in math and made significant gains in English between 2017 and 2021.⁷⁷ It is worth noting that unlike other studies reported here, which measured losses using a baseline just before or at the start of the pandemic, these two studies rely on a baseline measured three years before the pandemic hit; this means that they cannot show how learning changed during the pandemic specifically. The improvement or stability in learning levels could reflect pre-pandemic gains from between 2017 and early 2020, even if these were followed by pandemic-period losses. Pre-pandemic gains could reflect successful earlier policy interventions. For example, Uruguay has invested greatly in social inclusion and equity in educational technology through Plan Ceibal, an initiative that distributed laptops and no-cost internet to all students and teachers, along with digital skills training.⁷⁸ Such investments almost certainly increased preparedness for remote learning during the pandemic, but they could also have contributed to learning gains even before that. Uruguay was also the first country in Latin America to reopen its education system.⁷⁹ Evidence from **Australia** indicates no overall learning losses, with students learning on average as much in math and reading in 2020 as had the previous cohort in 2019.⁸⁰ However, students in disadvantaged schools lost an equivalent of two months of learning compared to the 2019 cohort, while their peers in more advantaged schools experienced two months of additional growth.



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PART 3

INEQUALITY IS GROWING IN LEARNING AND BEYOND

3.1 THE COVID-19 PANDEMIC EXACERBATED INEQUALITIES IN EDUCATION

The length of school closures varies greatly across and within countries. At the start of the pandemic, countries implemented large-scale school closures to minimize the risk of virus transmission. Low- and middle-income countries, where the majority of the world's school-age children live, experienced longer school closures than high-income countries and were often less prepared to deliver remote learning.⁸¹ The duration of full school closures varied by region: children in South Asia and Latin America and the Caribbean missed nearly triple the education of children

in Western Europe.⁸² Many education systems reopened schools, only to be forced to close them again due to newly imposed measures by governments, because of increased transmission of the virus.

The problems caused by lost schooling is not confined to school systems that are fully closed. Many systems have reopened only partially, and these partial reopenings still leave many children without an option for in-person schooling. When both full and partial closures are accounted for, the average duration of disruption to education globally increases from 121 to 224 days.

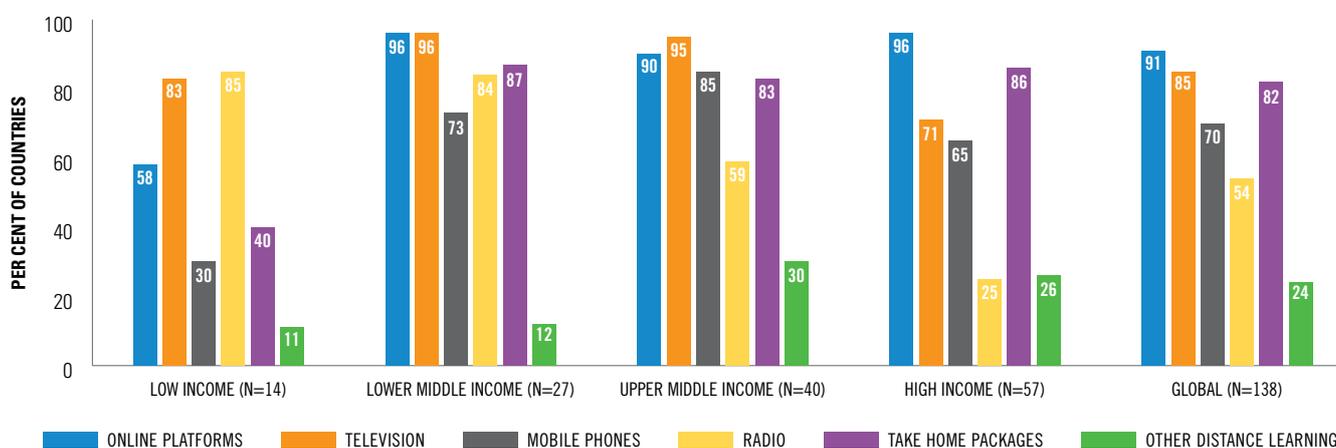
For example, while the **United States** had zero days of full national school closures, partial school closures continued for more than 400 instructional days.⁸³ More than seven in ten countries, home to 91 percent of the global school-age population, closed schools fully or partially for more than four full months; a majority of these children are in low- and middle-income countries with low learning outcomes before the COVID-19 pandemic.⁸⁴ Some education systems prioritized the most vulnerable students in school reopening plans, many prioritized older students and those sitting for examinations. In **Norway**, schools remained open for students with disabilities, students whose parents were essential workers, and students facing risks at home, such as violence.⁸⁵ **Uruguay** introduced a phased reopening approach prioritizing rural communities, vulnerable student populations, and early childhood in the earliest stages of reopening.⁸⁶ Other countries, like **Burkina Faso, Guinea, Kenya, Liberia, Madagascar, Sierra Leone, Zambia,** and **Zimbabwe**, prioritized reopening schools for exam classes.⁸⁷ Still, any reopening is better than continued closures. Evidence from **Brazil** suggests that opening schools, even partially, resulted in lower learning loss for middle and high school students than when schools remained fully closed.^{88,89}

When schools closed, some countries were better equipped with resources and connectivity to offer remote learning. Around the world, 186 countries implemented remote learning programs to provide children with learning continuity while schools were closed.⁹⁰ But implementation has varied across high-income and low-income countries and, within countries, across high- and low-income

households. Globally, at least 463 million children could not be reached by digital and broadcast remote learning programs amidst school closures, with three out of four unreached students coming from rural areas and/or poor households.⁹¹ Lower-income countries tended to have higher shares of students not reached by remote learning measures than higher-income countries.⁹²

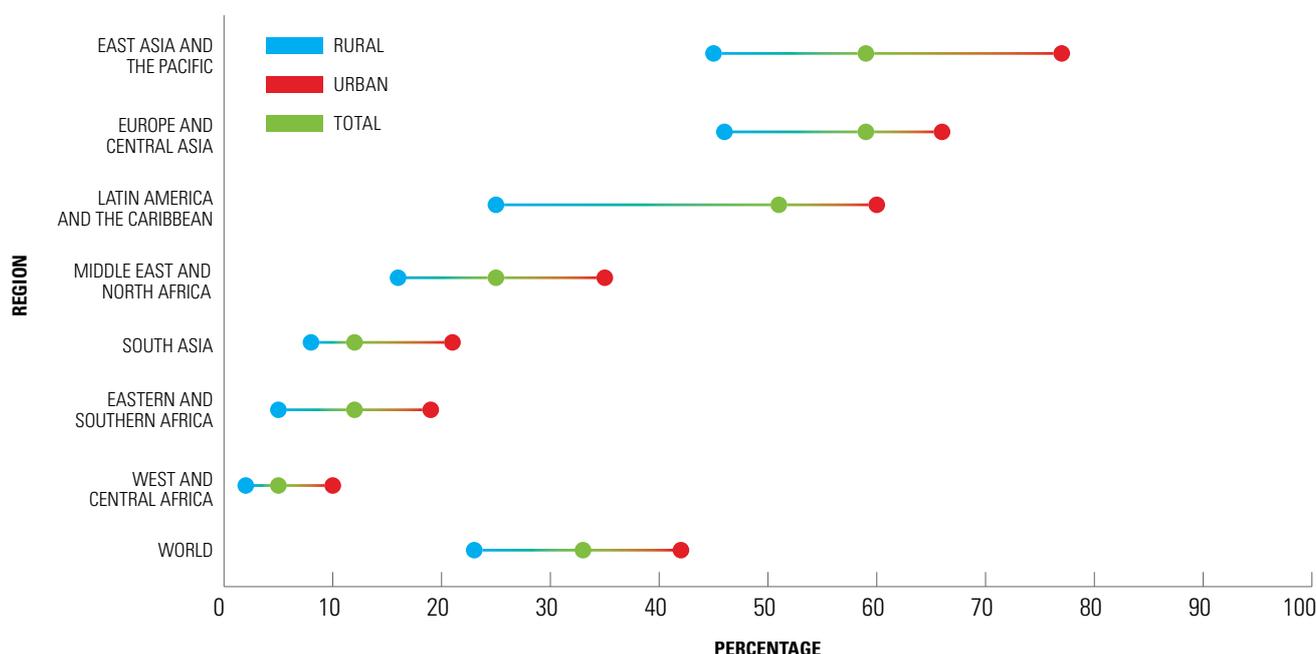
The digital divide became glaringly evident, with millions of children left behind during the shift to remote learning. School closures presented a “remote learning paradox,” in that many countries adopted technological solutions that were not well suited to their contexts. Globally, online platforms were the most common response for remote learning.⁹³ Yet 1.3 billion school-age children do not have internet access at home, with households in rural areas systematically less likely to have internet.⁹⁴ Digital divides between urban and rural communities were greatest in Eastern and Southern Africa, East Asia and the Pacific, and Latin America and the Caribbean.⁹⁵ Inequalities across household income were also evident, even within high-income countries. In ten European countries, fourth grade students from low socioeconomic status backgrounds were half as likely to have internet access at home compared to their more affluent peers.⁹⁶ In West and Central Africa, Eastern and Southern Africa, and South Asia, internet access for children from the bottom wealth quintile is nearly non-existent.⁹⁷ Countries with longer durations of school closures tended to have lower rates of school-aged children with internet connection at home,⁹⁸ which affects access to remote learning if other modalities were not accessible or utilized.

FIGURE 8: Share of joint survey respondent countries offering a remote learning modality across at least one education level, by income group



Note: The chart shows the per cent of countries with valid responses. The y axis shows the per cent of countries in a particular income group that responded as using a particular modality for at least one of the education levels (pre-primary, primary, lower secondary, and upper secondary). While the results represented in this Figure covers more than 50 per cent of the global student0-aged population, this may not apply to specific income groups. More information on the population coverage of each income group can be found in Annex 1.

FIGURE 9: Share of school-age children with internet access at home, by region and by area



Note: Elaborated based on available Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) data, 2010-2020. (source: Wang et al. 2021). Data are aggregated by UNICEF Regional Offices.

Source: UNICEF. 2021. *Reopening with resilience: Lessons from remote learning during COVID-19.*

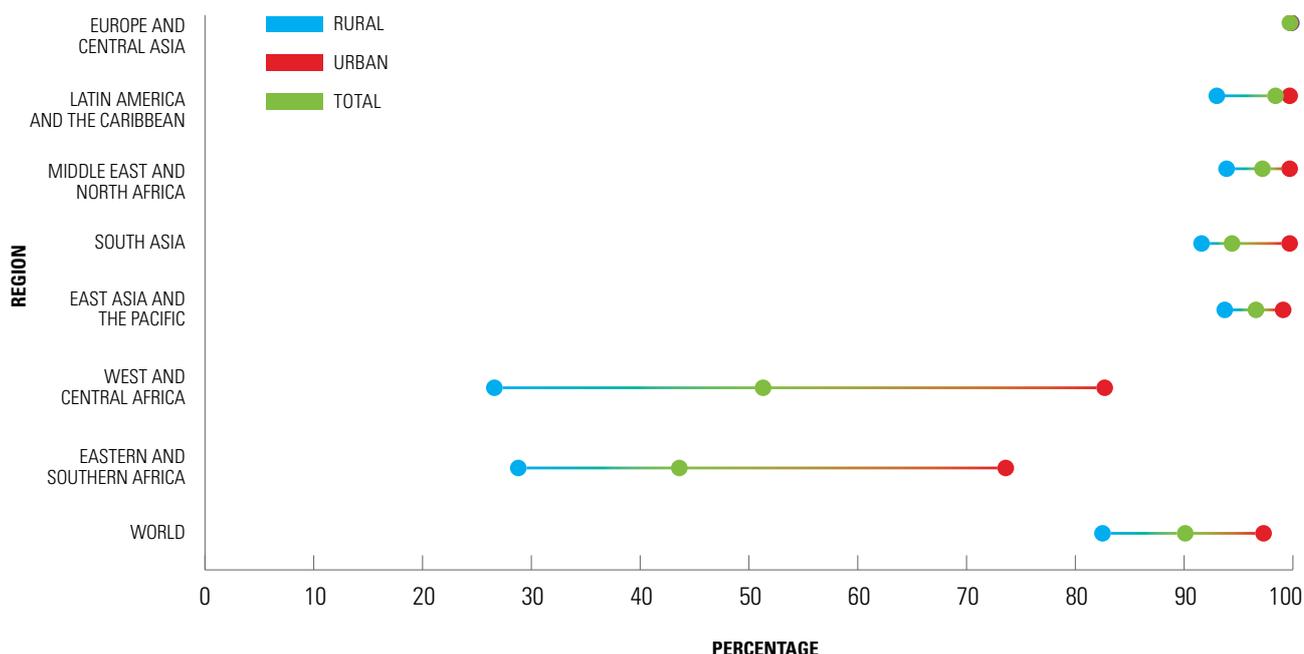
Many countries with low rates of internet connectivity utilized other remote learning modalities, but access and uptake still varied considerably across and within countries. Most low-income countries reported using broadcast media (television and radio) as a remote learning modality to reach learners.⁹⁹ But a lack of access to devices remained the biggest barrier for learning through broadcast media, especially in rural communities. In West and Central Africa, broadcast media was central in remote learning policies, yet only 26 percent of households in rural areas own a television compared to 73 percent of households in urban areas.¹⁰⁰ In South Asia, on average 50 percent of households own a television, but urban and rural divides in nearly all countries were larger than 20 percentage points.¹⁰¹ Despite their widespread prevalence globally, mobile phones were the second-least-reported modality used by ministries of education to deliver remote learning, signaling a mismatch of available infrastructure to countries' remote learning policies.¹⁰²

Leveraging technology-enabled remote learning requires that households have access to electricity. Yet in sub-Saharan Africa, only 47 percent of the population has access to electricity, compared to nearly universal access in high-income countries.¹⁰³ Based on current trends, universal access to electricity in sub-Saharan Africa will not be achieved before 2081.¹⁰⁴ Even within countries, disparities are vast. In some countries, less than ten

percent of the poorest households have electricity.¹⁰⁵ A lack of electricity, internet connectivity, affordable devices, and data all impede equitable access to digital learning.¹⁰⁶ Many countries adopted take-home learning materials to reach households without access to electricity or technology, but challenges with distribution and a lack of interactivity remained.¹⁰⁷

Students with disabilities faced barriers to engaging in remote learning. Students with disabilities are disproportionately excluded if remote learning modalities are not adequately tailored for sign language interpretation, closed captioning, or braille, among others.¹⁰⁸ Only 33 percent of low-income countries indicated they had taken measures to support learners with disabilities.¹⁰⁹ A global survey conducted with learners with disabilities, their teachers and parents or caregivers, called attention to a wide range of environmental, educational, and health-related challenges that learners with disabilities faced at the onset of the pandemic and during school closures. 60 percent of caregivers reported concern that learners with disabilities would fall behind in learning due to inaccessible distance learning modalities. Similarly, only 19 percent of teachers responded that students with disabilities were continuing to learn during school closures, while more than twice as many thought they did not continue learning.¹¹⁰

FIGURE 10: Access to electricity across regions, by rural vs. urban



Note: Elaborated based on World Development indicators, 2019.

Source: UNICEF. 2021. Reopening with resilience: Lessons from remote learning during COVID-19.

In some countries, gender was a driver of inequality. Girls often have reduced access to devices and internet and have lower ICT knowledge and skills, limiting their ability to access and benefit from remote learning.^{111,112,113} Existing social norms in some countries and communities may create inequalities for girls in accessing and using digital devices. For example, fathers in **Nigeria** reported actively discouraging their daughters but not their sons from using the internet and were less likely to assist their daughters’ learning through technology during COVID-19.¹¹⁴ Gendered demands on girls’ time, including increased responsibilities at home, impede their ability to engage in remote learning and lead to less time for schoolwork.¹¹⁵ In **Kenya**, 74 percent of adolescent girls reported household chores distracted them from remote learning.¹¹⁶ However, emerging evidence from **Ethiopia**, **India**, and **Vietnam** suggests there are no significant differences in the remote schooling experiences of boys and girls and that socioeconomic status of the household was more likely to drive unequal remote learning experiences. In Peru, male students were less likely than female students to engage in distance learning.¹¹⁷



The youngest learners faced a double disadvantage, often left out of remote learning and school reopening plans.

The youngest learners faced a double disadvantage, often left out of remote learning and school reopening plans. Despite robust evidence that investments in pre-primary education can yield long-lasting benefits for children, pre-primary education was least likely to be prioritized for reopening.¹¹⁸ Between March 2020 and February 2021, 167 million children in 196 countries lost access to early childhood care and education services.¹¹⁹ Low- and middle-income countries reported that, after schools reopened, pre-primary students were less likely than primary and secondary students to attend school in-person and less likely to receive support.¹²⁰ At the same time, pre-primary students were less likely to have sufficient options for remote learning, with 120 million pre-primary students not reached by digital and broadcast remote learning.¹²¹ Only 60 percent of countries indicated having digital and broadcast remote learning options available for pre-primary students, compared to more than 95 percent of countries indicating these options were available for primary and secondary students.¹²² Participation rates were also low, with fewer than one in five low- and middle-income countries reporting that more than 75 percent of pre-primary students engaged in remote learning.¹²³ An estimated 10.75 million additional children fell “off track” in their early development as a result of early childhood education services being disrupted, with projected developmental losses concentrated in low- and lower middle-income countries, which risks further exacerbating inequalities.¹²⁴

3.2 HOUSEHOLDS' ABILITY AND PREPAREDNESS TO WEATHER THE SHOCK VARIED GREATLY

Household levels of engagement in learning during the pandemic varied. Parents and caregivers were positioned as first-responders for delivering children's care and learning. Around 75 percent of countries indicated having measures in place to support parents and caregivers, yet 39 percent of low-income countries reported they had not introduced any measures to support parents and caregivers with the home learning environment.¹²⁵ Students make greater progress when parents and caregivers are actively engaged in supporting learning.¹²⁶ However, in West and Central Africa, more than half of surveyed parents reported offering little to no support to their children during at-home learning.¹²⁷ In some countries, at-home support is gendered and further disadvantages girls and women caretakers. In **Ethiopia** and **Bangladesh**, adolescent boys were more likely than adolescent girls to receive help from their family with their schoolwork.¹²⁸ Women caretakers often bore the weight of supporting at-home learning. Analysis from the **United States** shows mothers were more likely to reduce working hours than fathers and reported spending more time on at-home learning.^{129,130} Parents with lower levels of education faced additional challenges in supporting children to continue learning, including low levels of literacy, limited content knowledge, and low levels of confidence.^{131,132,133} In **Cote d'Ivoire**, children in poorer households, children with fewer school supplies, and children with parents of lower educational backgrounds acquired foundational literacy and numeracy skills at lower rates, as measured through an assessment conducted upon school reopening.¹³⁴

Within countries, children's opportunities for educational stimulation were defined by conditions and resources at home.

