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REOPENING WITH RESILIENCE:
Lessons from remote learning during COVID-19 in Europe and Central Asia

Introduction

In Europe and Central Asia[1] (ECA), while education levels are relatively high compared with global averages, wide disparities in children's learning remain within and between countries. Prior to the COVID-19 pandemic, the percentage of primary school-age children out of school ranged from close to zero in Georgia and Kazakhstan to 7 per cent or higher in Armenia, Bulgaria and North Macedonia. Before COVID-19, the share of children living in learning poverty – unable to read a simple text by the age of 10 – ranged from just 2 per cent in Kazakhstan to 43 per cent in North Macedonia, with an average of 17 per cent across the region. The Program for International Student Assessment (PISA) results from 2018[2] show that the overall outcomes for secondary education from the region are improving. However, performance in the region lags behind the average in the Organisation for Economic Co-operation and Development (OECD). The ECA average in reading, the main domain assessed in PISA 2018, was 421 score points, compared with 487 across the OECD. Learning outcomes are highly inequitable, with boys performing worse than girls, and rural students performing worse than urban students. Over the past decade, expected years of schooling[3] have increased in some ECA countries, such as Albania, Azerbaijan and Montenegro, due to improvements in pre-primary and secondary education. Expected years of schooling, however, have declined in other countries, including in Bulgaria, Republic of Moldova, Romania and Ukraine.[4] It is expected that the COVID-19-related school closures will exacerbate existing inequities in education and disproportionately affect disadvantaged groups, with a larger share of students falling back into functional illiteracy and potentially dropping out of school altogether compared with pre-pandemic levels (Azevedo et al., 2021).

In 2020 and 2021, more than 50 million children[5] were affected by partial or full school closures in Azerbaijan, Bosnia and Herzegovina, Greece, Italy, Kazakhstan, Kyrgyzstan, Montenegro, North Macedonia and Serbia (UNICEF, 2021a). Many schools that resumed face-to-face classes in early 2021 closed again or implemented partial closures due to further waves of the pandemic. Between February 2020 and October 2021, children in the region missed on average 105 days of school because of school closures. Further exacerbating the scenario, some countries that were already ranking among the bottom performers in learning,[6] including Albania, Kyrgyzstan, Montenegro and North Macedonia, were among those that experienced the longest school closures in the region (*see Figure 1*).

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1 The ECA region includes Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Georgia, Greece, Kazakhstan, Kosovo [in line with UN Security Council Resolution (UNSCR 1244)], Kyrgyzstan, Montenegro, North Macedonia, Republic of Moldova, Romania, Serbia, Tajikistan, Turkey, Turkmenistan, Ukraine and Uzbekistan.

2 With data available for Azerbaijan, Belarus, Bulgaria, Croatia, Georgia, Kazakhstan, Republic of Moldova, Romania, Turkey and Ukraine.

3 Expected years of schooling is the number of years a child of school entrance age is expected to spend at school, or university, including years spent on repetition. It is the sum of the age-specific enrolment ratios for primary, secondary, post-secondary non-tertiary and tertiary education.

4 UNESCO Institute for Statistics <http://uis.unesco.org/>. Data as of September 2021.

5 Data calculated from UNESCO data for 23 countries including Italy, as of end March 2021.

6 Calculation based on Harmonized Learning Outcomes (HLO). The HLO database is a globally comparable database of learning achievement across 164 countries from 2000 to 2017.

FIGURE 1. Harmonized Learning Outcomes by the number of days that schools were closed (full or partial) from February 2020 to October 2021. The size of the circle represents the school-age population in a country.

Remote learning policies and implementation

When schools started to close their doors in March 2020, countries rushed to provide remote learning solutions for learning continuity. However, children without access to a strong internet connection and devices to go online were excluded from education services delivered online. Countries attempted to close this gap by disseminating lessons via television and mobile phones and through distributing printed learning materials. Overall, governments in the ECA region relied heavily on **online platforms and television** to continue learning activities during school closures (UNESCO, 2021).

