Fernando M. Reimers *Editor*

Schools and Society During the COVID-19 Pandemic

How Education Systems Changed and the Road Ahead

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Chapter 1
What Can We Learn from the Educational Effects of the COVID-19 Pandemic?

Fernando M. Reimers

Abstract This chapter provides a conceptual foundation for the book, discussing how the COVID-19 pandemic created an opportunity to re-examine the relationship of schools to society. The chapter introduces the study, examines the educational effects which could have been expected from the pandemic, reviews some of the available empirical evidence about such effects, introduces each chapter, and discusses the theoretical implications of the study.

The question of how schools relate to society, in the dual sense of how they contribute to society and how they are affected by societal structures, processes and changes, is central to the understanding of educational institutions. The study of how societies and schools shape each other involves questions such as: Can schools make societies more prosperous, equitable or democratic? What are the similarities, and the differences, in how different societies educate their children? How much have schools changed over time and is the pace of change greater or smaller than the pace of change of other societal institutions? The COVID-19 pandemic created the opportunity to add these questions to that list: how did schools respond to the changes created by COVID-19? How will schools mediate the impact of COVID-19 on the lives of those who lived through the pandemic?

Moments of rapid change, either in schools or in society, are singularly interesting to advance our understanding of the relationship between schools and society because they help us examine questions such as: How do sudden societal changes translate into new demands on schools? How do schools respond to such new demands? For instance, what happens to schools during transitions in regime type such as from autocratic to democratic government, or during periods of economic crisis, or during the creation of new political boundaries defining nations, or because of political or societal conflict and volatility? These sudden and significant changes can help expand our understanding of how societal change shapes schools. Conversely, the understanding of how schools shape societies is advanced as we

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study how education reforms reshape societal structures and practices. When they teach students who have previously been denied an education, for instance, such as when they teach girls and women in societies where they have been previously denied this right; or when they bring together children who are otherwise segregated by other social structures or norms; or when they teach subjects which challenge established social ideas, such as the relationship between human actions and climate change, or the challenges that racism and discrimination present to life in a democracy.

The global public health crisis created by the pandemic of COVID-19, starting in 2020, created a significant sudden transition in the societal context of schools. It is hard to overstate the gravity of this global crisis which, as of August 23, 2023, had infected 769,774,646 people and taken the lives of 6,955,141 (World Health Organization, 2023).The pandemic shocked populations the world over, impacting not just health, but many other social institutions. The functioning, finances, and priorities of families, workplaces, and governments were all changed, mostly for the worse. These shocks created by the pandemic are interesting for the study of the relationship between schools and society because of how rapidly they spread throughout the globe, impacting virtually all humans. In a matter of weeks, human populations had to make adjustments to their lives to preserve them. For many people such adjustments were significant, reducing their participation in many of the activities that were previously habitual: circulating in cities, congregating and interacting with others, shopping for food, working, earning a living, or having to adjust to the impact of illness or loss of life of relatives. Each of these changes to the social context in which schools operate affected schools –creating new demands for students and teachers and families and altering the support families could provide students and teachers to carry on their work. In addition, there were direct changes in how schooling was delivered resulting from the limitations placed in the ability to congregate caused by the pandemic. The scale and magnitude of these contextual changes created by the pandemic are therefore of special interest to further our understanding of how schools and societies relate to each other, capitalizing on the extreme changes brought about by this rare event. Among the questions of interest are: did these changes influence the societal priority given to education? Did they influence the priorities, goals, and purposes of schools? Did they influence how schools worked, what they teach, and how they teach it? Did they impact the organization of schools and school systems? What do these changes teach us about educational institutions as systems, about their capacity to respond to changes in their external environment, and about their capacity to coherently integrate the various components and processes that are involved in their functioning? Which of these changes were short-lived and which were long lasting?

The goal of this book is to further such understanding of how the COVID-19 pandemic transformed education systems. We take stock of how educational opportunity changed in various education systems around the world because of the pandemic, and we examine what education systems and societies learned from the educational changes that took place during the pandemic. Our focus is not just on the first order effects, the changes brought about by the pandemic during the moment

of the crisis when schools closed, but on effects three years after the onset of the pandemic.

This work is the product of the Global Education Innovation Initiative, a global collaborative created to advance understanding of how to make education systems more relevant to the needs of a changing world. We study how education systems seek to stay relevant in the face of societal changes, how schools change as societal goals change, and how schools try to support societal change. Since 2014 we have conducted a series of comparative studies of large-scale system level change: a study of national reforms to broaden the goals of the curriculum (Reimers & Chung, 2016), a study of large-scale programs of teacher professional development to support teachers in effectively teaching to a broader set of educational goals (Reimers & Chung, 2018), and a study of ambitious education reforms around the world (Reimers, 2020). When the pandemic broke out in 2020, we turned our focus to researching how it was impacting educational opportunity, conducting the first comparative education study of education during the pandemic (Reimers 2022). That first study, conducted between May and December of 2020, focused on the immediate effects of the pandemic. The results presented in this book build on that earlier work, this time looking at medium term impacts of the pandemic three years into it. In these pages, we seek to discern what were the educational consequences of the pandemic, what did governments do sustain education during the pandemic and with what results and, finally, what did education systems learn from it all.

As in our previous studies, we rely on mixed methods to write national case studies that look in depth at such impact, integrating and synthesizing various sources of evidence, trying to create an integrated and complete overview of how the relationship between schools and society fared during this global health crisis. We attempt to take a long view in our analysis, asking not just what was lost and what was disrupted, but also what was gained. Each case study, presented in this book as a chapter, was conducted by a team of scholars with deep knowledge of the system they were studying. We met as a group several times during the research, first to agree on our goals and methods and subsequently to discuss drafts of the chapters. Final revisions of the chapters benefited from feedback provided by authors of other chapters and from each author being able to read the complete manuscript.

As with previous studies of the global education innovation initiative we have focused on national education systems that are diverse in size, level of economic resources, and degree of institutionalization. The reason such diversity is important is because the relationship between schools and society is shaped by existing structures, policies, and capacities that differ across systems. We do not claim that the education systems in these countries are representative of those in any other group of countries, but they reflect some of the variability which characterizes the diversity of education systems around the world. The case studies refer to Brazil, Chile, Finland, Japan, Mexico, Norway, Portugal, Russia, Singapore, Spain, South Africa, and the United States. This study focused on the formal education systems in the compulsory cycle of education, emphasizing public schools. We did not examine higher education, technical education, pre-school education, adult learning, or non-formal education.

In this introductory chapter we conceptualize how the pandemic could have been expected to impact education systems, review what previous research has revealed about the effects of the pandemic on education - including some silver linings - introduce the studies in the book and theorize the significance of this knowledge for the understanding of the relationship between schools and society.

What Educational Impacts Could We Have Expected from the Pandemic?

Conceptually, it could be expected that the COVID-19 pandemic would shock the entire ecosystem that supports school attendance and learning. We can think of this ecosystem as an interlocking arrangement of various subsystems, all interacting with each other: students in families, in classrooms, and in schools, schools in systems, and national systems in interaction with each other and with international agencies as part of a global education system.

The pandemic would have impacted the students themselves, their well-being, their engagement with school, their learning, their opportunity to interact with peers and to access the stabilizing routines of the school day, and their own sense of purpose, agency, and outlook on life. It would also have impacted students' parents and families, including their own health and wellbeing, their interactions with students, the demands they made of students, their support for students' engagement with schools and learning, and their own engagement with teachers and other school personnel. The pandemic would also have impacted teachers, their own well-being, sense of purpose and agency, their own ability to engage with students effectively, to support their learning and their own opportunities for professional development, and in some cases also their own satisfaction with and commitment to the profession. Particularly affected would have been pedagogies which involve students in experiential learning, or which require group work, as the shift to remote teaching, with limited professional development, would have led most teachers to default to a content transmission mode. Similarly, the pandemic would have impacted school leaders and administrators, their own priorities for what schools should teach, the way in which they related to students and to teachers, their ability to carry out functions such as assessment, or to stay the course with ongoing efforts of improvement. The very organization of schools would have been impacted, beginning with reorganizing how to deliver instruction within the constraints created by measures to contain the spread of the virus, but also the processes to make decisions, the way to relate to other organizations such as technology companies or community partners. At a systemic level, the pandemic would have impacted high level priorities, financing, the use of information to make decisions, labor-management relations, the focus on delivery, and the ability to achieve coherence across the multiple systemic priorities, challenges, and ongoing efforts of improvement. Education systems are usually nested in complex arrangements of inter-governmental relations –across

different levels of government, and across sectors—and those too would have been impacted by the pandemic. Finally, the global education system, too, was impacted by the pandemic. This is a construct to refer to the many transnational organizations, inter-governmental, non-governmental, commercial, that interact with education systems, or school networks, such as the United Nations Agencies, the bilateral international assistance agencies, transnational education charities or advocacy organizations, multinational education companies, etc. Table 1.1 summarizes these expected impacts of the pandemic on the education eco-system.

It is hard to imagine a more disruptive set of forces of the entire education eco-system than those unleashed by the pandemic. Furthermore, those effects unfolded in at least three-time frames:

Table 1.1 Ecological model of education actors and sub-systems impacted by COVID-19

Actor and sub-system	The pandemic would have impacted…
Students	Their Well-being, their engagement with school, their learning, their opportunity to interact with peers and to access the stabilizing routines of the school day, and their own sense of purpose, agency, and outlook on life
Families	Their health and wellbeing, their interactions with students, the demands they make of students, their support for students' engagement with schools and learning, and their own engagement with teachers and other school personnel
Teachers	Their Well-being, sense of purpose and agency, ability to engage with students effectively, to support their learning and their own opportunities for professional development, and in some cases also their own satisfaction with and commitment to the profession
Pedagogies	Their ability to involve students in experiential learning and group work, as the shift to remote teaching, with limited professional development, would have led most teachers to default to a content transmission mode
School leaders	Their priorities for what schools should teach, the way in which they relate to students and to teachers, their ability to carry out functions such as assessment, and to stay the course with ongoing efforts of improvement
School systems	How to deliver instruction within the constraints created by the measures to contain the spread of the virus, but also the processes to make decisions and how to relate to other organizations such as technology companies or community partners High level priorities, financing, the use of information to make decisions, labor-management relations, the focus on delivery, and the ability to achieve coherence across multiple systemic priorities, challenges, and ongoing efforts of improvement
Inter-governmental relations	Education systems are usually structuted as complex arrangements of inter-governmental relations – Across different levels of government (national, state, local), and across sectors —And those too would have been impacted by the pandemic
The global education system	This is a construct to refer to the many transnational organizations - inter-governmental, non-governmental, commercial - that interact with education systems or school networks. They include the United Nations agencies, the bilateral international assistance agencies, transnational education charities or advocacy organizations, multinational education companies, etc

- First Order Results of the Crisis: immediate changes such as the suspension of in-person instruction, the creation of alternative arrangements to deliver instruction and support to students and families, or to evaluate student knowledge and decide how to promote students from one grade to the next.
- Medium Term Effects: those taking place after the immediate onset of the crisis, the efforts to remediate the learning loss caused by the pandemic, to regain a sense of normalcy after the pandemic, the adjustments to the instructional process to respond to the impacts of the pandemic on students or teachers.
- Long Term Effects: those that seem more or less permanent in the various elements of the eco-system described earlier, such as the increasing familiarity with the use of online technology, or the changes caused by loss of talent, caused by teachers and administrators who ended their education careers.

These multilevel and multi-staged educational effects of the pandemic define a total shock to the education ecosystem, impacting students the world over. Understanding the impact of the pandemic requires therefore understanding its systemic and global impact, not just examining such impact in a piecemeal manner, in a singular group of students or teachers, or in a narrow set of outcomes.

The pandemic of COVID-19 was the most significant shock to education systems globally since public education was first 'invented' as one of the institutions of the enlightenment (along with public research universities and with democracy). This shock interrupted learning opportunities for most children, in many cases during a very protracted period. There is reason to be concerned about the long-term consequences of such educational losses because they will diminish the life opportunities for individuals and their ability to contribute to their communities. However, just as important were the efforts exerted during the pandemic by educators, communities, organizations of civil society, governments, and international organizations to sustain educational opportunity, and the efforts they continue to exert to recover opportunity in the face of the grave challenges created by the pandemic. These efforts created and deepened new and significant forms of collaboration and of educational innovation among teachers, among organizations of civil society and government agencies, and among international organizations, and reopened important conversations about the purposes of schools and the priorities they should pursue. In some cases, the responses to the pandemic reshaped ongoing efforts of improvement, and stimulated efforts to transform education systems to address preexisting shortcomings.

In some respects, the crisis created by the pandemic brought the whole world together in an attempt to sustain the powerful idea - universally adopted in the wake of World War II, another global tragedy - that all people have a right to be educated. Paradoxically, a plague that brought about much loss in educational opportunity, and that made painfully visible the gravely unequal conditions in which different children fared during the crisis, also renewed the hope that education was the cornerstone to build a more just and sustainable world. It reminded us that the global education movement comprises not just governments, but local and transnational actors, teachers, students and communities, and that the process of educational

change depends not just on top down government initiatives, but on bottom up innovation and on lateral collaborative initiatives. As the chapters in this book will show, these responses varied across countries, as the impact of the pandemic was mediated by existing structures, priorities, resources, and efforts of improvement.

What Is Known About the Educational Impact of the Pandemic?

Relative to the total educational impact of the pandemic just hypothesized, what is known to date is relatively little, and rather piece-meal. Much of what has been studied has focused on the impact of the pandemic on school access and learning in a few subjects, on student well-being and mental health, and on a few countries. Much of what is known is limited because it draws on national level analyses, for instance of learning loss. In doing so, it ignores the considerable heterogeneity of responses at the subnational level and the variation in implementation of national mandates and policies - including variation in efforts to mitigate the impact of the crisis or to recover learning loss. Such analysis of 'policy intent' ignores also the policy responses of individuals such as parents and teachers, obviating the fact that many of them chose not to, or were unable to, attend school or engage with alternative modalities of education. Another limitation of that knowledge is that much of it adopts a 'black box' approach to computing learning loss by calculating 'averages' that obviate the important contexts which define existing systems: their levels of preparedness to teach remotely, the levels of professionalization of their teaching force, their institutional capacity to coherently implement policy, the levels of resources, or ongoing efforts of improvement. As a result of these limitations, such studies accounting for the extent of learning losses can offer little guidance on how systems should be transformed either to address the learning loss, to prevent it in the future, or to address preexisting shortcomings. Research on learning losses doesn't really tell us much about what education systems 'learned' during the pandemic, other than confirm, with more precision, what could have been expected as the pandemic broke out.

In March 2020, soon after the World Health Organization declared COVID-19 a pandemic, a group of almost 200 system level education authorities and administrators from around the world were surveyed in a cross-national survey inquiring about the anticipated effects of the pandemic. Most respondents acknowledged that the plans were insufficient and anticipated great difficulty in continuing to educate for as long as in person instruction was interrupted (Reimers & Schleicher, 2020a). Furthermore, respondents foresaw increased educational inequality as the result of the differential effectiveness with which the plans to educate during the pandemic would be reaching poor and socially marginalized children. The survey revealed that few education authorities had, at that moment, a coherent education strategy

(or any strategy for that matter) for how to educate during the pandemic. These early predictions proved, for the most part, accurate.

For example, several reports have calculated the number of days in person instruction was suspended in each country, though they do not account for the fact that many subnational levels, and schools, followed such guidelines to varying degrees. UNESCO, for instance, created a dashboard noting how many weeks schools had been fully or partially closed in each country during the years 2020 and 2021, based on reports from national governments. Analysis of those data show that there were differences across regions in the duration of school closures, and that schools were closed for longer periods in low-income countries than in high income countries, with closures lasting about half the time in high income countries than in low- and middle-income countries (UNESCO, 2023). Four UNESCO-UNICEF-World Bank-OECD cross-national surveys carried out between 2020 and 2022 revealed considerable differences in country education responses by level of income of the country and by world region. In the first two years since the outbreak of the pandemic, schools were closed, on average, 20 weeks; however, school closures were much longer in South Asia (35 weeks) and Latin America (37 weeks) (UNESCO, UNICEF, the World Bank and OECD, 2022).

An early review of research on the global educational impact of the pandemic noted that most studies focused on higher education. The review of the studies focused on elementary and secondary education concludes that the shift to remote learning constrained instruction, led to learning loss, challenged assessment and experiential learning, and affected the psychosocial well-being of students. Those effects were compounded by inequalities in the distribution of resources and in the social background of students (Tan, 2023).

There have been empirical studies of the learning loss[1] that took place during the pandemic. A review of 40 studies on learning loss and dropout conducted in 2022 found that most of the evidence indicated learning loss among poorer students and increased dropout for older students. The evidence on learning loss was more consistent for high income countries (Australia, Belgium, Germany, Italy, Netherlands, South Africa, Switzerland, United Kingdom, United States) and more heterogeneous in low- and middle-income countries (Bangladesh, Brazil, Burkina Faso, Burundi, Côte D'Ivoire, Ghana, India, Kenya, Mexico, Pakistan, Senegal, Uganda, and Zambia) with some studies showing no learning loss and lower learning loss than predicted. The evidence on dropout rates pertains primarily to low- and middle-income countries (Brazil, Ethiopia, Ghana, India, Kenya, Liberia, Malawi, Nigeria,

[1] The term 'learning loss' refers not just to what students 'forgot' during the pandemic, but to the knowledge and skills they did not learn, during the pandemic. It has been typically calculated by comparing the level of skills and knowledge on curriculum-based assessments of students in a given grade, with equivalent assessments administered to students in the same grade in years prior to the pandemic. While the implicit assumption of most of those studies is that such loss is a reflection of the inadequacy of the educational arrangements made to teach during the pandemic, it should be considered that many other conditions changed in the lives of students during that period which could have also impacted their learning.

Pakistan, Senegal, Sierra Leone, Uganda) plus South Africa, and all those studies showed increases in dropout rates, ranging widely from 1% to 35% (Moscoviz & Evans, 2022).