COVID-19 illuminated that in many low-income environments, income shocks can result in parents having less time and fewer resources¹³⁵, exacerbating inequalities for poor students. High-income households have greater access to alternative learning resources that can help to mitigate learning loss, like computers, internet, radio, television, smart phones, and books; this creates conditions that further leave poor students behind.^{136,137,138} In **Ghana**, household phone surveys revealed that the wealthiest families were nearly ten times more likely to have hired private tutors than the poorest families.¹³⁹ In **Senegal**, increases in private tutoring were also concentrated among the richest households.¹⁴⁰ Additionally, parents took initiative to seek out additional educational resources for their child. In the **United States**, there was a sharp increase in searches for online learning resources when schools closed, but search rates were markedly higher in high-income areas than in low-income areas.¹⁴¹

3.3 SCHOOL CLOSURES HAVE NEGATIVE IMPACTS ON CHILDREN AND YOUTH BEYOND LEARNING

Many children may never return to school post-crisis. In the year after the Ebola crisis, 27 percent of **Liberian** secondary school students did not return to formal education.¹⁴² In **Sierra Leone**, when schools reopened after Ebola, girls ages 12–17 were 16 percentage points less likely to be in school.¹⁴³ Girls are at heightened risk, as are older students. Data from **Bangladesh** show that one in ten girls aged 12-15 reported not going back to school once systems reopened after COVID-19 induced school closures.¹⁴⁴ In **Brazil**, one in ten students aged 10-15 are also not planning to return to schools.¹⁴⁵ In **Ghana**, where national reenrollment was high at 97 percent, 60 percent of the dropouts were girls. Moreover, repetition rates in higher grades increased significantly.¹⁴⁶ In **Nigeria**, the effects of COVID-19 lockdown measures reduced children's school attendance probabilities by nearly 7 percentage points. Students aged 15-18, for whom education is no longer compulsory, were 11 percentage points less likely to go back to school.¹⁴⁷ In **Mexico**, in the 2020-2021 school year, 5.2 million students between 3 and 29 years old (9.6 percent) were not enrolled in school due to the COVID-19 pandemic and lack of economic resources.¹⁴⁸ In Chile, early simulations from the Ministry of Education indicated that dropout rates might double, increasing from 2.6 percent to 5 percent.¹⁴⁹ In **Senegal**¹⁵⁰, COVID-19 related disruptions do not seem to be associated with an increase in dropout rates vis-à-vis historical trends, however, it seems that repetition is in some grades is virtually doubling compared to historical rates. For more details, see Table 2.



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TABLE 2: Evidence on school engagement across countries and groups: Drop-outs and Repetition

TYPE	INDICATOR	COUNTRY	POPULATION	TOTAL	BOYS	GIRLS	NATIONALLY REPRESENTATIVE	SOURCE	
Drop-Out	Will not go back to school when the system reopens	Bangladesh	12-15			10.0%	No	Population Council	
		Brazil	10-15	9%			Yes	Fundação Leman; Instituto Natura; Datafolha	
	Increase in Dropout rates by previously enrolled (p.p.)	Chile*	Primary and lower secondary		2.5%			Yes	Ministry of Education
			Ghana	Overall		2.8%	3.3%	2.2%	Yes
		C4			2.0%			Yes	CGD
		C6			6.0%			Yes	CGD
		JHS3			8.0%			Yes	CGD
		Kenya	10-14		3.0%	1.0%	5.0%	No	Population Council
			15-19		32.0%	37.0%	26.0%	No	Population Council
		Mexico	3-29		10.0%			Yes	INEGI
	Senegal	Overall		0.0%	0.0%	0.0%	Yes	CGD	
	Impact of schools' closure on school attendance (p.p.)	Nigeria	5-11		5.0%	5.0%	6.0%	Yes	NSO
			15-18		11.0%	13.0%	8.0%	Yes	NSO
Repetition	Increase in Repetition Rate (p.p.)	Ghana	Overall		7.0%		Yes	CGD	
			c4		9.0%			Yes	CGD
			c6		6.0%			Yes	CGD
			JHS3		7.0%			Yes	CGD
			SHS3		18%			Yes	CGD
		Senegal	2nd Grade		5%			Yes	CGD
			8th/9th Grade		13%			Yes	CGD

Note: (i) all estimates are based on household surveys conducted before and during the pandemic except for Chile which reports a projection based on historical data from Student Based Census. (ii) For sources, see citations in the body of this paper; and, (iii) N.S.: non-statistically significant result.

In addition to providing education, schools promote children's overall wellbeing. In many countries, schools provide children with meals and supplements, deliver health services and vaccinations, allow children to develop their socioemotional skills and provide psychosocial support, all creating additional incentives for parents to send their children to school. Evidence from COVID-19 and past health crises has shown that school closures reduce children's access to critical services and safe spaces and have detrimental effects on child protection outcomes.¹⁵¹

Child and youth mental health has become a crisis within a crisis. Schools also provide opportunities for students to build positive relationships with their peers and teachers, which can foster inclusion and positively impact mental health and wellbeing. Around the world, children experienced social isolation, disruption to daily routines, stress associated with

parental employment, and feelings of uncertainty about their future. A growing body of evidence shows high rates of anxiety and depression for children and youth because of COVID-19, with some studies finding that girls, adolescents, and those living in rural areas were disproportionately affected.^{152,153,154,155,156,157,158} Global estimates suggest that mental health challenges have likely doubled as a result of the pandemic.¹⁵⁹ Play can be an effective way of supporting children experiencing stress and adversity and can improve equity for children¹⁶⁰, but access to playful spaces may have been limited amidst school closures.

During school closures, violence against children risks going undetected and unreported. Lost employment and reduced household income also increase the risk of violence against women and children.¹⁶¹ Schools and educators play an important role in detecting and reporting cases where

children experience domestic violence, suggesting that in some cases, instances of violence may be underreported. A recent study from **Mexico** found that reporting of child abuse decreased by approximately 30 percent during the school closures, with larger reductions among women and in municipalities with high poverty rates.¹⁶² The reduction in reporting of child abuse could have long-term detrimental effects on education and labor outcomes and has the potential to exacerbate inequality.

In countries across the world, school meal schemes were disrupted. For many children in low-income households, school meals are a reliable source of daily nutrition that helps to prevent wasting and stunting, but at the peak of the pandemic, 370 million children missed school meals.¹⁶³ As of October 2021, this figure remained at 187 million children globally.¹⁶⁴ Low- and middle-income countries have experienced an

estimated 30 percent reduction in essential nutrition services such as school meal programs, iron and folic acid supplementation, deworming, and nutrition education. Malnutrition and hunger negatively affect children's immediate and long-term growth, development, and learning.¹⁶⁵ Poor households are most affected, as falling household incomes and increasing food prices heighten food insecurity and cause families to ration food and/or choose less nutritious options.¹⁶⁶ The most pessimistic scenarios estimate that an additional 40 million children may suffer from wasting and an additional seven million children may be stunted by 2030 as a result of inadequate food access and nutrition.¹⁶⁷ In addition, school closures may have differential impacts depending on countries' income levels. There are concerns about increased pediatric obesity in middle- and high-income countries, while undernutrition is expected to deepen in poor countries, threatening years of global progress.¹⁶⁸



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Rising poverty levels could drive more children into child labor. At the beginning of 2020, 160 million children were in child labor, with nearly half engaged in hazardous work that directly endangers them. Past school closures have sometimes increased child labor; for example, child labor by girls increased by 19 percentage points after the Ebola outbreak.¹⁶⁹ Globally, nine million additional children are at risk of being pushed into child labor by the end of 2022 as a result of rising poverty triggered by the pandemic.¹⁷⁰ Children engaged in paid employment face additional challenges in returning to formal education and are likely to remain out of school.¹⁷¹

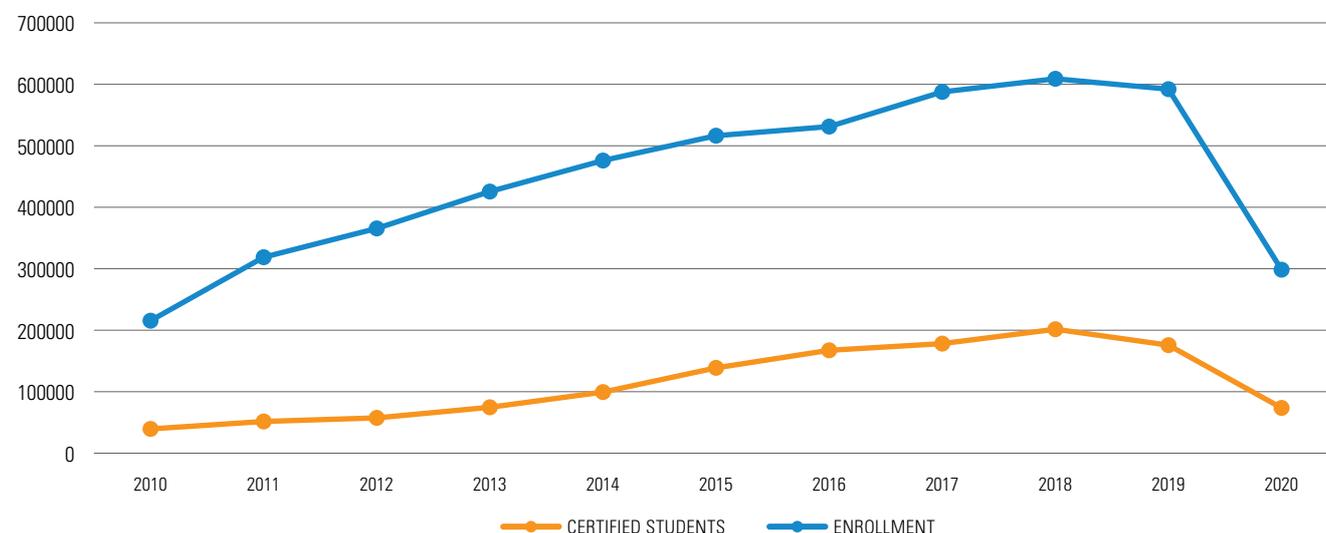
The pandemic risks reversing decades of progress towards advancing gender equality. Education protects girls from child marriage and provides reproductive health services that prevent unplanned pregnancy. Evidence from past epidemics like the Ebola crisis in West Africa demonstrates the interrelated nature of poverty, school dropout, early marriage and early pregnancy.¹⁷² School closures and economic hardships create incentives for families to marry their daughters early to offset financial burden, especially when families believe that education has limited immediate-term value.¹⁷³ As a result of COVID-19, an estimated ten million more girls are at risk of early marriage over the next decade.¹⁷⁴ Increases in adolescent pregnancy during COVID-19 school closures have been evident, threatening to keep many adolescent girls barred from education even when they reopen^{175,176,177}. While drivers of adolescent pregnancy vary, economic hardships have led girls to engage in transactional sex for basic goods, increasing their risk of sexual exploitation and pregnancy.¹⁷⁸ Intersecting

inequalities put displaced and migrant girls at a heightened risk of never returning to school.¹⁷⁹

Disruptions due to COVID-19 affected more than 220 million higher education students around the world.¹⁸⁰

The disruptions led to a major increase in online learning, as higher education institutions around the world shifted to online, distance or hybrid modes of instruction. In addition, due to international travel restrictions, the pandemic dramatically limited the international mobility of students and faculty. A survey on higher education through UNESCO National Commissions showed that while most countries experienced no significant difference in university enrollment, 14 countries in the study experienced up to 20 percent decreases in enrollment, and three countries (**Armenia, Venezuela, and Hungary**) reported decreases in enrollment between 21 and 40 percent.¹⁸¹ Undergraduate enrollment in the **United States** in the spring was down by 6 percent in 2021 compared to 2020. Community colleges were especially hard-hit, seeing a decrease of 10 percent in the fall and 11 percent in the spring.¹⁸² In **Brazil**, the Brazilian National Examination of Upper Secondary (Examen Nacional do Ensino Médio, ENEM) for university entry saw the lowest number of applicants since 2007. Four million students registered to take the exam compared to over six million in 2020. The number of black, brown, or indigenous students declined as a share of the total number of applicants, risking exacerbating existing inequalities in university admissions.¹⁸³ In **Colombia**, enrollment in Technical and Vocational Education Training institutions decreased by 50 percent between 2019-2020 (Figure 11).¹⁸⁴

FIGURE 11: Enrolment and certification of students in technical and vocational education training institutions in Colombia



Source: Sistema de Información de la Educación para el Trabajo y el Desarrollo Humano – SIET, Colombia (May 2021)



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PART 4

POLICY RESPONSES FOR MITIGATING THE EFFECTS OF SCHOOL CLOSURES

4.1 POLICY RESPONSES TO THE PANDEMIC WERE HETEROGENOUS

Most countries have reopened schools, which is an essential element of the learning recovery process. With adequate safety measures in place, the evidence points in favour of reopening education institutions. As described above, the costs of keeping schools closed are steep for children and youth. School closures led to significant learning losses that risk exacerbating inequalities between students, both within and across countries, with potentially detrimental long-term life outcomes for children. Multiple studies conducted during the pandemic suggest that the incidence rate of the virus among children and adolescents is relatively lower than among adults.^{185,186,187} With the Delta variant of the virus, there have been increases in the number of children who become infected, and careful study is needed, as children's role in transmission is not yet well-understood.¹⁸⁸ Nevertheless, according to evidence from countries where schools remained open or have reopened, schools are not high-risk environments for education

personnel and the risk for adults contracting COVID-19 within a school setting is no greater than contracting it in the community or a household.¹⁸⁹ A recent large-scale study in **Scotland** shows that teachers are not at increased risk of hospital admission with COVID-19 when compared to similar adults of working age.¹⁹⁰ In addition, evidence suggests that reopening schools has not been a driver of increased community transmission.^{191,192,193,194} Teachers at all education levels should be prioritized in country vaccination plans. While reopening schools, countries should ensure that adequate water, sanitation, and hygiene measures are in place and that handwashing facilities, soaps, sanitizers, and personal protective equipment, including masks, are available in all schools.

Multiple national policy measures were deployed to minimize infection transmission in schools, but not all regions and countries were able to use the same strategies.

Many countries created health and hygiene guidelines to support schools to prepare for safe reopening. However,

only half of countries globally had enough soap, masks, clean water, and WASH facilities to assure the safety of learners and school personnel—and this figure drops to a mere 6 percent of low-income countries.¹⁹⁵ Evidence suggests that when consistently and correctly worn, masks are highly effective in reducing the transmission of COVID-19 in community settings, and some evidence—although more limited—suggests they are effective in school settings as well.^{196,197,198} Improved ventilation can also reduce the spread of the virus. Evidence from the **United States** suggests that incidence of COVID-19 was lower in schools that required masks and in schools that improved ventilation.^{199,200,201} Some countries, including **Spain**,²⁰² **France**,²⁰³ and **Italy**,²⁰⁴ require masks for primary and secondary students. Many schools adopted physical distancing measures, with many high-income countries reducing class sizes to facilitate physical distancing.²⁰⁵ Where physical distancing is difficult, some schools and education systems adopted a shifts system, providing students with in-person instructional time but for a limited portion of the day.^{206,207}

Many countries were particularly challenged in ensuring learning continuity for technical vocational education and training (TVET). The COVID-19 pandemic has accelerated many changes, such as digitalization, already under way in training systems and labour markets, and created or strengthened public-private partnerships.²⁰⁸ Nevertheless, countries struggled to deliver on some of the key features of TVET during the transition to remote learning, including practical skills development and work-based learning. Some countries kept offering limited in-person opportunities for training. For example, in **Armenia**, some workplaces remained open, and apprentices could go to their workplace on a part-time basis or meet their professors to get tasks and continue coursework. Other countries are offering plans to recover lost hours of practical training; in **Mongolia**, for example, there is a plan to recover lost hours of practical training through internships and increased hours of classroom training activities.

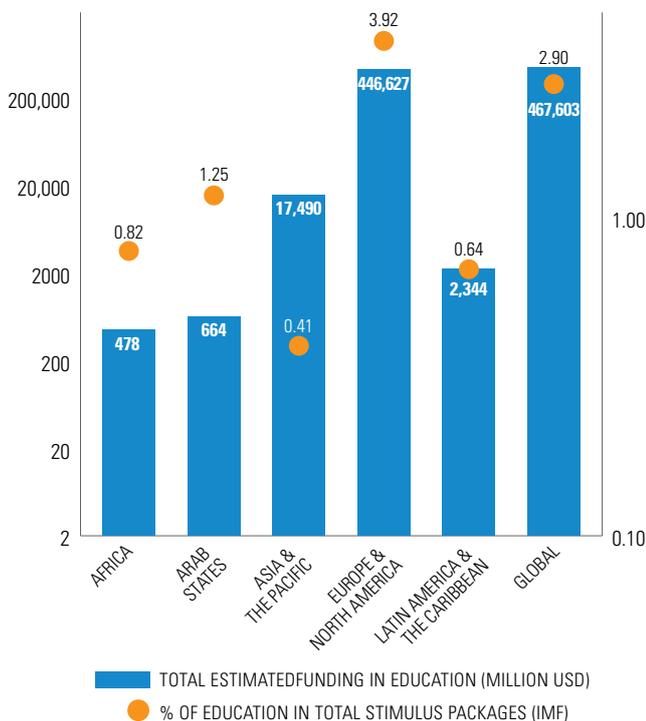
Several countries have stressed the gender dimensions in their policy response. **Rwanda** included a measure to ensure that pregnant adolescents or adolescent mothers are re-integrated into national education systems.²⁰⁹ **South Sudan's** plan calls for establishing referral systems for gender-based violence that links schools to health and other social services. Risk mitigation for gender-based violence and other forms of abuse, exploitation, and neglect are also mentioned in the plans for **Malawi**,

Pakistan, and **Somalia**. In **Ghana**, the government's COVID-19 Coordinated Education Response Plan calls for communication campaigns to change norms and reduce gender-related barriers to studying during school closures. In **Honduras**, the Secretariat of Education is providing educational resources incorporating a gender approach to the education community; this includes the “Learning Passport” hosted on the government's online learning platform, which contains teaching resources including videos, comics, and games with a gender focus.

Countries have deployed massive stimulus packages in response to the health crisis, but limited resources are allocated to the education and training sector.

Although a total of US\$16 trillion was invested in stimulus packages worldwide since the start of the COVID-19 pandemic, only US\$467 billion of those additional resources were invested in education – with 97 percent of these investments occurring in high-income countries.²¹⁰ As of June 2021, the education and training sector had been allocated less than 3 percent of global stimulus packages. This global imbalance in investments to support education and training risks worsening the disparities in education and learning outcomes for learners that already existed across countries prior to COVID-19 pandemic outbreak. Within the limited investment in education, digital learning was a priority across regions and country income groups, and of all levels of education, basic education was prioritized worldwide. Other priorities varied by region, from enhancing sanitation measures in African countries, to investing in higher education in the Arab States, to supporting the most marginalized in Asia and the Pacific. In **England (United Kingdom)**, for example, support for education recovery consisted of a mixture of flexible funding and specific interventions: £650 million universal catch-up premium and a £302 million recovery premium targeted towards disadvantaged pupils, which they can use to support pupils' mental health and wellbeing and academic recovery. Over £1 billion has been allocated to tutoring interventions as part of the education recovery investments. **Côte d'Ivoire** has disbursed 4.5 billion CFA (approximately US\$ 8.2 million) for distance learning through television for examination-year classes. **The Republic of Korea** has dedicated over 4 percent of the total stimulus packages to education and training, including for deployment of digital infrastructure for K-12, support of remote learning for universities, strengthening teacher capacities in remote teaching and development of Korean MOOC content.

FIGURE 12: Allocation to education in total COVID-19 stimulus packages, by region



Source: UNESCO. 2021. Uneven global education stimulus risks widening learning disparities.