More than 90 per cent of ECA countries promoted digital solutions and over 80 per cent also relied on television and mobile phones as alternative modes of instruction at the primary and secondary school levels (*see Figure 2*). In some cases, take-home packages with printed materials were also offered as an additional learning tool to reach the most marginalized groups, including refugees and children living in remote areas. Radio was the least used learning modality, with only 2 countries out of the 14 responding countries in the region

offering it. Overall, most countries provided a combination of approaches to reach as many learners as possible. North Macedonia, for example, combined remote learning through the online national platform for learning with a daily television programme where primary

and secondary school teachers taught classes according to the national curriculum. Students who could not attend online classes and where the school did not provide classes with a physical presence, received printed materials from their teachers (UNESCO, 2021).

FIGURE 2. Remote learning modalities promoted by countries in Europe and Central Asia
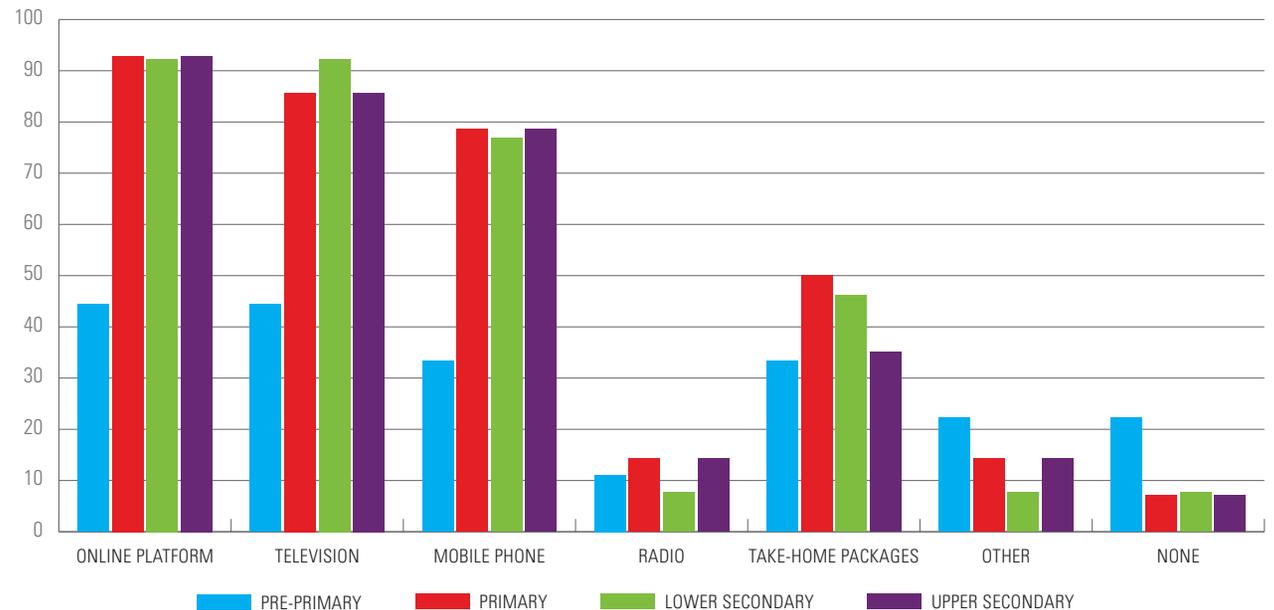
Source: OECD et al, 2021.

While online digital learning has been at the core of remote learning strategies in the region, neither the internet nor devices to connect to it were evenly available across and within countries. Access to **television** is widespread in the ECA region, with a household ownership rate of around 90 per cent in both urban and rural areas (*see Figure 3*[7]). Yet while televisions are more equitably owned across the region, recorded classes and television-based education are not interactive and thus are less able to be adaptable to learners' specific needs. On the other hand, remote learning through digital platforms has the potential to be interactive and accessible for children with diverse needs, but its effectiveness is subject to a combination of factors, including the availability of digital devices, adequate internet connectivity, the quality of content, teachers' digital skills and digital pedagogical competencies.