A recent meta-analysis of such studies shows that, by the end of 2022, there were still relatively few methodologically sound studies: only 42 studies covering 15 countries - Australia, Belgium, Brazil, Colombia, Denmark, Germany, Italy, Mexico, Netherlands, South Africa, Spain, Sweden, Switzerland, UK, and the United States - were found to be accurate and effective, with most studies covering high income countries (Betthauser et al., 2023). That review reports that the available studies are not adequate to examine variation of school closures within countries, across grade levels, or with respect to different modes of instruction (Ibid). The average learning loss across studies and grades is equivalent to a third of a school years' worth of learning (0.14 standard deviations). Looking at the date of those estimates, the review concludes that learning deficits occurred early in the pandemic and did not close or widen over time: "This implies that efforts by children, parents, teachers and policy makers to adjust to the changed circumstance have been successful in preventing further learning deficits but so far have been unable to reverse them" (Ibid). Most of the studies reviewed show that inequality increased during the pandemic and that the learning deficits are larger for math than for reading. The review does not identify variation in learning deficits across grade levels but finds larger learning deficits in middle income countries (Brazil, Colombia, Mexico, and South Africa). Another study of school enrollments before and after the pandemic in 12 countries in Latin America estimates that by the end of 2020 enrollment rates were 2% lower than in 2019 (Bracco et al., 2022, 3).

In the United States, assessments carried out by the National Center for Education Statistics show that student performance in math and reading assessments in grades 4 and 8 declined during the pandemic. For mathematics, in fourth grade declines were greater for the lowest performing students, and differed across states, with declines in 43 states but no changes in 10 states. In the eighth grade all but two states showed declines. In grade four the greatest declines in math were for Black and Hispanic students, for Native Americans, and for those children of two or more races. For grade 8, similar declines were observed across all groups. Declines were much lower for reading, and greater for the lowest performing students in grade 4. There was more variation across states, with 30 of them showing declines and 22 of them no changes in grade 4, and 33 of them showing declines and 18 no changes in grade 8. The percentage of students who began the school year behind grade level, which averaged 36% before the pandemic, increased to 50% in 2021–22 and to 49% in 2022–23. The same study shows variation across schools in how they were attempting to recover losses from the pandemic: 88% were using diagnostic assessments to identify student needs, 81% were using remedial instruction, 29% were extending class time on targeted areas, 19% extended the school day, 85% identified academic needs with formative assessment data, 59% tailored accelerated instruction, 10% extended the school year and 4% extended the school week (Carr, 2023).

Longitudinal studies focusing on reading and math, following cohorts of students in grades 3, 4, 5, 6, 7 and 8, in the United States show that most of the learning

loss occurred in the academic year 2020–2021. Learning gains in the next academic year, 2021–2022, were like learning gains before the pandemic, modestly helping to recover some of the learning loss. However, learning gains during the year 2022–2023 were lower than gains before the pandemic, and progress in closing pandemic learning loss stalled. At the end of the 2022–23 academic year substantial achievement gaps remained, relative to pre-pandemic levels, and they had increased during the academic year. The authors of the study estimated that recovering learning loss would require, on average, 4.1 months of additional schooling in reading and 4.5 months in math. They also projected that the amount of additional instructional time necessary to recover learning loss would be higher for the students in higher grades (Lewis & Kuhfeld, 2023).

Variations in learning loss across the United States are likely the result, not only of education policies, but of contextual factors including how the health pandemic affected the population of different states. An analysis of variation across states in health policies and outcomes finds important differences across states in infections and deaths, related to poverty rates, years of education of the population, levels of interpersonal trust and percentage of the population who are racial minorities, and to state health protective mandates (Bollyky et al., 2023, 1341).

Besides these differences across contexts, it was not just the deficient approaches that different schools, sub-systems, and systems adopted to educate during the pandemic, and the compounding effects of the pandemic on income and health that limited the educational opportunities of poor children. The segregation of students of various social strata into different streams also magnified the losses for impoverished children, with poor children often segregated into schools of low quality and with less resources to mitigate the impact of the crisis.

Furthermore, the educational responses of governments around the world to the pandemic varied widely, with some governments prioritizing education and school openings, while others kept schools closed for much longer periods of time. These differences also manifested across varying education authorities and levels of government within the same countries. These differences, across countries and jurisdictions, persisted over time as some governments eventually implemented programs to support teachers and students, whereas others did not. These differences reflected policy choices, levels of institutional capacity, and contextual differences resulting from varying levels of resources and infrastructure such as the percentage of the population vaccinated (Reimers, 2021).

In Guatemala, for example, the government advocated a differentiated municipal education strategy during COVID-19, including teaching in person, teaching in person with various distancing requirements, or teaching fully remotely - depending on the spread of COVID-19 in each of the 341 municipalities in the country. An analysis of the relationship of these various education strategies to varied educational outcomes shows that the municipalities with greater exposure to COVID-19 experienced greater dropout rates, lower promotion rates, and greater shifts from private to public schools (Ham et al., 2023, 3).There were also variations across schools and systems in what goals they prioritized for education systems. In the State of California (USA), for example, the implementation of a new science curriculum,

which had been adopted in 2013, was delayed during the pandemic, as most districts tended to deprioritize science in favor of English and Math (Gao & Severance, 2022).

Our earlier comparative study of the educational effects of the pandemic in Brazil, Chile, Finland, Japan, Mexico, Norway, Portugal, Russia, Singapore, South Africa, and the United States concluded that the education 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 opportunities to learn (Reimers 2022). The study showed different educational consequences of the pandemic by country and social class. The mechanisms through which the pandemic influenced educational opportunity, augmenting inequality, included both the responses of the education system as well as the direct health and economic impact of the pandemic on students, teachers, families, and communities. The main direct pathway limiting education comprised the interruption of in-person instruction, the duration of such interruption, and the adoption of a variety of education modalities during the suspension of in person schooling of varied efficacy. A secondary direct pathway included the constraints on education spending caused by the reduced fiscal space resulting from the unforeseen need to finance the health and economic response to address the health crisis. This finding is congruent with a recent cross-national study which documents that the pandemic diminished levels of education spending, particularly in low and lower middle-income countries (UNESCO, UNICEF, the World Bank and OECD, 2022). Other pathways influencing students, their families, and teachers directly included the impact on health as well as the impact of the pandemic on income.

Our earlier comparative study also showed that education systems were in varying stages of readiness to sustain educational opportunity in the face of the disruptions such as those caused by the pandemic. Those differences included access to connectivity at home and skills to learn and teach online, as well as the level of resources, capacities, and institutional structures needed to meet gaps during the emergency. Similar gaps were observed in teachers' capacity. Institutional fragmentation and school segregation contributed to augmenting inequality.

This comparative study and other studies of the effects of the pandemic show that the story of the educational effects of the pandemic is not a single story. It is a story largely mediated by country of residence –as national policy choices and institutional capacity and resources shaped the duration of school closures and the effectiveness of policy responses—and by social class –as the social circumstances of students shaped the educational institutions they had access to and the support they received from parents and from their schools. The educational impact of the pandemic proved then to be a quintessential 'Matthew effect', a term coined by sociologist Robert Merton (1968) that draws on the parable of the talents to describe how unequal initial conditions often compound inequalities:

> For unto everyone that hath shall be given, and he shall have abundance: but from him, that hath not shall be taken away even that which he hath (— Matthew 25:24–30).

As has been mentioned, the disproportionate educational impact of the pandemic on marginalized children was compounded by the impact of the pandemic on other

factors influencing their lives, such as health, family income and impact in their communities. A recent expert report of the Board on Children, Youth, and Families (BCYF) of the National Academies of Sciences, Engineering, and Medicine (the National Academies) reported a multifaceted and disproportionate impact of the pandemic on minoritized children:

> Over the course of the COVID-19 pandemic, Black, Latino, and Native American people have experienced a disproportionate burden of cases, hospitalizations, and deaths in comparison with their White counterparts. Families with low incomes have also been disproportionately affected by the pandemic. Perhaps the most pronounced disparities are among bereaved children: children of racial and ethnic minorities account for 65 percent of those who have lost a primary caregiver because of COVID-19, with Native American children 4.5 times as likely as White children to have lost a parent or caregiver, Black children 2.4 times as likely, and Latino children 2.0 times as likely (Hillis et al., 2021) (National Academies of Science, 2023, 2).

The same report concludes that the pandemic saw increases in dysregulating behaviors, decreases in adaptive behaviors and self-regulation, increases in concern about the present and future and in unhappiness and depression, lack of connection and anxiety, and increases in parents' stress, household chaos, mental health challenge and parent-child conflict (Ibid, 3).The report also documents decline in early childhood program enrollments, with those programs serving racial minority, low-income families, and families that did not speak English at home experiencing the largest enrollment declines. Declines in enrollment in elementary and secondary education, increases in chronic absenteeism, and declines in high school graduates enrolling in college were also recorded (Ibid, 3). The same report shows "increases in diabetes type 1 and type 2 among children during the pandemic, increase in maternal mortality rates, increases in the proportions of children with symptoms of depression and anxiety; increased rate of substance overdose deaths among adolescents, a majority of which were fentanyl related, with highest rates among Native American youth; increases in household food insecurity and childhood obesity; and delayed preventive care and immunizations, with lower rates of both for Black and Latino children." (Ibid, 4).

The differences between the disruption that the pandemic caused to educational opportunity in the Global North and the Global South mirror differences in addressing the public health crisis, and in the prospects of social and economic recovery. As a result, students in the Global South experienced the combined effects of the disruption on their schools, on their health systems, economies, and home circumstances. In addition, education systems in the Global South were already experiencing more serious education challenges of access, low effectiveness, and relevance prior to the pandemic, all while their education systems experienced greater funding gaps. The resulting interactions of these various processes caused the most significant setback in educational opportunity to occur in the Global South.

Several simulations have been developed of the long-term economic impact of such setbacks. A simulation of the impact of a full year of learning loss, conducted in the early months of the pandemic, estimated it as a 7.7% decline in discounted GDP (Hanushek & Woessmann, 2020). More recently, the World Bank and other

organizations estimated the cost of the education disruption as $21 trillion dollars in lost lifetime earnings in present value over time for the current generation of students, or 17% of today's GDP (World Bank et al., 2022). Learning loss has also been estimated to translate into a decline in intergenerational education mobility, and thus in an increase in inequality (Azevedo et al., 2023, 3). These declines in education mobility would worsen preexisting trends in Upper-Middle Income and High-Income countries and reverse improvements in mobility for Low-Income and Lower-Middle Income countries (Ibid, 3).

The long term impact of the pandemic will also be shaped by the way in which the pandemic influences public spending. In countries with high levels of external indebtedness –which increased in order to address the short term economic and public health needs created by the pandemic—the repayment of principal and interest on this public debt will limit available public resources for education. A recent World Bank study estimates that a 1% increase in external debt will translate into a 1.4% decline in education spending per child. In Low- and Middle-Income countries, a 5 percent increase in external debt would lead to a $12.8 billion decline in education spending. This is equivalent to all official development assistance to education in 2021 (Miningou, 2023, 1).

In making education more unequal, the pandemic diminished the capacity of schools to be an avenue of hope for the poor, providing their children with more opportunities than they had in life, and to disrupt the intergenerational transmission of poverty. But paradoxically, in making such inequalities and vulnerabilities visible, the pandemic also stimulated new thinking about education, new partnerships, and increased attention to the importance of education and of equity in educational opportunity. This renewed hope in education, and the innovation dividend generated during the pandemic, will become increasingly important to address the deep education crisis accelerated by COVID-19.

Beyond Learning Loss. The Education Silver-Linings of the Pandemic

It should not be surprising that the pandemic produced an educational calamity - arguably the worst crisis in the history of public education. After all, shocks such as natural disasters or wars typically interrupt the functioning of schools and the lives of students, negatively impacting their learning. What should really surprise us is that during a global crisis of such intensity, there would be so much interest, effort, and collaboration to sustain educational opportunity, even if those efforts did not achieve their intended results. International development and civil society organizations demonstrated extraordinary leadership focusing on the importance of sustaining education during the crisis and offering various forms of support. These efforts made the global education movement - which emerged when education was included as one of the rights included in the universal declaration of human rights adopted in

1948 - visible as a movement of *collective leadership* that includes governments at all levels, international governmental and non-governmental organizations, civil society organizations, teachers, students, and parents. They also reminded the world that education is more of a *whole of humanity* effort than a government effort.

International organizations such as UNESCO, UNICEF, the World Bank, and the OECD increased inter-agency coordination, resulting, among other things, in four waves of surveys to monitor the government responses to the pandemic through various policy frameworks that offer guidance to respond to the pandemic. These and other international development organizations launched specific COVID-19-related initiatives during the pandemic to support governments in sustaining educational opportunity. The United Nations convened a global summit on education in September of 2022 to call for a renewed priority to education in the wake of the pandemic. At the summit, UN Secretary General Antonio Guterres issued a vision statement calling for a deep transformation of education as an urgent political imperative of our collective future. He underscored the crisis represented by the large number of children excluded from education and in the lack of relevance of education - challenges that were aggravated by the pandemic. He also called for a reimagining and transforming of education so that individuals would be empowered to build a more just, sustainable, resilient, and peaceful future (Guterres, 2022).

These themes echoed those included in *Reimagining Our Futures Together: A New Social Contract for Education,* UNESCO's international commission report on the futures of education, chaired by Ethiopia's president Sahle-Work Zewde and written during the pandemic. This report calls for a new social contract of education which guarantees each person a quality education throughout life, for a bold reimagining of the culture of education, and for a transformation of curriculum, pedagogy, the teaching profession, the organization of educational institutions, and the ecosystem of organizations that support lifelong learning. To achieve such transformation, the report proposed four catalytic actions: broad and inclusive societal dialogue that would empower each person as a changemaker, more educational research and innovation, greater involvement of universities with the rest of the educational ecosystem, and a reimagined international cooperation architecture (UNESCO, 2021).

Similarly, national, and international civil society organizations as well as businesses, marshaled resources and innovations to support education. Governments, at the local, state, and national levels, advanced novel ways to sustain education. The latest interagency report documenting governments' responses to the pandemic based on responses collected between May and July of 2022 shows both decisive steps in sustaining education and heterogeneity in governments' responses. For instance, half of the countries took special measures to re-enroll all students in school, such as automatic re-enrollment, mobilization campaigns, and cash transfers for poor families. Most countries implemented programs to provide support to students affected by the pandemic. Over four in five countries implemented programs of teacher professional development to support remote instruction. About 70% of the countries continued programs to assess student learning, but less than half conducted studies of the impact of closures on learning outcomes, and only

half of those assessed non-cognitive skills. Half of the countries re-prioritized curriculum to help students recover learning loss. About two thirds of the countries implemented programs to provide psychosocial and mental health support to students (UNESCO, UNICEF, the World Bank and OECD, 2022).

The World Bank developed a framework (the RAPID framework) to guide education responses to recover from the school closures which recommended reaching every learner and enrolling them in school, assessing student learning regularly, prioritizing foundational learning, increasing the efficiency of instruction, and supporting the development of psychosocial health and wellbeing (World Bank, 2023). A study of the education policies of 60 low- and middle-income countries in response to the pandemic showed that all of them had put in place programs to support learning during and after the pandemic, even though only a minority of them had followed the guidance of the RAPID framework in doing so. For example, only 27% had implemented targeted instruction programs and only 15 percent had implemented structured pedagogy programs, which are part of the framework recommended by the Bank (World Bank, 2023, 12).

The educational impact of the pandemic should thus be evaluated not just with respect to the counterfactual of a world in which COVID-19 would not have infected 10% of the world population and taken the lives of 1% of those infected - as it had up until August of 2023 - but also against a counterfactual in which education could have been ignored until the health crisis could be brought under control. The fact that education was not ignored while 769,774,646 people were sick and 6,955,141 people were dying, and that it was in fact one of the top priorities of educators, education authorities, governments, and societies, speaks to the normalization of the idea that education is indeed a human right and to the crystallization of the global education movement.

It is also misguided to estimate the educational effects of the pandemic by reference to some standard of education before the pandemic, because educational opportunity before the pandemic was barely adequate. Too many children failed to learn, and too many learned knowledge and skills of little consequence to improve their lives or to contribute to improving their communities (World Bank, 2018). In 2015 the global community had agreed to an ambitious set of development goals, including the goal of "Ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all". An analysis of progress against the targets set for this goal between 2015 and 2020 shows most countries were not making sufficient progress to achieve their set targets. Just 29% of countries were on track to achieve their goals in upper secondary completion rate and only 43% were on track to achieve their goals in preschool enrollment, and most of these were high income countries. A third of the countries did not reach their targets for education public expenditure (UNESCO, 2023, 32).

It is therefore necessary to keep in mind that such impact happened to education systems which were, in many ways, failing students. Not only did systems fail through the low levels of school efficacy in instructing the basic literacies of reading and math, but their low levels of relevancy in defining too narrowly the outcomes of schools and in failing to educate the whole child, addressing cognitive as

well as socio-emotional dimensions of development. If the pandemic made those preexisting failings more visible, and if it caused governments to increase the priority of addressing them, the 'learning loss' which undoubtedly took place should be weighed against this positive impact on the system.

Paradoxically, in disrupting the functioning of schools and education systems and upending the rules that ordinarily govern such institutions, the pandemic created the occasion to rediscover the importance of having clear and relevant school purposes, as well as experimentation with new and different ways of teaching and learning, as well as novel forms of organization and collaboration which resulted in pedagogical and curricular innovations. The fact that education systems had to respond to a rapidly changing context was a salutary development for the many systems in which schools were too insulated and unresponsive to their social contexts. While these efforts were insufficient to prevent the educational effects which have been documented, these 'positive outliers' - or the programmatic and policy interventions to educate during the challenging context created by the pandemic - are of interest because of what they can teach us about the capacity of educational institutions to innovate during extremely challenging contexts. They represent potential solutions to pre-existing deficiencies of the education system, contributing to more ambitious aspirations to transform education.