4.2 THE EFFECTIVENESS OF POLICY RESPONSES TO SUPPORT LEARNING CONTINUITY HAS VARIED

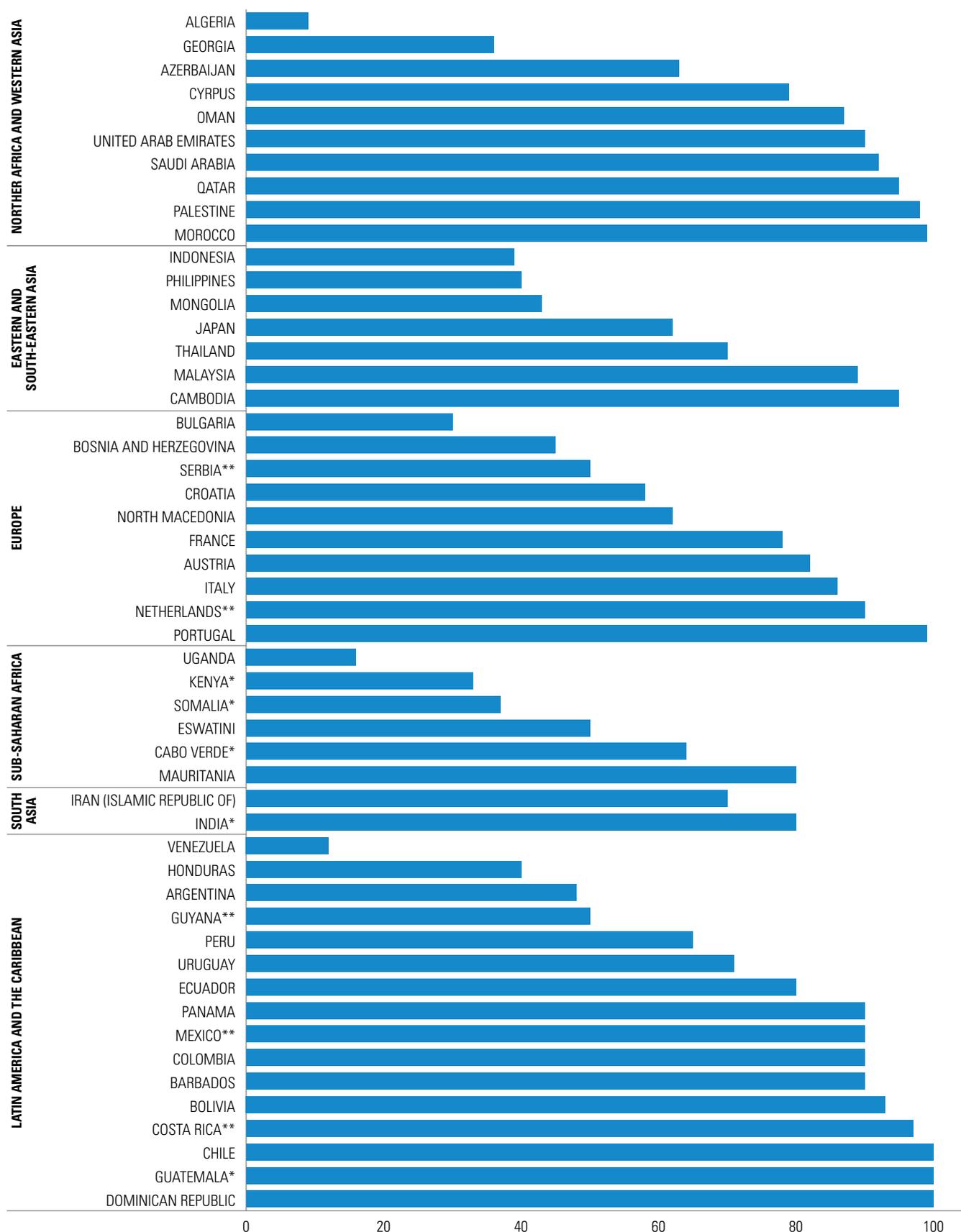
Countries have implemented a variety of policy measures and programs to engage educators, learners, and families in the teaching and learning processes during school closures. In **Botswana**, additional interaction between instructors and families through texting and phone calls during the lockdown was beneficial for learning.²¹¹ In **Vietnam**, learning content and lessons were organized locally and broadcast through 28 television stations across the country. In **the United Kingdom**, the National Tutoring Program (NTP) was launched to provide catch-up programs with a focus on disadvantaged pupils introducing a longer school day, offering tutoring for struggling students and improving teacher quality through professional development. **Belgium** offered free summer school for all in summer 2020. In the **Philippines**, summer schooling was offered in 2020 to students who had received a grade lower than 75 percent in the previous school year.²¹² More evidence on their effectiveness during the pandemic is still needed, but interventions like tutoring programs, self-guided learning programs, targeted instruction, structured pedagogy, along with expanded instructional time and condensed curricula, have enough past research supporting them that they can be worth

trying as part of at-scale learning recovery programs (see discussion below).²¹³

Many countries provided increased professional development support for teachers, but support in low-income countries was limited. Most countries offered teachers instructions on distance education (71 percent), professional development on pedagogy and effective use of technology (61 percent), professional, psychosocial, and emotional support (61 percent), and teaching content adapted to remote teaching (58 percent). However, teacher professional development support varied greatly by region: while nine out of ten countries in East and South-East Asia offered teachers additional support, fewer than three out of ten countries in sub-Saharan Africa did so. The provision of professional development support to teachers in low-income countries was generally uncommon. No additional support was provided to teachers in thirteen percent of countries globally. Training provided covered online learning and/or communication platforms established by Ministries, as in **Belize, Estonia, Libya, and Uruguay**; and/or licensed from the private sector (e.g., Google Classroom, Microsoft Teams and Zoom), as in **Bhutan, Honduras, Mexico, and Mongolia**. In countries with fewer resources, training concentrated on television-based instruction, as in the **Solomon Islands**, and the use of radio, as in **Liberia**. **Mauritius** provided training on pedagogical skills specific to remote teaching, including how to engage with students remotely. Despite these efforts, evidence is lacking on the effectiveness of teacher training and support programs for implementing remote learning.²¹⁴ Growing evidence emphasizes the importance of meaningful teacher-student interactions for successful remote learning.²¹⁵ Yet globally, 18 percent of countries reported they did not encourage interactions between teachers, students, and their caregivers.²¹⁶

Most countries prioritized teachers in their vaccination efforts. Globally, 71 percent of countries have included teachers in one of several priority groups to be vaccinated, but only ten percent of countries included teachers in the first priority group.²¹⁷ Teachers were not allocated to any priority group in 29 percent of countries. In almost one out of two countries in sub-Saharan Africa, teachers were not included in a priority group. High-income countries that prioritized teachers in the first phase tend to have very high proportions of vaccinated teachers, while some developing countries that do not prioritize teachers have very low rates of vaccinated teachers.

FIGURE 13: Percentage of teachers fully vaccinated, by country, September 2021 or latest data available

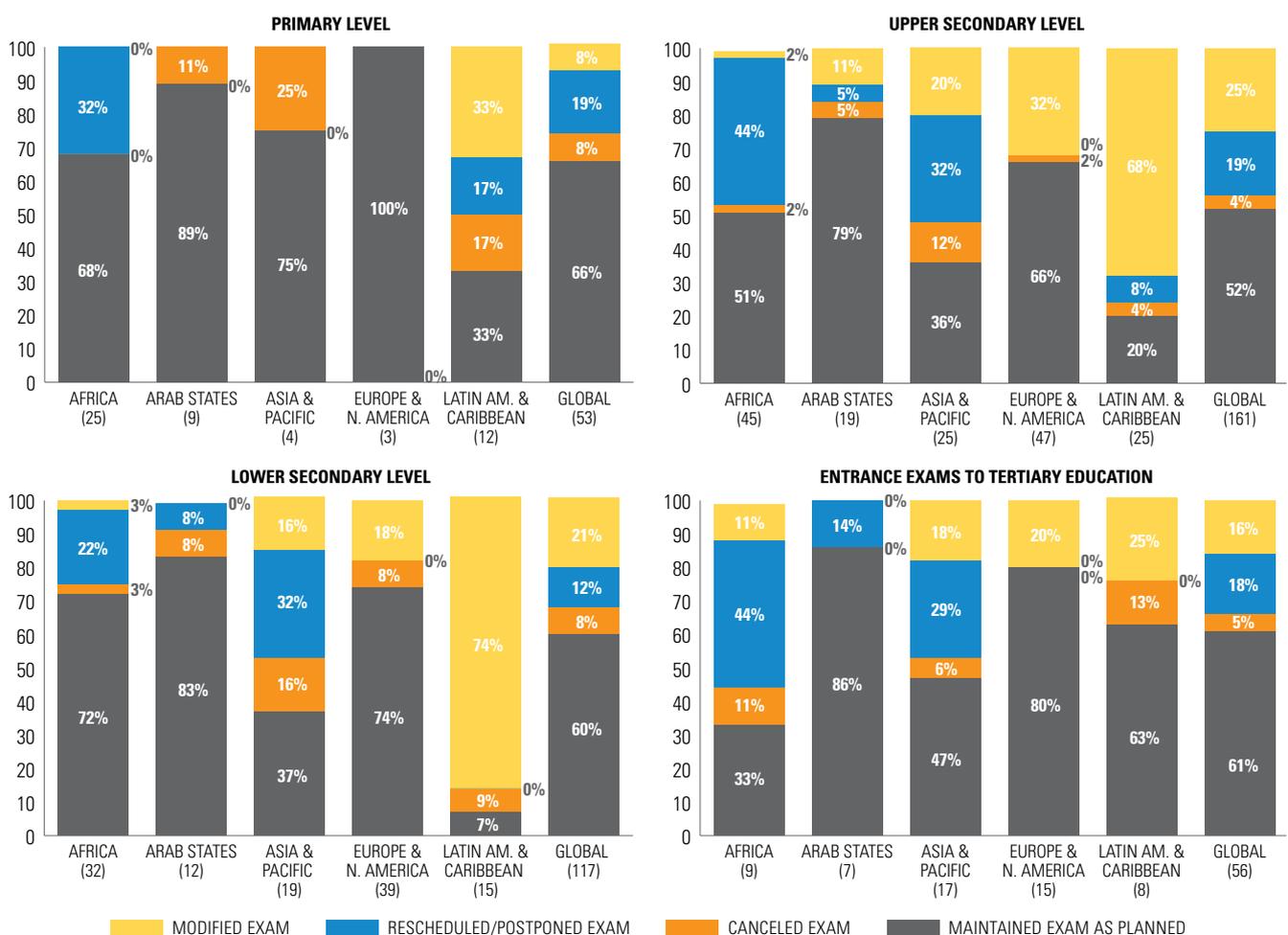


Source: UNESCO & Teacher Task Force. 2021 World Teachers' Day fact sheet

Countries made difficult decisions regarding national examinations and assessments. Many countries rely on examinations to make decisions regarding students' progression to the next grade level or certification, qualification, and graduation. Compared to 2020, the number of countries that maintained summative assessment has increased. At the end of the 2020/21 school year, 66 percent of countries surveyed maintained exams for primary education as planned, while 19 percent of countries decided to postpone the exams. At the lower and upper secondary levels, some countries modified exams by reducing content or providing more flexibility for students. In **France**, students passing the upper-secondary school-leaving exams could choose

from four subjects instead of three for the written part of the philosophy exams. In **Austria**, the number of compulsory modules of the general and professional higher education entrance qualification was reduced from four to three. In **Germany**, federated states agreed to provide more time for exams, reduce the content and to adapt the content to the actual curricula at school. Moreover, the **United Kingdom** and **Ireland** applied an alternative grading system while in the **Netherlands**, lower and upper secondary students had the possibility to retake one exam in core topics. In the **Caribbean** countries that participate in the Caribbean Examinations Council (CXC), the passing requirements were reduced by up to 50 percent in some subjects.

FIGURE 14: Share of policy response on high-stakes exams, by level of education and by region (2020/21 or end of 2020)



Source: UNESCO. 2021. "Status of high-stakes exams and assessments in 2021", (under press)

4.3 REMOTE AND HYBRID EDUCATION IS HERE TO STAY

The pandemic revealed how digital technologies make the world more deeply interconnected and interdependent than ever before, but also more divided. Narrowing the digital divide both between and within countries remains a huge challenge. Only 25 percent of low-income countries compared to 96 percent of high-income countries reported regular or extra expenditure on digital learning.²¹⁸ Countries best able to respond to COVID-19 educational disruptions were those that could build on the implementation of long-established ICT in education masterplans and the continuous development of digital learning systems, digital learning resources, and teachers' pedagogies for digital and/or distance learning. For example, **China, the Republic of Korea, and Singapore** have been implementing national ICT-in-education masterplans for more than two decades, with significant teacher training in the use of ICT. These countries reported minimal or zero loss of learning hours, due to their readiness to shift to large-scale online learning.²¹⁹ **China, Finland, the Republic of Korea, and Saudi Arabia** provided in-kind and financial assistance to low-income families to access digital devices or connectivity and took measures to ensure learning for students with disabilities, such as accessible online content and providing home visits.

Some countries and regions delivered innovative remote learning initiatives that education systems can learn from. COVID-19 emphasized the importance of countries choosing context-appropriate technological solutions to reach all learners. Many countries used multiple modalities of remote learning, including online learning, educational radio and TV programs, and mobile phones, which can help increase access for children from marginalized, rural, or low-income households.^{220,221} In **Sierra Leone**, where there is lower access to internet and TV, policymakers prioritized delivering remote learning through printed material and a radio learning program. Building on the radio program already in place during the Ebola crisis, new learning sessions were created with support from teachers and delivered through 12 community radio stations to maximize reach, especially to remote communities. To allow for two-way interaction, a 'live' phone line allowed children to call for free with their questions and created two-way interaction. **Brazil** combined low-tech and high-tech modalities to establish meaningful two-way interactions; for example, a **mobile application** was developed to encourage teacher-student interaction for a limited amount of time after each TV learning session, and telecommunication operators **zero-rate** this mobile application so that students and teachers can access it from any

device, without paying for the bandwidth. This application is combined with printed take-home material. In **Peru**, communications campaigns provided parents with guidelines and weekly schedules for remote learning through the **national remote learning platform, social media, newspapers, TV, and radio.** The **Nigerian** state of Edo launched **Edo-BEST@Home** and leveraged public-private partnerships to deliver a mobile-based remote learning program and digital resources at no cost to students or teachers. In some contexts, mobile phones were used to create two-way communication channels between students, teachers, and parents, disseminate and facilitate learning activities and conduct learning assessments.^{222,223,224} Mobile phones can make remote learning more interactive and offer two-way communication channels when used in combination with broadcast media and print-based materials.²²⁵

More countries need to improve their readiness for remote learning. School closures are not unique to COVID-19 and are likely to occur in the future as a result of climate-related natural disasters, conflicts, and public health emergencies. Yet among 67 low- and lower-middle-income countries analyzed, about half are unprepared to deploy remote learning during emergency school closures, placing more than 200 million children at-risk of future learning disruption.²²⁶ In 23 of these countries, children face a high or extremely high exposure to climate and environmental risks, emphasizing the urgency to invest in alternative modes of delivering education beyond in-person instruction. Pre-primary education is the least prepared to transition to remote learning; this places the youngest learners at risk of not learning during school closures and of being unprepared to transition to primary school, which could jeopardize their long-term outcomes.²²⁷



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PART 5

CREATING MORE RESILIENT SYSTEMS

5.1 LEARNING LOSSES CAN BE REVERSED, IF COUNTRIES ACT QUICKLY

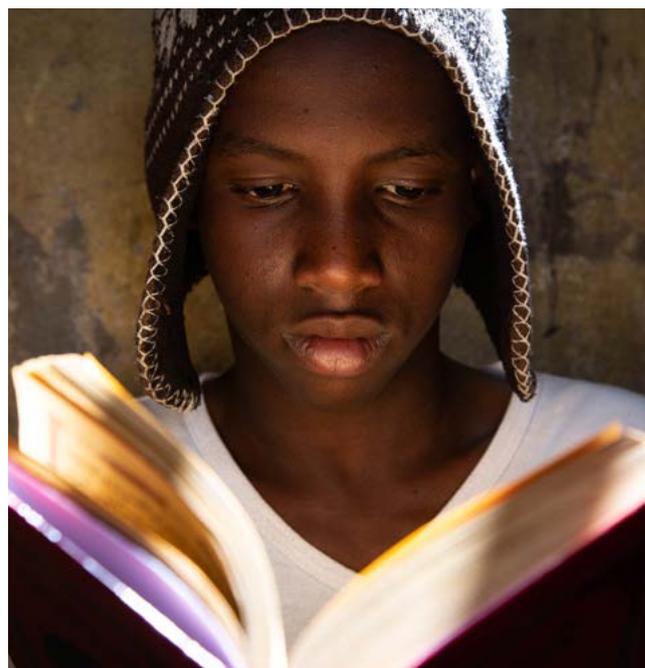
Countries should consider adopting re-enrollment campaigns and monitoring enrollment numbers. As schools reopen, there is a need to establish early-warning systems to monitor absenteeism or non-return of students and develop referral systems in response. Several countries have rolled out back-to-school campaigns to get children back to school and learning. In **Kenya**, initially low re-enrollment numbers led the government to appoint an inter-ministerial task force that led community-based household mobilizations. Over 96 percent of learners eventually re-enrolled. Similarly, the

Togolese government embarked on back-to-school media campaigns and mobilization of communities. To date, 98 percent of students in primary and lower secondary schools have returned. In addition to monitoring re-enrollment, back to school campaigns and targeted outreach, alternative strategies to boost reenrollment include conditional cash transfers, which ties cash support to families to school enrollment, as have proved effective in **Mexico** and **Brazil**.²²⁸ Because some students will not return to school, countries will also need to ramp up support and skill-building opportunities for the increased number of out-of-school children and youth.

As students return to school, assessing their learning levels is paramount. To accelerate learning recovery, countries will need to understand students' current learning levels. Yet only 38 percent of countries reported that they have taken steps to measure learning levels through standardized assessments for primary and lower secondary students. At the global and national level, data on learning loss could set the baseline for recovery efforts and mobilize resources to where they are needed most. At the school and classroom level, diagnostic assessment data is essential to enable teachers to identify the level of learning and develop learning activities aligned to student needs, to accelerate learning progress.

Without action, learning losses can compound over time. As discussed in Section 2, learning is a cumulative process, where new learning builds on previously acquired knowledge and skills. When children miss out on foundational learning because of school closures and weaknesses in remote learning, it may leave no foundation to build on when schools reopen. Therefore, learning losses incurred during the pandemic may continue to accumulate post-pandemic, unless governments act to recover learning once children return.

The World Bank, UNESCO, and UNICEF recommend that each country adopt a learning recovery program of evidence-based strategies to accelerate learning. As children return to in-person schooling after the worst education disruption in a century, providing a concrete program to accelerate learning is necessary to prevent this generation of children from being worse off than previous ones. Each country will need to customize a learning recovery program appropriate to their context. No single



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intervention will achieve this, which is why a more systemic approach is necessary. Each program should incorporate a suitable policy mix of evidence-based strategies, with considerations for capacity and budget constraints and other relevant factors. While results on learning recovery post-pandemic are still nascent and the effectiveness of post-pandemic learning acceleration strategies limited, evidence from previous crises and successful interventions to boost learning for students with low learning levels offer a way forward.

To accelerate learning, countries can implement strategies that employ three broad policy levers: 1) consolidating the curriculum; 2) extending instructional time; and 3) improving the efficiency of learning.