The share of households owning a **mobile phone** is close to 90 per cent in the ECA region,[8] far greater than the share of households with a computer in urban (40 per cent) and rural (60 per cent) areas. In terms of **internet** access, the gap between urban and rural areas is significant and ranges from 60 per cent in rural areas to 80 per cent in urban areas. In terms of connectivity, around 60 per cent of households have adequate internet connection to sustain requirements for online learning,[9] but most households are not equipped with high-speed

internet when compared with US or EU standards (World Bank, 2020). Only 35 per cent of households in Bosnia and Herzegovina have high internet speeds, with 48 per cent in North Macedonia and 64 per cent in Serbia (World Bank, 2020). Access rates vary significantly within the countries by income level. Data from PISA 2018 (*see Figure 4*) show that almost all students in the highest wealth quintile have universal access to the internet in
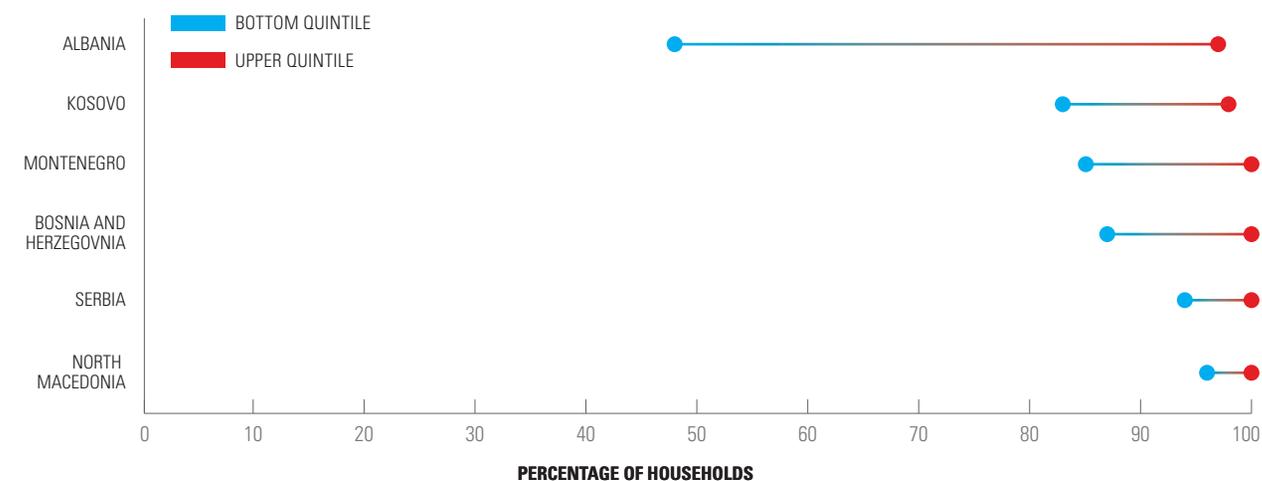
Bosnia and Herzegovina, North Macedonia and Serbia, but this is not the case in the lowest quintile. In Albania, for example, access to internet ranges from 97 per cent in the highest quintile to 48 per cent in the lowest. As a result, during school closures, in more than half of ECA countries, around 20 per cent of students could not access remote learning activities through digital devices (at all levels of education) (UNESCO, 2021).

FIGURE 3. Proportion (%) of households (rural vs. urban) owning technologies enabling remote learning, for selected ECA countries with available data (unweighted cross-country averages)
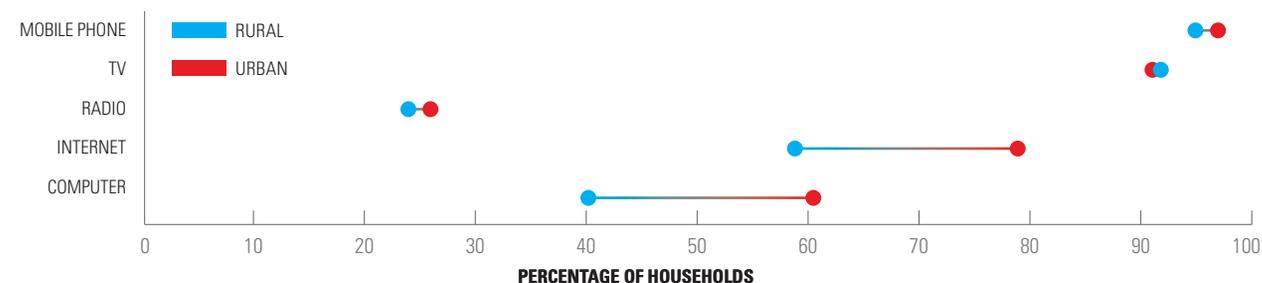
Source: DHS-MICS data.