The significant disruption, or unprecedented scale, represented by the pandemic tested the organizational resiliency of education and upended many of the bureaucratic norms that govern education systems. Such disruption of education systems created a rare event which suspended the normal boundaries, constraints, and roles that regulate the behavior of individuals in education organizations. In this way, the practices and interactions among educational actors and institutions created new forms of collaboration and led to novel ways to teach and learn. Even as the pandemic created other, new constraints and challenges –resulting for example from the social distancing norms instituted by public health authorities to contain the velocity of the spread of the virus, or from inadequate resources or infrastructure to rapidly shift to digital platforms— it was precisely the existence of those new challenges and constraints, together with the temporary freedoms from ordinary bureaucratic rules and routines, which created the occasion for educational innovation. Recognizing this innovation dividend of the pandemic is essential because recovering from the pandemic will require not that we find a way to bring education systems to their levels of pre-pandemic functioning, but to greater levels of effectiveness and relevance. Such an education renaissance will require innovation.

During the period between April 2020 and June of 2021, my colleagues in the Global Education Innovation initiative and I, in partnership with colleagues in several international education institutions, conducted a series of studies of some of the innovations which had been generated during the pandemic. The first was an effort to document emerging efforts of education continuity during the early phase of school closures, beginning in April of 2020. Between April and July 2020, we wrote 45 case studies of innovations to sustain educational continuity. Our approach was inspired by some of the basic tenets of appreciative inquiry, an approach to action research and organizational change that consists of identifying and leveraging areas

of strengths in organizations, to support further improvement (Cooperrider et al., 2004). The 45 case studies covered education responses to the crisis in thirty-four countries, from municipal, state, and national governments, from school networks, and from private and public institutions. The countries we covered varied in terms of resource level, infrastructure, size, and other characteristics. They included: Belgium, Brazil, Chile, Colombia, Egypt, Finland, France, Ghana, India, Japan, Jordan, Kenya, Latvia, Lebanon, Liberia, Mexico, Netherlands, New Zealand, Nigeria, Pakistan, Peru, Russia, Samoa, Sierra Leone, Spain, Taipei, Turkey, Uganda, Ukraine, United Kingdom, United States of America, Uruguay, Vietnam, and Zambia (Vincent-Lancrin et al., 2022).The case studies included initiatives such as using radio, printed materials, educational television, and a variety of digital platforms, with and without internet, to sustain educational opportunity. They also included initiatives to develop the capacities of teachers to teach remotely, and to support parents as they helped their children learn at home. Some of them focused on novel ways to assess student knowledge remotely. The 45 innovations focused on a range of educational outcomes, from maintaining students' engagement with learning – in various ways such as reviewing previously covered material- to covering new content in academic subjects and supporting the well-being and socio-emotional development of students. Most of these cases address competencies beyond cognition, recognizing perhaps the salience of socio-emotional well-being during the crisis and the foundational nature of attending to such well-being before any other form of learning could be productive. Among the conditions which enabled the innovations examined in these cases were preexisting networks across schools, and in some cases across schools in different countries. The cases also illustrate the power of collaboration, as the innovations involved, in many cases, collaboration among teachers and with other stakeholders: members of the community, civil society organizations, and the private sector. To some extent, the case studies illustrate collective leadership in which various stakeholders come together to collaborate for the purpose of improving the performance of the education system.

Such was the case, for instance, in the State of Sao Paulo in Brazil which developed in a matter of weeks a multi-media center, which delivered education content via TV, radio, an app and printed materials, to sustain educational continuity during the period of school closures as a result of establishing partnerships with private providers and organizations of civil society. Of particular interest is the fact that this invitation to share leadership and responsibility extended by the State Ministry of Education to some of the most influential business leaders in the State, was followed by donations of services from telecommunication and education companies, which allowed the creation of the center, amounting to 0.6% of the annual education budget of the State. Several different organizations collaborated in providing access to various elements of the education platform to students, for example, police officers visited the homes of the most marginalized students to deliver printed materials, and donated cloud computing time to host the technology platform. Many of the cases involve using digital platforms to support teacher collaboration - among teachers and administrators, within and across schools, and of education resource digital networks - in sharing practices they had found effective in teaching remotely, and in

problem solving together. While there is nothing novel in the creation of professional learning communities or in shared repositories of education resources, the pandemic immersed teachers in the use of digital platforms to teach and to participate in such professional learning communities.

Between June and December of 2021, we conducted a second study of 31 educational innovations generated during the pandemic, this time examining to what extent those innovations aligned with the recommendations of UNESCO's most recent report on the Futures of Education. Our intent was to examine whether the context of disruption created by the pandemic had allowed innovation dividends aligned with transformational aspirations (Reimers & Opertti, 2021). These thirty-one case studies of innovations focused on innovations to support learning from home. Some of them involved multimedia platforms or other technological platforms to support students, teachers, and parents, while others focused particularly on socio-emotional wellbeing and development of students or on helping teachers develop new skills to engage students, to provide them feedback, or to design learning experiences. Most cases are multidimensional – for example, including a platform to deliver digital content- but also support teachers to develop digital pedagogies. A number of these innovations focused on developing student competencies and providing them with more agency over their learning. These case studies shared several distinctive elements. They all supported student-centered learning, socio-emotional development and wellbeing, teacher, and principal professional development, and family engagement in schoolwork.

Chapters of This Book

The twelve chapters that follow present comprehensive accounts of the educational impact of the pandemic in different countries. They examine the immediate education responses to the pandemic, as well as the enduring policy and programmatic changes. The chapters investigating Spain and South Africa show examples of 'policy learning' as ongoing reform efforts were informed by what was learned during the pandemic. In other countries–such as Finland, Japan and Singapore– the pandemic created awareness of needs and opportunities not sufficiently addressed by policy. For example, the pandemic brought a focus to the needs of marginalized groups of students and students with special learning needs, as well as highlighted the necessity of addressing mental health and well-being of students and teachers. While none of the cases offer a comprehensive account of the pandemic's impact on the entire education ecosystem, they offer important insights that go well beyond the simple accounting of learning loss that characterizes much of the research on this topic to date. Importantly, the case studies focus not just on what policy attempted to do, but on implementation and the challenges to executing it. The cases make visible what the pandemic changed, what was gained, and the emerging new priorities in response to the pandemic.

In Chap. 2, *Brazil. How two municipalities achieved above-average results in reading in the early years of elementary school during the COVID-19 pandemic,* Carlos Palacios and Alicia Bonamino examine the considerable learning loss in literacy that early grade students in ten states in Brazil experienced, losses which were greater in the earlier grades. They also highlight how such loss varied across municipalities and how some municipalities were able to achieve greater gains in recovering learning loss than others. The authors attribute the heterogeneity in learning losses to variations in resources across state and municipal networks and their ability to create effective forms of remote education, as well as attribute these gains to preexisting education policies and programs. An analysis of learning loss and learning gains during the pandemic in two municipal networks serving primarily socioeconomically disadvantaged students, which had made considerable gains in literacy prior to the pandemic, shows that those networks experienced relatively lower levels of learning loss and recovered faster. These networks had invested in the capacity of mid-level bureaucrats (pedagogical coordinators) to support literacy instruction prior to the pandemic, creating systems to support formative school visits that focused on specific literacy instruction. The three components of those systems were: (1) a system of monitoring and supporting schools, which relied on student assessments, frequent formative visits to school with an instructional focus as well as tutoring, and effective family engagement to support students in literacy acquisition, (2) student assessments, which were used to support formative visits to schools and the development of structured instructional materials, and (3) supplemental instruction from teachers, in the form of tutoring offered to students individually or in small groups.

In Chap. 3, *Post-pandemic crisis in Chilean education. The challenge of re-institutionalizing school education*, Cristián Bellei and Mariana Contreras provide a comprehensive overview of the educational impact of the pandemic on education, which included learning loss, diminished student attendance, increased mental health challenges for students and teachers, increases in school violence, and increased teacher absenteeism and abandonment of the profession. All these effects reinforced pre-existing inequalities in educational opportunities for students from different socioeconomic backgrounds. The authors explain that these outcomes are the result of the deficient policy initiatives to sustain education during the pandemic and to return to in person instruction once the health pandemic had been contained. They are also the result of the fragmented nature of the highly decentralized and privatized school system and a lack of trust in public institutions and the government during the crisis. They characterize their findings regarding education as a process of the deinstitutionalization of education, which is also associated with the weakening of the teaching profession.

In Chap. 4, *The Switch to Distance Teaching and Learning in Finland During the COVID-19 Pandemic (2020–2022) Went Technically Well but was Emotionally Challenging*, Katariina Salmela-Aro and Jari Lavonen show that, while the brief transition to distance learning in Finland was relatively successful due to prior teacher professional development in the use of technology and the availability of devices and connectivity, there was still learning loss, reduced engagement, and an

impact on well-being for students, as well as for teachers and principals. In particular, the most marginalized groups were most affected. There was also increased stress and burnout among teachers and principals. The pandemic did, however, contribute to the development of digital competence for students, digital pedagogical skills for teachers, and innovation in teacher collaboration.

In Chap. 5, *What Japan's education has lost and gained after almost succeeding in preventing the spread of COVID-19 infection and guaranteeing academic achievement*, Kan Hiroshi Suzuki discusses Japan's comprehensive approach to mitigate the educational impact of the pandemic and support of students and teachers during remote teaching, while also providing guidance to schools, including protocols for testing and vaccination to contain the spread of the virus. Several government agencies implemented extensive monitoring of the conditions of students and families during the pandemic, which informed timely policy responses to support children. In response to evidence of mental health challenges and increases in suicides, policymakers recognized the important role of schools in supporting well-being and attempted to create policy that minimized the duration of school closures. As a result of these measures, students experienced no learning loss during the pandemic, but student mental health still deteriorated (furthering trends before the pandemic) and student absences from school increased. The chapter also discusses how the mental health of parents deteriorated during the pandemic –related in part to job insecurity–which translated into worsened parent-child relationships and increases in child abuse. Finally, the chapter highlights some silver-linings from the pandemic, in terms of improved learning environments and interpersonal relationships.

In Chap. 6, *Understanding potential causes of learning loss: Teachers´ perceptions regarding educational challenges during the COVID-19 pandemic in Mexico*, Sergio Cárdenas, Ignacio Ruelas, and Edson Sánchez examine how teachers experienced the various components of the remote learning strategy. These reports show that teachers were insufficiently prepared and lacked support to effectively rely on digital pedagogies or respond to inequalities in access to technology among their students, relying on lowest common denominator didactic approaches. Teachers describe the barriers they faced during the pandemic as a function of insufficient access to technological equipment, inadequate parental support for students, differences in access to connectivity between teachers and students, and constraints facing teachers to access, professional development or to connect with parents. As a result, it is likely that education during the pandemic augmented pre-existing inequalities.

In Chap. 7, *The Fragility of the Norwegian Policy Response: How Relying on Digital Infrastructure and Local Autonomy Led to an Increase in Inequality in Education*, Marte Blikstad-Balas explains that the lack of a national response and government support to teachers during the pandemic, and a tradition of reliance on teacher professional autonomy, left many teachers inadequately supported to effectively teach their students remotely. National policy prioritized minimizing school closures, but there was variation across schools in the extent to which they could operate in person because of local health conditions–including infection of their

own teaching staff and students. The lack of adequate professional development to transition to remote teaching resulted in many students receiving very traditional forms of direct instruction, focused on content transmission. This extreme reliance on local schools and individual teachers to decide how to teach during the pandemic resulted in an increase in inequality of educational opportunity during the years 2020 and 2021, with students spending considerable time studying unsupported. There was a lack of effective approaches to educate vulnerable students during the pandemic. Plans to recover learning loss are still largely dependent on teachers' choices and capacity. Despite these challenges, the authors found increasing awareness of the limits of using technology purely for content transmission, emphasizing the need for effective professional development and fostering greater parental involvement in education. Additionally, some small groups of students may have benefited from remote instruction more than they would have otherwise (students who are bullied, or chronically ill, or who received high quality support at home).

In Chap. 8, *Reframing Schools: What Has Been Learned and Remains in the Post-COVID-19 Period* Estela Costa and Mónica Baptista discuss the main programs of education continuity promoted by the government in Portugal during the two phases of the pandemic, the subsequent plan of learning recovery, and how teachers made sense of these initiatives. The chapters show that the main programs of digital resources to support distance learning and professional development, which were adopted in the first phase of the crisis, have continued and were incorporated in more recent policies designed to foster school autonomy in the implementation of the curriculum. The recent policies include a significant reorganization of the academic year and strengthened teacher collaboration in instruction, greater support for student well-being, and some changes to student assessment. Teachers responded positively to these initiatives. The learning recovery plan contains three pillars: teaching and learning, supporting education communities and evaluation and monitoring. The teaching and learning pillar integrates the initiatives which were developed for digital learning and to support effective family engagement during the pandemic. Teachers see these changes as having improved the utilization of time and instruction and see the innovations which were developed during the pandemic as positive and continuing.

In Chap. 9, *Pandemic lessons: Story of cooperation and competition in Russian education*, Anastasia A. Andreeva Moscow, Diana O. Koroleva, Sergei G. Kosaretsky, and Isaak D. Frumin examine the responses of the Russian education system to the pandemic. In response to the absence of a well-developed integrated distance learning infrastructure at the beginning of the pandemic, regions and schools exercised considerable autonomy in adopting digital strategies, which led to great heterogeneity including local innovation and facilitating contextualization but also contributed to inequality in outcomes. The onset of the pandemic fostered collaboration between schools and EdTech companies, including schools adapting and adopting the products developed by companies. As the pandemic progressed, the government attempted to foster a consistent, national infrastructure for distance learning and vetting of educational content delivered remotely, but the implementation of this strategy failed. The government then attempted to regulate

the relationships between schools and EdTech companies. Lastly, this chapter examines what lessons about remote learning were incorporated by schools following the pandemic, discerning three patterns of response, and discussing their shortcomings.

In Chap. 10, *Singapore's endemic approach to education: Re-envisioning schools and learning*, Oon Seng Tan and Jallene Jia En Chua examine how effective intergovernmental coordination among education, health, and other sectors, as well as reliance on science and a commitment to social responsibility, mitigated the impact of COVID-19 in Singapore, and hence in education. The two periods of remote learning were brief, facilitated by previous plans to introduce technology in school, teacher professional development, and distribution of devices to students who needed them. While specific evidence is lacking, there appears to have been a minimal impact of the pandemic on learning loss. There is more evidence, in contrast, of the impact on mental health of students, youth, and teachers. The chapter discusses some silver-linings of the pandemic, in the form of greater reliance on digipedagogies following the pandemic, greater attention to socially disadvantaged students, and greater attention to mental health needs of students and teachers. These new priorities impacted the examination system. The chapter concludes by highlighting future challenges the education system should address in a post-pandemic world.

In Chap. 11, *Reforming education in times of pandemic: The case of Spain*, Alejandro Tiana-Ferrer examines how the impact of the pandemic coincided with the process of development and implementation of a substantial education reform across the country. The suspension of in person instruction was minimal compared to other countries, and several programs supported the distribution of devices and connectivity. The pandemic heightened attention to wellbeing and mental health, and to pedagogical and organizational challenges such as an overcrowded curriculum and lack of teacher collaboration. It also revealed conditions of vulnerability for socially marginalized students, the poor, immigrants, and students with disability. The recognition of these issues fed back into the process of development of the reform and allowed them to be incorporated into the post-pandemic policy agenda.

In Chap. 12, *Fragility compounded: the state of the South African educational system in the aftermath of COVID-19*, Crain Soudien, Vijay Reddy, and Jaqueline Harvey examine the efforts of the South African government to mitigate the educational impact of the pandemic. That impact was mediated by the structural inequalities of the system - a legacy of the apartheid era - which resulted in large class and racial inequalities in educational opportunity. Inequalities among school type compounded the impact of school closures and the ensuing learning loss, all augmented by the need to allocate public funds to address infrastructural requirements created by the emergency. Despite the efforts of government, labor unions, parents, and civil society to sustain education during the pandemic, schools serving the most disadvantaged students lost gains made in previous years in enrollment, attendance, and learning. In contrast, more privileged schools were able to mobilize structures and systems which maintained standards of education delivery, and even improved it. The chapter then uses a framework developed by UNESCO's International

Commission on the Futures of Education to assess the post-pandemic responses of the education system. They conclude that, while opportunities for deeper transformation were missed, the pandemic influenced education policies and structures in ways that made them more responsive to the needs of the most vulnerable students. For instance, it provided support for teachers, increased the coherence of the system, trimmed the curriculum, and closed the digital divide. The chapter concludes, however, highlighting the limitations of South Africa's institutional capacity to implement these policy initiatives, and the absence of specific implementation plans to execute them.

In Chap. 13, *Leaning into the Leapfrog Moment: Redesigning American Schools in a Post-Pandemic World,* R. Lennon Audrain and Carole G. Basile discuss the evidence on the substantial declines in student achievement that took place in the United States during the pandemic, the increases in teacher dissatisfaction, and in mental health challenges for students and teachers. The chapter also discusses that, while considerable funds have been apportioned for learning loss recovery, those are being used for programs and solutions which are short-term and miss the structural foundations of the deficiencies of the American education system. The authors argue that those foundations include a model of teaching that is outdated, and that sees teachers doing their work siloed in their classrooms. The chapter then reviews the Next Education Workforce model to reimagine teaching as a collaborative endeavor, developed at the University of Arizona, and discusses emerging evidence on the implementation of such an approach.

Sustaining Hope in Education

The COVID-19 pandemic created an education crisis which robbed many students of the opportunities to learn what they were expected to, caused others to lose skills they had already gained, and pushed some students out of school entirely. These losses were unequally distributed among different students and education systems and, as a result, the pandemic will result in increased educational inequality if the losses are not reversed. Without proper intervention, economic and social inequality will surely follow in and across these contexts.