FIGURE 15. Three policy levers to accelerate learning recovery



TABLE 3. Levers to accelerate learning recovery

LEVER 1:
<p>Consolidating the curriculum. A growing body of evidence shows that consolidating the curriculum and teaching material in line with learning levels rather than curricular standards are effective methods to increase learning.^{229,230} The pandemic shock represents a crucial opportunity to conduct much-needed reforms to better align curricula with pressing needs. It will require covering essential material students have missed while out of school, even if the content is usually covered in earlier grades.</p>
<p>How? Consolidating the curriculum would require countries to form Curricular Committees to set priorities and decide which material should ideally be taught and learned in each grade, across and within subjects. They should consider which skills, knowledge, and competencies are prerequisites for later learning, so that each child has the opportunity to learn what is needed before being exposed to new material. The emphasis should be on foundational learning such as literacy, numeracy, and socioemotional competencies. At the most basic level, this may involve measures like providing 5th grade students with a 4th grade textbook, to ensure students don't miss out on building blocks for future learning.</p>
<p>Examples: Tanzania's curriculum for grade 1 and 2 was consolidated in 2015, reducing the number of subjects taught and increasing time on foundational numeracy and literacy. Preliminary results suggest that the reform led to large positive effects in math and Kiswahili. Guyana's Ministry of Education has launched a consolidated curriculum to facilitate students' re-entry to the classroom, which started in fall 2021 and will last for up to four years, based on student success in catch-up.</p>
LEVER 2:
<p>Extend instructional time. Pre-pandemic literature shows that increasing the time spent on instruction can improve learning outcomes.^{231,232,233,234}</p>
<p>How? Countries can go about this in several ways: by extending the school day, by modifying the academic calendar to make the school year longer, or by offering summer school for all students or those in need. Such actions will only yield results if take-up is high and students attend the additional instruction time. Therefore, it is important to carefully consider what actions would be most suited to the context, as well as the incentives and tradeoffs involved for teachers, students, and their families, to maximize attendance.</p>
<p>Examples: In Kenya, the government announced a two-year accelerated "crash program" that adds a fourth term to the usual three-term school year by shortening school holidays. In Mexico, the Ministry of Public Education announced planned extensions to the academic calendar to account for a recovery period. In Madagascar, the government scaled up an existing two-month summer "catch-up" program in 2020, for students who reintegrate into school after having left the system.</p>
LEVER 3:
<p>Improving the efficiency of learning. To improve efficiency, education systems need to support initiatives that increase the amount of learning happening within the classroom. Several effective interventions include:</p>
<p>3.1 Targeted instruction, which requires assessing student learning levels and grouping students by level of proficiency, rather than age or grade, for specific periods of time during the school day and vacation periods. Teachers align instruction to the learning level of students, rather than an assumed starting point or curricular expectation.</p> <p>How? Targeted instruction approaches are flexible and can be modified to the context of schools and education systems. Models include groupings by learning level during certain periods in the school day, intensive learning camps during the school year, or summer camp models.</p>
<p>3.2 Invest in structured pedagogy programs. Structured pedagogy refers to a comprehensive and coherent package that focuses on improving teaching and learning in the classroom. A review of interventions in education found structured pedagogy interventions to be yielding the most consistent positive results.²³⁵</p> <p>How? Programs usually include teacher guides that provide daily lesson plans, training and coaching for teachers to reinforce skills to teach these lessons, and student materials provided at a 1:1 ratio. Usually, there are tools to monitor classroom learning progress and substantial support to schools and teachers. Technology can be used to facilitate structured pedagogy interventions, but only if pre-requisites like access to devices, software, a digital architecture, reliable connectivity, and digital skills are in place. In lower-capacity settings, a more promising short-run approach is to rely on existing technology to coach teachers in implementing the structured pedagogy programs.</p>
<p>3.3 Offering small-group tutoring programs. There is strong evidence that tutoring can substantially increase student achievement, especially among low-achieving students, but the efficacy of this approach depends heavily on group size and the frequency of sessions.²³⁶</p> <p>How? Tutoring is most effective with one to four students per tutor, who can be a teacher, hired assistant or volunteer. Tutoring can take place during school hours or after, face-to-face or online, depending on what suits the context. Tutoring will be challenging to implement at scale in many low- and middle-income countries but experimenting with adaptations that are feasible given contextual constraints could yield high returns. For example, even in low-capacity contexts, there is likely a pool of secondary school graduates who, with training, could serve as effective tutors for the younger children whose learning has suffered most during the pandemic.</p>
<p>3.4 Offering self-guided learning programs. Like targeted instruction, self-learning programs enable students to progress incrementally towards mastery of foundational skills. Self-learning activities can be used with limited teacher input and guidance.</p> <p>How? The activities can be pencil-and-paper based, or in systems where adequate technology is available in schools or homes, remediation can occur through computer-assisted self-learning programs. These programs have shown promising results, but more evidence is needed on the enabling conditions and how to scale them effectively in low-income contexts.</p>
<p>Examples: Structured pedagogy using teachers guides with lesson plans has proven to be highly effective in Kenya. Targeted instruction has been implemented at scale in Cote D'Ivoire. The United Kingdom is implementing a national tutoring program for all children, and remote low-tech options in Botswana and Bangladesh have been effective. Computer-assisted self-guided learning has been implemented at scale in Uruguay, and a program based on pencil-and-paper is showing promise in Bangladesh. A tablet-based self-guided intervention in Malawi has also shown promising results at the pilot stage.</p>



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The success of interventions to accelerate learning recovery will largely depend on the skills and competencies of teachers. Teachers are on the frontline of designing and delivering learning recovery programs to address the learning loss and will need targeted professional development and continuous mentoring support to do so effectively. It is important to train teachers in using diagnostic assessments to identify students' learning levels, knowledge, and skills gaps, and in adapting instruction accordingly, thanks to continuous formative assessment techniques. Targeted instruction and providing children with classroom instruction at the level they need requires significant organizational and pedagogical skills, and using structured lesson plans requires training and ongoing feedback. Training on the basic use of digital online platforms will not suffice, teachers will need training to organize and deliver remote and hybrid learning. In cases when the use of technology is feasible, teachers will need to learn how to use digital platforms for lesson planning, instruction, conducting formative and summative assessments, and facilitating group activities and discussions. They will also need to be provided with reliable access to and training on digital pedagogies. The use of online platforms and learning management systems generates useful data that can be harnessed to improve teaching and learning. Teachers who have a certain level of mastery should receive additional training in using data and learning analytics to better support students' learning progress through data-informed targeted instruction. Education authorities and schools should find a way to make time available for teachers' participation in continuous professional development (CPD), such as in the new measures in **Rwanda** allocating three hours weekly devoted to CPD²³⁷ and making better use of teachers between schools where skills gaps exist including in specific subject-matter as has been shown in **Zimbabwe**.²³⁸

Teachers have also experienced additional stress as a result of COVID-19 and need support and resources to manage their own mental health and wellbeing. Evidence shows that teachers' emotions and stress have been found to influence those of students and other teachers.^{239,240} It is important to attend to their need for psycho-social wellbeing and skills to support their own adaptation to changing teaching routines, so they can support the wellbeing of students and of other teachers.

5.2 COUNTRIES CAN LEARN FROM THE CRISIS, ACCELERATE LEARNING, AND MAKE SCHOOLS MORE EFFICIENT, EQUITABLE, AND RESILIENT

A lesson of the pandemic is that systems must build resiliency and plan for learning continuity between the school and home environments. The pandemic has underlined that learning is a continuous process, and that children should receive the right stimulation both at school and at home. The role of parents, caregivers, and the community is critical, and public policy should strengthen their capacity to support the learning process. Improving learning conditions at home (including access to devices, connectivity, and availability of books) should be a public policy priority. Closing the digital divide — which was much needed even before the pandemic — is now an urgent development task. Closing the divide will facilitate a transition to hybrid learning models in which learning at school is complemented by learning at home. The pandemic has also shown that education is about social interactions, and that the role of the teacher is fundamental element to the learning process. Finally, to build resilience, countries must prioritize education in their stimulus packages. The following paragraphs elaborate on these necessary steps.

Highlight and reinforce the role of parents, families, and communities in children's learning. Parents and caregivers are critical in supporting children's learning and should consequently be involved and supported in the learning process.²⁴¹ The home literacy environment and the quantity and quality of talking, interacting, and reading with a child during the early years are strongly associated with language and cognitive development, school readiness and academic performance.²⁴² Yet children of less educated parents and/or from poor households are less likely to receive learning support at home.²⁴³ The pandemic has highlighted the importance of the home learning environment, underlining that the family and community around children are key players in children's learning. Education systems should empower families and communicate that they can make a huge difference in their children's lives and futures. Parents, families, and communities need guidance and support to better fulfill this role. They need access to information on evidence-based practices for supporting children's learning, so that they can deliver stimulating learning environments in the early years and support children once in school.²⁴⁴ The pandemic has accentuated the need for resilient systems that ensure learning continuity beyond school walls, which requires the right conditions at home. Countries must bridge the digital and electricity divide and help provide families and communities with appropriate learning resources. There are examples of successful and cost-effective ways to boost the role of the home learning environment. For example, an intervention in rural **Kenya** that provided low-literacy households with culturally and linguistically appropriate books and dialogic reading training for caregivers increased reading frequency and the quality of caregiver-child interactions for pre-school aged children, including for families with illiterate caregivers.²⁴⁵ The World Bank's [Read@Home](#) program will deliver reading, learning and play materials to hard-to-reach homes and encourage caregivers to support children's learning at home.²⁴⁶

Invest in the enabling environment to unlock digital learning for all students. When carefully planned and adequately resourced, digital and hybrid learning has the potential to support learning continuity in the face of future school closures. Countries must systematically invest in strengthening the enabling environment that advances digital learning for all students, especially the most marginalized. This includes closing the digital divide by increasing access to affordable devices, internet connectivity, and electricity and reducing direct costs to teachers and students to ensure uptake of remote learning.²⁴⁷ Achieving electricity and connectivity for all

can be accelerated through public-private partnerships, as seen through the [Giga initiative](#), which maps connectivity in schools around the world, works with governments to find financing and delivery models and partners with industry to advise on technical solutions to help connect all schools. Digital learning programs must be designed in a way that is age-relevant, interactive, contextualized, and aligned to learners' needs and should be inclusive for all students, including girls, students with disabilities, ethnic minorities, and displaced learners. Social and cultural barriers that prevent some students, especially girls, from accessing and using technology must be addressed. Adequate safeguards should be put in place to protect children's wellbeing, safety, and security when engaged in digital learning and mitigate the risk of violence, abuse, or exploitation online.²⁴⁸

Strengthen and support the teacher workforce. The crisis revealed that, in most countries, teachers were not ready to ensure continuity of learning. Teachers require high-quality initial teacher education and continuous professional development that prepares them to assess student learning, target instruction to the level of the child, address the diverse needs of all children through inclusive education, and identify and support children's mental health and wellbeing. Teachers must also be effectively trained in digital pedagogies and information and communication technologies to enhance the effectiveness of online and hybrid learning. Education systems should ensure the professionalism of the teacher workforce and incentivize high-quality candidates to the profession through remuneration, rewards, and adequate working conditions. Effective deployment strategies for teachers are needed to reduce urban and rural disparities and to align teachers' skills and subject specialization to school's needs.

Increase the share of education in the allocation of stimulus packages and boost the efficiency of spending. National fiscal responses to education have been largely insufficient to mitigate and prevent a generational catastrophe for children. Education and training must be prioritized in national fiscal response. Increasing efficiency is also critical, and many of the interventions advocated here can boost efficiency by improving outcomes significantly for a given level of spending. But even with efficient policies, more financing will be necessary so that countries can target support to vulnerable populations and prevent a surge in dropouts, build skills for a green and inclusive economic recovery and structural transformation, and make smart investments in flexible and resilient hybrid learning systems.

5.3 TIMELY AND RELIABLE DATA, KNOWLEDGE, AND EVIDENCE IS NEEDED TO CREATE EFFICIENT, EQUITABLE, AND RESILIENT EDUCATION SYSTEMS

Behind the global learning crisis, there is a learning data crisis. COVID-19 increased the need for timely, comparable data to assess the impact of school closures on students' learning. Yet in many low- and middle-income countries, learning data are not collected frequently and, in some countries, not collected at all. In sub-Saharan Africa, data is lacking for over half of school-age children to assess whether they are reaching a minimum level of reading proficiency. Even when data are collected, the comparability and validity of the data and the capacity to analyze and use it for decision making remains a big challenge. Without regular and reliable data to measure foundational learning, countries cannot monitor learning progress and whether their investments and policies are working for all children. Efforts are needed to ensure that data are disaggregated by sex, age, location, socioeconomic status, and other relevant characteristics. Governments should be supported to analyze learning data to inform evidence-based policies and plans. UNESCO, UNICEF, and the World Bank are uniting forces to establish the Learning Data Compact (LDC) to support coordinated efforts to close the learning data gaps that still exist worldwide.

Countries should try to measure learning losses. This evidence shows that learning losses are real, but that the size of the losses varies across grades, subjects, social groups, and effectiveness of the education system. Measuring learning loss would allow for: (1) understanding which grades, subjects and groups were affected the most, and might require greater attention; and (2) creating the baseline upon which recovery efforts will build on and be monitored against.

Further evidence is needed on the success and failures of recent policy interventions during COVID-19 response. While this report has highlighted policy interventions that align with best practices and available evidence, evidence emerging from COVID-19 responses is partial at best and offers limited insights on the effect policies have had on mitigating learning loss. Rigorous evaluations of recent policy interventions and their implementation are needed to better understand their effectiveness across different settings and their potential to mitigate learning loss amidst future shocks. Monitoring efforts should also focus on the most marginalized groups, who were often excluded in policy response.

Building resilient education systems will require more systematic implementation research. Research should be co-created with governments and from the outset to generate evidence of what works, under what conditions, and for whom. Evidence generation should align with national policies and priorities and should be embedded within existing systems to improve uptake and use. Stakeholders at all levels should be empowered to continuously generate and use evidence for decision-making and implementation. Research on implementation is also critical and can identify bottlenecks and capacity constraints at various levels of the system (national, sub-national, and school-level) that prevent policies from achieving their full potential.

There is a clear need for a stronger multisectoral response to education development and better global collaboration on research and development in education. During this crisis, data on public health has been widely available, researchers have collaborated across borders and the latest insights regarding the virus have been shared quickly and efficiently. Vaccines were produced at a speed previously unthinkable. Given the success of the global public health community in collaborating in R&D and beyond, the education community should look for avenues to improve knowledge sharing and collaboration in the field of education, including through co-creation approaches.

The pandemic exposed the need for systemic risk analysis for education systems to identify and prepare for future shocks. COVID-19 school closures exposed just how vulnerable education is to shocks and the importance of contingency planning to support learning continuity. As natural disasters and other shocks resulting from climate change become more common, education systems must become more resilient and be ready to adapt. Undertaking systems diagnostics, such as a hazard and conflict analysis, can enable education systems to identify future risks to delivering education and the mechanisms available to strengthen resilience.²⁴⁹ Other system-level analyses, like UNICEF's Remote Learning Readiness Index, can offer critical insights into a country's readiness to deliver remote learning and can support them to identify weaknesses and build partnerships to strengthen their remote learning readiness.²⁵⁰ This crisis has also exposed how education systems often fail to protect their most vulnerable students and emphasized the need to strengthen the focus on inclusion and equity. Drawing from lessons learned, education sector planning and systemic risk analysis should aim to better prepare systems for future disruptions.



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PART 6

CONCLUSION: ACT NOW TO RECOVER LEARNING

The COVID-19 school closures, compounded by the economic and health impacts of the pandemic, have had major negative impacts on children's learning, wellbeing, and their expected future livelihoods. The learning losses from COVID-19 school closures are very real, as the evidence in this report has shown. In virtually every low- and middle-income country, and most high-income countries too, the data that is now accumulating shows that children learned less during the pandemic and that the impacts are exacerbating inequalities. Unless swift action is taken, this generation might be permanently scarred, within-country inequality of opportunities might expand (as the less well-off had much less quality education stimulation during the closures), and younger students might be impacted more. There is evidence also that girls learning has been impacted more than boys in terms of learning achievement. In general,

countries have invested relatively little of their overall fiscal recovery packages on education, but in low- and middle-income countries, the share has been particularly low, reaching less than 3% of the additional spending.

As schools reopen, it can be tempting to resume business as usual, on the assumption that once children are back in classrooms their learning will soon get back on track. This would be a mistake. The consequences for today's generation of children and youth will be long-lasting if we do not act quickly. First, the process of school reopening must be accelerated. The costs of keeping schools closed vastly outweigh the benefits; however, school should always maintain all required safety measures, adjusting them as the pandemic conditions evolve in each country and locality. To prevent losses from becoming permanent—or, worse still, continuing to grow even after schools reopen because students are not able to understand the curriculum—

countries need to focus on reversing those losses. It is essential that countries implement a learning recovery package; even if the specific set of interventions might be different, they should share the objective of assuring that children and youth stay in school and reach at least the same level of competencies as did previous generations that were not exposed to the pandemic. There are concrete tools for achieving this, including consolidating the curriculum, expanding instructional time, and making evidence-based changes in pedagogy, once a country has made learning recovery a priority.

Beyond the immediate recovery, much more needs to be done to reimagine education. The pandemic has illuminated the fragility of education systems worldwide, as well as the low learning levels and the stark inequalities that existed across and within countries even long before the onset of the pandemic. The need to make education systems more equitable, efficient, and resilient has never been clearer than it is now. And the opportunity is clear too. Despite inadequacies in the policy responses, the pandemic has highlighted that innovation within education is both necessary and possible. With a strong learning recovery program—one that benefits from these innovations and takes equity seriously—countries can truly begin to rebuild better.

One important element of both the immediate response and longer-term improvement is better learning data. This report has been able to document learning losses thanks to the small but growing number of countries (and regions) that have already conducted necessary learning assessments. This is a crucial first step to help students recover lost learning and help schools narrow the learning gaps that widened inequalities during the pandemic. Without such data, countries will be flying blind; other countries therefore now need to follow these pioneers and carry out their own assessments to measure learning loss. Our organizations are committed to supporting those efforts through the new Learning Data Compact.

Beyond improving data, we are committed to supporting governments with ongoing COVID response through the Mission Recovery plan launched earlier this year. The plan focuses on bringing all children back to schools, recovering learning losses, and preparing and supporting teachers so they can support students. With government leadership and support from the international community, there is a great deal that can be done to make systems more equitable, efficient, and resilient. But to do that, we must make children and youth a real priority amidst all the other demands of the pandemic response. Their future—and our collective future—depends on it.



