Chapter 17
Conclusions and Implications

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Abstract This chapter concludes the book, drawing on the preceding chapters to identify overarching themes that summarize the nature of the educational impact of COVID-19. It describes the educational loss that was created by the pandemic, particularly for disadvantaged students and more so in countries with lower levels of per capita income. Those losses were the result of impacts of the pandemic on poverty and household conditions, as well as the result of insufficient capacity of remote instruction to adequately sustain opportunity to learn. The efforts to maintain educational opportunity and to close equity gaps during the pandemic in some countries are also discussed, in the context of the role of educational inequality before the pandemic and of initial conditions to support remote instruction. The chapter examines also some of the silver linings resulting from the pandemic in the education sector, such as the greater recognition of the importance of schools, and of in person schooling, and the necessity to support the emotional and social development of students, in addition to their cognitive development. The chapter concludes discussing the challenges ahead created by the pandemic and underscores the urgency of maintaining the priority of education and remediating those learning losses during the remaining period of the pandemic and in the immediate aftermath, to mitigate the likely increase in poverty and social inequality that would result from the educational losses during COVID-19.

17.1 The Educational Consequences of COVID-19 Differed by Country and Class

The COVID-19 pandemic created an unprecedented challenge for educators and education systems around the world. The impact of the pandemic on the conditions in which students live, the risks to their health, and the impact of the economic recession on their families increased the challenges for students in finding the time,

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F. M. Reimers (ed.), *Primary and Secondary Education During Covid-19*,
https://doi.org/10.1007/978-3-030-81500-4_17

space, and focus to study. In addition, the adoption of social distancing measures and alternative ways to educate remotely when in-person instruction was interrupted reduced opportunities to learn and caused many students not only to struggle to learn what was expected in the curriculum, but to lose skills and knowledge they had previously gained and to disengage with learning.

At the same time, for some students, the experience of learning in different ways during the pandemic provided the opportunity to gain new knowledge and develop new skills. It provided an opportunity to gain more autonomy in learning, to spend more time with their families, and to learn together with their families. Parents gained knowledge from this increased engagement in the education of their children and time spent together focusing on the work they did in school and their own children's learning experience. Similarly, teachers gained greater knowledge about the home circumstances of their students because of the necessary collaboration with their parents. As shown in Chap. 15, studies in France, the United States, the United Kingdom, and Ireland reveal that parents spent more time assisting their children with schoolwork during the pandemic than before, but only about half of them felt adequately prepared to do so. For teachers, the strategies of remote learning likely increased their Digi-pedagogies, while increasing students' knowledge of how to learn remotely, although for many the approach was 'sink or swim', with limited support, hardly adequate to develop optimal proficiency or confidence.

These effects differed greatly among children in different socioeconomic circumstances, among different types of schools, and among different countries. For individual students, the educational effects of the pandemic were mediated by other conditions, mainly the education and resources of their parents. Some of these conditions were in turn aggravated by the pandemic—as poverty and social inequality increased, and as children in large families who shared limited space and connectivity resources at home had less space, time, and peace of mind to study as they were confined to their homes, where they had to study.

The differences of success in managing the spread of the virus across countries resulting from differences in the quality of political and public health leadership, differences in health infrastructure, risks, and financial and institutional resources resulted in considerable variation across countries in the duration of the period when in-person instruction was replaced with remote options. Furthermore, differences in technological infrastructure, access to connectivity, and previous experience and knowledge of Digi-pedagogies resulted in differences across countries, and among students within the same countries, in the amount of engaged learning time experienced by different students. While there are very few reliable estimates of how much learning took place during the pandemic, or of how much learning was lost, the available evidence shows considerable learning loss and greater loss for students from disadvantaged backgrounds, accentuated in countries with greater percentage of disadvantaged students as Brazil, Chile, Mexico, or South Africa. Even in Finland, where schools were closed for a relatively short period of time, and where students and teachers had adequate supports to learn remotely, there is evidence of reduced student engagement during remote instruction. In Norway, another country with robust technological infrastructure, there was a drop in writing proficiency of first grade students

who were taught during the pandemic, relative to their peers in previous years. A learning loss in the first-grade equivalent to one and a half semesters because of a two-month period of school closures underscores the limitations of remote instruction. In the United States students with the lowest levels of engagement during the period of remote instruction were disproportionately low income and racial minority children.