But, for all that was lost during the pandemic, much was gained, too. The pandemic made visible how important education and school attendance were for students – not just for their learning, but for their well-being. As the stabilizing routines of schools were disrupted, it became visible to parents, educators, administrators, and other stakeholders that the development which takes place in schools is multidimensional. The attempts to maintain educational opportunity during the pandemic with limited resources and preparation were fraught with immense difficulties. As this made visible the benefits of in person schooling, some governments and subnational jurisdictions endeavored to return to in person instruction as quickly as possible. These efforts of education systems to respond to a sudden change in the social context made visible the many ways in which the conditions under which different

children learn are unequal. It also made more salient the inability of education initiatives to offer equal opportunities, given the differences in such preexisting educational and social conditions. The chapters in this book also underscore how various education systems differed in two forms of resiliency: first in the resiliency to sustain educational opportunity in the face of a shock such as a pandemic, (as was the case in Finland, Japan, or Singapore) and secondly the resiliency to recover from the shock of the pandemic (as was the case with some municipalities in Brazil).

The crisis created by the pandemic also demonstrated that well-being is the foundation of learning and prioritized the importance of mental health and socio-emotional well-being. It also caused a reexamination of which learning outcomes matter, and a more critical stance towards crowded curricula that focus more on content than on the competencies that students gain. The challenges to engage and teach students during the pandemic also necessitated a renewed interest and attention on the effectiveness of instruction and underscored the importance of providing support to teachers; via professional development, but more fundamentally rethinking how their work is structured and how they collaborate with others. The crisis created by the pandemic also showed that innovation was possible - albeit in short order and with many limitations - through a shared commitment of many to preparing students to have a better future, even as humanity faced a crisis of death and disease. Much of this innovation involved using technology - first to teach remotely, but also to support personalization, teacher collaboration, and more effective teacher engagement.

To return to the questions about the relationship between schools and society which we can learn from the COVID-19 pandemic, the first lesson we learned is that each teacher, school, network, and system faced the pandemic with a unique set of capacities and constraints that were intertwined in their country's history. These factors thus shaped how the pandemic impacted them. Some teachers were better prepared than others to face the crisis, as were some students; some systems were better prepared than others to face the crisis, as were some schools.

Across these differences, however, the pandemic caused many actors, teachers, parents, governments, and other actors to realize the importance of schools and of learning, and to commit extraordinary effort and resources to sustain educational opportunity. In facing the shortcomings of these efforts, the pandemic heightened awareness of the many pre-existing constraints to educate all children and elevated the priority of education and of serving students facing the greatest constraints. The pandemic also helped rethink the goals of education, creating greater awareness about the need to address the well-being and mental health of students, and about the need to focus on learning rather than on delivering content. Teachers and schools demonstrated extraordinary capacity to innovate during the pandemic, even if many of these efforts were insufficient and short lived. The pandemic revealed that education systems are open to their external environment, albeit with limited capacity to coherently integrate the various components and processes that are involved in their functioning - especially during a crisis. The pandemic will likely have long lasting effects, causing greater attention to the need to reimagine education institutions and to support the teaching profession.

Paradoxically, the education crisis created by COVID-19 made evident that education is our best hope to support humanity in building a better and more sustainable future at a time when this could not be more necessary. Three resources will be critical to sustain those efforts: (1) societal commitment to educational transformation, bolstered by the necessary institutional support and financial resources, (2) continued collective leadership, and (3) educational innovation. Drawing on Albert Einstein's discussion of the dangers of atomic weapons "a new type of thinking is essential if mankind is to survive and move toward higher levels." (Einstein, 1946). For all it took away, the pandemic may well have unleashed these three resources in abundance.

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Chapter 2
Brazil. How Two Municipalities Achieved Above-Average Results in Reading in the Early Years of Elementary School During the COVID-19 Pandemic

Carlos Palacios and Alicia Bonamino

Abstract This chapter discusses the impacts of distance learning during the COVID-19 pandemic on students' reading development in the early years of elementary school in Brazil and analyzes educational policies that may have mitigated part of these effects. The research focuses on reading assessments carried out in 2021 by CAEd/UFJF and Associação Bem Comum in ten Brazilian states. Although the assessments revealed major challenges for students' literacy in many states, some municipalities managed to mitigate part of the effects of the pandemic, achieving above-average results. Two municipalities that reached rates of fluent students in reading higher than the average were selected for survey and analysis: Machados-PE and Coruripe-AL. This paper examines the public policies of these networks to identify and understand the actions that contributed to their unique performance in the assessment.

Brazilian Context and Pandemic Impacts on Literacy

Brazil was one of the most affected countries by the COVID-19 pandemic. In October 2022, the country registered more than 680,000 deaths caused by the coronavirus, second only to the United States (WHO, 2022). The high rate of contamination and deaths led schools to interrupt their face-to-face activities for long periods. This, along with a lack of coordination by the Federal Government, caused Brazil to suffer hugely negative impacts on public education in addition to the devastating loss of human life.

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In March 2020, when cases of COVID-19 began to grow in Brazil, most state and municipal education networks interrupted their classroom activities and migrated to remote teaching. During this period, each Education Department adopted their own COVID response policies with little support from the Ministry of Education. This resulted in discrepancies between response effectiveness in larger, wealthier districts and smaller municipalities with less resources. Networks like São Paulo and Pernambuco were able to develop teaching platforms and distribute electronic devices to their students in a timely manner while others lacked the necessary support and access to technology needed to implement distance learning (Amâncio, 2020; Soares, 2020). Although some districts attempted to return to in-person learning in the last months of 2020, schools in Brazil did not reopen across state and municipal networks until the second half of 2021. Therefore, most Brazilian schools were totally or partially closed for more than a year.

The negative impacts of such a long period of distance learning without federal coordination, in a country with so many social inequalities, have been speculated. There is evidence of a greater impact in the early years of elementary school, compared to the final years and high school. In the initial stage of schooling, children have less autonomy to study and learn, requiring a closer presence and monitoring teachers, which was not possible during most of 2020 and part of 2021.

In March 2021, the Center for Public Policies and Education Assessment of the Federal University of Juiz de Fora (CAEd/UFJF) carried out the first Brazilian pandemic impact survey on basic education, through an assessment applied to a sample of students from fifth and ninth grades of elementary school and third grade of high school, in São Paulo State Education Department. The survey confirms that the initial years tend to have been more affected, revealing a greater distance, for the fifth year of elementary school, between students who started the 2021 academic year and those who were concluding in 2019.

Table 2.1 presents the data from this survey regarding proficiency in Portuguese. For a better understanding of these numbers, Table 2.2 outlines the proficiency standard ranges.

Table 2.1 Portuguese proficiency comparison in 2019 national assessment and in the 2021 sample survey in São Paulo Education Department

School year	Saeb[a] Proficiency 2019 (End of school year)	Proficiency Sample Survey 2021[b] (Beginning of the school year)	Proficiency Difference (Sample Survey 2021 minus Saeb 2019
Portuguese			
5th year of elementary school	223.4	193.8	−29.6
9th year of elementary school	261.6	250.4	−11.2
3rd year of high school	279.1	268.2	−10.9

Source: CAEd/UFJF

[a]The Basic Education Assessment System (Saeb) is a national assessment applied throughout Brazilian territorys. The proficiency scale used in this assessment is the same used in the São Paulo state assessment system and in the 2021 sample survey

[b]The margin of error is 1.2 points

Table 2.2 Performance standards of the São Paulo assessment system for Portuguese

	5th year of elementary school	9th year of elementary school	3rd year of high school
Portuguese			
Below basic	<150	<200	<250
Basic	150 a < 200	200 a < 275	250 a < 300
Adequate	200 a < 250	275 a < 325	300 a < 375
Advanced	≥250	≥325	≥375

Source: SÃO PAULO

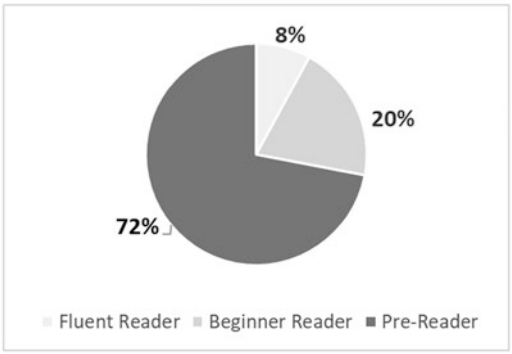
According to the Brazilian National Common Curricular Base (BNCC), students must complete their initial literacy in the second year of elementary school to be consolidated and deepened in the following years (Brasil, 2017). A drop in Portuguese learning in the initial years of schooling can make students complete the first cycle of elementary school without attaining proper literacy, given that many districts adopted automatic approval of student matriculation during the pandemic.

Fluency is a fundamental dimension of literacy acquisition. Students are identified as fluent when they can read a developmentally appropriate text without major difficulties, enabling them to understand and interpret the content's meaning. The inability to gain literacy without fluency has given it greater prominence in large-scale educational assessments seeking to monitor the effectiveness of public policies for developmentally appropriate literacy benchmarks.

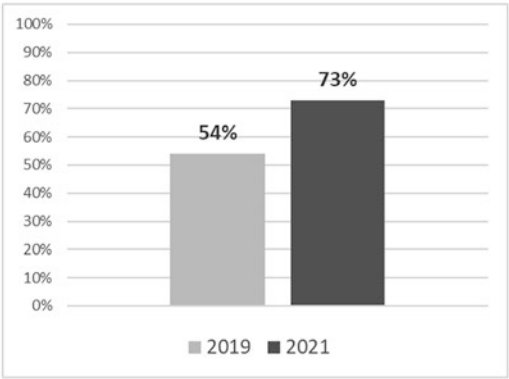
Between August and October 2021, CAEd/UFJF, together with Associação Bem Comum, applied a census-based fluency assessment to second year elementary school students from state and municipal schools in ten Brazilian states: Alagoas, Amapá, Espírito Santo, Goiás, Mato Grosso, Mato Grosso do Sul, Maranhão, Pernambuco, Piauí, and Sergipe. The results confirmed the impact in the early years of elementary school already pointed out by the sample survey in São Paulo: more than 72% of students were in the Pre-Reader profile, which corresponds to the lowest standard of reading development.

By way of comparison, in 2019, CAEd/UFJF applied the same type of reading fluency assessment in four of these states and identified approximately 54% of students as Pre-Readers. The states that participated in this 2019 assessment were Amapá, Espírito Santo, Pernambuco, and Sergipe. If we consider only these states in 2021, we verify that the result is almost identical to that of the ten states: around 73% (Graphs 2.1 and 2.2).

What does an increasing literacy gap mean for student learning? To understand better, this paper will define exactly what reading fluency is and how it presents itself in each = three reader profiles: Pre-Reader, Beginner Reader, and Fluent Reader.



Graph 2.1 Distribution of students by reader profile in ten Brazilian states in the 2021 reading fluency assessment. (Source: CAEd/UFJF, 2021)



Graph 2.2 Comparison between the percentage of students in the Pre-Reader profile among the four states that participated in the reading fluency assessment in 2019 and 2021 – Amapá, Espírito Santo, Pernambuco, and Sergipe. (There are some methodological differences between the two assessments. In 2019, there was also a profile referring to students who were unable to do any type of reading, which was below Pre-Readers. In 2021, there was no such division. Therefore, to make the comparison possible, students who were not able to do any reading in the 2019 assessment were included in the Pre-Reader profile. Source: CAEd/UFJF, 2021)

Reading Fluency and Its Assessment

As we have already mentioned, the development of reading fluency refers to the ability to read a text without having to try to recognize the words, in such a way that the effort in reading is focused on understanding its content. For this to be possible, it is necessary to master three fundamental aspects of this process: precision, automaticity, and prosody. Precision is related to a student's ability to correctly identify written words so that graphic signals are converted into sound signals. It is only possible to achieve good reading accuracy if there is a full mastery of the alphabetic principle and competence to articulate combinations of sounds. The second aspect, automaticity, concerns the fluidity of the reading process. In addition to being accurate in its reading, it is necessary for students to do it at the appropriate time, without

great effort -that is, automatically. Finally, prosody is a term used to describe the tonic and rhythmic aspects of speech. Emphasizing terms properly, raising and lowering one's voice in appropriate places, using interrogative intonation in a question or imperative in an exclamation, are all skills associated with prosody.

According to Rasinski (2004), fluency is the bridge between decoding and understanding texts. It cannot be confused with decoding, as it is precisely the process through which decoding begins to produce different meanings for the reader (Chard et al., 2006). Therefore, it is essential that fluency is consolidated and automated so that the student can perform a reading in which they do not spend cognitive effort on word recognition processes, but on strategies for building meaning of and in the text. Borges da Silva (2018) highlights that to be an efficient reader, the student must be able to instantly recognize and identify words and then connect them into sentences to produce meaning. In the same way, Rasinski (2006) points to the close relationship between fluency and comprehension: the greater the fluency in reading, the greater the understanding of what is read. Therefore, identifying the degree to which students in the literacy process can read fluently is extremely relevant, as it is a fundamental indicator of how close they are to completing their initial literacy.

The reading fluency assessment conducted by CAEd/UFJF and Associação Bem Comum verifies a student's ability to read sets of dictionary and invented words -called pseudowords – , automatically and accurately, in each time frame. Students are then asked to answer questions related to the content of a short text.[1] The student's reading is recorded for later analysis by a teacher, who will identify the performance as a Pre-Reader, Beginner Reader, or Fluent Reader. In order to improve the accuracy of literacy intervention within these reading levels, the Pre-Reader category is divided into six different levels of development. This makes it possible to verify how much each student still needs to progress to advance to the next profile. Table 2.3 presents a brief description of each of these profiles in the context of the CAEd/UFJF reading fluency assessment.

Based on these definitions, a student who is still in the Pre-Reader profile, from the first to the sixth level, will have great difficulties interacting with any type of text. If students do not advance beyond the Pre-Reader stage by the end of their second year of elementary school, their learning will be severely impacted, as reading practice is a fundamental condition to develop new skills and successfully advance over time. The results of these 2021 fluency assessments point to a challenging situation in the post-pandemic context: more than 72% of students in the Pre-Reader category were about to finish their second year of elementary school reading no or just a few words. One can imagine the challenges that these children will face if they are promoted, under these conditions, to the next school grades, in which they will have to deal with more complex texts and of diversified genres.

To prevent an entire generation of children from having their education compromised and their normal development disrupted, managers, school principals, and

[1] As it requires a more complex interpretation, prosody is not included in the calculation of student performance in the CAEd/UFJF fluency assessment.

Table 2.3 Description and detailing of reader profiles in the reading fluency assessment

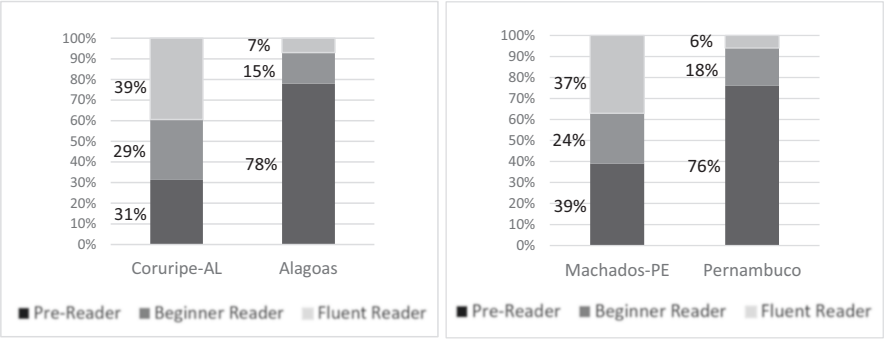
Reader profiles - Reading fluency assessment	
Pre-reader	Students without the minimum conditions to perform oral reading, even with isolated words. Level 1: student did not read. Level 2: student said letters, syllables or words that were not included in the item. Level 3: student named isolated letters. Level 4: student omitted, substituted, or inserted phoneme or syllable in words. Level 5: student spelled/syllabled the words. Level 6: student read up to 10 words and 5 pseudowords.
Beginner reader	Students who read words and short text sequences, but in a paused way, in a syllable reading pattern.
Fluent reader	Students who have already overcome the challenges related to decoding words and, therefore, read more automatically.

Source: (CAEd/UFJF, 2021)

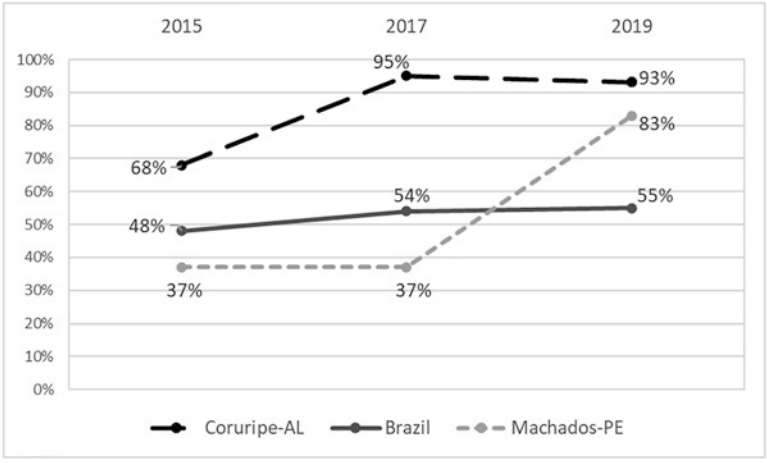
teachers need to advance efficient literacy policies and practices focused on the early years of elementary school. A look at education departments that achieved above-average performance on this 2021 reading fluency assessment can be a good starting point to identify which practices were effective. We selected two municipal education departments that stood out in the 2021 fluency reading assessment: Coruripe, in the state of Alagoas, and Machados, in Pernambuco. The following sections of this paper will address the profile of these two networks, their performance indicators, and the policies and strategies that we consider partly responsible for their achievements.