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ENDNOTES

- 1 UNESCO. 2018.
- 2 Azevedo, Crawford et al. 2019.
- 3 Azevedo et al. 2019.
- 4 Azevedo, Hasan et al. 2021.
- 5 World Bank, forthcoming
- 6 Azevedo et al. 2021.
- 7 Azevedo. 2020.
- 8 UNESCO. 2020.
- 9 UNICEF. 2021a.
- 10 Economist. 2021.
- 11 Hillis, Susan D., H. Juliette T. Unwin, Yu Chen, Lucie Cluver, Lorraine Sherr, Philip S. Goldman, Oliver Ratmann, et al. 2021.
- 12 United Nations. 2021.
- 13 Agrawal, Sarthak, Alexandru Cojocaru, Veronica Montalva, Ambar Narayan, Tom Bundervoet, and Andrey Ten. 2021.
- 14 UNESCO, UNICEF, and World Bank. 2020.
- 15 UNESCO, UNICEF, World Bank, and OECD. 2021.
- 16 This shows how different authors have estimated the “forgone” component of the learning losses and illustrate how the same terms is being used to describe qualitatively different exercises. In some cases, the expected value of learning was empirically estimated based on past learning data, while in other cases, the counterfactual was criterion-based (normative), building on the expected levels of competences given the national curriculum. This normative case is actually a measure of learning gap, not learning loss; see example in Figure A.2, for an illustration using results for the State of São Paulo to show how much difference those different strategies make.
- 17 For a given country
- 18 Jaume, David, and Alexander Willén. 2019.
- 19 Belot, Michèle, and Dinand Webbink. 2010.
- 20 Cygan-Rehm, Kamila. 2018.
- 21 Ichino, Andrea, and Rudolf Winter-Ebmer. 2004.
- 22 The 2005 earthquake in Pakistan suggests that even if school enrolment recovers, the impacts of school closures and an aggregate shock on learning may last much longer. Four years after the earthquake, the study finds large shortfalls in the physical and cognitive development of children affected by it. The test scores of children living within 20km of the fault line were significantly below their peers, equivalent to 1.5 grades. Importantly, the authors highlight that school closures alone cannot have accounted for the drop in test scores, but that children in the earthquake affected regions must have learnt less every year after returning to school. Andrabi, Tahir, Benjamin Daniels, and Jishnu Das. 2021.
- 23 UNICEF. 2020b.
- 24 UNESCO School closure calendar, as of the end of October/2021
- 25 Azevedo et al. 2021.
- 26 Azevedo. 2020.
- 27 Azevedo, Cloutier et al. 2021.
- 28 About 10 percent of the learning loss while schools are closed will be fully mitigated in high-income countries, but only 7 percent will be mitigated in the developing world. For more details see Azevedo. 2020.
- 29 Munoz-Najar, Alberto; et al. 2021.
- 30 Hevia, Felipe J., Samana Vergara-Lope Tristan, Anabel Velásquez-Durán, and David Calderón Martín del Campo. 2021.
- 31 Idara-e-Taleem-o-Aagahi. 2021
- 32 Zvyagintsev. 2021.
- 33 Ardington, Cally, Gabrielle Willis, and Janeli Kotze. 2021.
- 34 Whizz Education. 2021
- 35 King, Janice, Pauline Rose, Dawit Tibebe Tiruneh, Ricardo Sabates, and Tassew Woldehanna. 2021.
- 36 Wolf, Sharon, Elisabetta Aurino, Noelle Suntheimer, Esinam Avornyo, Edward Tsinigo, Jasmine Jordan, Soloman Samanhyia, J. Aber, and Jere Behrman. 2021.
- 37 Lichand, Guilherme, Carlos Alberto Doria, Onicio Leal Neto, and Joao Cossi. 2021.
- 38 SEDUC-SP. 2021.
- 39 Fundação Lemann, o Instituto Natura e a Associação Bem Comum. 2021.
- 40 ASER. 2021.
- 41 Maldonado, Joana Elisa, and Kristof De Witte. 2021.
- 42 Department for Education, United Kingdom. 2021.
- 43 Engzell, Per, Arun Frey, and Mark D. Verhagen. 2020.
- 44 Contini, Dalit, Maria Laura Di Tommaso, Caterina Muratori, Daniela Piazzalunga, and Lucia Schiavon. 2021.
- 45 Pier et al. 2021.
- 46 Lewis, Karyn, Megan Kuhfeld, Erik Ruzek, and Andrew McEachin. 2021.
- 47 Texas Education Agency. 2021.
- 48 Pier et al. 2021.
- 49 Colorado Department of Education. 2021.
- 50 Tennessee Department of Education. 2021.
- 51 Stoops, Terry. 2021.
- 52 Kogan, Vladimir, and Stéphane Lavertu. 2021.
- 53 Masters, Kate. 2021.
- 54 Montgomery County Board of Education. 2021.
- 55 Tomasik, Martin J., Laura A. Helbling, and Urs Moser. 2021.
- 56 Hevia et al. 2021.
- 57 Pier, Libby, Michael Christian, Hayley Tymeson, and Robert Meyer. 2021.
- 58 Lewis, Karyn, Megan Kuhfeld, Erik Ruzek, and Andrew McEachin, 2021.
- 59 Report of NAPE. 2021.
- 60 Lewis, Karyn, Megan Kuhfeld, Erik Ruzek, and Andrew McEachin, 2021.
- 61 SEDUC-SP, 2021.
- 62 Zvyagintsev, Roman. 2021.
- 63 Idara-e-Taleem-o-Aagahi. 2021
- 64 Hevia et al. 2021.
- 65 SEDUC-SP, 2021.
- 66 Report of NAPE. 2021.
- 67 Polikoff, David M. Quinn and Morgan. 2017.
- 68 Contini, Dalit, Maria Laura Di Tommaso, Caterina Muratori, Daniela Piazzalunga, and Lucia Schiavon. 2021.
- 69 Department for Education, United Kingdom. 2021.
- 70 Dorn, Emma, Jimmy Sarakatsannis, Brian Hancock, and Ellen Viruleg. 2020.
- 71 Lewis et al. 2021
- 72 Piers et al. 2021
- 73 Korbal, Václav, and Daniel Prokop. 2021.
- 74 Engzell et al. 2021.
- 75 Entwisle D. R., Alexander K. L., Olson L. S. 2000.
- 76 INEEd. 2021.
- 77 Report of NAPE. 2021.
- 78 Severin, Eugenio. 2016.
- 79 Pérez Alfaro, Marcelo. 2020.
- 80 Gore, Jenny, Leanne Fray, Drew Miller, Jess Harris, and Wendy Taggart. 2020.

- 81 UNICEF. 2021d.
- 82 Save the Children. 2021.
- 83 UNICEF. 2021d.
- 84 UNICEF. 2021d.
- 85 OECD. 2020.
- 86 Pérez Alfaro. 2020.
- 87 Association for the Development of Education in Africa (ADEA), African Union's International Centre for Girls' and Women's Education in Africa (AU/CIEFFA), and African Population and Health Research Center (APHRC). 2021.
- 88 Lichand et al. 2021.
- 89 Lichand et al. 2021.
- 90 Hares, Susannah & Crawford, Lee. 2020.
- 91 UNICEF, 2020b.
- 92 Avanesian, Garen, Suguru Mizunoya, and Diogo Amaro. 2021.
- 93 UNESCO, UNICEF, World Bank, and OECD. 2021.
- 94 UNICEF and International Telecommunication Union. 2020.
- 95 UNICEF, 2021d.
- 96 European Commission. 2020.
- 97 Wang, Yixin, Garen Avanesian, Akito Kamei, Sakshi Mishra, and Suguru Mizunoya. 2021.
- 98 UNICEF, 2021d.
- 99 UNESCO, UNICEF, World Bank, and OECD. 2021.
- 100 Valenza, Marco, Djibo Abdou, Yacouba and Dreesen, Thomas. 2021
- 101 UNICEF, forthcoming
- 102 UNESCO, UNICEF, World Bank, and OECD. 2021.
- 103 UNICEF, 2021d.
- 104 Brossard, Matt, Marta Carnelli, Stephane Chaudron, Rosanna Di-Gioia, Thomas Dreesen, Daniel Kardefelt-Winther, Céline Little, and Jean-Luc Yameogo. 2021.
- 105 Dreesen, Thomas, Spogmai Akseer, Mathieu Brossard, Pragya Dewan, Juan-Pablo Giraldo, Akito Kamei, Suguru Mizunoya, and Javier Santiago Ortez Correr. 2020.
- 106 Brossard et al. 2021.
- 107 UNICEF. 2021d.
- 108 World Bank. 2020.
- 109 UNESCO, UNICEF, and World Bank, 2020
- 110 World Bank 2021.
- 111 Lindsay, Dominica. 2020.
- 112 Fatehka, Masoomali, Ridhi Kashyap, and Ingmar Weber. 2018.
- 113 Amaro, Diogo, Lauren Pandolfelli, Ingrid Sanchez-Tapia, and Matt Brossard. 2020.
- 114 Malala Fund. 2020. "Girls' Education and COVID-19 in Nigeria."
- 115 Favara, Marta, Richard Freund, Catherine Porter, Alan Sánchez, and Douglas Scott. 2021.
- 116 Population Council. 2021.
- 117 Hossain, Mobarak. 2021.
- 118 Nugroho et al. 2021
- 119 McCoy, Dana C., Jorge Cuartas, Jere Behrman, Claudia Cappa, Jody Heymann, Florencia López Bóo, Chunling Lu, et al. 2021.
- 120 Nugroho, Dita, Chiara Pasquini, Nicolas Reuge, and Diogo Amaro. 2020.
- 121 UNICEF, 2020b.
- 122 UNICEF, 2020b.
- 123 UNESCO, UNICEF, World Bank, and OECD. 2021
- 124 McCoy et al. 2021.
- 125 UNICEF, World Bank and UNESCO, 2020
- 126 Goodall, Janet, and John Vorhaus. 2011.
- 127 Save the Children. 2021.
- 128 Jones, Nicola, Ingrid Sanchez Tapia, Sarah Baird, Silvia Guglielmi, Erin Oakley, Workneh Abebe Yadete, Maheen Sultan, and Kate Pincock. 2021.
- 129 Collins, Caitlyn, Liana Christin Landivar, Leah Ruppner, and William J. Scarborough. 2021.
- 130 Dunatchik, Allison, Kathleen Gerson, Jennifer Glass, Jerry A. Jacobs, and Haley Stritzel. 2021.
- 131 Azevedo, João Pedro, Marcela Gutierrez, Rafael de Hoyos, and Jaime Saavedra. 2021.
- 132 World Vision. 2020.
- 133 UNICEF Sri Lanka and UNICEF ROSA. 2021.
- 134 Ministère de l'Éducation, 2021
- 135 Azevedo, João Pedro, Marcela Gutierrez, Rafael de Hoyos, and Jaime Saavedra. 2021.
- 136 Chetty, Raj, John N. Friedman, Nathaniel Hendren, Michael Stepner, and The Opportunity Insights Team. 2020.
- 137 Engzell, Per, Arun Frey, and Mark D. Verhagen. 2020.
- 138 Brossard, Mathieu, Manuel Cardoso, Sakshi Mishra, Suguru Mizunoya, and Nicolas Reuge. 2020.
- 139 Abreh, Might Kojo, Wisdom K. Agbevanu, Amina Jangu Alhassan, Francis Ansah, Rosemary S. Bosu, Lee Crawford, Clara Araba Mills, Ana Luiza Minardi, and Gloria Nyame. 2021.
- 140 Samba, Mbaye, Le Nestour Alexis, Moscoviz Laura, and Chery Justin. 2021.
- 141 Bacher-Hicks, Andrew, Joshua Goodman, and Christine Mulhern. 2021.
- 142 Carvalho, Shelby, Jack Rossiter, Noam Angrist, Susannah Hares, and Rachel Silverman. 2020.
- 143 Bandiera, Buehren, Goldstein, Rasul, and Smurra 2019.
- 144 Amin, Sajeda, Ubaidur Rob, Masuma Billah, Sigma Ainul, Md Irfan Hossain, Forhana Rahman, Surojit Kundu, et al. 2020.
- 145 Datafolha, Fundação Lemann, and Instituto Natura. 2021.
- 146 Wodon, Quentin, Benedicte de la Briere, Corinne Siaens, and Shlomo Yitzhaki. 2003.
- 147 Dessy, Sylvain, Horace Gninafon, Luca Tiberti, and Marco Tiberti. 2021.
- 148 INEGI, 2021b.
- 149 Ministerio de Educación, Centro de Estudios. 2020.
- 150 Mbaye et al. 2021.
- 151 Chavez Villegas, Cirenía, Silvia Peirola, Matilde Rocca, Alessandra Ipince, and Shivit Bakrania. 2021.
- 152 Bignardi, Giacomo, Edwin S. Dalmajier, Alexander L. Anwyl-Irvine, Tess A. Smith, Roma Siugzdaite, Stepheni Uh, and Duncan E. Astle. 2021.
- 153 Haripersad, Yasheer Venay, Madeleine Kannegiesser-Bailey, Katinka Morton, Sarah Skeldon, Nicolene Shipton, Kara Edwards, Rachel Newton, Amanda Newell, Paul Geoffrey Stevenson, and Andrew C. Martin. 2021.
- 154 Lee, Joyce. 2020.
- 155 Luijten, Michiel A. J., Maud M. van Muilekom, Lorynn Teela, Tinca J. C. Polderman, Caroline B. Terwee, Josjan Zijlmans, Leonie Klaufus, et al. 2021.
- 156 Xie, Xinyan, Qi Xue, Yu Zhou, Kaiheng Zhu, Qi Liu, Jiajia Zhang, and Ranran Song. 2020.
- 157 Sharma, M., P. Idele, A. Manzini, CP. Aladro, A. Ipince, G. Olsson, P. Banati, and D Anthony. 2021.
- 158 Datafolha, Fundação Lehmann and Instituto Natura. 2021.
- 159 Racine, Nicole, Brae Anne McArthur, Jessica E. Cooke, Rachel Eirich, Jenney Zhu, and Sheri Madigan. 2021.
- 160 Solis, S. Lynneth, Claire W. Liu, and Jill M. Popp. 2020.
- 161 Bourgault, Shelby, Amber Peterman, and Megan O'Donnell, 2021.
- 162 Cabrera-Hernández, Francisco, and María Padilla-Romo. 2020.
- 163 Borokowski, Arthur, Donald A.P. Bundy, Carmen Burbano, Shika Hayashi, Edward Lloyd-Evans, Jutta Neitzel, and Nicolas Reuge. 2021.
- 164 World Food Programme. 2021.
- 165 UNICEF. 2019.
- 166 FAO & WFP, 2020
- 167 UNICEF, FAO, IFAD, WFP, and WHO. 2021.

- 168 Zemrani, Boutaina, Mario Gehri, Eric Masserey, Cyril Knob, and Rachel Pellaton. 2021.
- 169 Bandiera, Buehren, Goldstein, Rasul, and Smurra 2019.
- 170 UNICEF, and ILO. 2021.
- 171 Edmonds, Eric V., and Norbert Schady. 2012.
- 172 Chavez Villegas et al., 2021.
- 173 Save the Children, 2021.
- 174 UNICEF, 2021e.
- 175 Bhengu, Lwandile. 2021.
- 176 Mavhunga, Columbus. 2021.
- 177 Mohammed, Yusuf. 2020.
- 178 Oulo, Brenda, Aubryn Allyn Sidle, Kendra Kintzi, Mary Mwangi, and Immaculate Akello. 2020.
- 179 Nyamweya, Naomi. 2020.
- 180 UNESCO. 2021a.
- 181 UNESCO. 2021b.
- 182 NSC Research Center. 2020.
- 183 Yahoo!Noticias. 2021.
- 184 Ministerio de Educación Nacional de Colombia. 2021.
- 185 Goldstein, Edward, Marc Lipsitch, and Muge Cevik. 2021.
- 186 Zhu, Yanshan, Conor J. Bloxham, Katina D. Hulme, Jane E. Sinclair, Zhen Wei Marcus Tong, Lauren E. Steele, Ellesandra C. Noye, et al. 2021.
- 187 Viner, Russell M., Oliver T. Mytton, Chris Bonell, G. J. Melendez-Torres, Joseph Ward, Lee Hudson, Claire Waddington, et al. 2021.
- 188 WHO. 2021.
- 189 European Centre for Disease Prevention and Control. 2021.
- 190 Fenton, Lynda, Ciara Gribben, David Caldwell, Sam Colville, Jen Bishop, Martin Reid, Jane White, et al. 2021.
- 191 Gandini, Sara, Maurizio Rainisio, Maria Luisa Iannuzzo, Federica Bellerba, Francesco Cecconi, and Luca Scorrano. 2021.
- 192 Harris, Douglas N., Engy Ziedan, and Susan Hassig. 2021.
- 193 Bismark-Osten, Clara von, Kirill Borusyak and Uta Schönberg 2020
- 194 Leidman, Eva, Lindsey M. Duca, John D. Omura, Krista Proia, James W. Stephens, and Erin K. Sauber-Schatz. 2021.
- 195 UNESCO, UNICEF, World Bank, and OECD. 2021.
- 196 Abaluck, Jason. 2021.
- 197 Benjamin, Daniel K., and Kanecia Zimmerman. 2021.
- 198 Jehn, Megan, JM. McCullough, Ariella P. Dale, Matthew Gue, Brian Eller, Theresa Cullen, and Sarah E. Scott. 2021.
- 199 Jehn et al. 2021.
- 200 Gettings, Jenna. 2021.
- 201 Budzyn, Samantha E. 2021.
- 202 Zafra, Ignacio. 2021.
- 203 Ministère de l'Éducation Nationale de la Jeunesse et des Sports. 2021.
- 204 The Local. 2021.
- 205 Guthrie, Brandon L., Diana M. Tordoff, Julianne Meisner, Lorenzo Tolentino, Wenwen Jiang, Sherrilynne Fuller, Dylan Green, Diana Loudon, and Jennifer M. Ross. 2020.
- 206 ABP News Bureau. 2020.
- 207 Association for the Development of Education in Africa (ADEA) et al. 2021.
- 208 ILO, UNESCO, and World Bank. 2021.
- 209 UNESCO. 2021a.
- 210 UNESCO. 2021c.
- 211 Angrist, Noam, Peter Bergman, and Moitshepi Matsheng. 2020.
- 212 UNESCO. 2020.
- 213 Education Development Trust, and UNESCO. 2021.
- 214 Education Development Trust, and UNESCO. 2021.
- 215 UNICEF, 2021d.
- 216 UNESCO, World Bank, UNICEF, & OECD, 2021.
- 217 UNESCO. 2021.
- 218 UNESCO, World Bank, UNICEF, & OECD, 2021.
- 219 UNESCO. 2021.
- 220 Dreesen et al 2020.
- 221 Dreesen et al., 2020
- 222 UNICEF ROSA. 2020.
- 223 Clarke, Marguerite, and Diego Luna-Bazaldúa. 2021.
- 224 Angrist et al., 2021
- 225 UNICEF. 2021d.
- 226 UNICEF. 2021g.
- 227 UNICEF. 2021g.
- 228 Soares, Fábio Veras, Rafael Perez Ribas, and Rafael Guerreiro Osório. 2010.
- 229 Banerjee, Abhijit, Rukmini Banerji, James Berry, Esther Duflo, Harini Kannan, Shobhini Mukherji, Marc Shotland, and Michael Walton. 2016.
- 230 Global Education Evidence Advisory Panel, 2020
- 231 Cerdan-Infantes, Pedro, and Christel Vermeersch. 2007.
- 232 Andersen, Simon Calmar, Maria Knoth Humlum, and Anne Brink Nandrup. 2016.
- 233 Hincapie, Diana. 2016.
- 234 Lavy, Victor. 2019.
- 235 Snilstveit, Birte, Jennifer Stevansson, Radhika Menon, Daniel Phillips, Emma Gallagher, Maisie Meleen, Hannah Jobse, Tanja Schmidt, and Emmanuel Jimenez. 2016.
- 236 Fryer, R. G., in Banerjee and Duflo. 2017.
- 237 The Ministry of Education of Rwanda. 2021
- 238 Global Partnership for Education. 2017.
- 239 Becker, Eva Susann, Thomas Goetz, Vinzenz Morger, and John Ranellucci. 2014.
- 240 Jennings, P. A., J. L. Brown, S. Doyle, Y. Oh, J. L. Frank, R. Davis, D. Rasheed, et al. 2017.
- 241 Shonkoff, Jack P., and Philip A. Fisher. 2013.
- 242 Senechal, Monique. 2006.
- 243 Brossard, Matt, Manuel Cardoso, Sakshi Mishra, Suguru Mizunoya, and Nicolas Reuge. 2020.
- 244 Saavedra Chanduvi, Jaime, Christian Aedo Inostroza, Omar S. Arias Diaz, Adelle Pushparatnam, Marcela Gutierrez Bernal, and Halsey F. Rogers. 2020.
- 245 Knauer, Heather A., Pamela Jakiela, Owen Ozier, Frances Aboud, and Lia C. H. Fernald. 2020
- 246 World Bank. 2021
- 247 Brossard, Matt, Marta Carnelli, Stephane Chaudron, Rosanna Di-Gioia, Thomas Dreesen, Daniel Kardefelt-Winther, Céline Little, and Jean-Luc Yameogo. 2021.
- 248 Brossard et al. 2021.
- 249 UNICEF. 2021g.
- 250 UNICEF. 2021g.