FIGURE 4. Connectivity by income quintile, for selected countries with data available

Source: PISA 2018.

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7   Countries in the figure include Albania, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, Republic of Moldova, Serbia, Tajikistan, Turkey, Turkmenistan and Ukraine.

8   Data from Albania, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, Republic of Moldova, Serbia, Tajikistan, Turkey, Turkmenistan and Ukraine.

9   Defined for this analysis as 10 megabytes per second (mbps) and higher.

ECA governments placed less emphasis on **printed materials** than on other remote learning strategies, with less than 50 per cent of Ministries of Education reporting that they provided them (UNESCO, 2021). Printed materials were used mainly to reach the most marginalized children who could not access remote learning through digital solutions. In most countries, packages of printed materials were administrated at decentralized levels or directly by teachers. Romania is an example of a country where the provision of remote learning by take-home package was implemented locally to provide solutions for children from disadvantaged groups who do not have access to the internet or to electronic devices.

Some countries expanded access to the internet and to digital devices to help students access educational content. These measures enhanced educational equity and inclusion throughout the pandemic by reducing the digital divide. In Bulgaria, for example, 50 per cent of schools in 2019/2020 and 89 per cent of schools in 2020/2021 provided electronic devices to students in need.[10] Expanding internet access also improved the inclusion of vulnerable groups in remote learning. Montenegro provided additional financial support to children with disabilities and refugees (UNESCO, 2021). Other efforts to include the most marginalized included the use of digital technology to also reach children with special needs. An example is the Augmentative and Alternative Communication (AAC) application named 'C-board' that is currently available in over

30 languages and piloted with children with special education needs in Croatia, Montenegro and Serbia, aiming to make a child's communication more efficient. The C-board is an accessible assistive application that aids communication: a selected symbol is expressed in a personalized way vocally, thus making it possible for a child to express their thoughts, needs and emotions. Similarly, in Bulgaria, UNICEF is supporting another platform for children living with disabilities. As part of the initiative, parents and families of children with disabilities, in close cooperation with specialists, will receive knowledge and resources that will help them better support learning activities for their children.[11] Overall, emphasis was placed on improving access to infrastructure for children with disabilities and refugees in several countries including Albania, Armenia, Bosnia and Herzegovina, Georgia and Serbia. Armenia and Uzbekistan also developed and piloted resources to support marginalized caregivers of learners with disabilities in the region.[12] The resource set is available in three languages (Armenian, Russian, and Uzbek) along with an implementation guide for education ministries and other system-level stakeholders which describes the development and piloting of the resources as well as a step-by-step recommendations on how to adapt and adopt them.

Pre-primary education received comparatively less attention than other levels of education, across all remote learning delivery modes (*see Figure 2*). School closures have further limited participation in early learning activities, which already had a low

pre-COVID-19 gross enrolment rate of 60 per cent.[13] This is alarming as evidence shows that investments in pre-primary education set a trajectory of learning and well-being for a lifetime, with children who lag in learning during the early years more likely to stay behind for the remaining time they spend at school (Nugroho et al., 2021; Silberstein, 2021). However, some countries, like Montenegro, produced numerous videos and written materials to support learning at home through play for preschool-age children and as part of the 'Play at home' campaign. These videos show educational activities developed by preschool teachers to guide parents on how to spend time with their children while staying at home during the pandemic (OECD et al., 2021).

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10 Data GPS with full set of indicators is available here: http://ire-bg.org/data/.
11 <www.unicef.org/bulgaria/en/press-releases/unicef-launches-first-bulgarian-online-platform-additional-support-children-special>
12 <https://www.unicef-irc.org/publications/?ThematicSeriesID=19>
13 UNESCO Institute for Statistics. Data as of September 2020.