Coruripe (AL) and Machados (PE) Educational Indicators

Although Coruripe and Machados are both small education networks, their significant differences in the number of enrollments must be considered throughout our analysis. Machados is a municipality located just over 107 km from Recife, capital of Pernambuco, and has a population of approximately 16,000 inhabitants (IBGE, 2020). According to the 2021 School Census, the education system includes 12 schools - 8 rural and 4 urban- with a total of almost 2000 students (INEP, 2021a). Coruripe is a municipality on the coast of Alagoas, located just over 87 km from the capital of Maceió, with a population of over 57,000 inhabitants (IBGE, 2020). The 2021 School Census indicated that the education system includes 20 school units- 13 rural and 7 urban - which serve approximately 13,500 students (INEP, 2021b). In the early years of basic education, we found above-average results for Machados (PE) and Coruripe (AL) in the 2021 reading fluency assessment in the second year of elementary school, and in the historical series of the National Basic Education Assessment System (Saeb) Portuguese assessment given in the fifth year of elementary school. Graphs 2.3 and 2.4, and 2.5 present Portuguese and reading indicators in each municipality as compared to state and national averages.



Graphs 2.3 and 2.4 Distribution of students by reader profile in Coruripe (AL), compared to the state average, Alagoas, and in Machados (PE), compared to the state average, Pernambuco, in the reading fluency assessment – second year of elementary school – 2021. (Source: CAEd/UFJF, 2021).



Graph 2.5 Percentage of students in the municipal networks of Coruripe (AL) and Machados (PE) with an adequate (In this case, "adequate" considers the Adequate and Advanced performance standards proposed by Soares (2009) for the Saeb proficiency scale. Therefore, in the 5th year of elementary school, for Portuguese, performances above 200 points on the Saeb scale are considered adequate) standard of performance in Portuguese in Saeb, compared to the average of municipal networks in Brazil – fifth year of elementary school - 2015, 2017 and 2019. (Source: INEP, 2020)

The above-average performance of Coruripe (AL) and Mchados (PE) on more than one assessment in the early years of elementary school, in different formats and applied at different times, leads us to conclude that these two networks have successfully implemented public policies that mitigated literacy lost during the pandemic. Although the reading fluency assessment results in the second year of elementary school, in Coruripe (AL) and Machados (PE), were negatively impacted

by the pandemic, their unique performance above state averages shows that these networks were able to overcome some of the pandemic challenges and promote more efficient literacy acquisition for their students. When observing the performance of these same networks at Saeb, we notice that in 2017 and 2019, Coruripe (AL) and Machados (PE) made significant progress in Portuguese in the fifth year of elementary school. This thesis is reinforced when we verify that the two selected networks do not belong to privileged socioeconomic contexts, which highlights the role of educational policies implemented in recent times. When we analyze the social indicators, we see that Machados (PE) has a Human Development Index (HDI) of 0.578, considered low, while Coruripe (AL) has an HDI of 0.626, considered medium (PNUD, 2010). In addition, both municipalities are at Level III of the Socioeconomic Level Index (Inse), below the national average of IV (INEP, 2021a).

We have presented the definition and importance of reading fluency in the literacy process and for student development. We also showed how this dimension of learning was impacted during the period of remote teaching during the COVID-19 pandemic with students from the second year of elementary school. At the same time, municipalities such as Machados (PE) and Coruripe (AL) managed to overcome some obstacles and achieve results well above the general average. The next section examines the public policies that contributed to the relatively high performance of both networks.

Public Policies in Machados (PE) and Coruripe (AL)

To survey and analyze the public policies of Machados (PE) and Coruripe (AL) education networks, we interviewed professionals from the education departments[2] of both municipalities. The research focused on educational managers, who according to the specialized literature make up the so-called middle-level bureaucracy (Cavalcante & Lotta, 2015). These actors and institutions from subnational levels of government gain central importance, especially in the Brazilian federative context, from the broad decentralization of most public educational policies (Oliveira & Abrucio, 2018). They are professionals who act as a link between education secretaries who make policy decisions and those who implement educational policies – in general, teachers and school principals. By acting as an intermediary, education managers occupy a prominent role in the development and implementation of public policies - requiring them to have both technical and political expertise (Cavalcante & Lotta, 2015, p. 32–33). These professionals manage plans, put actions into practice, and negotiate with different – and sometimes conflicting – demands of the central administration of the district and the school. In fact, one of the policies that we identified in the two municipalities as fundamental for achieving good results was the system of monitoring and supporting schools through constant visits, which

[2] Referred to throughout the paper as, “the Department”.

is only possible thanks to the work of these professionals who work between districts and schools.

There are three public policies that we consider fundamental to the success of the education departments of Machados (PE) and Coruripe (AL): (1) system of monitoring and supporting schools; (2) assessments; and (3) tutoring classes. We will detail how each of these policies occurs in the two networks, highlighting their commonalities and the way they were adapted during the remote and hybrid learning periods of the pandemic. At the same time, we will seek to show how these three policies are strongly articulated with each other.

System of Monitoring and Supporting Schools

Coruripe

The school network in Coruripe (AL) is divided into three regions. Each one has a manager responsible for administrative and pedagogical support to schools. These managers work in partnership with the department's pedagogical coordinators and technicians, who visit the schools together. The department's pedagogical coordinators play an important role in support of teaching and learning: in the early years of elementary school, the Department has a specific coordinator for the first and second year, and another that takes care of the third to fifth year.

We observed two complementary ways that monitoring and supporting schools occurs in Coruripe (AL). First, these professionals visit schools every two weeks, each equipped with their own instrument - a script of topics to be addressed and methods for systematization of the information obtained. During these visits, the manager and technicians work with school principals to address administrative matters, while the Department's pedagogical coordinator engages in issues related to teachers. The free movement of the Department's pedagogical coordinator within the schools - entering classrooms, attending classes, and interacting with students - is received well by teachers and seems to us to be a fundamental point for the success of this monitoring system.

In countries like the United States, the visit of a professional from the Department inside classrooms is not usually faced with much resistance. In *Data Wise: A Step-By-Step Guide to Using Assessment Results to Improve Teaching and Learning*, this is considered an important way of monitoring pedagogical intervention practices, which can be done either by someone from the Department or by the school principal (Boudett et al., 2013). Depending on the context, in Brazil the practice can be seen as undue intrusion; however, education Departments that successfully establish a follow-up routine like this tend to achieve positive results. A famous and successful Brazilian example is the Literacy Program at the Right Age (PAIC) in Ceará, which has this type of professional who visits schools and enters classrooms to support teachers in their literacy instruction (Burgos et al., 2019; Bonamino et al., 2019).

The instrument that the Department's pedagogical coordinator uses when visiting schools has 20 items that are checked during their observations in the school as a whole and within classrooms. Items on the list include:

- Are teachers and pedagogical coordinators present and fulfilling their role?
- Are classes taking place according to the lesson plan?
- Is there evidence that the school diagnoses and monitors student learning?
- Are the students' learning levels in accordance with what is observed in the assessments?
- Is there a lack of discipline that enables situations that could compromise learning?
- Are classes organized according to student learning levels?
- Is the school principal engaged? Is there a climate of cooperation among other professionals and with parents and guardians?
- Is the school's pedagogical political project[3] being put into practice?
- Does the school manage the attendance of students?
- Is feedback from the Department being considered in the school routine?
- Does the school carry out actions to overcome learning gaps and support students with disabilities?

Department visits help schools solve eventual problems, reinforce the bonds between the Department and the unit, and enable educational evaluations to align with the constant observation of the school routine.

Another form of monitoring in Coruripe (AL), which is through the application of evaluation sheets to students every two months. These sheets are prepared by education managers and pedagogical coordinators and serve as a formative assessment applied by the teachers and later returned to the Department for analysis. Results are then consolidated and sent back to the school for internal discussion and with the Department's team.

Taking a closer look at the instrument used to consolidate the results of bimonthly assessments demonstrates how strongly linked monitoring and assessment policies are in Coruripe. The instrument for consolidating information from Portuguese assessments in early elementary school records the name of each student in relation to their level of reading: "Does not read," "Reads with difficulty," and "Reads fluently." Although the first two reader profile nomenclatures are different, there is an evident alignment between this bimonthly monitoring and the external reading fluency assessment. After diagnosing the student's reader profile, the instrument indicates whether the child has already developed a series of progressive BNCC skills of reading, orality, and textual production. Of these three, reading receives the most attention in the second year of elementary school cards. Reading skills range from the identification of alphabet letters to the identification of the social function of a text.

[3] The pedagogical political project is a document that brings together the school objectives, goals, and guidelines. It must be prepared by every educational institution, according to Brazilian law.

Machados

The Machados (PE) education department also uses a monitoring system, which they call the Itinerant Department program. Although like Coruripe (AL) in many ways, Machados (PE) is a network with fewer schools, a smaller Department team, and no division by management. In this sense, the person who performs the role of secretary of education is usually present on visits to schools, along with the Department's director of education, pedagogical coordinator, and some technicians. The frequency of visits is also, on average, every 15 days.The script used in Machados (PE) is quite like that of Coruripe (AL), with the secretary of education, the direction of education, and technicians fulfilling a more administrative role, and the department's pedagogical coordinator providing more support to the teachers by visiting classrooms. According to the interviews, the Machados teachers welcome visits from the Department's pedagogical coordinator. In both Machados (PE) and Coruripe (AL), this professional is usually someone who has also worked as a teacher in the network, so he/she is not seen only as a bureaucrat and therefore not an "intruder." The fact that Machados (PE) is a small municipality, with just over 16,000 inhabitants, means that professionals from the Department and the schools often have some relationship or proximity beyond the educational context. This familiarity tends to facilitate communication and coexistence across the district. In larger networks, this work may require greater preparation to break teachers' resistance to what they may regard as excessive oversight rather than support.

According to the interviews, all projects developed by the educational department in Machados (PE) are based on the investigation carried out on school visits and in assessments. This is an important point for projects to be aligned with school demands, as well as for teachers to feel represented in the policies and actions proposed by the Department. Like Coruripe (AL), Machados (PE) also has bimonthly assessment tests; however, they are prepared by teachers instead of education managers. Although they serve to monitor and support student learning, these tests are not included in the Itinerant Department program.

Commonalities

In both Machados (PE) and Coruripe (AL), the pandemic may have contributed to a greater inclusion of family members in the monitoring and support system conducted by the Department, so that the demands and contexts of the students' families are also included in the process. This is especially important for literacy policies in the early years of elementary school, a stage in which it is known that family support tends to have a greater impact on learning, given the students' lack of autonomy. During the period of remote and hybrid teaching during the COVID-19 pandemic, monitoring had to be adapted to a virtual format through meetings and exchanges of messages via mobile application. Given the impossibility of visiting classrooms, schools in Machados (PE) sent a portfolio to the Department each month detailing the actions developed and including data on student attendance in

remote classes. This information was used to direct the Department's support to schools during remote teaching. Increased contact between the department and students' families during the pandemic period was highlighted as a positive change in both districts, mainly through groups of message exchanges via mobile app. Although not all parents and guardians had access to internet-enabled cell phones, those who had access strengthened ties with the school while the others received constant home visits from the Department.

Assessments

The Machados (PE) Department has its own formative assessment, applied twice a year, called Municipal Assessment of School Performance (AMDE). In addition, the Department participates in external assessments outside the network, such as the Saeb national assessment, the Pernambuco Educational Assessment System (SAEPE) and the assessment of reading fluency. Machados (PE) also has a bimonthly test, applied internally by teachers, that adopts the format of an external assessment. Coruripe (AL), in turn, applies its own formative assessment three times a year, in addition to the bimonthly evaluation sheets. Furthermore, the network participates in the Saeb national assessment and the Prova Alagoas, applied by the state.

Our analysis of the strategies of the two Departments in relation to educational assessment identified the standardization of applied tests as an important point of success. Although this can be an object of criticism, seen as an instrument that is not capable of evaluating more sophisticated student learning, standardization facilitates the analysis of results and aligns information across the network. For example, when teachers start to prepare tests according to their own criteria, the results may prove inconsistent. This makes it difficult to diagnose trends and outliers in the process of trying to understand the state of learning across the district.

The results do not discourage teachers from assessing students within their specific classroom contexts; however, what stands out is the importance of standardized information based on student learning and complemented by the specifics of each class.For example, although teachers in Machados (PE) prepare, apply, and correct the district's bimonthly tests, they always follow a pre-established format and base the skill matrix on the state's evaluation system to ensure continuity across schools. In turn, formative assessments, which happens twice in Machados (PE) and three times in Coruripe (AL), are carried out either by the Department itself or by a contracted institution that guarantees the standardization of the process, also based on the skills matrix of their state's assessment systems.

Another fundamental point, already highlighted, is the articulation between assessments and Department visits to schools. In both municipalities, it was noted that the visit itself is, in a way, an evaluation - either through observation and recording of school routine and student participation in the classroom, or through the application of evaluation sheets by the Department's pedagogical coordinator. These actions are important to, first, compare assessment results with what is

observed to enrich the educational performance indicators; and, secondly, to promote the discussion of the results between teachers and school principals. We know that the appropriation of results is usually a challenge in Brazilian assessment systems. When Department education managers go to schools with consolidated and analyzed data to promote presentations and discussions, a good part of this difficulty is already overcome through the introduction of student performance indicators in the daily life of the school.

Finally, our interviews with managers from Machados (PE) and Coruripe (AL) reveal the importance of having structured teaching materials that are aligned with assessments. In the specific case of Machados (PE), the network prepares activities based on the Saeb and SAEPE skills so that teachers have the possibility of leading activities based on the skill matrix of these assessments throughout the school year. It should be noted, however, that these matrices should not replace the network's curriculum, but rather be seen as a cut of essential skills that can be measured in standardized tests.

Machados (PE) also has a fortnightly program of didactic sequences and projects, proposed by the Department according to what is observed during visits to schools and in the assessment results. Most of the didactic sequences and projects focus on reading so that in the early years they function as a literacy program, which can be adapted and improved by the schools as long as the Department is notified.

During the COVID-19 pandemic, large-scale assessments were interrupted throughout the most acute period of social isolation. As a result, the focus turned to more flexible assessments, which relied on greater teacher participation. Although Coruripe (AL) and Machados (PE) already applied their own formative assessments, the pandemic reinforced the need for an instrument that allows for flexible application and increased teacher participation in standardized testing to increase school engagement and wider use of results.

Tutoring Classes

To close the cycle of monitoring student learning and supporting teaching, the Departments of Machados (PE) and Coruripe (AL) offer tutoring programs to their students throughout the school year. In both municipalities, the selection of students is linked to their results on the different assessments they participated in. Progress monitoring is then used to verify the effectiveness of tutoring sessions over the course of the school year. In Machados (PE), tutoring is offered during regular school hours and taught by network assistants called monitors, who are teachers specifically hired for the tutoring classes. Students from different grades are regrouped outside their classroom according to their reading performance level, so that they receive literacy reinforcement from the monitors for approximately 1h30min everyday. As their performance progresses, the students change groups, until they reach the learning expected for their grades and no longer need to go

through these tutoring classes. In Coruripe (AL), tutoring classes are offered after school hours, which can take place in the morning or in the afternoon, so that the school space is organized in a way that both regular teaching and tutoring can take place simultaneously, using vacant rooms and laboratories. These classes are no mandatory, but an effort is made to improve participation: for example, they are a requirement for students who are interested in after-school sports. Unlike Machados (PE), the teachers who offer tutoring in Coruripe (AL) are, for the most part, the same ones who already teach during regular school time. They receive an extra allowance per hour of class given in addition to what is required in their contract and are able to take up to 4 classes of tutoring in a shift.

In addition to the positive impact on student learning, managers in both districts reported a reinforcement of student and family ties with the school, combating irregular attendance and school dropout. During the COVID-19 pandemic, Machados (PE) Department pointed out a greater difficulty in executing the tutoring classes program. In both municipalities, it was observed that the program gained more strength with the return of face-to-face classes, usually preceded by evaluations, to verify the impact of the remote teaching period on the learning of each student.

Conclusions

Interviews with school managers in Coruripe (AL) and Machados (PE) indicated that the above-average results on national and state assessments achieved by both municipalities in Portuguese and reading in the early years of elementary school, in national and state assessments, before and during the COVID-19 pandemic, are not the result of one specific program, but of a well-structured and sustainable network with years of operation that articulates monitoring and school support through assessments and tutoring.

This constant cycle of monitoring and school support allowed the Department to (1) always be close to schools and know what is happening inside them; (2) gain and retain the trust of teachers and school principals so that they can provide effective support and intervention whenever necessary; and (3) develop projects and actions according to the reality of schools direct needs of their students. In both networks, the retention of the Department's technical staff, regardless of changes in administration, has allowed policies to be maintained, improved, and consolidated.

Although there is evidence that school monitoring has been an effective policy across both Departments, its greatest effects have been recorded in the early years of elementary school. At this school stage, the Department's pedagogical coordinators find it easier to enter the classroom, interact with students, and identify the main problems in accordance with the specific characteristics of the skills and content taught in each grade. Our analysis suggests that for final years and high school, we believe that this type of monitoring and support would need to be adapted to produce the same positive effects.

The characteristics and conditions that we described and analyzed made it possible for these two municipalities to overcome some of the obstacles imposed by the emergency and atypical period of the 2020–2021 period. The COVID-19 pandemic immensely affected all education networks in Brazil; however, better structured Departments with sustainable policies, and positive results on assessments were able to mitigate part of these losses and promote a more successful recomposition of learning in the post-pandemic period.

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Chapter 3
Post-Pandemic Crisis in Chilean Education. The Challenge of Re-institutionalizing School Education

Cristián Bellei and Mariana Contreras

Abstract In this chapter, we describe and analyze the available evidence (including our own research) about Chilean education during the COVID-19 pandemic and its efforts to recover once the health crisis was controlled. We show that the implementation of distance education produced markedly unequal experiences between schools and students, which essentially reinforced pre-existing inequalities and created new ones. This crisis was aggravated by the enormous difficulties encountered by the educational system to resume in-person activities, resulting in a massive and prolonged closure of Chilean schools. Additionally, the capacity to go back to school was very unevenly distributed, further harming the most disadvantaged students, both socioeconomically and socio-emotionally, as shown by the extreme difficulties of school reopening, teacher absenteeism and mental health problems, and student irregular attendance, learning losses and behavioral problems. Thus, the pandemic affected the very foundations of the regular operating of the Chilean education system triggering a multifaceted process of deinstitutionalization.