REFERENCES

- Abaluck, Jason. 2021. "The Impact of Community Masking on COVID-19: A Cluster-Randomized Trial in Bangladesh," August. https://www.poverty-action.org/sites/default/files/publications/Mask_RCT____Symptomatic_Seropositivity_083121.pdf.
- Abreh, Might Kojo, Wisdom K. Agbevanu, Amina Jangu Alhassan, Francis Ansah, Rosemary S. Bosu, Lee Crawford, Clara Araba Mills, Ana Luiza Minardi, and Gloria Nyame. 2021. "How Did Students Recover Learning and Loss During COVID-19 School Closures in Ghana?" Center For Global Development. August 11. <https://www.cgdev.org/blog/how-did-students-recover-learning-loss-during-covid-19-school-closures-ghana>.
- Agrawal, Sarthak, Alexandru Cojocaru, Veronica Montalva, Ambar Narayan, Tom Bundervoet, and Andrey Ten. 2021. "COVID-19 and Inequality: How Unequal Was the Recovery from the Initial Shock?" Brief. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/35867>.
- Amaro, Diogo, Lauren Pandolfelli, Ingrid Sanchez-Tapia, and Matt Brossard. 2020. "COVID-19 and Education: The Digital Gender Divide among Adolescents in Sub-Saharan Africa." Unicef Connect: Evidence for Action. August 4. <https://blogs.unicef.org/evidence-for-action/covid-19-and-education-the-digital-gender-divide-among-adolescents-in-sub-saharan-africa/>.
- Amin, Sajeda, Ubaidur Rob, Masuma Billah, Sigma Ainul, Md Irfan Hossain, Forhana Rahman, Surojit Kundu, et al. 2020. "COVID-19-Related Knowledge, Attitudes, and Practices among Adolescent Girls in Bangladesh." Harvard Dataverse. doi:10.7910/DVN/UBZXWD.
- Andersen, Simon Calmar, Maria Knoth Humlum, and Anne Brink Nandrup. 2016. "Increasing Instruction Time in School Does Increase Learning." *Proceedings of the National Academy of Sciences* 113 (27): 7481–84. doi:10.1073/pnas.1516686113.
- Andrabi, Tahir, Benjamin Daniels, and Jishnu Das. 2021. "Human Capital Accumulation and Disasters: Evidence from the Pakistan Earthquake of 2005." *Journal of Human Resources*, June, 0520. doi:10.3368/jhr.59.2.0520-10887R1.
- Angrist, Noam, Peter Bergman, and Moitshepi Matsheng. 2020. "School's Out: Experimental Evidence on Limiting Learning Loss Using 'Low-Tech' in a Pandemic." Working Paper 28205. National Bureau of Economic Research. doi:10.3386/w28205.
- Ardington, Cally, Gabrielle Willis, and Janeli Kotze. 2021. "COVID-19 Learning Losses: Early Grade Reading in South Africa." *International Journal of Educational Development*, August, 102480. doi:10.1016/j.ijedudev.2021.102480.
- Association for the Development of Education in Africa (ADEA), African Union's International Centre for Girls' and Women's Education in Africa (AU/CIEFFA), and African Population and Health Research Center (APHRC). 2021. "SCHOOL REOPENING IN AFRICA DURING THE COVID-19 PANDEMIC." https://www.adeanet.org/sites/default/files/school_reopening_kix_observatory.pdf.
- Avanesian, Garen, Suguru Mizunoya, and Diogo Amaro. 2021. "How Many Students Could Continue Learning during COVID-19-Caused School Closures? Introducing a New Reachability Indicator for Measuring Equity of Remote Learning." *International Journal of Educational Development* 84 (July): 102421. doi:10.1016/j.ijedudev.2021.102421.
- Azevedo, Joao Pedro. 2020. Learning Poverty: Measures and Simulations. Policy Research Working Papers. The World Bank. doi:10.1596/1813-9450-9446.
- Azevedo, João Pedro, Marcela Gutierrez, Rafael de Hoyos, and Jaime Saavedra. 2021. "The Unequal Impacts of COVID-19 on Student Learning." In *Primary and Secondary Education During Covid-19: Disruptions to Educational Opportunity During a Pandemic*, edited by Fernando M. Reimers, 421–59. Cham: Springer International Publishing. doi:10.1007/978-3-030-81500-4_16.
- Azevedo, João Pedro, Amer Hasan, Diana Goldemberg, Koen Geven, and Syedah Aroob Iqbal. 2021. Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates." *The World Bank Research Observer* 36 (1): 1–40. doi:10.1093/wbro/lkab003.
- Azevedo, João Pedro; Crawford, Michael F.; Nayar, Reema; Rogers, F. Halsey; Barron Rodriguez, Maria Rebeca; Ding, Elaine Yi Zhong; Gutierrez Bernal, Marcela; Dixon, Annette; Saavedra Chanduvi, Jaime; Arias Diaz, Omar S. 2019. *Ending Learning Poverty: What Will It Take?* (English). Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/395151571251399043/Ending-Learning-Poverty-What-Will-It-Take>
- Azevedo, Joao Pedro Wagner De, Silvia Montoya, Maryam Akmal, Yi Ning Wong, Laura Gregory, Koen Martijn Geven, Marie-Helene Cloutier, et al. 2021. "Learning Poverty Updates and Revisions: What's New?" Working Paper. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/36082>.
- Bacher-Hicks, Andrew, Joshua Goodman, and Christine Mulhern. 2021. "Inequality in Household Adaptation to Schooling Shocks: Covid-Induced Online Learning Engagement in Real Time." *Journal of Public Economics* 193 (January): 104345. doi:10.1016/j.jpubeco.2020.104345.
- Bandiera, O., N. Buehren, M. P. Goldstein, I. Rasul, and A. Smurra. 2019. *The Economic Lives of Young Women in the Time of Ebola: Lessons from an Empowerment Program*. Washington, DC: World Bank.
- Banerjee, Abhijit, Rukmini Banerji, James Berry, Esther Duflo, Harini Kannan, Shobhini Mukherji, Marc Shotland, and Michael Walton. 2016. "Mainstreaming an Effective Intervention: Evidence from Randomized Evaluations of 'Teaching at the Right Level' in India." Working Paper 22746. National Bureau of Economic Research. doi:10.3386/w22746.
- Becker, Eva Susann, Thomas Goetz, Vinzenz Morger, and John Ranellucci. 2014. "The Importance of Teachers' Emotions and Instructional Behavior for Their Students' Emotions – An Experience Sampling Analysis." *Teaching and Teacher Education* 43 (October): 15–26. doi:10.1016/j.tate.2014.05.002.
- Belot, Michèle, and Dinand Webbink. 2010. Do Teacher Strikes Harm Educational Attainment of Students? *LABOUR* 24 (4): 391–406. doi:10.1111/j.1467-9914.2010.00494.x.
- Benjamin, Daniel K., and Kanecia Zimmerman. 2021. "The Reopen Our Schools Act of 2021." Final Report. ABC Science Collaborative. <https://abcsciencecollaborative.org/wp-content/uploads/2021/06/ABCs-Final-Report-June-2021.06-esig-DB-KZ-6-29-21.pdf>.
- Bhengu, Lwandile. 2021. "Gauteng Records More than 23 000 Teen Pregnancies in One Year, Some Moms as Young as 10." *News24*, August. <https://www.news24.com/news24/southafrica/news/gauteng-records-more-than-23-000-teen-pregnancies-in-one-year-some-moms-as-young-as-10-20210817>.
- Bignardi, Giacomo, Edwin S. Dalmaijer, Alexander L. Anwyl-Irvine, Tess A. Smith, Roma Siugzdaite, Stepheni Uh, and Duncan E. Astle. 2021. "Longitudinal Increases in Childhood Depression Symptoms during the COVID-19 Lockdown." *Archives of Disease in Childhood* 106 (8): 791–97. doi:10.1136/archdischild-2020-320372.

- Bismarck-Osten, Clara von, Kirill Borusyak, and Uta Schönberg. 2020. "The Role of Schools in Transmission of the SARS-CoV-2 Virus: Quasi-Experimental Evidence from Germany." 2022. CREAM Discussion Paper Series. Centre for Research and Analysis of Migration (CREAM), Department of Economics, University College London. <https://ideas.repec.org/p/crm/wpaper/2022.html>.
- Borokowski, Arthur, Donald A.P. Bundy, Carmen Burbano, Shika Hayashi, Edward Lloyd-Evans, Jutta Neitzel, and Nicolas Reuge. 2021. "COVID-19: Missing More Than a Classroom. The Impact of School Closures on Children's Nutrition." Innocenti Working Paper. UNICEF. <https://www.unicef-irc.org/publications/1176-covid-19-missing-more-than-a-classroom-the-impact-of-school-closures-on-childrens-nutrition.html>.
- Bourgault, Shelby, Peter Amberman, and Megan O'Donnell. 2021. "Violence Against Women and Children During COVID-19—One Year On and 100 Papers In." CGD Note A Fourth Research Round Up. Center for Global Development. <https://www.cgdev.org/sites/default/files/vawc-fourth-roundup.pdf>.
- Brossard, Mathieu, Manuel Cardoso, Sakshi Mishra, Suguru Mizunoya, and Nicolas Reuge. 2020. "Parental Engagement in Children's Learning: Insights for Remote Learning Response during COVID-19." Innocenti Research Brief. UNICEF. <https://www.unicef-irc.org/publications/1091-parental-engagement-in-childrens-learning.html>.
- Brossard, Matt, Marta Carnelli, Stephane Chaudron, Rosanna Di-Gioia, Thomas Dreesen, Daniel Kardefelt-Winther, Céline Little, and Jean-Luc Yameogo. 2021. Digital Learning for Every Child: Closing the Gaps for an Inclusive and Prosperous Future. Task Force 4 Digital Transformation. Think20 Italy 202. <https://www.t20italy.org/wp-content/uploads/2021/08/TF4-PB2-Brossard.pdf>.
- Budzyn, Samantha E. 2021. "Pediatric COVID-19 Cases in Counties With and Without School Mask Requirements — United States, July 1–September 4, 2021." MMWR. Morbidity and Mortality Weekly Report 70. doi:10.15585/mmwr.mm7039e3.
- Cabrera-Hernández, Francisco, and Mari-a Padilla-Romo. 2020. Hidden Violence: How COVID-19 School Closures Reduced the Reporting of Child Maltreatment. Latin American Economic Review 29 (December): 1–17. <https://ojs.latinaer.org/laer/article/view/6>.
- Carvalho, Shelby, Jack Rossiter, Noam Angrist, Susannah Hares, and Rachel Silverman. 2020. "Planning for School Reopening and Recovery After COVID-19." Center for Global Development. <https://www.cgdev.org/publication/planning-school-reopening-and-recovery-after-covid-19>.
- Cerdan-Infantes, Pedro, and Christel Vermeersch. 2007. "More Time Is Better : An Evaluation of the Full-Time School Program in Uruguay." Washington, DC: World Bank. doi:10.1596/1813-9450-4167.
- Chavez Villegas, Cirenía, Silvia Peirola, Matilde Rocca, Alessandra Ipince, and Shivit Bakrania. 2021. "Impacts of Health-Related School Closures on Child Protection Outcomes: A Review of Evidence from Past Pandemics and Epidemics and Lessons Learned for COVID-19." International Journal of Educational Development 84 (July): 102431. doi:10.1016/j.ijedudev.2021.102431.
- Chetty, Raj, John N. Friedman, Nathaniel Hendren, Michael Stepner, and The Opportunity Insights Team. 2020. "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data." Working Paper 27431. National Bureau of Economic Research. doi:10.3386/w27431.
- Clarke, Marguerite, and Diego Luna-Bazaldúa. 2021. Primer on Large-Scale Assessments of Educational Achievement. Washington, DC: World Bank. doi:10.1596/978-1-4648-1659-8.
- Collins, Caitlyn, Liana Christin Landivar, Leah Ruppner, and William J. Scarborough. 2021. "COVID-19 and the Gender Gap in Work Hours." Gender, Work & Organization 28 (S1): 101–12. doi:10.1111/gwao.12506.
- Colorado Department of Education. 2021. "CMAS - Mathematics, English Language Arts, Science and Social Studies Data and Results | CDE." <https://www.cde.state.co.us/assessment/cmas-dataandresults>.
- Contini, Dalit, Maria Laura Di Tommaso, Caterina Muratori, Daniela Piazzalunga, and Lucia Schiavon. 2021. "The COVID-19 Pandemic and School Closure: Learning Loss in Mathematics in Primary Education." IZA DP No. 14785. Discussion Paper Series. IZA Institute of Labor Economics. <https://ftp.iza.org/dp14785.pdf>.
- Cygan-Rehm, Kamila. 2018. "Is Additional Schooling Worthless? Revisiting the Zero Returns to Compulsory Schooling in Germany." SSRN Scholarly Paper ID 3274563. Rochester, NY: Social Science Research Network. <https://papers.ssrn.com/abstract=3274563>.
- Datafolha, Fundação Lemann, and Instituto Natura. 2021. Onde Estão as Crianças Enquanto as Escolas Estão Fechadas? São Paulo: Julho.
- Dessy, Sylvain, Horace Gninafon, Luca Tiberti, and Marco Tiberti. 2021. "COVID-19 and Children's School Resilience: Evidence from Nigeria." Working Paper. Washington, DC: World Bank. doi:10.1596/1813-9450-9736.
- Dorn, Emma, Jimmy Sarakatsannis, Brian Hancock, and Ellen Viruleg. 2020. "Mind the Gap: COVID-19 Is Widening Racial Disparities in Learning, so Students Need Help and a Chance to Catch up | McKinsey." December 8. <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-learning-loss-disparities-grow-and-students-need-help#>.
- Dreesen, Thomas, Spogmai Akseer, Mathieu Brossard, Pragma Dewan, Juan-Pablo Giraldo, Akito Kamei, Suguru Mizunoya, and Javier Santiago Ortez Corraera. 2020. "Promising Practices for Equitable Remote Learning. Emerging Lessons from COVID-19 Education Responses in 127 Countries." Innocenti Research Briefs. <https://www.unicef-irc.org/publications/1090-promising-practices-for-equitable-remote-learning-emerging-lessons-from-covid.html>.
- Dunatchik, Allison, Kathleen Gerson, Jennifer Glass, Jerry A. Jacobs, and Haley Stritzel. 2021. "Gender, Parenting, and The Rise of Remote Work During the Pandemic: Implications for Domestic Inequality in the United States." Gender & Society 35 (2): 194–205. doi:10.1177/08912432211001301.
- Economist. 2021. "Why Official Covid-19 Deaths Do Not Capture the Pandemic's True Toll." The Economist, September 20. <https://www.economist.com/the-economist-explains/2021/09/20/why-official-covid-19-deaths-do-not-capture-the-pandemics-true-toll>.
- Edmonds, Eric V., and Norbert Schady. 2012. "Poverty Alleviation and Child Labor." American Economic Journal: Economic Policy 4 (4): 100–124. doi:10.1257/pol.4.4.100.
- Education Development Trust, and UNESCO. 2021. "Learning Loss, Learning gains and Wellbeing: A Rapid Evidence." <https://www.educationdevelopmenttrust.com/EducationDevelopmentTrust/files/20/201258b4-98ab-415a-b0da-f33d5cf8688d.pdf>.
- Engzell, Per, Arun Frey, and Mark D. Verhagen. 2020. "Learning Loss Due to School Closures During the COVID-19 Pandemic." Preprint. SocArXiv. doi:10.31235/osf.io/ve4z7.
- Entwisle D. R., Alexander K. L., Olson L. S. (2000). Summer learning and home environment. In Kahlenberg R. D. (Ed.), A notion at risk: Preserving public education as an engine for social mobility (pp. 9–30). New York, NY: Century Foundation Press
- European Centre for Disease Prevention and Control. 2021. "COVID-19 in Children and the Role of School Settings in Transmission - Second Update." European Centre for Disease Prevention and Control. July 8. <https://www.ecdc.europa.eu/en/publications-data/children-and-school-settings-covid-19-transmission>.

- European Commission. 2020. "Educational Inequalities in Europe and Physical School closures during Covid-19 *." Science for Policy Brief. FAIRNESS POLICY BRIEF SERIES. European Commission. https://ec.europa.eu/jrc/sites/default/files/fairness_pb2020_wave04_covid_education_jrc_i1_19jun2020.pdf.
- Fatehka, Masoomali, Ridhi Kashyap, and Ingmar Weber. 2018. "Using Facebook Ad Data to Track the Global Digital Gender Gap." *World Development* 107 (July): 189–209. doi:10.1016/j.worlddev.2018.03.007.
- Favara, Marta, Richard Freund, Catherine Porter, Alan Sánchez, and Douglas Scott. 2021. "Young Lives, Interrupted: Short-term Effects of the COVID-19 Pandemic on Adolescents in Low- and Middle-income Countries." *Covid Economics* 67 (February): 172–98. <http://www.grade.org.pe/wp-content/uploads/CovidEconomics67-1.pdf#page=177>.
- Fenton, Lynda, Ciara Gribben, David Caldwell, Sam Colville, Jen Bishop, Martin Reid, Jane White, et al. 2021. "Risk of Hospital Admission with Covid-19 among Teachers Compared with Healthcare Workers and Other Adults of Working Age in Scotland, March 2020 to July 2021: Population Based Case-Control Study." *BMJ* 374 (September): n2060. doi:10.1136/bmj.n2060.
- Fryer, R. G. 2017. "Chapter 2 - The Production of Human Capital in Developed Countries: Evidence From 196 Randomized Field Experiments." In *Handbook of Economic Field Experiments*, edited by Abhijit Vinayak Banerjee and Esther Dufo, 2:95–322. *Handbook of Economic Field Experiments*. North-Holland. doi:10.1016/bs.hefe.2016.08.006.
- Fundação Lemann, Instituto Natura and Associação Bem Comum. 2021. O impacto da pandemia na alfabetização no Brasil. Fundação Lemman. <https://fundacaolemann.org.br/noticias/o-impacto-da-pandemia-na-alfabetizacao-no-brasil>.
- Gandini, Sara, Maurizio Rainisio, Maria Luisa Iannuzzo, Federica Bellerba, Francesco Cecconi, and Luca Scorrano. 2021. "A Cross-Sectional and Prospective Cohort Study of the Role of Schools in the SARS-CoV-2 Second Wave in Italy." *The Lancet Regional Health - Europe* 5 (June): 100092. doi:10.1016/j.lanepe.2021.100092.
- Gettings, Jenna. 2021. "Mask Use and Ventilation Improvements to Reduce COVID-19 Incidence in Elementary Schools — Georgia, November 16–December 11, 2020." *MMWR. Morbidity and Mortality Weekly Report* 70. doi:10.15585/mmwr.mm7021e1.
- Global Education Evidence Advisory Panel. 2020. "Cost-Effective Approaches to Improve Global Learning: What Does Recent Evidence Tell Us Are 'Smart Buys'".
- Global Partnership for Education. 2017. "How GPE Teaching and Learning." <https://www.globalpartnership.org/sites/default/files/2017-09-gpe-policy-brief-teaching-learning.pdf>
- for Improving Learning in Low- and Middle-Income Countries?" Recommendations. <https://documents1.worldbank.org/curated/en/719211603835247448/pdf/Cost-Effective-Approaches-to-Improve-Global-Learning-What-Does-Recent-Evidence-Tell-Us-Are-Smart-Buys-for-Improving-Learning-in-Low-and-Middle-Income-Countries.pdf>.
- Goldstein, Edward, Marc Lipsitch, and Muge Cevik. 2021. "On the Effect of Age on the Transmission of SARS-CoV-2 in Households, Schools, and the Community." *The Journal of Infectious Diseases* 223 (3): 362–69. doi:10.1093/infdis/jiaa691.
- Goodall, Janet, and John Vorhaus. 2011. "Review of Best Practice in Parental Engagement." Department for Education. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/182508/DFE-RR156.pdf.
- Gore, Jenny, Leanne Fray, Drew Miller, Jess Harris, and Wendy Taggart. 2020. "EVALUATING THE IMPACT OF-19 ON NSW SCHOOLS." 2020 REPORT TO THE NSW DEPARTMENT OF EDUCATION. The University of Newcastle, Australia. https://www.newcastle.edu.au/_data/assets/pdf_file/0008/704924/Evaluating-the-impact-of-COVID-19-on-NSW-schools.pdf.
- Guthrie, Brandon L., Diana M. Tordoff, Julianne Meisner, Lorenzo Tolentino, Wenwen Jiang, Sherrilynne Fuller, Dylan Green, Diana Loudon, and Jennifer M. Ross. 2020. "Summary of School Re-Opening Models and Implementation During the COVID 19 Pandemic." <https://globalhealth.washington.edu/sites/default/files/COVID-19%20Schools%20Summary%20%28updated%29.pdf>.
- Haripersad, Yasheer Venay, Madeleine Kannegiesser-Bailey, Katinka Morton, Sarah Skeldon, Nicolene Sipton, Kara Edwards, Rachel Newton, Amanda Newell, Paul Geoffrey Stevenson, and Andrew C. Martin. 2021. "Outbreak of Anorexia Nervosa Admissions during the COVID-19 Pandemic." *Archives of Disease in Childhood* 106 (3): e15–e15. doi:10.1136/archdischild-2020-319868.
- Harris, Douglas N., Engy Ziedan, and Susan Hassig. 2021. "The Effects of School Reopenings on COVID-19 Hospitalizations." National Center for Research on Education and Choice. <https://www.reachcentered.org/publications/the-effects-of-school-reopenings-on-covid-19-hospitalizations>.
- Hillis, Susan D., H. Juliette T. Unwin, Yu Chen, Lucie Cluver, Lorraine Sherr, Philip S. Goldman, Oliver Rattmann, et al. 2021. *The Lancet* 398 (10298): 391–402. doi:10.1016/S0140-6736(21)01253-8.
- Hevia, Felipe J., Samana Vergara-Lope Tristan, Anabel Velásquez-Durán, and David Calderón Martín del Campo. 2021. "Estimation of the Fundamental Learning Loss and Learning Poverty Related to COVID-19 Pandemic in Mexico." *International Journal of Educational Development*, November, 102515. doi:10.1016/j.ijedudev.2021.102515.
- Hincapie, Diana. 2016. "Do Longer School Days Improve Student Achievement?: Evidence from Colombia I Publications." IDB-WP-679. IDB WORKING PAPER SERIES. Inter-American Development Bank. <https://publications.iadb.org/publications/english/document/Do-Longer-School-Days-Improve-Student-Achievement-Evidence-from-Colombia.pdf>.
- Hossain, Mobarak. 2021. "Unequal Experience of COVID-Induced Remote Schooling in Four Developing Countries." *International Journal of Educational Development* 85 (September): 102446. doi:10.1016/j.ijedudev.2021.102446.
- Ichino, Andrea, and Rudolf Winter-Ebmer. 2004. "The Long-Run Educational Cost of World War II." *Journal of Labor Economics* 22 (1): 57–86. https://econpapers.repec.org/article/ucpljlabec/v_3a22_3ay_3a2004_3ai_3a1_3ap_3a57-86.htm.
- ILO, UNESCO, and World Bank. 2021. "Skills Development in the Time of COVID-19: Taking Stock of the Initial Responses in Technical and Vocational Education and Training." Geneva: International Labor Office.
- INEEd. 2021. "Aristas 2020. Primer Informe de Resultados de Tercero y Sexto de Educación Primaria." <https://www.ineed.edu.uy/aristas-2020-primer-informe-de-resultados-de-tercero-y-sexto-de-educacion-primaria.html>.
- INEGI. 2021. Encuesta Para La Medición Del Impacto COVID-19 En La Educación (ECOVID-ED) 2020, <https://www.inegi.org.mx/investigacion/ecovided/2020/>.
- Jaume, David, and Alexander Willén. 2019. The Long-Run Effects of Teacher Strikes: Evidence from Argentina. *Journal of Labor Economics* 37 (4): 10971139. doi:10.1086/703134.
- Jehn, Megan, JM. McCullough, Ariella P. Dale, Matthew Gue, Brian Eller, Theresa Cullen, and Sarah E. Scott. 2021. "Association Between K–12 School Mask Policies and School-Associated COVID-19 Outbreaks — Maricopa and Pima Counties, Arizona, July–August 2021." *MMWR. Morbidity and Mortality Weekly Report* 70. doi:10.15585/mmwr.mm7039e1.