No cross-national estimates of learning loss during the pandemic are available yet, but the obvious differences across countries in the duration of the period of remote learning and in the percentage of students who were reached with the remote strategies that were implemented suggest that there have been unequal effects across countries in the extent of learning loss experienced by students, in the inequality of learning loss for students from different backgrounds within countries, and in the ensuing disengagement and dropout for those students who learned the least and for whom the alternative arrangements created during the pandemic were least effective.

The pandemic created a context in which students in least developed countries experienced the brunt of six mutually reinforcing challenges: the longest school closures, the lowest levels of resources and institutional capacity to mitigate learning loss, lower levels of access to vaccines, the greatest increases in poverty, lower effectiveness of alternative modalities to education, and the greatest levels of social and educational inequality. For these varied reasons, it is likely that the two most important mediators of the COVID-19 pandemic's impact on educational opportunity were nationality and social class.

17.2 Educational Opportunity Before the Pandemic, During the Pandemic, and Beyond

The attempts to educate during the pandemic revealed very large differences in the social circumstances in which different children access and engage in learning and made visible the extent to which those differences matter to how much students can learn. The role played by those circumstances is not unique to the period during which students were forced to learn from home. The fact that some children live in homes where they experience food insecurity, or other effects of poverty, including the stress of living in vulnerable conditions, or the fact that some children have parents who have less education, time, or resources with which to support them in their studies was a fact that had influenced opportunity to learn before the pandemic, it just became more visible during the pandemic. Social class will likely continue to influence educational opportunity in the aftermath of the pandemic, perhaps its importance augmented by the increase in poverty and inequality that the pandemic will produce.

Schools were created, in part, to provide all students opportunities to learn, and aspirations about their role in equalizing opportunity for all students are about creating a space to mitigate the differences that those social factors play. The efforts

to teach during the pandemic made more visible how very challenging it is to level the playing field for students given their different social circumstances and how much harder it is to do that when the work of schools is so directly mediated by circumstances at home as it was during remote learning.

The evidence examined in this book suggests that, by comparison, in-person instruction is more effective at leveling the playing field than the arrangements that education authorities were able to put in place during the pandemic to educate remotely. This observation needs to be moderated by the fact that the pandemic had a disproportionate impact in the social circumstances of the poor, making them more vulnerable to infection or death, or reducing their income, so there would have likely been increases in inequality of opportunity to learn even if schools had remained opened the entirety of the pandemic. It should also be acknowledged that the arrangements to educate remotely were put in place quickly, with limited resources and support, and so it may be unfair to think of the arrangements of remote learning that were improvised during the pandemic as the optimal form of remote learning, although these arrangements represent the largest global experiment in remote learning at scale since the creation of public schools with the mandate to educate all children.

Those caveats notwithstanding, one of the lessons surfaced by the pandemic is that educational opportunity can only be leveled off with actions that effectively meet the very different needs of children from various circumstances, particularly the many needs and vulnerabilities caused by poverty, but also other needs including special learning needs. Those vulnerabilities are considerable and require a clear focus in supporting students experiencing them, with adequate resources, knowledge, and the capacity to provide educational and non-educational supports that create an adequate environment for students to learn. This, of course, is not to say that there was equal educational opportunity before the pandemic, but it appears that in-person instruction is more effective at equalizing opportunity than remote instruction. Low-income students, those in earlier grades, and special needs students were the least adequately supported to learn remotely.

There were some countries in which attention and resources were disproportionately targeted to support the education of disadvantaged students, although no information is available on the extent to which these were able to prevent an increase in inequality in opportunity to learn. In Singapore, where students and teachers had developed skills for online learning prior to the pandemic, and where the use of Digi-pedagogies intensified in preparation for school closures, the government distributed computers and provided connectivity to the students who lacked them as part of the remote learning strategy. Singapore's modest interruption of schooling was largely a result of the effective containment of the health crisis and of coordination between education and health authorities.