Introduction

In this chapter we describe and analyze the Chilean educational landscape during the time it has been affected by the COVID-19 pandemic, continuing and expanding on a previous analysis carried out following its onset (Bellei et al., 2022). Based on secondary sources (official records, surveys, and studies—including one coordinated by the authors), we paint a picture of policies, schools, teachers, and students during this crucial period. In each case, we have identified what we think are the

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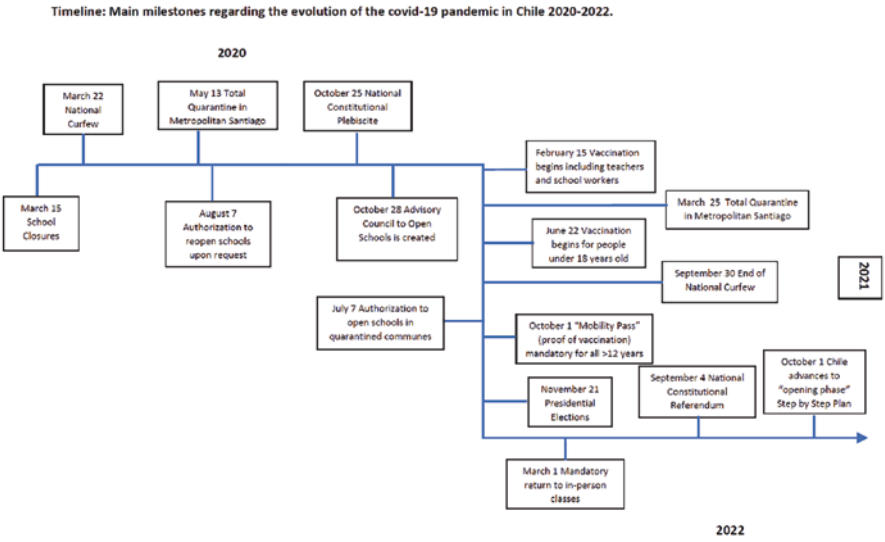
critical knots that have characterized them. Taken as a whole, our interpretation is that the pandemic affected the very foundations of the regular operating of the Chilean education system and – as a consequence – incited a process of deinstitutionalization. This process has been demonstrated by extreme difficulties of school reopening, teacher absenteeism and mental health problems, and student irregular attendance, learning losses, and behavioral problems. Our analysis suggests that the effects of the pandemic were built on weaknesses previously present in Chilean education and society. Reversing this trend will therefore involve an enormous and persistent effort to strengthen the institutions of the educational field and the teaching profession, and to innovate both in its internal dynamics and in its relationship with society.

The Chilean educational system is highly decentralized, privatized, and socially segmented (Bellei et al., 2022). The Ministry of Education does not have direct authority over the management of public schools, which are administered autonomously by the 350 municipalities. The vast majority of private schools are managed directly by their owners (most of which only have one or two schools), forming a radically fragmented system. School enrollment is concentrated mainly in publicly funded schools (92%). The state provides funding to schools based on the number of students who actually attend classes. Subsidized private schools (56%) are mainly attended by families of middle and low middle socioeconomic status, public schools (36%) are attended by low-middle and low SES families, and non-subsidized private schools (8%) are only attended by the high SES families. School choice for families is not restricted by geography, and parents are free to enroll their children in the school that seems to be the best fit for them – whether that be public or private. This voucher-like system creates a highly dynamic market in which all schools compete for the preferences of families. The Ministry of Education has tried to "guide" this market by requiring students to take an annual, national exam known as the SIMCE test and widely disseminating results to families, schools, and the press. More recently, a performance-based accountability system was created to sanction chronically underperforming schools and provide support to low performing schools.

The COVID-19 pandemic found Chile in the midst of an intense social protest that began in October 2019 and ultimately led to a process of constitutional change that is still underway.Two constitutional plebiscites and a Constitutional Convention were held under strong restrictions on social and economic activity to control and reduce contagion. In our view, social unrest and low popular support for the government undermined its ability to successfully lead the educational system during this tumultuous period of health, social, political, and economic crises (Bellei et al., 2022). Diagram 1 shows some milestones regarding the evolution of the COVID-19 pandemic in Chile. To face the pandemic, several important aspects of the Chilean educational system had to be temporarily modified. Over the 2020 and 2021 school years, the state stopped financing schools according to their students' attendance and instead allocated them a fixed amount of resources, and suspended the SIMCE test. In addition to this introduction, the chapter is organized as follows. In the next section we describe and analyze the situation of schools during the pandemic,

highlighting the difficulties they faced in resuming in-person activities once they were authorized by the government in mid-2020. Then, we analyze the aspects of the teaching profession that we consider critical to quality educational opportunity for students: work absenteeism, work overload, and poor mental health. Following, we analyze student experiences during the distance learning period that have made it difficult to resume "normal" functioning of the Chilean educational system, focusing on mental health problems, school violence, low educational achievement, and the enormous rates of absenteeism and relative disconnection with their schools. Finally, we reflect upon the pandemic's impact on the deinstitutionalization of the Chilean education system.



Schools and Educational Policies

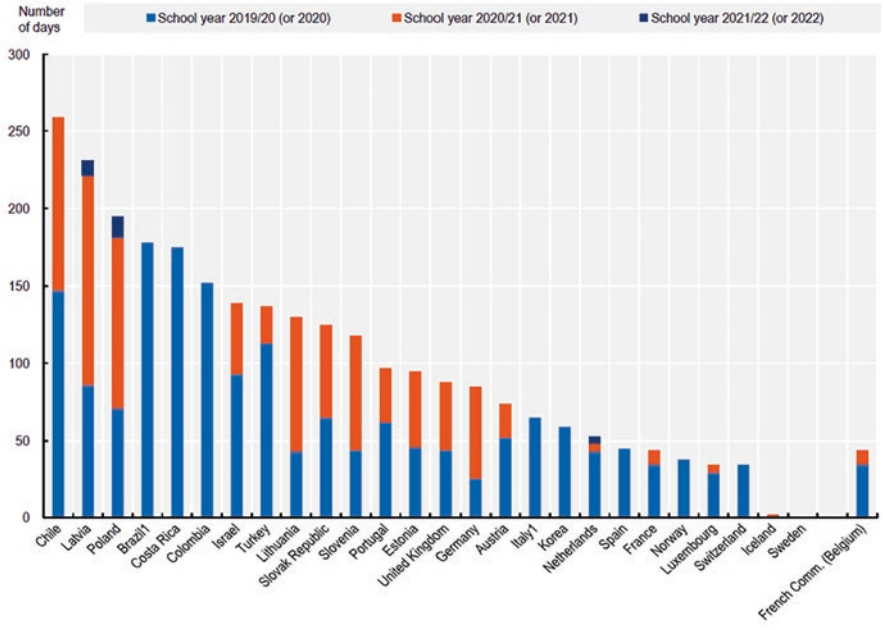
The beginning of the pandemic in Chile coincided with the start of the academic year in March 2020. The government ordered the closing of all educational institutions and implemented several policies to support distance learning (Bellei et al., 2022):

- Online pedagogical support for teachers, students, and families (e.g., the webpage "I Learn Online," which brings together pedagogical material, textbooks, videos, and exercises for all grades and TVEduca, a television channel with educational programs, an educational radio station, and a Digital School Library);
- Technical support to schools and teachers (e.g., free software, courses, training, and conferences on the use of educational platforms and the use of ICT tools, a curricular prioritization that significantly reduced the compulsory curriculum, and many guides and teaching materials to implement this curriculum)

- Support focused on students, especially in low income and rural areas: computers, tablets, mobile phones, internet access, and traditional educational materials for isolated areas.

Despite these efforts, the impact of the COVID-19 pandemic was particularly severe in the case of Chilean education. The clearest indicator of the pandemic's impact is the relatively extended period of school closure and ensuing difficulties the system encountered in returning to normal functioning. Figure 3.1 demonstrates that in comparison to its OECD peers (2022), school closures in Chile lasted for the longest period of time. This chapter will address the several factors, linked primarily to political, organizational, and social issues, that accounted for these extended periods of school closure in Chile.

According to our analysis (Bellei et al., 2022), extended school closures were due to poor management by national authorities, marked by contradictory signals towards the educational system and a weak capacity to generate trust among educational actors. During the first and second years of the pandemic, continuous clashes with the teachers' union resulted in the Ministry of Education's failure to convince the school population (i.e., families and education workers) that its care, prevention, and health equipment measures allowed a massive and safe return to the classroom. It is likely that this situation was also affected by the climate of high social conflict that has prevailed in Chile. Just before the pandemic, widespread and violent



Source: OECD (2022). Education at a Glance 2022.

Fig. 3.1 Number of instruction days of full closure of lower secondary schools, excluding school holidays, public holidays and weekends

demonstrations triggered a process of constitutional change and exposed the extremely low confidence in political authorities and institutions present across the country. Although this process began at the end of 2019, the debate is alive and well to this day. Although the government tried to reopen schools in mid-2020 (conditional on the health situation of the respective commune), at the end of that school year only 10% of the schools had resumed in person instruction; and in most cases, only for some courses and with very low levels of student attendance (Claro et al., 2022). Thus, in practice Chilean students did not receive in person instruction for the entirety of the 2020 school year. The government then directed local educational and school authorities to plan during the summer to reopen schools at the beginning of the 2021 school year (which in Chile begins in March). This plan to reopen schools in March 2021 was strongly motivated by the then-emerging evidence indicating that prolonged school closures negatively impact children and school systems. This plan was proposed after the creation of an advisory council to reopen schools (which included educational stakeholders and academics) and became the central government policy that year. Given that one of its main focuses was to guarantee the conditions for a safe return, the government increased the budget allocated to school infrastructure by 61%. These resources were granted to schools through open calls to present improvement projects for the adaptation of infrastructure and different means to comply with health protocols and provide security to school communities. It should be noted that many schools cited the lack of appropriate material conditions to face the health emergency as the key reason to remain closed.

Teachers and school staff were prioritized in the national vaccination plan to combat COVID-19 launched at the beginning of 2021. The vaccination of adolescents between 12 and 18 years old began in mid-2021, followed by 6–11 year olds in September and 3–5 year olds in December. 82% of the Chilean school population between 3 and 17 years old was vaccinated by March 2022, marking a successful vaccination campaign. Another two measures implemented to facilitate the school reopening since mid-2021 were:

- The authorization to keep schools open in all phases of the "step-by-step plan;" given that, until then, schools were prohibited from operating in periods of quarantine or total confinement in their respective commune.
- The flexibilization of the full school day, which allowed schools to open with reduced working hours.

Nevertheless, school reopening was a slow process; therefore, in September 2021 the Superintendence of Education dictated that all schools were required to resume in-person classes and remain open. However, compulsory attendance for students wasn't reinstated until March 2022. Only since then were schools not required to maintain online teaching for students at home.

In parallel to the measures promoting in-person classes, during 2021 the government maintained support for remote education implemented in 2020 (Bellei et al., 2022), especially strengthening programs focused on literacy and mathematics. Likewise, it maintained pandemic policies related to curricular prioritization, the suspension of national standardized testing, and flexibility in the use of school

funding. Due to high figures of disengagement and school absenteeism observed during the pandemic, the Ministry of Education implemented a nationwide "early alert system", for the registration and monitoring of students at risk of dropping out, and a "Contact Tool" to reconnect with students who had lost contact with their schools (Mineduc, 2021).

Despite these efforts, large-scale reopening of schools was not achieved. In March 2021, 76% of schools remained closed for in-person classes. Of the schools that the Government allowed to reopen according to health protocols, the majority (55%) decided to remain closed instead (PUC-CIAE, 2021). Moreover, among those schools that reopened at the beginning of 2021, most did so only a few days of the week and with reduced school days. These choices revealed the objective, subjective, and organizational challenges that made the reopening process a significant issue in Chile. By the middle of the school year, June of 2021, 71% of schools were still closed. It is important to note that there was not a policy to prioritize disadvantaged schools nor students in special need for in person teaching; schools opened according to their capacity and students attended based on family decisions.

Although 92% of principals reported hosting in-person classes by September 2021, most schools did not offer those classes regularly and recorded high rates of student absenteeism. As a consequence, the 2021 school year closed in a still critical situation. Although practically all schools (98%) declared to have in-person activities, the school day was partial and instructional time reduced. In December 2021, only 9% of schools had the same school day as before the pandemic; therefore, it was estimated that the duration of the school day actually available for students was just over half (55%) of what it was before the pandemic. Reduced opportunity to learn in school then contributed to increasingly lower rates of student attendance: only 42% of students attended in-person classes at least one day a week, showing that even this reduced-day education was far from being experienced by most students (PUC-CIAE, 2021). In this way, the enormous challenge of guaranteeing regular and massive attendance of students was added to the institutional and organizational complexity of reopening schools.

The beginning of the 2022 school year marked a major return to in-person learning in Chile and coincided with a change in government: By March 2022 (the beginning of the new school year) 99% of schools in Chile were open for in person learning, and the vast majority (88%) were able to resume pre-pandemic school day durations.[1] Despite this success, student attendance issues persisted: approximately one third of the school population (32%) did not attend classes regularly. To respond to these challenges and pave the way towards relative "normalcy," the new government launched a Comprehensive Educational Reactivation Policy that proposed a systemic and intersectoral approach to address the main issues facing the post-pandemic educational system: the learning loss, student disengagement, absenteeism and school dropout, and the mental and socio-emotional health and well-being of school communities. The plan introduced a phased temporal approach to respond

[1] Unfortunately, this figure dropped to 66% by May of 2022.

to immediate effects (2022–2025), to project systemic transformations in the medium term (2023–2025), and to consolidate these transformations (2026 onwards) (Mineduc, 2022). Among the most important measures is the creation of a National Strategy for Strengthening School Coexistence and Well-being, the creation of the National Mental Health Strategy, and National Learning Strategies such as the National Strategy for the Strengthening of Reading and Writing. The plan also includes the strengthening of the "early alert system" and other monitoring systems for students at risk of dropping out; the incorporation of the School and Territorial Program for Re-linking and Accompaniment of Educational Trajectories; a National Plan for Digital Transformation and Connectivity; and a National Infrastructure Plan, aimed at recovering and improving spaces of the public education system. This comprehensive policy is now in its early stages of implementation and has faced financial restrictions linked to the economic crisis caused by the pandemic in Chile.

Teachers

Teacher absenteeism as a key problem of returning to school.

High rates of teacher absenteeism and difficulties reported by schools trying to fill open teaching positions has become a significant challenge to the Chilean education system's return to in-person, regular, and effective learning. Unfortunately, there are no official census statistics that allow us to precisely measure these problems; however, there are some administrative sources and surveys of school leaders that permit an approximation to the magnitude of the phenomenon.

According to official estimates based on administrative records,[2] there was an increase of 22% in teaching absences from work due to medical leave during the first half of 2022 as compared to the same period before the pandemic (2018–2019). Given that teacher absences were already considered an important problem prior to the pandemic, this increase is especially significant. The most critical situation was experienced at the beginning of the school year, when the estimated increase in teacher absences from work reached 89% compared to the same month in years prior to the pandemic[3]. Prior to the pandemic, the absence of teachers from work extended on average for 13 days – a figure that increased slightly to 14 days in 2022. According to these same sources, the youngest teachers (under 40 years of age) increased their absence from post-pandemic work in greater proportions (Study Center, Mineduc, 2022).

Surveys of school principals provide additional information to complement administrative records. In May 2022, 19% of school principals indicated that teacher

[2] These figures are likely conservative and should be interpreted as low bounds of this indicator.

[3] As mentioned, teachers were prioritized in the vaccination process and schools reopened following strict health protocols; thus, teachers' infection for covid does not explain this high absenteeism.

and staff absenteeism was the main problem they had to face during the reopening of schools. By June 2022 this figure had increased to 36% and by September remained at 31% (PUC-CIAE, 2022), making it the most prevalent and persistent problem faced by the Chilean school system (including both private and public schools). In a nation level study of public schools about the contingencies affecting school management, about 40% of school principals reported in 2019 that they had to solve "problems related to the replacement of teachers" at least weekly. In 2022 this problem was reported by about 60% of school principals, marking a significant increase from pre-pandemic levels. This figure includes a corresponding increase from 9% to 25% of school principals reporting having to solve teacher staffing issues daily (Muñoz et al., 2022). Additionally, school principals estimated that in June 2022, 9.2% of the classroom teachers at their schools had resigned, reduced their contract hours, or missed work due to medical leave at the time of the survey. These figures were even higher amongst early childhood educations, whose principals estimated an absence from work of 24.6% in August 2022. Health problems are the most commonly cited reasonfor these absences, with general medical problems (not linked to COVID) accounting for 44% of teacher absences and mental health problems for 13%. Again, these rates were higher amongst early childhood educators, who recorded 66% and 20% in the same categories, respectively (PUC-CIAE, 2022).

Teaching work overload during the pandemic.

Although direct studies have not yet been conducted to explain the recent phenomenon of teacher absenteeism, the studies and surveys carried out during the two most severe years of the pandemic provide valuable information on factors that greatly impeded the return to in-person learning in Chile. Of these, a lack of trust in government and overloaded working conditions for teachers emerged as two of the most salient factors.