- Jennings, P. A., J. L. Brown, S. Doyle, Y. Oh, J. L. Frank, R. Davis, D. Rasheed, et al. 2017. "Impacts of the CARE for Teachers Program on Teachers' Social and Emotional Competence and Classroom Interactions." *Journal of Educational Psychology* 109 (7): 1010–1028. <https://doi.org/doiLanding?doi=10.1037%2Fedu0000187>.
- Jones, Nicola, Ingrid Sanchez Tapia, Sarah Baird, Silvia Guglielmi, Erin Oakley, Workneh Abebe Yadete, Maheen Sultan, and Kate Pincock. 2021. "Intersecting Barriers to Adolescents' Educational Access during COVID-19: Exploring the Role of Gender, Disability and Poverty." *International Journal of Educational Development* 85 (September): 102428. doi:10.1016/j.ijedudev.2021.102428.
- King, Janice, Pauline Rose, Dawit Tibebe Tiruneh, Ricardo Sabates, and Tassew Woldehanna. 2021. "Learning Inequalities Widen Following COVID-19 School Closures in Ethiopia." *RISE Programme*. May 4. <https://riseprogramme.org/blog/learning-inequalities-widen-COVID-19-Ethiopia>.
- Knauer, Heather A., Pamela Jakiela, Owen Ozier, Frances Aboud, and Lia C. H. Fernald. 2020. "Enhancing Young Children's Language Acquisition through Parent–Child Book-Sharing: A Randomized Trial in Rural Kenya." *Early Childhood Research Quarterly*, Intervention Research Addressing the Word Gap: Improving the language-learning opportunities for infants and young children, 50 (January): 179–90. doi:10.1016/j.ecresq.2019.01.002.
- Kogan, Vladimir, and Stéphane Lavertu. 2021. "The COVID-19 Pandemic and Student Achievement on Ohio's Third-Grade English Language Arts Assessment*." http://glenn.osu.edu/educational-governance/reports/reports-attributes/ODE_ThirdGradeELA_KL_1-27-2021.pdf.
- Lavy, Victor. 2019. "Expanding School Resources and Increasing Time on Task: Effects on Students' Academic and Noncognitive Outcomes." *Journal of the European Economic Association* 18 (1): 232–265. <https://academic.oup.com/jeea/article/18/1/232/5307899?login=true>.
- Lee, Joyce. 2020. "Mental Health Effects of School Closures during COVID-19." *The Lancet Child & Adolescent Health* 4 (6): 421. doi:10.1016/S2352-4642(20)30109-7.
- Leidman, Eva, Lindsey M. Duca, John D. Omura, Krista Proia, James W. Stephens, and Erin K. Sauber-Schatz. 2021. "COVID-19 Trends Among Persons Aged 0–24 Years — United States, March 1–December 12, 2020." *MMWR. Morbidity and Mortality Weekly Report* 70 (3): 88–94. doi:10.15585/mmwr.mm7003e1.
- Lewis, Karyn, Megan Kuhfeld, Erik Ruzek, and Andrew McEachin. 2021. "Learning during COVID-19: Reading and Math Achievement in the 2020–21 School Year." *Center for School and Student Progress*. NWEA, July 2021. <https://www.nwea.org/research/publication/learning-during-covid-19-reading-and-math-achievement-in-the-2020-2021-school-year/>.
- Lichand, Guilherme, Carlos Alberto Doria, Onicio Leal Neto, and Joao Cossi. 2021. "The Impacts of Remote Learning in Secondary Education: Evidence from Brazil during the Pandemic." SSRN Scholarly Paper ID 3841775. Rochester, NY: Social Science Research Network. <https://papers.ssrn.com/abstract=3841775>.
- Lindsay, Dominica. 2020. "Why COVID-19 Has Increased the Urgency to Reach Women with Mobile Technology." *Mobile for Development*. April 20. <https://www.gsma.com/mobilefordevelopment/blog/why-covid-19-has-increased-the-urgency-to-reach-women-with-mobile-technology/>.
- Luijten, Michiel A. J., Maud M. van Muilekom, Lorynn Teela, Tinca J. C. Polderman, Caroline B. Terwee, Josjan Zijlman, Leonie Klaukus, et al. 2021. "The Impact of Lockdown during the COVID-19 Pandemic on Mental and Social Health of Children and Adolescents." *Quality of Life Research* 30 (10): 2795–2804. doi:10.1007/s11136-021-02861-x.
- Malala Fund. 2020. "Girls' Education and COVID-19 in Nigeria." https://assets.ctfassets.net/0oan5gk9rgbh/4SoYwXYgLMiIWPqvdikb0W/4d2ebc3b8289b2beaae33867d79af698/Nigeria_Report_22.pdf.
- Maldonado, Joana Elisa, and Kristof De Witte. 2021. "The Effect of School Closures on Standardised Student Test Outcomes." *British Educational Research Journal*, July, berj.3754. doi:10.1002/berj.3754.
- Masters, Kate, and 2021. 2021. "Early Data Shows Extent of Learning Loss among Virginia Students." *Virginia Mercury*. January 29. <https://www.virginiamercury.com/2021/01/29/early-data-shows-extent-of-learning-loss-among-virginia-students/>.
- Mavhunga, Columbus. 2021. "Zimbabwe Reports Major Rise in Teen Pregnancies During Pandemic." *VOA*, April 16. https://www.voanews.com/a/covid-19-pandemic_zimbabwe-reports-major-rise-teen-pregnancies-during-pandemic/6204648.html.
- Mbaye, Samba, Alexis Le Nestour, Laura Moscoviz, and Justin Chery. 2021. "What Happened to Senegalese Students after the COVID-19 School Closure?" *Center For Global Development*. Washington, DC: July. <https://www.cgdev.org/blog/what-happened-senegalese-students-after-covid-19-school-closure>.
- McCoy, Dana C., Jorge Cuartas, Jere Behrman, Claudia Cappa, Jody Heymann, Florencia López Bóo, Chunling Lu, et al. 2021. *Global Estimates of the Implications of COVID-19-Related Preprimary School Closures for Children's Instructional Access, Development, Learning, and Economic Wellbeing*. Child Development n/a (n/a). doi:10.1111/cdev.13658.
- Ministère de l'Éducation Nationale République de Côte d'Ivoire, Évaluation standardisée des acquis scolaires des élèves des classes de CM2 et de 4 e dans le contexte de la COVID 19, Ministère de l'Éducation Nationale and UNICEF, Abidjan, 2021.
- Ministère de l'Éducation Nationale de la Jeunesse et des Sports. 2021. "Année scolaire 2021-2022 : protocole sanitaire et mesures de fonctionnement." Ministère de l'Éducation Nationale de la Jeunesse et des Sports. <https://www.education.gouv.fr/annee-scolaire-2021-2022-protocole-sanitaire-et-mesures-de-fonctionnement-324257>.
- Ministerio de Educación, Centro de Estudios. 2020. *Deserción Escolar: Diagnóstico y Proyección En Tiempos De*. Documento de Trabajo. Santiago, Chile. https://centroestudios.mineduc.cl/wp-content/uploads/sites/100/2020/10/DOCUMENTO-DE-TRABAJO-22_2020_f01.pdf.
- Ministerio de Educación Nacional de Colombia. 2021. *Datos SIET*. January 7. <https://www.mineduccion.gov.co/portal/micrositios-superior/Educacion-para-el-Trabajo-y-el-Desarrollo-Humano-SIET/Sistema-de-Informacion-Para-el-Trabajo-y-Desarrollo-Humano-SIET/353023:Datos-SIET>.
- Mohammed, Yusuf. 2020. *Teen Pregnancies Spike in Kenya as Schools Remain Shuttered*. *VOA*. https://www.voanews.com/a/episode_teen-pregnancies-spike-kenya-schools-remain-shuttered-4344051/6111054.html.
- Munoz-Najar, Alberto; Gilberto Sanzana, Alison Grace; Hasan, Amer; Cobo Romani, Juan Cristobal; Azevedo, Joao Pedro Wagner De; Akmal, Maryam. 2021. *Remote Learning During COVID-19 : Lessons from Today, Principles for Tomorrow (English)*. Washington, D.C.: World Bank Group. <http://documents.worldbank.org/curated/en/160271637074230077/Remote-Learning-During-COVID-19-Lessons-from-Today-Principles-for-Tomorrow>
- NSC Research Center. 2020. "COVID-19: Transfer, Mobility, and Progress – First Look Fall 2020," December. <https://nscresearchcenter.org/transfer-mobility-and-progress/covid19-transfermobilityprogress-firstlookfall2020/>.

- Nugroho, Dita, Chiara Pasquini, Nicolas Reuge, and Diogo Amaro. 2020. "COVID-19: How Are Countries Preparing to Mitigate the Learning Loss as Schools Reopen? Trends and Emerging Good Practices to Support the Most Vulnerable Children." Innocenti Research Briefs. UNICEF. <https://www.unicef-irc.org/publications/1119-covid-19-how-are-countries-preparing-to-mitigate-the-learning-loss-as-they-reopen.html>.
- Nyamweya, Naomi. 2020. "Displacement, Girls' Education and COVID-19." Global Partnership for Education. June 26. <https://www.globalpartnership.org/blog/displacement-girls-education-and-covid-19>.
- OECD. 2020. "The Impact of COVID-19 on Student Equity and Inclusion: Supporting Vulnerable Students during School Closures and School Re-Openings." OECD. November 19. <https://www.oecd.org/coronavirus/policy-responses/the-impact-of-covid-19-on-student-equity-and-inclusion-supporting-vulnerable-students-during-school-closures-and-school-re-openings-d593b5c8/#back-endnotea0z31>.
- Oulo, Brenda, Aubryn Allyn Sidle, Kendra Kintzi, Mary Mwangi, and Immaculate Akello. 2020. "Understanding the Barriers to Girls' School Return: Girls' Voices from the Frontline of the COVID-19 Pandemic in East Africa." Echidna Giving and Amplify Girls. <https://static1.squarespace.com/static/5c86d4507fcb8fc46e7d529/t/60d4fb74d835f0200cdea521/1624570756879/Understanding+the+Barriers+to+Girls%27+School+Return+Girls%27+Voices+from+the+frontline+of+he+COVID-19+Pandemic+in+East+Africa++.pdf>.
- Pérez Alfaro, Marcelo. 2020. Uruguay: The First Country in Latin America to Reopen Its Educational System. Enfoque Educación. June 2. <https://blogs.iadb.org/educacion/en/uruguayreopening/>.
- Pier, Libby, Michael Christian, Hayley Tymeson, and Robert Meyer. 2021. "PACE - COVID-19 Impacts on Student Learning." Policy Analysis for California Education. June. <https://edpolicyinca.org/publications/covid-19-impacts-student-learning>.
- Polikoff, David M. Quinn and Morgan. 2017. "Summer Learning Loss: What Is It, and What Can We Do about It?" Brookings. September 14. <https://www.brookings.edu/research/summer-learning-loss-what-is-it-and-what-can-we-do-about-it/>.
- Population Council. 2021. "Promises to Keep: Impact of COVID-19 on Adolescents in Kenya."
- Racine, Nicole, Brae Anne McArthur, Jessica E. Cooke, Rachel Eirich, Jenney Zhu, and Sheri Madigan. 2021. "Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents During COVID-19: A Meta-Analysis." JAMA Pediatrics, August. doi:10.1001/jamapediatrics.2021.2482.
- The Ministry of Education of Rwanda, 2021. Ministerial instructions 002/2021 of 26/07/2021 determining the modalities for the management of school timetable.
- Saavedra Chanduvi, Jaime, Christian Aedo Inostroza, Omar S. Arias Diaz, Adelle Pushparatnam, Marcela Gutierrez Bernal, and Halsey F. Rogers. 2020. "Realizing the Future of Learning : From Learning Poverty to Learning for Everyone, Everywhere." Text/HTML. Washington, DC.: World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail>.
- ABP News Bureau. 2020. "Schools Reopen From Today With 50 Percent Capacity; Know Which States Plan To Conduct Classes," October 19. <https://news.abplive.com/education/school-reopening-guidelines-in-uttar-pradesh-punjab-and-sikkim-check-all-the-details-of-reopening-rules-sops-1367906>.
- Samba, Mbaye, Le Nestour Alexis, Moscoviz Laura, and Chery Justin. 2021. "What Happened to Senegalese Students after the COVID-19 School Closure?" Center For Global Development. July 15. <https://www.cgdev.org/blog/what-happened-senegalese-students-after-covid-19-school-closure>.
- Save the Children. 2021. "The Impact of COVID-19 on Children in West and Central Africa: Learning from 2020." https://resourcecentre.savethechildren.net/pdf/rapport_covid_anglais.pdf.
- SEDUC-SP. 2021. O Impact da Pandemia na Educação: Avaliação Amostral da Aprendizagem dos Estudantes. Secretaria de Educação do Estado de São Paulo. Brazil: São Paulo. <https://www.educacao.sp.gov.br/wp-content/uploads/2021/04/Apresenta%C3%A7%C3%A3o-Estudo-Amostral.pdf>
- 2021b. "Children Have Lost More than a Third of Their School Year to Covid-19 Pandemic - Save the Children." March 2. <https://savethechildren.org.au/media/media-releases/children-have-lost-more-than-a-third>.
- Senechal, Monique. 2006. "Testing the Home Literacy Model: Parent Involvement in Kindergarten Is Differentially Related to Grade 4 Reading Comprehension, Fluency, Spelling, and Reading for Pleasure." Scientific Studies of Reading 10 (1): 59–87. doi:10.1207/s1532799xssr1001_4.
- Severin, Eugenio. 2016. "Building and Sustaining National ICT/ Education Agencies: Lessons from Uruguay (Plan Ceibal)." Working Paper. Washington, DC: World Bank. doi:10.1596/26261.
- Sharma, M., P. Idele, A. Manzini, CP. Aladro, A. Ipince, G. Olsson, P. Banati, and D Anthony. 2021. "Life in Lockdown. Child and Adolescent Mental health and Well-Being in the Time of COVID-19." Florence: UNICEF Office of Research – Innocenti.
- Shonkoff, Jack P., and Philip A. Fisher. 2013. "Rethinking Evidence-Based Practice and Two-Generation Programs to Create the Future of Early Childhood Policy." Development and Psychopathology 25 (4 Pt 2): 1635–53. doi:10.1017/S0954579413000813.
- Snilstveit, Birte, Jennifer Svensson, Radhika Menon, Daniel Phillips, Emma Gallagher, Maisie Meleen, Hannah Jobse, Tanja Schmidt, and Emmanuel Jimenez. 2016. "The Impact of Education Programmes on Learning and School Participation in Low- and Middle-Income Countries I 3ie." Systematic review summary 7. International Initiative for Impact Evaluation (3ie). <https://www.3ieimpact.org/evidence-hub/publications/systematic-review-summaries/impact-education-programmes-learning-school-participation-low-and-middle-income-countries>.
- Soares, Fábio Veras, Rafael Perez Ribas, and Rafael Guerreiro Osório. 2010. "Evaluating the Impact of Brazil's Bolsa Familia: Cash Transfer Programs in Comparative Perspective." Latin American Research Review 45 (2): 173–90. <https://www.jstor.org/stable/27919200>.
- Solis, S. Lynne, Claire W. Liu, and Jill M. Popp. 2020. "Learning to Cope through Play: Playful Learning as an Approach to Support Children's during Times of Heightened Stress and Adversity." LEGO Foundation. <https://www.legofoundation.com/media/3298/learning-to-cope-through-play.pdf>.
- Stoops, Terry. 2021. "Test Scores Show Learning Loss Is Real." John Locke Foundation. September 9. <https://www.johnlocke.org/update/test-scores-show-learning-loss-is-real/>.
- Tennessee Department of Education. 2021. "Tennessee Releases 2020-21 Spring TCAP State-Level Results." August 2. <https://www.tn.gov/education/news/2021/8/2/tennessee-releases-2020-21-spring-tcap-state-level-results-.html>.
- Texas Education Agency. 2021. "TEA Releases Spring 2021 STAAR Grades 3-8 and End-of-Course Assessment Results; Outcomes for In-Person Learners Appreciably Higher Than for Those Who Were Remote." June 28. <https://tea.texas.gov/about-tea/news-and-multimedia/news-releases/news-2021/tea-releases-spring-2021-staar-grades-3-8-and-end-of-course-assessment-results-outcomes-for-in-person-learners-appreciably-higher-than-for-those-who-were-remote>.