In Portugal, policy pronouncements emphasized the priority of maintaining educational opportunity during remote learning, and partnerships between organizations of civil society and government agencies made efforts to reach out to disadvantaged students. In Japan, the government distributed devices to disadvantaged students during the phase of remote learning.

In Norway, despite the adequate access to infrastructure and high levels of teacher quality, the engagement of low achieving students during remote instruction diminished more than the engagement of their high achieving peers. Furthermore this country where equality of educational opportunity is normally a policy priority, did not implement strategies to equalize opportunity during the remote learning phase.

The vast differences among students in different schools in their capacity to learn from alternative arrangements also underscores the urgency of democratizing the opportunity to learn autonomously, a likely precondition for lifelong learning. Unless schools provide greater access to connectivity and devices, and the skills to learn remotely for all students and teachers, they will be denying some students essential skills to learn independently throughout their lives and arguably denying them the opportunity to participate fully in society, as such participation is increasingly mediated by technological means.

One of the challenges of the multimodal strategies of remote learning deployed by several countries during the pandemic is that the most advantaged children had access to the most interactive modalities, such as internet-based options which provided opportunities for interaction, whereas those least advantaged had to rely on radio or printed materials or on digital options that were only used to transmit content, with limited opportunities for interaction and feedback. In South Africa, for instance, a considerable number of low-income black children had no access to internet or devices to support learning remotely. A similar lack of access to online remote instruction was observed, to varying degrees, among low-income students in most countries, although higher income countries were able to remediate these needs by providing devices and connectivity, as was the case in Finland, Japan, or Singapore, and only the best prepared and supported teachers were able to create opportunities for interaction with their students.

At the same time, the deficiencies shown by the digitally-based solutions enacted during the pandemic, even in contexts in which students and teachers had considerable access to devices, connectivity, and benefited from prior experience in Digi-pedagogies, such as in Finland, or in countries which made efforts to provide such access during the pandemic, underscore the social and multidimensional nature of learning, and the unique value of in-person interaction to derive the full benefits of the school. We learn with others, in interaction with them and by collaborating with them, and those social interactions are essential to the integration of thoughts and emotions which sustain learning. It is collaboration with others and this interaction that sustains our motivation and helps us learn, as our brains are wired for social interaction—not just with teachers, but with peers, and not just in activities led by teachers in the context of the formal curriculum, but in activities led by students. This is true both for the intended and explicit curriculum and for the implicit and tacit curriculum—what we learn from interacting with others. In-person instruction also facilitates multiple ways of learning with and from others, not just while students work at their desks in the classroom, but when they engage in sports or the arts, or simply in spontaneous and informal conversation with peers. In Russia, for instance, educators and students agree that the quality of remote instruction was lower than in-person instruction, especially for subjects which required student participation,

such as physical education, arts, music, or, paradoxically, technology. Less than half of the parents in Russia indicated that remote instruction provided opportunities for interaction with teachers. Chap. 15, examining remote instruction in five OECD countries, shows that most remote instruction consisted primarily of delivering lessons and content, with very limited opportunities for interaction. In the United States, the utilization of online instruction increased with the level of education and of income of the parents, whereas children of low-income parents were more likely to rely on printed materials. The same study shows that parents were concerned about the quality of remote education, and about the limited opportunities for social development it provided. Chap. 5 shows that in Japan there was an increase in student depression during the period of remote instruction. Even while acknowledging the hasty nature of the alternative arrangements put in place during the pandemic resulted in a sub-optimal way to organize remote instruction, and to support collaboration and social interaction with peers, the deficiencies of such arrangements suggest that there are unique benefits to in-person instruction and suggest that digital instruction is a deficient replacement for in person schooling.

The heterogeneous results of learning remotely during the pandemic are not just a function of the different ways in which the pandemic impacted students and their families, but of the fact that, in the rapid and fluid context in which alternative delivery systems were developed, there were no standards and no consistency. As a result, on top of the already considerable inequality of education conditions experienced by students in school systems which segregate disadvantaged students to schools of low quality the lack of standards and inconsistency in approaches diminished opportunities to learn under remote learning. Such lack of standards was most problematic in highly decentralized systems such as the United States, which left school districts to define what remote instruction would mean, resulting in vast inequalities in approaches as shown in Chaps. 14 and 15. Also in Chile, Mexico, Russia, and South Africa vast preexisting inequalities, high decentralization, and deficient guidance and support exacerbated inequalities in remote learning opportunities.