Management problems and conflicting messages during the first year of the pandemic created a lack of trust in school administrators and government officials, making the return to in person classes a matter of socio-political conflict. In a national survey carried out in August 2020 by the Chilean Teachers Union, 86% of teachers said they felt insecure and 66% felt fear (College of Teachers, 2020) regarding the possibility of returning to in-person learning. The conflict became politically polarized to the point that a group of parliamentarians presented a constitutional accusation against the Minister of Education for "putting at risk" the health of school communities by trying to force a return to classes without guaranteeing – according to the accusing parliamentarians – the sanitary and working conditions for a safe return. Certainly, on the other hand, working conditions at home were far from optimal for the vast majority of teachers, which was clear from the beginning of the pandemic and recurrently verified by a large set of studies. Given that the conditions of confinement made it very difficult to carry out empirical studies representative of the national situation, we will report several alternative sources to triangulate our data.

One of the first surveys of teachers conducted during the pandemic ("Situation of teachers and educators in the context of the pandemic" Elige Educar, May, 2020)

found that 63% of teachers were working "more or much more than before" the pandemic. In the same study, 23% of teachers said they felt very stressed, 62% very worried, and 52% very anxious. In addition, in a survey conducted by a large network of private schools in July 2020, teachers indicated that the emotions they had experienced most frequently included "Anxious", "Worried" and "Overwhelmed." 67% reported feeling worried about their own emotional state ("Survey on Distance Education: Students, Parents and Teachers" SIP College Network, 2020). In that same survey, 70% of teachers indicated dedicating "Much more" time to their work than in a usual pre-pandemic working day. Towards the end of the year, another study found that 75% of teachers considered themselves to be working "much more" than their regular working day – indicating that these challenges did not improve over time. Compounding this overwork were educator reports that deficiencies in proper teaching materials – basic supplies, technological equipment, and sanitary conditions – created a particularly uncomfortable working environment (Figueroa et al., 2021).

Poor teacher mental health as an effect of working conditions.

As work time increased and working conditions disimproved, teachers' mental health began to deteriorate. In an August 2020 study on engagement and exhaustion of teachers with their work, it was estimated that 57% of teachers had symptoms of "total exhaustion" (chronic fatigue, symptoms of burnout at work). This represented a significant increase to the already high figure of 28% of teachers who had reported similar symptoms just four months earlier. 20% of teachers surveyed presented high risks of exhaustion, which suggests that around 3 out of 4 Chilean teachers were experiencing mental health challenges resulting from remote learning conditions during the pandemic. Additional factors contributing to high rates of teacher burnout include a lack of professional development, inadequate conditions for the effective use of technology to conduct classes online, and emotional management challenges during a tumultuous time. The research estimated that 75% of teachers did not have an exclusive space for work at home, with 33% using the dining room and 23% teaching in their own room. In another study held towards the end of 2020, only half of the teachers surveyed (54%) said they had no problem with having a "quiet place of work" at home and instead almost a third (29%) considered this an enormous difficulty to carry out their teaching work at home. Convergently, two-thirds of teachers reported a sense of stress – including 46% whose sense of stress was very high – and 70% of teachers had a very high concern for their emotional state (CIAE-Inclusive Education, EduGlobal, 2020). Similar and in some cases more concerning results were replicated during the second year of the pandemic. In mid-2021, 87% of teachers said they worked longer than their workday, and 61% felt stressed, 43% anxious, and 42% worried (Ed2020 & Ipsos, 2021). Compared with the same survey in 2020, feelings that increased the most among teachers included being stressed (from 49% to 61%) and feeling frustrated (from 17% to 27%). By June 2021, 80% of teachers stated that their "family life has been negatively affected by their teaching work in distance education" (E2020 & Ipsos, 2021). Finally, a smaller study found that 58.3% of teachers suffered from poor mental health after a year of pandemic, with a higher prevalence among teachers at

subsidized private schools and those who worked more overtime than the regular working day (Palma-Vasquez et al., 2021).

It is not easy to discern the causes of the mental health challenges experienced by Chilean teachers during the pandemic, but research has made considerable progress in identifying relevant factors associated with the prevalence of this condition. A study that used an index based on instruments validated and adapted to Chile to detect mental health pathologies found that 68.8% of teachers reported mental health problems, including 43.6% for whom the situation was serious and indicative of psychopathologies. This negative mental health situation affected more severely women and younger teachers and no differences were found according to school type – (public/private) suggesting that this is a structural issue that affects the entire teaching profession in Chile (Orrego, 2022). When teachers were asked what they considered the main cause of their discomfort, most identified the imbalance between their personal lives and work, and the overwork caused by the pandemic.

To delve into the causes of this phenomenon, a study investigated the factors that produce psychological distress, conceptualized as a proxy of discomfort/teacher well-being. In the context of the teaching profession in Chile, this would be denoted as a reaction to situations of "constant hypervigilance, impairment of their authority, feeling of incomprehension and overload of tasks" (Cabezas et al., 2022). These can be found at the base of stress and other symptoms of physical discomfort that teachers frequently experience, such as chronic fatigue, loss of voice, body contractures, and more. According to this research, the psychological anguish among Chilean teachers during the pandemic was greater for: women, younger teachers, those who had children or dependents, those who led live online classes instead of recording and sending material to students, those who had less time available for work, those with larger class-size, those with a greater technological means for remote work, and those who worked in non-subsidized private schools. Interestingly, factors typically identified as protective and supportive, such as teamwork or having support from superiors, were not associated with lower levels of distress in this unique context. It seems that a greater overload and excessive labor requirements are potentially linked to more expectations that teachers be digitally available after working hours and weekends. Certainly, identifying the factors that cause teacher mental health problems requires observing the multidimensional interaction of factors that add up to produce them. For example, López et al. (2021a, b) found that teaching experiences at the beginning of the pandemic were more difficult for female teachers who had fewer years of experience and who taught students of lower socioeconomic status – suggesting an intersectionality of these three variables that indicate structural inequality in the Chilean school system. Indeed, there is evidence that traditional Chilean gender norms that inequitable distribute the completion of household chores upon women contributed to this sense of overwork amongst female teachers – especially those who cared for dependents. In an in-depth study of working women in different jobs, Arteaga-Aguirre et al. (2021) argued that women were affected by the "simultaneous double presence in times of

coronavirus, which leads women to intensify simultaneity as a strategy to address the different demands." They mention that female teachers have been particularly affected by this during COVID, given the demands of leading a classroom, attending to students, and working without fixed schedules all while addressing domestic responsibilities (Arteaga-Aguirre et al., 2021). Finally, studies have shown that structural inequalities present across the education system contributed towards mental health declines in Chile. In their study, González and Santana (2022) demonstrate that schools located in contexts of poverty or who were already underperforming were most negatively affected by the onset of the pandemic. Attempts by school leaders to address these issues were impeded by a lack of resources and poor institutional capacity, enabling structural inequality to become "perverse" (González & Santana, 2022). Even prior to the pandemic, Chilean educators were faced with longer workdays and larger class sizes than their peers in other OECD countries. Although recent policies of salary increase and improvement of the professional teaching career have been implemented (Ávalos & Bellei, 2019), these policies have not yet been enough to solve the acute shortage of teachers.

Students

Inequalities in Remote Instruction and Their Effects on Student Learning

As happened in many other countries, the closure of schools that occurred in Chile during the years 2020 and 2021 and -marginally- in 2022, after three years of pandemic, it has become clear that school closures in Chile had various negative impacts on students. Of these, the loss of learning and skills, the increase in non-attendance and abandonment of the school system, and mental health and well-being issues stand out as particularly salient (Ponce Mancilla, et al., 2021). In turn, it is highly likely that the suspension of in-person classes has also created an achievement gap between students in different socio-economic classes, amplifying the inequalities that already existed before the pandemic. In Chile, students belonging to the highest income quintile lost comparatively fewer classes (España, 2022). While students in the public system were closed 72% of the days of the school year measured between October 2020 and October 2021, subsidized private schools remained closed 50% of this time and paid private schools were closed 48% of the time. Technical and vocational schools, which are typically attended by students from more disadvantaged backgrounds, were only able to provide 46% of their standard curriculum – greatly limiting students' practical learning (Mineduc, 2020a). In 2020, the Ministry of Education estimated that 40% of students in Chile were in a school that had delivered widespread distance learning; however, a strong inequality in the actual reach of distance learning was uncovered when disaggregating this data by levels of socioeconomic status. Schools with higher concentrations of students from high income families were able to reach 89% of their student population through distance

learning, while schools with more students from low income families were only able to reach 27% (Mineduc, 2020b).[4]

Given the inequality that existed regarding distance learning administration during the 2020 school year, student participation in daily school activities was highly variable depending on the type of school: public school teachers estimated that only 14% of their students participated in virtual classes versus 81% of private schools without state funding (CIAE, Eduinclusiva, Eduglobal, 2020). In addition, 71% of teachers indicated that their students experiences connection problems when sending information and pedagogical resources (Elige Educar, 2020); and only 1 in 4 teachers estimated that their students were equipped with the necessary resources to participate in distance education in Chile (Fundación Chile, 2020).

According to a longitudinal study with a sample of 16,000 households across the country, 1.2% of students did not receive any online classes or educational material during the pandemic. Also, students with more precarious connections were rarely able to attend live classes with their teachers, and instead received only daily brief educational capsules through social networks such as WhatsApp or email. In fact, 38% of public school teachers stated that they communicated with their students through telephone calls when the connection was poor – a means that was not used in private schools (CIAE, Eduinclusiva, Eduglobal, 2020). On the other hand, students from unsubsidized private schools received 85% of virtual classes with the possibility of interaction with the teacher and their peers, compared to 33% of their peers in public schools (Elige Educar, 2020).Despite all the measures implemented to improve student connectivity, 26% of Chilean students overall – and 33% of students enrolled in public schools – did not have an adequate connection to participate in distance learning activities in August 2021 (PUC-CIAE, 2021). Moreover, the same report estimated that about 8% of students in public schools were not participating in any educational activity. Estimates of students' disengagement were two to three times higher among schools that remained closed compared to schools that began to implement in-person activities, with students from more disadvantaged contexts being the most affected.

Inequalities in remote learning administration soon resulted in negative impacts upon academic progress, as evidenced by the Comprehensive Learning Diagnosis (DIA) – a tool created by the Education Quality Agency that evaluated the learning of the prioritized curriculum during the year 2020. The results indicate that, between sixth grade and 12th grade, students had achieved only between 47% and 27% of the expected learning in mathematics, and between 48% and 60% of learning achievement in reading. Like attendance data, these results also reveal important gaps between achievement according to varying socioeconomic groups, which tend to increase in the upper grades of secondary education (Agencia de Calidad de la Educación, 2021). Estimates from the same instrument for 2022 were even more dramatic: between sixth and 12th grades, only 8% to 14% of students performed at

[4] Refers to those schools that declare that at least 80% of their students were using distance learning tools such as virtual classes, videoconferences, work from guides, phone calls, communication by whatsapp or email.

a satisfactory level in reading, and 1% to 8% in mathematics. Certainly, the 2022 results showed that socioeconomically disadvantaged students performed worse than non-disadvantaged students for both reading and mathematics in all assessed levels (Agencia de Calidad de la Educación, 2022). Considering that this evaluation only includes a fraction of the official curriculum of each grade – which corresponds to the prioritized curriculum – the results are, at the very least, alarming.

The socio-emotional impact of distance learning on student well-being.

In addition to concerns regarding student attendance, equitable remote instruction, and student learning, a number of studies have revealed the toll that distance learning has taken on the social interaction, mental health, and well-being of students in Chile (Díaz et al., 2022). According to a citizen consultation carried out by the Education Quality Agency,[5] 55% of mothers, fathers, and guardians declared that their sons and daughters did not interact with peers during 2020 (Agencia de Calidad de la Educación, 2020). Like attendance and academic data, this figure varied based on school type, with students in public schools feeling the most isolated. Students living in rural areas were especially challenged due to their limited internet connection and lack of access to government or school interventions through devices that required a stable connection.

In addition to the effects of distance learning on academics, the Ministry of Education has given great centrality to the dimension of school coexistence, well-being, and mental health within the Comprehensive Educational Reactivation Policy proposed to face the effects of the pandemic on educational communities. Many studies have reported the way and extent to which the pandemic, confinement, and the suspension of face-to-face classes have affected students. A study conducted in public preschools in Northern Chile found that 52.2% of parents consider that distance learning affected the behavior of their children and 25.4% indicate that it has affected their emotional well-being or mental health. The most common situations included appetite changes, concentration problems, trouble sleeping, and fear of being alone (Alessandri & Turner, 2021). Additionally, 28% of kindergarten children reported feeling bored during the pandemic, while 12% and 13% reported feeling high levels of sadness and anger respectively.

On the other hand, an evaluation of socio-emotional conditions carried out in a sample of students between 10- and 18-years old living in poor communes of the Metropolitan Region of Santiago, found that 52% of students experienced negative emotions such as fear, worry, and loneliness during 2020 (Rojas-Andrade et al., 2021). In the same vein, a sample of high school students evaluated by Rodríguez-Rivas et al. (2021) indicated that a particularly affected aspect in 2020 was the mood of adolescents who presented low levels of energy, happiness, and confidence and high levels of nervousness. Likewise, the results of the Comprehensive Learning Diagnosis (DIA) referring to socio-emotional well-being showed that 55% of high school students reported feeling bored during the year 2020, while 40% declared feeling short-tempered or angry, and 54% experienced a lessened desire to do things

[5] Entity in charge of the evaluation and support of schools in the country.

(de Calidad de la Educación, 2021). Students' mental health issues became even more apparent once they returned to in-person classes. According to a national survey conducted during the first semester of 2022, 85% of high-school principals reported that their students' well-being and mental health had worsened as compared to 2019; this figure was around 70% among primary school principals and 58% for pre-school principals (PUC-CIAE, 2022).

It should be noted that even before the pandemic the incidence of mental health problems and socio-emotional well-being in children and adolescents already reached worrying figures in Chile. A 2012 study of students between 4 and 18 years old found that psychiatric disorders and psychosocial disabilities reached 22.5%, with attention deficit hyperactivity disorder along with anxiety disorder being the most common (De la Barra et al., 2012). In comparative terms, a 2011 study that measured behavioral and emotional problems in preschoolers from 24 countries found that Chile's average score in the total problems measured was significantly higher than that of the remaining 23 countries.The study also found that Chilean children exhibited the highest prevalence in several categories including hyperactivity, aggressiveness, and attention deficit. While globally 15% of preschoolers have some of these problems, in Chile that figure rises to 25%. Likewise, while depression and anxiety reach 5% of children under 6 years old globally, it reaches between 12% and 16% among Chilean children (Rescorla et al., 2011). In this context, the pandemic has exacerbated and deepened problems that were already entrenched in Chilean youth.

Since the gradual return to in-person education in mid-2021, the problems of mental health and well-being of students manifested in problems of coexistence, aggression, and violence between peers and adults within schools. Almost 70% of the complaints received by the Superintendent of Education corresponded to problems of coexistence in 2022. Within these a third corresponded to complaints of mistreatment of students, which increased by 15% compared to 2018. In fact, according to school principals, issues of coexistence, poor discipline, and violence among students were the main problems the school faced during 2022 in about a third of the schools nationally. 30% of school principals estimated that the level of violence among students was significantly higher than in 2019, (PUC-CIAE, 2022). It is important to emphasize that high levels of disciplinary problems and students' violence were reported by public and private schools alike, implying a generalized problem in the Chilean school system across social classes.

The impact of distance learning on student attendance and school dropout.

As students have faced continued challenges regarding access to learning, academic progress, and socio-emotional well-being, the rates of chronic absenteeism and school dropout have increased dramatically across the Chilean education system. As mentioned, the return to in-person classes by children and young people has been slow and gradual. For example, despite multiple efforts to promote school attendance, the students who regularly attended in-person classes during November 2021 represented only 49% of the total capacity of the school system. This figure was significantly higher for paid private schools than for publicly funded schools (November Report, 2021). According to official data, the national average school

attendance during 2022 has been 83%, or 6.7 percentage points lower than in 2019 (PUC-CIAE, 2022). Additionally, "serious absences"[6] have increased by 98% compared to 2019, going from 20% that year to 39% in 2022. This growth has been accentuated in rural areas, within the poorest regions of the country, in subsidized private schools. and in primary education. However, it is the students of the public system (Local Education Service and municipal schools) who have the highest percentage of "serious absence,"representing 51% and 42% of the total enrollment, respectively. With 64% of pre-school students and 37% of primary school students recording "serious absences," more than a third of primary school students in Chile would not be prepared to matriculate into the next grade level. Additionally, about 10% of students have attended less than 50% of the school days (Centro de Estudios Mineduc, 2022a).

School principals attribute increased rates of school absence during and after the pandemic to mainly physical health problems, as well as a general fear of contagion. Principals also identified the low commitment of families to regular school attendance for their children as a salient challenge. In turn, the school principals also recognized that non-attendance was linked to protocols associated with COVID that interrupted the continuity of the school process (Mineduc, 2022b). At the end of 2021 it was estimated that the partial opening modalities implemented by the schools only allowed students to attend classes in person 55% of the time as compared to 2019, which corresponds to an average of 18.9 hours per week (PUC-CIAE, 2021).

Beyond the perceptions of school principals, a 2021 national survey revealed that 58% of parents and caregivers preferred that their child did not attend in-person classes throughout the year regardless of the evolution of infections. Nevertheless, this disposition was strongly socially biased: while 60% and 64% of the parents of subsidized public and private schools shared this provision, this figure only represented 21% of parents from non-subsidized private schools. The same survey showed that a majority of parents did not send their children to in-person classes because they did not trust that their children would respect the protocols and sanitary measures that would prevent them from passing on the virus while other family members waited to receive their vaccinations.[7] (Fundación, 2020; IPSOS, 2021).

Beyond the general fear of contagion, it's possible that health protocols taken to reduce the spread of the virus in schools also dissuaded families from returning to in-person learning. To learn in-person, students over the age of five were required to wear a mask at all times, maintain a physical distance of one meter in open and closed spaces, restrict any physical contact between members of the school community, and wash their hands every 2 to 3 hours. The mandatory use of masks for children and adolescents, especially in the case of young children, were

[6] Category that groups those students whose cumulative average attendance is less than 85%. According to the legislation, students in this category cannot be promoted to the next level.