Moving beyond access, to engagement and learning

Monitoring results from Serbia showed that 99 per cent of students were involved in some form of remote learning (watching lessons aired on television, using online learning platforms, downloading printed materials). However, the number of Roma children from vulnerable groups accessing remote learning was 83 per cent. For Roma primary school students who needed additional support to access remote learning, only 27 per cent had access to alternative forms of support, such as printed learning materials (UNICEF, 2020b). In Bulgaria, a large-scale assessment of the effectiveness of remote learning commissioned by the Ministry of Education and Science shows a decrease in academic performance and a serious deterioration in students' engagement. One in two teachers reported a deterioration in their students' motivation and engagement. Almost 40 per cent of teachers also reported a decline in students' interest in the material they were learning and a deterioration in students' knowledge of the subject area in which they teach. Student scores, measured through diagnostic tools, indicate that one in three students have very low behavioural or cognitive engagement, and about 30 per cent have low emotional engagement. In 2021 half of Roma

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students demonstrated low behavioural engagement compared with one third in 2020. All these findings indicate increased risk of dropping out.

COVID-19 also affected the amount of time children engaged in learning activities and, in some cases, their well-being. A study on the effect of COVID-19 in Serbia shows that children aged 7–12 spent on average **4.1 hours per day on education activities** during the pandemic – with the largest group of children (37 per cent) spending on average **3 hours per day** (UNICEF,

2020b). Only 6 per cent reported that children who used remote learning were unhappy about it or under stress. This percentage increases for children in urban areas and children with lower socioeconomic status (UNICEF, 2020b). In Azerbaijan, an impact assessment conducted by UNICEF identified several key challenges resulting from the pandemic: learning gaps due to disruption of education, restricted access to connectivity and devices among children and teachers, and mental health and psychological support needs (UNICEF, 2021d).

A key factor for the success of remote learning through digital platforms is **teachers' technical and pedagogical and digital skills**. The lack of training and ongoing support in digital pedagogy, especially for teachers without virtual classroom or remote teaching experience, contributes to low skill levels. While ECA countries recognize the importance of digital skills, they have taken different approaches to building those of teachers. In Serbia, for example, there is a digital competence curriculum for teachers, and teachers' skills are evaluated on their use of digital technologies for student assessment. In Montenegro and North Macedonia, digital

competencies for teachers are listed among general teacher competency criteria, but this is not the case for Albania and Bosnia and Herzegovina (Eurydice, 2019). In Bulgaria, since the beginning of the COVID-19 pandemic, teachers have been provided with access to training to enhance their digital skills and competences to organize and conduct remote classes.

Teacher training policies evolved quickly during the pandemic to support learning across education levels. These policies aimed to provide additional support to teachers and equip them with digital skills to continue teaching via digital platforms.

Since the beginning of the pandemic, approximately 105,000 teachers have been trained in digital and remote learning in the ECA region with support from UNICEF (UNICEF, 2021a).