This heterogeneity, resulting from a lack of clear standards and insufficient compensatory efforts to close equity gaps, extended even to whether the goals of the strategy for remote instruction were to maintain students' engagement with education, actually support learning, provide guidance for the amount of learning time, or define what was meant by remote instruction. As shown in Chap. 15, in France, and in the United States remote instruction prioritized maintaining student engagement over learning new content. The same finding is reported in Chap. 13, focusing on remote instruction during the pandemic in the United States.

17.3 The Role of Initial Conditions Mediating the Educational Impact of the Pandemic

Education systems were in varying stages of readiness to sustain educational opportunity in the face of the disruptions caused by the pandemic. Those differences included access to connectivity at home and skills to learn and teach online, as well as level of resources, capacities, and institutional structures to meet gaps during the emergency. Whereas Finland, Japan, Norway, and Singapore had high levels of connectivity, and resources to provide equipment and connectivity to students during the interruption of in person instruction, levels of connectivity and resources were lower in Brazil, Chile, Mexico, and South Africa. Russia had high levels of connectivity but low bandwidth. It should be noted, however, that even countries with high per-capita income and high levels of connectivity, such as Finland, Japan, and Singapore, found that vulnerable groups of children lacked access to digital devices at home. However, these countries were able to provide devices to students once it became clear that they needed them. Similarly, in Australia, France, Ireland, the United Kingdom, and the United States, a sizable number of children, predominantly from low-income and minority backgrounds, had challenges with access to connectivity and devices. Other countries, such as Brazil, Chile, Mexico, and South Africa, facing even greater levels of exclusion from connectivity and devices, found it more challenging to meet these needs during the emergency.

Similar gaps were observed in teacher capacity. Whereas Finland, Japan, Norway, and Singapore had made greater investments in Digi-pedagogies prior to the pandemic compared to other countries, which eased their transition to remote instruction, countries such as Brazil, Chile, Mexico, and South Africa had not made such investments and consequently found it more challenging to adopt remote instructional strategies. In Finland, the switch to distance learning during the period of school closure was relatively seamless. Nevertheless, even in that context there was less learning during remote instruction as revealed by the lower percentage of students who experienced optimal learning moments in STEM during remote instruction than during in person instruction. In Mexico, the national strategy relied on platforms to transmit content, such as radio and television, acknowledging that the deep gaps in teachers' capacity in Digi-pedagogies in many public schools would considerably limit the reach of a strategy based in online learning.

Institutional fragmentation and school segregation contributed to augmenting inequality, as was the case in Chile, South Africa, Spain, and the United States. In Chile, as shown in Chap. 3, the already-large inequalities in educational opportunity, produced by a highly stratified education system, were augmented with remote instruction, because of differential capacities of schools to provide adequate supports to the varying needs of children. South Africa's two-tiered system for students from different socioeconomic groups saw the greatest reductions in opportunities to learn in high poverty schools. In Spain, extreme discontinuities in education policy over the years and high institutional fragmentation undermined the effects of national guidance and support to teach remotely, as those were mediated by decisions made

in the autonomous regions of the country. In the United States, decentralization of governance and finance resulted in vastly unequal levels of engagement with remote education among students of different socio-economic and ethnic background.

The mechanisms to compensate for social disparities, providing more focus and resources to disadvantaged students, were weaker for remote learning than for in-person instruction. Portugal stands out as a country in which policy guidance prioritized maintaining equality of educational opportunity and Singapore was able to rapidly compensate the lower levels of connectivity of children from disadvantaged homes. Even Norway, with a long-standing commitment to equal educational opportunity, lacked specific programs to provide differentiated support to disadvantaged students learning remotely. In contexts of greater institutional fragility, such as Brazil, Chile, Mexico, Spain, and South Africa, compensatory efforts during remote learning were even more elusive.