- The Local. 2021. "Covid-19: Italian Schools Set to Keep Using Masks and Distancing from September," June 7. <https://www.thelocal.it/20210705/covid-19-italian-schools-set-to-keep-using-masks-and-distancing-from-september/>.
- Tomasik, Martin J., Laura A. Helbling, and Urs Moser. 2021. "Educational Gains of In-Person vs. Distance Learning in Primary and Secondary Schools: A Natural Experiment during the COVID-19 Pandemic School Closures in Switzerland." *International Journal of Psychology* 56 (4): 566–76. doi:10.1002/ijop.12728.
- UNESCO. 2016. "Out-of-School Children and Youth." November 18. <http://uis.unesco.org/en/topic/out-school-children-and-youth#:~:text=About%20258%20million%20children%20and,million%20of%20upper%20secondary%20age.>
- 2020a. "COVID-19 Response Toolkit." <https://en.unesco.org/sites/default/files/unesco-covid-19-response-toolkit-remediation.pdf>.
- 2020b. "How Many Students Are at Risk of Not Returning to School?" Advocacy paper. Paris. <https://unesdoc.unesco.org/ark:/48223/pf0000373992>.
- 2021a. "Uneven Global Education Stimulus Risks Widening Learning Disparities." <https://unesdoc.unesco.org/ark:/48223/pf0000379350>.
- 2021b. "COVID-19: Reopening and Reimagining Universities, Survey on Higher Education through the UNESCO National Commissions." Paris. <https://unesdoc.unesco.org/ark:/48223/pf0000378174>.
- 2021c. "When Schools Shut: Gendered Impacts of COVID-19 School Closures." <https://unesdoc.unesco.org/ark:/48223/pf0000379270>.
- UNESCO, UNICEF, and World Bank. 2020. "What Have We Learnt?: Overview of Findings from a Survey of Ministries of Education on National Responses to COVID-19." Washington, DC: World Bank. doi:10.1596/34700.
- UNESCO, UNICEF, World Bank, and OECD. 2021. "What's Next? Lessons on Education Recovery: Findings from a Survey of Ministries of Education amid the COVID-19 Pandemic." Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/36393>.
- UNICEF. 2019. "The State of the World's Children 2019. Children Food and Nutrition: Growing Well in a Changing World." New York: United Nations Children's Fund. <https://www.unicef.org/media/63016/file/SOWC-2019.pdf>.
- 2020a. "Education and COVID-19." UNICEF DATA. September 2020. <https://data.unicef.org/topic/education/covid-19/>.
- 2020b. "Covid-19: Are Children to Continue Learning During School Closures? A Global of the Potential Reach of Remote Learning Policies Data from 100 Countries." New York: United Nations Children's Fund. <https://www.unicef.org/brazil/media/10006/file/remote-learning-factsheet.pdf>.
- UNICEF. 2021a. "Schools Still Closed for Nearly 77 Million Students 18 Months into Pandemic." September 15. <https://www.unicef.org/press-releases/schools-still-closed-nearly-77-million-students-18-months-pandemic-unicef>.
- 2021b. "Education Disrupted: The Second Year of the COVID-19 Pandemic and School Closures." New York: United Nations Children's Fund. <https://data.unicef.org/resources/education-disrupted/>
- 2021c. "Education and COVID-19." September 2020. <https://data.unicef.org/topic/education/covid-19/>
- 2021d. "Reopening with Resilience: Lessons from Remote Learning during COVID-19." Florence, Italy: UNICEF Office of Research – Innocenti. <https://www.unicef-irc.org/publications/pdf/Reopening-with-Resilience.pdf>.
- 2021e. "COVID-19 and School Closures: One Year of Education Disruption." New York: United Nations Children's Fund. <https://data.unicef.org/resources/one-year-of-covid-19-and-school-closures/>.
- 2021f. "COVID-19: A Threat to Progress Against Child Marriage." New York: United Nations Children's Fund. <https://data.unicef.org/resources/covid-19-a-threat-to-progress-against-child-marriage/>
- 2021g. "Ensuring Equal Access to Education in Future Crises: Findings of the New Remote Learning Readiness Index." New York: United Nations Children's Fund. <https://data.unicef.org/resources/remote-learning-readiness-index/>.
- UNICEF, FAO, IFAD, WFP, and WHO. 2021. "The State of Food Security and Nutrition in the World 2021." <https://data.unicef.org/resources/sofi-2021/>.
- UNICEF, and ILO. 2021. "Child Labour: Global Estimates 2020, Trends and the Road Forward." <https://data.unicef.org/resources/child-labour-2020-global-estimates-trends-and-the-road-forward/>.
- UNICEF and International Telecommunication Union. 2020. "How Many Children and Young People Have Internet Access at Home? Estimating Digital Connectivity During the COVID-19 Pandemic." New York: United Nations Children's Fund. <https://www.unicef.org/media/88381/file/How-many-children-and-young-people-have-internet-access-at-home-2020.pdf>
- UNICEF ROSA. 2020. "Guidance on Distance Learning Modalities: To Reach All Students and Youth during School Closures." https://www.unicef.org/rosa/media/7996/file/Guidance%20Continuity%20of%20Learning%20during%20COVID-19%20-%20Reaching%20All%20Children_UNICEF%20ROSA.pdf.
- UNICEF Sri Lanka & UNICEF ROSA. 2021. 2021. "Sri Lanka Distance Learning Findings July 2021.Pptx." July. <https://www.dropbox.com/s/cwkudx2wtuob9d/Sri%20Lanka%20Distance%20Learning%20Findings%20July%202021.pptx?dl=0>.
- United Nations. 2021. "SDG Indicators. COVID-19 Has Led to the First Rise in Extreme Poverty in a Generation." <https://unstats.un.org/sdgs/report/2021/goal-01/>.
- Valenza, Marco, Djibo Abdou, Yacouba and Dreesen, Thomas. 2021. "Reopening With Resilience: Lessons from Remote Learning during COVID- 19 – West and Central Africa, UNICEF Office of Research – Innocenti, Florence, Italy. <https://www.unicef-irc.org/publications/1269-reopening-with-resilience-lessons-remote-learning-west-central-africa-covid.html>
- Viner, Russell M., Oliver T. Mytton, Chris Bonell, G. J. Melendez-Torres, Joseph Ward, Lee Hudson, Claire Waddington, et al. 2021. "Susceptibility to SARS-CoV-2 Infection Among Children and Adolescents Compared With Adults: A Systematic Review and Meta-Analysis." *JAMA Pediatrics* 175 (2): 143. doi:10.1001/jamapediatrics.2020.4573.
- Wang, Yixin, Garen Avanesian, Akito Kamei, Sakshi Mishra, and Suguru Mizunoya. 2021. "Which Children Have Internet Access at Home? Insights from Household Survey Data." Evidence for Action. May 21. <https://blogs.unicef.org/evidence-for-action/where-do-children-have-internet-access-at-home-insights-from-household-survey-data/>.
- Whizz Education. 2021. "Measuring the Impact of COVID-19 on Learning in Rural Kenya." Whizz Education. <https://www.whizzeducation.com/wp-content/uploads/Kenya-Covid-Impact-SCREEN.pdf>.
- WHO. 2021. "COVID-19 Disease in Children and Adolescents." Scientific brief. https://www.who.int/publications-detail-redirect/WHO-2019-nCoV-Sci_Brief-Children_and_adolescents-2021.1.

Wodon, Quentin, Benedicte de la Briere, Corinne Siaens, and Shlomo Yitzhaki. 2003. "Mexico's PROGRESA : Innovative Targeting, Gender Focus and Impact on Social Welfare." Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/10396>.

Wolf, Sharon, Elisabetta Aurino, Noelle Suntheimer, Esinam Avornyo, Edward Tsinigo, Jasmine Jordan, Solomon Samanhyia, J. Aber, and Jere Behrman. 2021. "Learning in the Time of a Pandemic and Implications for Returning to School: Effects of COVID-19 in Ghana." CPRE Working Papers, August. https://repository.upenn.edu/cpre_workingpapers/28.

World Bank. 2020. "Pivoting to Inclusion: Leveraging Lessons from the COVID-19 Crisis for Learners with Disabilities." <https://thedocs.worldbank.org/en/doc/147471595907235497-0090022020/original/IEIssuesPaperDisabilityInclusiveEducationFINALACCESSIBLE.pdf>.

2021a. "Read@Home." Text/HTML. World Bank. <https://www.worldbank.org/en/topic/education/brief/read-at-home>.

2021b. "Learners with Disabilities and COVID-19 School Closures: Findings from a Global Survey Conducted by the World Bank's Inclusive Education Initiative." Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/36326>.

World Food Programme. (2021). "Global Monitoring of School Meals During COVID-19 School Closures." <https://cdn.wfp.org/2020/school-feeding-map/>.

World Vision. 2020. "The Assessment of Socio-Economic Impact of COVID-19 on the Most Vulnerable Families in Afghanistan." <https://www.wvi.org/sites/default/files/2020-08/Assessment.pdf>.

Xie, Xinyan, Qi Xue, Yu Zhou, Kaiheng Zhu, Qi Liu, Jiajia Zhang, and Ranran Song. 2020. "Mental Health Status Among Children in Home Confinement During the Coronavirus Disease 2019 Outbreak in Hubei Province, China." *JAMA Pediatrics* 174 (9): 898–900. doi:10.1001/jamapediatrics.2020.1619.

Zafra, Ignacio. 2021. Spain Wants to Keep Face Masks and Distancing at Schools during next Academic Year. *EL PAÍS English Edition*, May 13. https://english.elpais.com/spanish_news/2021-05-13/spain-wants-to-keep-face-masks-and-distancing-at-schools-next-year.html.

Zemrani, Boutaina, Mario Gehri, Eric Masserey, Cyril Knob, and Rachel Pellaton. 2021. "A Hidden Side of the COVID-19 Pandemic in Children: The Double Burden of Undernutrition and Overnutrition." *International Journal for Equity in Health* 20 (1): 44. doi:10.1186/s12939-021-01390-w.

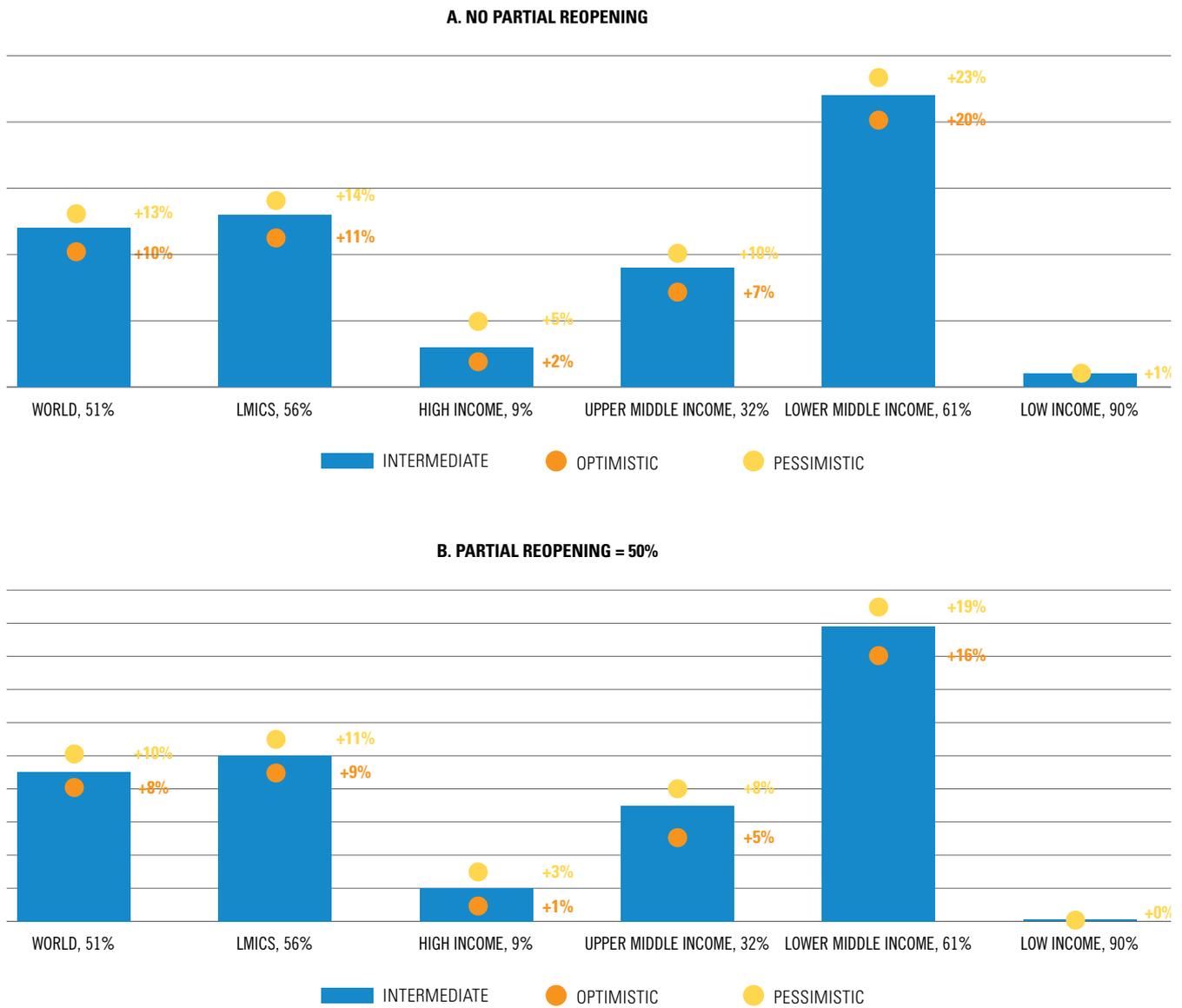
Zhu, Yanshan, Conor J. Bloxham, Katina D. Hulme, Jane E. Sinclair, Zhen Wei Marcus Tong, Lauren E. Steele, Ellesandra C. Noye, et al. 2021. "A Meta-Analysis on the Role of Children in Severe Acute Respiratory Syndrome Coronavirus 2 in Household Transmission Clusters." *Clinical Infectious Diseases: An Official Publication of the Infectious Diseases Society of America* 72 (12): e1146–53. doi:10.1093/cid/ciaa1825.

Zvyagintsev, Roman. 2021. "Pandemic effects on general education quality: review of international research and presentation of Russian data." September 22. <https://ioe.hse.ru/ds/news/508614771.html>.



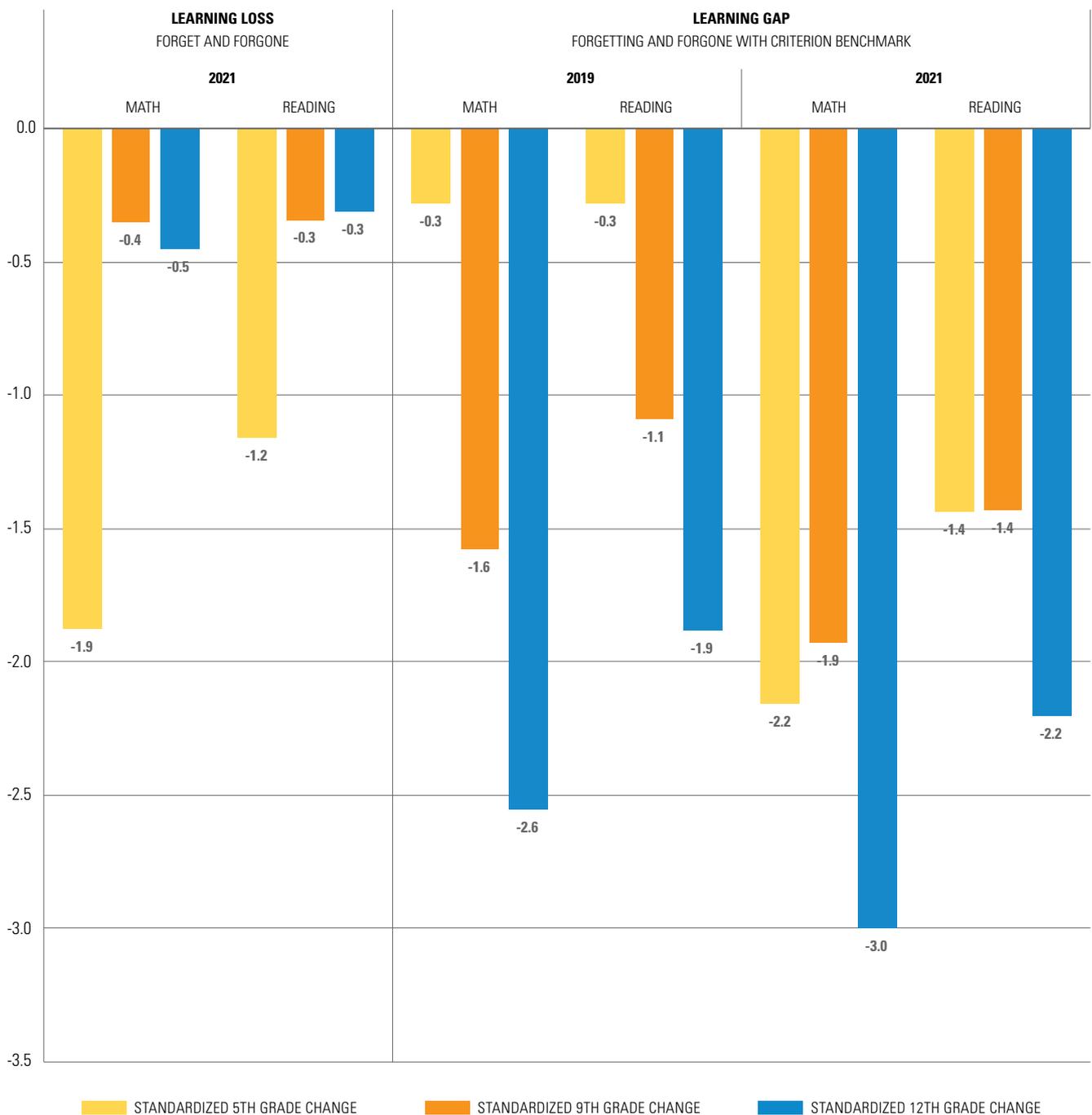
APPENDIX

FIGURE A.1. Learning Poverty is likely to get much worse



Notes: Low- and Middle-Income Countries (LMICs). For details on the simulation update see Azevedo, Cloutier et al (2021).

FIGURE A.2. Learning Loss vs Learning Gap



Note: (1) "Forgetting" refers to learning that students forgot during school closures, while "forgone" learning refers to learning that would normally take place but did not take place during school closures. While most studies report them in a combined measurement, some distinguish between the two, and a few only measured the forgetting; (2) In this paper we classify as measures of learning losses, studies track the results of the same students before and during the pandemic (using a panel or pseudo-panel design), while others compare the results of the same grade across different cohorts, a pre-pandemic cohort compared to a cohort affected by the pandemic (using a repeated cross-sections design); (3) one important distinction is how different authors have estimated the "forgone". In some cases, the expected value of learning was empirically estimated based on past learning data, while in other cases, the counterfactual was criterion-based (normative), building on the expected levels of competences given the national curriculum. This normative case is actually a measure of learning gap, not learning loss.

Source: Authors' calculations using data from Standardized results for the State of São Paulo (SEDUC-SP, 2021).

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