These remote learning systems are likely to become more important than ever, especially as countries face extreme climate-related events like heatwaves, storms, floods, forest fires and droughts. Investing in resilient education systems that include remote learning modalities to provide quality education delivery even in crises can help minimize the longer-term impacts of these adverse events (UNICEF, 2021c).
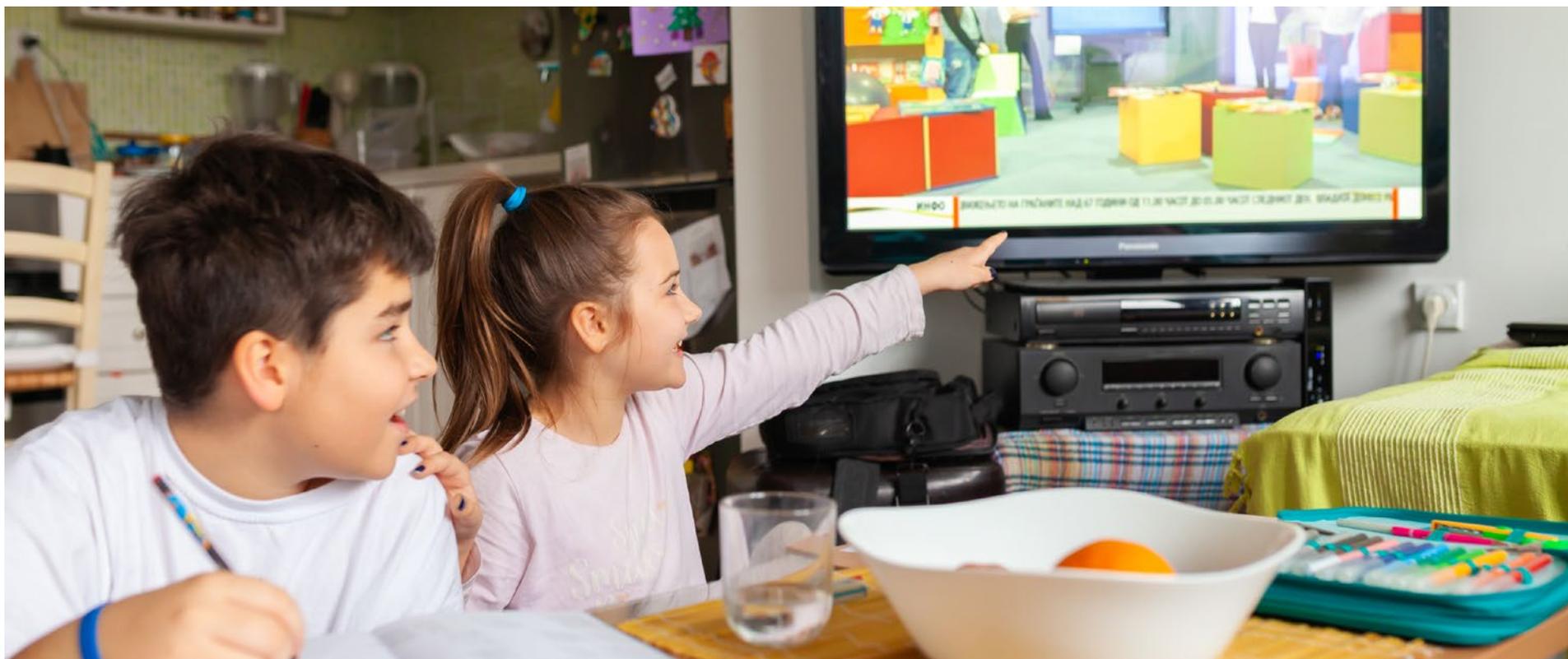
Conclusions and recommendations

I n light of the urgent need to build resilience into education systems, recommendations for policymakers and education practitioners for planning and implementing remote learning systems include:

1 **Strengthen the digital learning ecosystem to bridge the digital divide.** Almost all ECA countries reported using multiple remote learning modalities to reach children during school closures (OECD et al., 2021). However, a focus on last-mile connectivity and bridging the digital divide is key to tackling existing inequalities and promoting learning for all. In the meantime, it is important to leverage the high penetration rate of mobile phones to improve the take-up and effectiveness of remote learning, especially in areas where technology is still a constraint. Phones together with a combination of delivery modalities can help teachers reach children without access to a computer through a more widely available technology during emergencies. Phones can be helpful in reaching groups less likely to engage in remote learning such as refugees and migrants, girls and children with disabilities (Amaro et al., 2020; UNHCR, 2020).

2 **Design pre-service and in-service teacher training programs and policies that embed digital skills and digital pedagogy and a preparation for remote learning delivery.** During school closures, teachers and facilitators provided support to families and students, ranging from checking in with families and providing mental health support to teaching over the phone and through video calls. Meaningful interactions between teachers and students are critical for effective remote learning (Brossard et al., 2021). Best practices and high-quality professional development of teachers and ongoing support are needed to support teachers to integrate multiple learning technologies (including digital, broadcast media and mobile phones) with their teaching practices. Such support can help to prepare teachers and facilitators for remote learning delivery, while also improving their preparedness to leverage different technologies to support inclusive, personalized learning face to face.

3 **Monitor reach, uptake and use of remote learning modalities and assess their effectiveness.** Further research is needed to identify factors that can improve the effectiveness of digital learning to support quality pedagogy, uninterrupted service delivery, and inclusive and personalized learning. Future research should address the entire life cycle of the implementation process and the learning outcomes. The process includes the development of mechanisms to collect quality data, tracking device access and usage, the production of relevant and engaging content, and the provision of pedagogical and technical support to teachers for the integration of technology both in the classroom and for remote teaching.