17.4 The Silver Linings

Fully acknowledging the shortcomings of the rapidly designed and implemented arrangements that were created to educate during the pandemic, and in particular their limitations to close the pre-existing equity gaps that were in many cases augmented by the different ways the pandemic affected the circumstances of children from different social classes, there is no question that teachers, education authorities, civil society organizations, and parents made considerable efforts to maintain education during the pandemic, creating numerous innovations to do so.

Furthermore, such efforts to maintain education were made in a context of imperfect and evolving knowledge about how the virus spread and with uncertainty regarding when a vaccine would be available and when the pandemic would be brought under control, which created uncertainty about whether schools were likely environments to spread the virus.

It is remarkable that education remained a priority for governments during a time when the public health emergency—and its economic consequences—placed considerable burdens on government resources and capacity. This speaks to the institutionalization of the idea that education is indeed not just a human right, but a basic need, an essential activity for children and that it had to be protected and continued. In the cases in which the national government did not prioritize supporting the continuity of education during the pandemic, as in Brazil, this was mostly over contention about jurisdiction and, in that case, state and municipal governments stepped up to prioritize education. In the United States also, the federal government failed to lead in maintaining a priority for education, but this is consistent with the fact that education is primarily a state and local responsibility. In Mexico, where the national government developed a national strategy for remote education based on television, perceived by many as insufficient, state governments supplemented it with other delivery channels including radio, online instruction, and printed materials. In other countries in which regional or local authorities have primary responsibility for education, such

as Finland, Japan, Russia and Spain, the national government took a more proactive role during the pandemic providing guidance and support to prioritize the continuity of education.

It is not always the case that education is prioritized in other contexts of emergency, such as those created by a civil conflict or natural disaster. In contrast, the efforts to generate and fund alternative approaches to educate during the pandemic were significant. By comparison to the relatively low priority that the education of refugee children, for example, receives from governments and from international development organizations, the response of governments and international agencies to the education needs of children whose education was challenged by the pandemic was of a considerably greater order of magnitude. If the same commitment and priority to educate displaced and refugee children were extended to reverting the educational disruptions caused by their displacement, their educational opportunities would be considerably greater than they are at present.

Just as admirable as governments' and societal commitment to maintaining education during the pandemic was the velocity at which alternative arrangements to educate were established, particularly during the early phase of the pandemic, the phase of immediate lock down of schools. In a matter of days and weeks alternative ways to sustain engagement with education were established, often the result of partnerships between governments and organizations of civil society and the private sector. The reliance on these novel delivery systems developed the Digi-pedagogies of students and teachers, or novel forms of co-teaching, as was the case in Finland, Norway, and Singapore. These rapidly developed efforts were, in hindsight, deficient, and the reason for the learning loss and increase in inequalities discussed earlier. But the sheer speed at which they were launched, often repurposing existing infrastructure and assets, is worthy of recognition. For example, the TV and radio-based programming deployed as a strategy for education continuity in Mexico repurposed existing digital assets from the Mexican television industry. When national initiatives to sustain education were deemed ineffective, or insufficient, subnational governments and other organizations of civil society stepped up to enhance or replace those efforts, as was the case in Brazil and Mexico. In Chile, there was an increase in social participation, through the use of online platforms, in defining what constituted quality education in the context of the pandemic, and as a result of such social dialogue, more emphasis was given to providing emotional support to students. In the United States, surveys of teachers and principals reported the greatest needs for support to be in the areas of socioemotional development and mental health, as described in Chap. 13.

These efforts in collective leadership to mitigate the education losses caused by the pandemic are also noteworthy and indicative of the shared recognition of the importance of education, and of schools, to society.

Perhaps the most remarkable expression of this institutionalization of the idea that education is not just a right, but an essential human right, is that it was not just national or subnational governments, organizations of civil society, or international organizations that stepped up to innovate in order to sustain education—teachers and parents did as well. The pandemic created a context for true empowerment of parents, communities, and teachers in devising approaches to educate children remotely. The

significance of that empowerment should not be lost even though the results of such a massive global effort in service of educating children were insufficient to preserve the right to education for all children, or to maintain the opportunity to learn that children would have had in the absence of the pandemic. The real counterfactual against which to assess these efforts should not be an idealized scenario in which a pandemic had not taken place (although one could imagine scenarios in which the public health crisis had been better managed than it was in many jurisdictions), but one without these efforts to sustain education, one in which parents, teachers, civil society, and governments had given up in trying to educate children during this most difficult and challenging moment for humanity, and had decided to put the right of education on hold until further notice. It is to be celebrated that this was not the response of most societies and governments, even if, unfortunately, for some children, it was the result they experienced in practice because what was done was insufficient to mitigate the many other ways in which the combination of poverty and the pandemic challenged them and their families. As already mentioned, the percentage of students facing that complete shut-down from education varied greatly across countries because of the different extent of poverty across countries and of differences in access to education resources and effective programs.

The urgency of addressing the many needs involved in sustaining education in the challenging context created by the pandemic also made visible the shortcomings in the institutional capacity of schools and education systems and stimulated the creation of networks and partnerships as a way to address those shortcomings and augment that capacity. The efforts to sustain education against the odds led to much collaboration within schools, across schools, between schools and other institutions, and across different government entities. These collaborations, intra-education and between education and other sectors, such as health, led to innovations and emphasized that such collaborations are essential to finding ways to address the many and multidimensional needs of students. The urgency to augment teacher capacity in Digi-pedagogies led many schools to support collaboration so that teachers could share what they were learning about teaching remotely, and often these collaborations extended across schools. In Brazil, Mexico, and South Africa, for instance, civil society organizations and universities stepped up to play a critical role supporting schools and teachers during remote learning.

The awareness that complex education challenges require a considerable level of institutional capacity and that the level of the school may be inadequate, too small, to provide appropriate responses, in addition to the realization of how capacity can be augmented by relying on school networks integrated with other institutions, such as universities or non-governmental organizations, has great value to continue to address the various education challenges that will persist during the pandemic and its aftermath.

The very visible ways in which the pandemic affected the wellbeing of all created a context to prioritize the wellbeing of students. This surfaced ideas about the need of educating the whole child, attending to their emotional well-being as well as to their nutrition, physical activity, and cognitive development. In Chile, for example, interest in socio-emotional development of children augmented during the pandemic,

as it did in other countries examined in this book such as Japan or Mexico. In turn, the recognition of the limitations of the alternative means to deliver education and in the circumstances under which students were studying stimulated a reprioritization of the curriculum, and with it, to focusing on the intended learning outcomes for students rather than on the content that was initially planned to be transmitted during a regular school year.

This focus on competencies over content, the obvious shortcomings of the extended time students were spending at home, and the evident struggles of some students to learn independently surfaced the need to think expansively about the competencies that will help students develop into autonomous adults were some of the significant silver linings of the pandemic, which might carry over into the future.

Perhaps the greatest educational silver lining of the pandemic was the awareness it created about how much schools matter, not just to deliver education, but to the functioning of society. The question of how much schools matter is a recurrent one in the fields of the sociology and the economics of education. It is a very difficult question to answer in societies in which most students attend school, for there is no relevant comparison group, reducing most comparisons to those between students who have accessed different levels or grades or education, or who have been educated in different types of schools. Most of those comparisons suffer from methodological limitations in the ability to properly account for unobserved differences between the groups with different levels of education. Learning remotely during part of the duration of the pandemic provided, unfortunately, a way to experience what it is like to try to learn with schools functioning in very limited ways, and more importantly, of what it is like for society to try to function when schools are closed. That natural experiment will help estimate how much schools matter. The evidence examined in this book makes clear that education in school is more effective in supporting learning for all children than the alternatives that were put in place for remote instruction, a view shared by educators and parents in Russia, for example. This awareness of the importance of education, coupled with the augmented visibility of the unequal conditions in which students learned, increased the salience of initiatives to advance equal opportunity. In Russia, for instance, where inequality had been a relatively absent topic on the policy agenda, the pandemic brought increased attention to this topic.