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Acknowledgements

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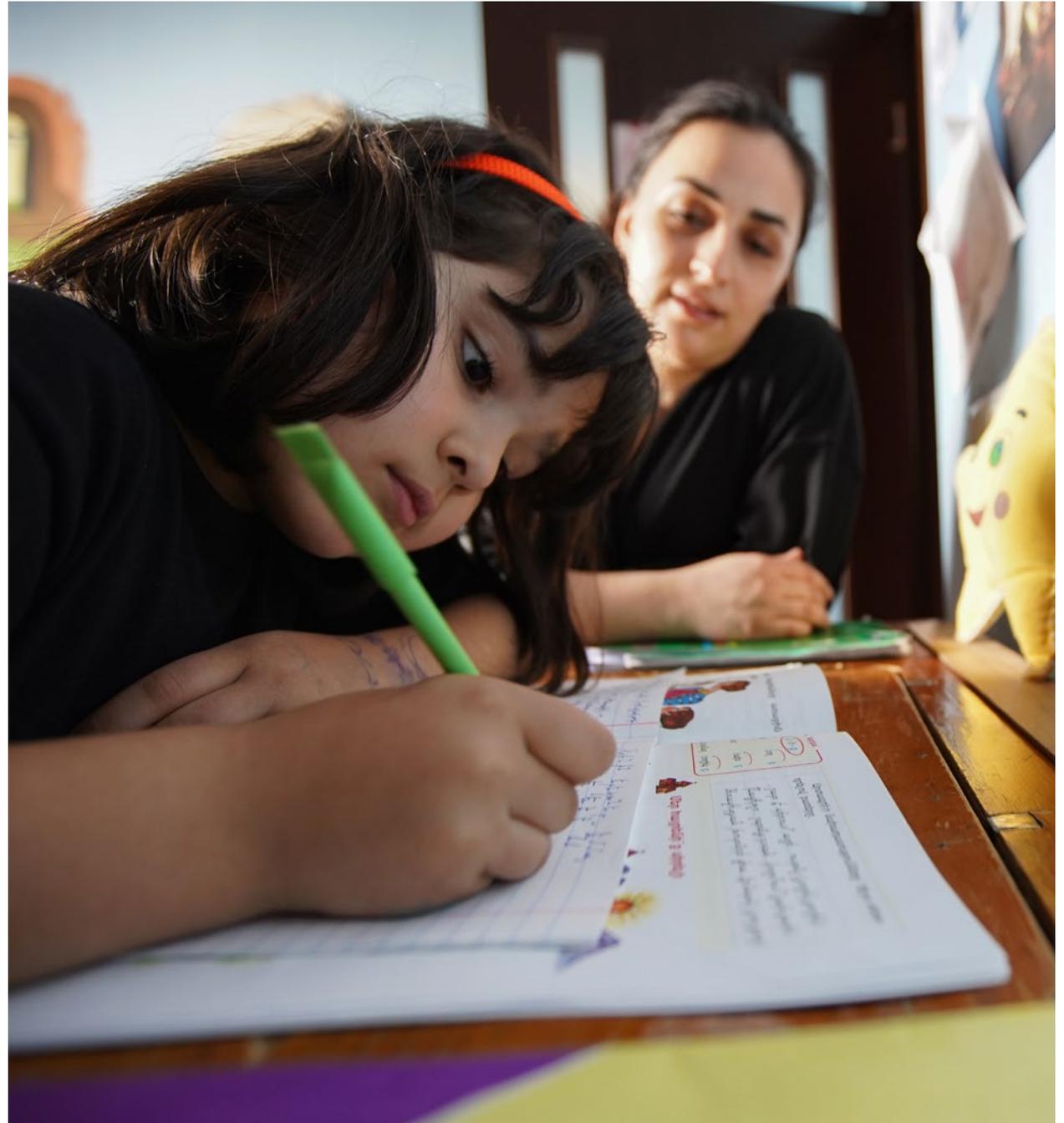UNICEF, 'Europe and Central Asia (COVID-19) Situation Report', January–March. UNICEF Europe and Central Asia, 2021a, <www.unicef.org/documents/ecaro-humanitarian-situation-report-january-march-2021>

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March 2022

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