17.5 The Challenges Ahead

The educational challenges created by the pandemic are not over and may not be over even when the pandemic is under control. To bring it under control, communities and nations will need to achieve herd immunity, which requires somewhere between 60 and 80% of the world population to be vaccinated. Reaching this level of immunization requires the availability of vaccines, a willingness of at least that percentage of the population to be vaccinated, and that no new strands of the virus, more contagious and resistant to the available vaccines, develop. Based only on the

estimated supply of vaccine doses, it is unlikely that this level of immunity will be reached, for most of the world, until well into 2022. Reluctance to be vaccinated and new strands of the virus could complicate the odds of achieving herd immunity. The reality that the pandemic will linger for some time, perhaps well into 2022, means that there are three kinds of education challenges: those involved in adapting to learning and teaching during the context created by the pandemic, in some cases involving remote distancing; of teachers and students, those involved in mitigating learning loss and ensuring that students learn what they need to learn; and those involved in reverting learning loss and building back better.

Beyond the need to mitigate learning loss and to continue to educate while the pandemic is still a risk, the education impact of the pandemic on the conditions children experience at home will continue during the pandemic's aftermath, in particular for those children whose families experience the brunt of the increase in poverty, food insecurity, and other shocks and vulnerabilities resulting from low income and marginalization.

This will require addressing the mental health challenges triggered by the pandemic, and the learning gaps caused by the pandemic, while also developing the skills necessary to address the new challenges, some of them caused by or compounded by the pandemic, such as social fragmentation and violence, growing poverty and inequality, diminished employment prospects, diminished trust in government, and climate change. Education systems face the triple challenge of recovering what was lost during the pandemic, addressing education challenges predating the pandemic, and aligning their response to prepare students for new societal and economic challenges and to build a better future.

Furthermore, given a likely economic recession and the burden of the costs of addressing the pandemic, it is conceivable that these challenges will need to be addressed in a context of financial austerity, for governments as well as individuals. The pandemic itself and its impact on other challenges is also likely to stretch government capacity, and with it the capacity to focus on education.

The constraints on financial resources will increase burdens on existing staff, already exhausted from the extraordinary efforts expended in sustaining education during the pandemic, having had to learn to teach in new ways, in a short time and with limited support, and learning to face new needs among their students created by the pandemic. Even in Finland, which had made investments in supporting teachers' capacities in Digi-pedagogies prior to the pandemic, there is evidence of teacher stress and burnout. There is similar evidence of burnout in the United States, as seen in Chaps. 13 and 14, where teachers are working more under remote instruction and enjoying teaching less. In Arizona, as discussed in Chap. 14, an already acute challenge of teacher shortages could be complicated by the new stresses on teaching caused by the pandemic.

Given the considerable learning loss experienced by many students during the pandemic, learning recovery programs will be essential. To identify what needs to be remedied, assessment of students will be necessary as well as differentiated responses by schools and for different students. Targeted and personalized programs might include accelerated programs, extended learning time, dropout prevention

programs, and increasing the capacity to learn and teach online, not just as a preventative measure against possible further interruptions of schooling but to enable extended learning time and to prepare students for lifelong learning. As explained in Chap. 13, information on what students are learning will be a critical resource to support effective efforts of remediation and recovery. Beyond programs of cognitive support, the emotional trauma caused by the prolonged stress experienced by students and teachers during the pandemic, and by the losses directly experienced by some of them, will need to be addressed through appropriate interventions. For the children experiencing the effects of poverty, those experiencing food insecurity for instance, programs to attend to their nutrition and health will be essential.

One of the main challenges during remote learning and in the pandemic aftermath will be maintaining high goals and expectations for students and schools. It is evident that, during remote learning, a view of educational opportunity as learning was displaced by a view of opportunity as access to education and engagement. This represents a setback in the understanding of educational opportunity, which had slowly transitioned over many decades from understanding opportunity as access, to understanding opportunity as learning, to opportunity as learning for all, to opportunity as learning what is needed and relevant. Maintaining the focus on high level goals for education systems in a context of diminished capacity and obvious setbacks will require leadership, resources, innovation, and systems that allow continuous improvement.

Another challenge in the immediate aftermath of the pandemic will be that in response to the stress and trauma created by the frustrations experienced learning and teaching during the pandemic, there might be a rejection of assimilating the possible silver linings and opportunities; for example, refusing to integrate Digipedagogies in the curriculum or denying the severity of learning loss and refusing to implement programs to remedy it. The pandemic may have blurred the memories of the many preexisting deficiencies of schools, and this, coupled with the likely austerity, may displace the urgency to 'build back better' and impede learning any of the potentially valuable lessons resulting from the innovations put in place to educate during the pandemic. For example, in Finland there is some evidence that remote learning may have worked differently for students in different grades, for different subjects or for different students. Also, in Norway the engagement of low-achieving students declined more than for high-achieving students. Discerning under what circumstances distance learning can be most effective would be of great value to expand the capacity of the school. Similarly, the forms of teacher collaboration, with peers within and across schools, to provide just-in-time professional development to augment their capacity to teach remotely provide an opportunity to advance what we know about augmenting institutional capacity. There may be valuable lessons in those collaborations to help deepen the capacity of schools to become learning organizations. Schools as learning organizations are characterized by seven features, which appear to have characterized the practices in which several schools engaged to generate and sustain remote education:

(1) developing and sharing a vision centered on the learning of all students;
(2) creating and supporting continuous learning opportunities for all staff;
(3) promoting team learning and collaboration among staff;
(4) establishing a culture of inquiry, innovation, and exploration;
(5) establishing embedded systems for collecting and exchanging knowledge and learning;
(6) learning with and from the external environment and larger learning system; and
(7) modelling and growing learning leadership (Kools & Stoll 2016, p.3).

One of the lessons learned during the pandemic concerns the role of good central governance and support in ensuring consistent standards and closing equity gaps. Singapore and Brazil provide two extremes in a continuum from good to poor governance. Whereas Singapore adopted a whole of government approach, with appropriate coordination between the education and the health sectors, and with the education sector providing clear and consistent guidance and support to all schools, in Brazil the national government education response was mostly absent, while the public health response was ineffective. In that context, States and local authorities, teachers and parents were left to their own devices to figure out what to do, and state governments and civil society organizations stepped up to make up for the absence and ineffectual governmental response. Finland and Japan provide also examples of effective national government response, coordinating a national education strategy of education continuity, while Mexico and Spain provide examples of a national strategy of remote learning, judged ineffective by States and local jurisdictions, who stepped up to make up for the absence of an effective national strategy. In countries where the central state had limited jurisdiction over schools and did not assume an effective compensatory role, such as Chile, Spain, Russia, and the United States, there were greater inequalities in the education strategies adopted across regions and schools.

To conclude, the COVID-19 pandemic created an education crisis which robbed many students of the opportunities to learn what they were expected to and caused them to lose skills they had already gained. These losses were unequally distributed among different students and education systems and, as a result, if they are not reversed, the outcome of the pandemic will be increased educational inequality, from which economic and social inequality will follow. These will further complicate other social challenges, which predated the pandemic but were exacerbated by it: the challenge of increasing productivity, reducing poverty and inequality, increasing civic cohesion and trust in institutions and democratic governance, and addressing issues such as climate change or intra and interstate violence. This impact of the pandemic will most certainly extend beyond the period studied in this book, corresponding to the first year since the pandemic was declared in March of 2020. The pandemic is not under control yet and some of the ways in which it is impacting education, for instance through a new financial austerity for individuals and for education systems, will continue in the immediate aftermath.

Despite these obvious challenges, it is not a foregone conclusion that we should accept these terrible education losses and their dire outcomes as destiny. It is likely that programs can be developed and implemented to mitigate and revert the education losses, and perhaps even to address preexisting education challenges as we seek to 'build back better' as part of the response to the pandemic. To do this, governments could rely on the unprecedented social mobilization around education and on the innovation dividend that was generated to sustain education during the pandemic, on the extraordinary efforts and collaborations among parents, teachers, education administrators, as well as across the public and private sectors, levels of government, and nations. If there was ever a time when collective leadership was necessary, indeed essential, in education, this is it. We conclude this book in the hope that it contributes to that process of leading together, from all corners of the world, so we can build back better and restore opportunities for children and youth to gain the skills to build a more inclusive and sustainable world.

Reference

Kools, M., & Stoll, L. (2016). *What makes a school a learning organization? Paris: OECD* (Education Working Paper No. 137).

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