[7] Vaccination of children under 18 years of age began in June 2021; on November 12 of that year, 63% of students between 6 and 18 years old had completed their vaccination scheme. Vaccination for children between 3 and 5 years old began in December 2021.

increasingly criticized.[8] Additionally, the protocols of action against positive cases of COVID-19 among students often resulted in the suspension of in-person classes for an entire course or reduced/alternating days. These measures may have also impacted willingness to send children to classes, especially given the lack of synchronicity between parent work schedules and childcare needs. In fact, according to data from a November 2021 survey, 39% of schools opened alternating days every day or every week, and 84% maintained shorter school days than they had before the pandemic. Finally, in-person classes were made compulsory for students only in March 2022, while the entire 2020 and 2021 school years attendance was voluntary. Although student dropout decreased in 2020 and 2021 compared to previous years and increased only slightly between 2021 and 2022, this indicator does not necessarily account for an improvement in the retention capacities of schools, since it is highly likely that this fall is due to pandemic policies such as automatic school promotion. Thus, it will be many years before we will be able to quantify the true magnitude of school dropout, since this phenomenon is commonly an end result of accumulated low learning and high absenteeism.

Conclusion: Post-pandemic Challenges for Re-institutionalizing Education

In this chapter we have identified the factors that most challenged Chilean education during the COVID-19 pandemic, and examined the country's efforts to recover once the health crisis has been controlled. Fundamentally, we have shown that the implementation of distance education resulted in markedly unequal experiences between schools and students, which both reinforced pre-existing inequalities in Chile and created new ones. The depth of this crisis was aggravated by the enormous difficulties encountered by the educational system to resume its in-person activities, which resulted in a massive and prolonged closure of Chilean schools. The return to in-person learning was unevenly distributed in Chile, further harming the most disadvantaged students not only socioeconomically, but socio-emotionally. Attendance rates for in-person classes were very low in 2021 and – although higher – remained chronically low in 2022. Moreover, the return to in-person school activities exposed problems of mental health, coexistence, and school violence that have affected a large proportion of schools, teachers and students. Predictably, the available evidence on student learning and achievement, although still emerging, is appalling in all its dimensions. This is undoubtedly a historic socio-educational crisis for Chilean society.

[8] See for example https://www.latercera.com/la-tercera-pm/noticia/mantener-o-no-el-uso-de-mascarillas-en-colegios-crece-el-debate-por-las-restricciones-en-recintos-escolares/SUSFPWQQYJHZPEEN5QMVDPSVKE/

The evidence and our analysis presented in this chapter reinforced and deepened our view that the pandemic affected the very foundations of the Chilean education system, triggering a process of deinstitutionalization. This deinstitutionalization is linked both to contemporary characteristics of Chilean society and to defining features of its educational system. According to our interpretation, the enormous difficulty of the Chilean school system to reopen timely, massively, and adequately reflects not only the crisis caused by the pandemic, but the difficulties of governing a radically decentralized school system with low institutional capacity for coordination and governance and a lack of trust in public institutions (Bellei & Munoz, 2021). This is the product of a double weakness of Chilean society: the crisis of the institutions of representation and democratic government, and the dismantling of the state capacity to implement effective public policies in a highly privatized system governed by market dynamics. This local phenomenon is added to another international one characterized as a greater decline of the institutional program of education, which paradoxically is associated with its enormous expansion and wide penetration in the lives of people in late modernity (Dubet, 2006; Mehta & Davies, 2018).

The undermining of the educational institution has been accompanied by a persistent weakness of the teaching profession in Chile, even though in the last decade various measures have been implemented to strengthen it (Ávalos, 2013; Ávalos & Bellei, 2019). In fact, the difficulties in ensuring the presence of teaching staff, linked to mental health problems and teacher shortages, reflect structural problems of the Chilean school system that existed prior to the pandemic. Poor working conditions, discrediting of the teaching profession, high dropout of young teachers, and a low capacity to attract new generations of secondary education graduates to the teaching profession have incited an enormous teacher shortage in Chile. At the student level, the crisis reflected in problems of absenteeism, mental health issues, and reduced learning outcomes is unquestionably distressing. The pandemic exacerbated an already existing problem regarding mental health and well-being, since Chilean children and adolescents already had a high prevalence of symptoms associated with stress, depression, and anxiety compared to other countries (Rescorla et al., 2011). For some authors, this goes back to the very form in which most Chilean families socialize their young children, characterized by high levels of violence, repression, and low levels of autonomy and respect (Lecannelier, 2021). Persistent underperformance in academic achievement has been a central issue in Chilean education policy for decades; however, current evidence of a long-term stagnation of student performance in both primary and secondary levels indicates the ineffectiveness of the implemented policies and makes clear the need for a new policy paradigm (Bellei & Munoz, 2021).

As explained, the current Chilean government announced a multidimensional plan to face the consequences of the crisis in the coming years, which includes national strategies for mental health, school coexistence, literacy and numeracy, dropout prevention, school connectivity, teacher training, and massive tutoring programs. Nevertheless, the very crisis of the educational device produced by the pandemic that included the use of the school space, the allocation of school time, the

prevalent teaching/learning methodologies, the definition of an appropriate curriculum; among others, aggravated the problem of "returning to normality". In our view, overcoming this process of deinstitutionalization requires a profound revision of the Chilean education system, since the traditional "school grammar" has been questioned. This crisis can be a great opportunity to adapt Chilean education to the demands of contemporary society (Bellei & Morawietz, 2016), as suggested by the latest UNESCO report calling for a "A New Social Contract for Education" (UNESCO, 2021). Ultimately, we face the fundamental question of what purpose formal education will have in a future Chilean society as a tool for human development and social equality.

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Chapter 4
The Switch to Distance Teaching and Learning in Finland During the COVID-19 Pandemic (2020–2022) Went Technically Well but Was Emotionally Challenging

Katariina Salmela-Aro and Jari Lavonen

Abstract In this chapter, we analyze and discuss teaching, learning and well-being in Finnish education during the COVID-19 pandemic between Spring 2020 and Fall 2022. First, we analyze the preconditions, such as teachers' and students' digital competences and the digital infrastructure necessary to switch to distance teaching and learning. Second, we present the results of a survey concerning the organization and experience of teaching and learning during the COVID-19 pandemic. Third, we discuss the engagement and well-being of teachers, principals and students during the pandemic based on survey data. During the pandemic, teachers developed digital pedagogy and students enhanced their digital competence, and several digital pedagogy and co-teaching innovations were created. However, we identified decreased engagement among students, teachers, and principals during the pandemic and an increase in stress and burnout among teachers and principals. Principals felt the impact of the stress their teachers faced, and teachers struggled to make up for the differing efforts among families to cope with distance learning. Overall, the switch to distance teaching and learning was organized effectively, but the distance-learning period weakened the equality of teaching and the conditions that encourage learning and well-being.

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Introduction

Over the last 3 years, the COVID-19 pandemic has influenced the teaching, learning, and well-being of entire school ecosystems around the world and at all levels of education (UNESCO, 2022; United Nations, 2020). This is because almost all countries implemented different durations and types of distancing policies to limit the spread of the infection. There is evidence that the pandemic resulted in teaching and learning loss as well as a decrease in well-being from schools all over the world. Teaching loss – meaning that teaching is substantially disrupted or that it is not possible to realize all planned teaching – transpired because of a lack of digital devices and connection to the internet. Learning loss occurred when learning and practicing different skills became more difficult due to the transition to distance education. Learning loss has been especially notable in school subjects where skills are typically practiced under the supervision of a teacher, such as mathematics. Also, the personal learning process may have been temporarily disrupted or completely stopped due to various factors, for example, a lack of motivation or self-regulation skills, anxiety, or a lack of support (Reimers, 2022). Finally, a decrease in well-being is a result of increased burnout among students, parents, teachers and principals and decreased engagement (Salmela-Aro et al., 2020, 2021).

Although Finland is heavily committed to a decentralized decision-making process in education, the national government decided to close schools from 18th March until 13th May 2020 and advised schools to make the transition to distance teaching and learning. However, first-, second- and third-grade pupils and students with special needs accomodations were allowed to go to school during the distance learning period. In the beginning of the autumn semester of 2020, decision-making power was returned to local authorities and education providers. However, the Ministry of Education and Culture advised schools to follow heightened hand hygiene protocols, to offer tests to teachers and students who feel sick, and to practice distancing in public spaces. In the case of positive test results, the school principal was advised to contact the appropriate medical unit for infectious diseases. They were guided to assess the situation and take the required measures, such as organizing distance teaching for the infected student(s) or entire school, as needed.

According to a search of national and local newspapers' databases for the academic year 2020–2021, schools in some municipalities switched to distance teaching and learning for 2 or 3 weeks in response to rising infection rates. Beginning in autumn 2021, school closures decreased dramatically because the Finnish Institute for Health recognized that the closing of schools had no impact on the number of COVID-19 infections (Juutinen et al., 2021). However, educators continued to utilize distance teaching for infected students or whole classrooms through distance when necessary.

Reimers (2022), in their summary of the experiences of teaching and learning during COVID-19 in 14 countries, indicated that teachers found it challenging to

manage their instruction appropriately. Transforming education during the pandemic required innovation throughout all levels of the education system. These innovations have been necessary to overcome the challenges that education systems are facing, such as learning loss, dropouts, increased polarization and heterogeneity, and worsening well-being. An example of teacher creativity in Finland during the first COVID-19 year is highlighted in Iivari et al. (2020), who described how two fifth-grade teachers began to work as a team and divide their workload by sharing online class responsibilities. The teachers decided that a school day would consist of two to four live lessons a day via Google Meet. Half of the lessons were taught by one teacher, half by the other. After a 20-min live teaching session, students had 40–50 min for individual work. Following the individual work period, the class gathered again on Google Meet to discuss the outcomes. Each of the day's tasks were sent to the students the evening before class. At the end of the school day, the teachers checked the tasks in Google Classroom and planned the lessons together for the next day. This type of team-teaching was engaging for both teachers and learners, and the success with distance teaching in this case was attributed three main factors, First, both the teachers and learners were familiar with the Google Classroom format and had the appropriate digital skills and tools. Second, the teachers had quality training and were able to generate solutions to new challenges. Third, students had internet connections at home, and the school loaned laptops to those without one. However, there were still challenges in this distance learning space. Although the students and teachers were able to communicate and complete their assignments, the teachers were not able to support the engagement and well-being of all learners. In addition, the students lacked peer support and informal collaboration sessions.

Many researchers have studied the impact of COVID-19 on the education sector, such as on teacher workload, uses of education technology, the appropriate pedagogy to utilize for remote teaching, and learning content adaptation (Amarachukwu Nkechi et al., 2021; Chadwick & McLoughlin, 2021; Leonardi et al., 2021; Upadyaya et al., 2021). The results show that there were challenges in the use of pedagogy in online teaching and learning. This chapter focuses on the general success of Finland's transition to distance teaching and learning during the first and second pandemic years and the relatively small learning loss seen as a result (Lerkkanen et al., 2022; Metsämuuronen & Nousiainen, 2021; Riudavets-Barcons & Uusitalo, 2023). We also highlight a decrease in principal, teacher, and student well-being and engagement during the pandemic. We first analyze the preconditions for change from traditional classroom teaching to distance teaching, that is, existing teacher and student education technology skills and technological infrastructure. Second, we review national follow-up surveys and research papers from the early pandemic period to study student learning and well-being. Finally, we present our own COVID-19-related education sector studies, which focus on teachers and principals.

The Situation Before COVID: Pre-Pandemic Teacher and Student Surveys

Compulsory education in Finland comprises 1 year of early childhood education, 6 years of primary education and 6 years of secondary education (Finnish National Agency of Education [EduFi], 2022). Educational equality and equity have been important values and aims at all levels of Finnish education since the 1970s. As a result of this policy, free education is provided at all levels, as well as counseling, health services, and meals. Finnish special needs education aims to integrate all learners into the same general education classrooms as their peers and to support their learning. Primary and secondary teachers are responsible for monitoring the individual needs of learners and preparing pedagogical plans for enhanced or intensified support as needed. However, equality has decreased in Finland over the last 10 years, especially regarding family socio-economic background (Ukkola & Väätäinen, 2021).

Another important characteristic of Finnish education policy and practice is collaborative and long-term planning of strategy and curriculum. There have been six official national-level digital education or Information and Communication Technology (ICT) strategies. Four of these have been integrated into curriculum and hundreds of government-funded development and in-service teacher training projects over the last 35 years (Mahlamäki-Kultanen et al., 2014). The national framework curriculum for compulsory education emphasizes student competency of transversal skills. These skills include: the use of digital tools in diverse and creative ways; collaboration and networking with digital tools; and working with data, information, and knowledge. In-service training focused on the use of digital pedagogy, helping teachers with instructional design, and the use of digital tools and platforms to support students' learning and well-being (Kumpulainen, 2017; Niemi, 2015). In 2017, 2500 tutor-teacher positions were established with funding from the Basic Education Forum (MEC, 2020). Tutor-teachers are required to complete fewer teaching hours than other classroom teachers, which allows them to spend more time supporting their colleagues. These tutor-teachers are educated to support teachers in the use of digital tools, the organization of inclusive education, and the learning of transversal competences in the classroom.

Before COVID-19 began to spread, Finland already had a robust digital infrastructure, and Finnish people were active users of digital services. According to Digibarometer 2019 (Ali-Yrkkö et al., 2019), Finland ranked third in international comparisons the two previous years in terms of overall use of the internet and people under than 55 reporting using the internet frequently (Tilastokeskus, 2019). In a European ySkills study conducted between 2020 and 2022, Finnish adolescents ranked highest in perceived digital skills (yskills.eu, 2020; see also Salmela-Aro & Motti, 2022). According to the European Commission (2018), Finnish people are ranked highly in the area of general digital skills and are global leaders in advanced digital skills. Consequently, technical pre-conditions for distance teaching and

learning were sufficient, and most parents already possessed the basic skills needed to support distance learning.

According to the IEA International Computer and Information Literacy Study 2018 (Fraillon et al., 2019), all schools in Finland have access to the internet, and 93% of compulsory school students had an e-mail account for school-related use before COVID-19. Both percentages are significantly above average among the countries that participated in the study. Almost all schools have versatile digital tools available, including software for working with text, numbers, and pictures, as well as learning management systems. In this pre-pandemic study, 83% of schools reported that it was possible to have digital tools in the classroom, and there were computers in one-third of Finnish classrooms at all times. Finland ranked fourth in the use of the internet in education, following Sweden, the United States, and Estonia (Ali-Yrkkö et al., 2019).

Tanhua-Piiroinen et al. (2019) conducted a national follow-up study that considered students' and teachers' digital competences using a representative sample of about 4500 teachers and 4000 second-grade, 5000 fifth grade, and 5000 eighth-grade students. This study provided a realistic picture of the use of digital tools in teaching and learning prior to the pandemic. It included both survey questions and items measuring digital competence in realistic situations. According to the study, 66% of second graders had access to a tablet or other digital tools at school, while 11% of fifth graders had their own tablets and 74% of them were able to use a shared tablet or smartphone at school. Although many students had access to devices at school, access to these devices at home was an issue for some, particularly among families of lower-socioeconomic status.

According to the follow-up study (Tanhua-Piiroinen et al., 2019), most eighth-grade students used digital tools daily for communication, social relationships, and entertainment before COVID-19 (Fraillon et al., 2019). Many of these students used digital tools 'sometimes' for producing and sharing digital content. The 2018 Organisation for Economic Co-operation and Development (OECD) TALIS survey (2019) showed similar findings related to the use of digital devices in Finnish schools before COVID. However, the survey identified differences between the competences related to the use of digital tools possessed by students from different socio-economic backgrounds. The survey indicated that there was inequality in Finland based on socio-economic backgrounds (Ahtiainen et al., 2020; Karvi, 2020). According to PISA 2018 (Leino et al., 2019; OECD, 2019), Finnish 15-year-old students spent an average of 74 min at school and 2 h and 50 min out of school on the internet. About 50% of all students searched the internet for information, 65% completed their homework with a computer at least twice a month, and 90% used the internet to complete their homework at least twice a month. However, Saarinen et al. (2019) recognized the challenges of integrating digital tools into learning.

Returning to the follow-up study by Tanhua-Piiroinen et al. (2019), the digital competence of teachers markedly improved from the previous year. Approximately 38% of teachers felt that they had an advanced level of digital competence and only

10% felt that they lacked digital competence. There was some variation in teacher competences between municipalities. Teachers reported that they used digital learning environments, on average, in half of their lessons, and that they presented information with the help of digital tools in most lessons. According to the International TALIS 2018 survey (OECD, 2019), Finnish teachers were making good progress with the use of digital tools in teaching and learning and in acquiring digital competence.

In summary, based on the pre-COVID surveys and national follow-up studies, there were good preconditions for switching to distance teaching and learning, such as teacher and student digital competences and established digital infrastructure (Tanhua-Piiroinen et al., 2019).

Teaching and Learning During COVID-19

After the school closures in 2020, Ahtiainen et al. (2020) collected representative data from principals and teachers from all Finnish municipalities, as well as from students in grades 4 through 10 and parents and guardians of students in grades 1 through 10. They recognized that the rapid transition to distance-learning went relatively well. However, students experienced distance learning in different ways, and most teachers felt that their workload was higher than in the pre-pandemic conditions. One-third of primary school students believed that they learned less than usual during the distance-learning period. On the other hand, teachers felt that their own digital skills had developed during that time. Moreover, one-third of the teachers reported that they had increased collaboration with other teachers. Nearly all principals reported that their school provided opportunities for teachers to share their experiences regarding distance-teaching arrangements. Challenges were most often related to students' devices and teachers' equipment and network connections. Nearly two-thirds of principals estimated that at least half of their school's teachers had reported pedagogical challenges related to the implementation of distance learning. Parents and guardians had to take more responsibility for their children's learning than usual, and about half of them felt that this increased their stress level.

The Finnish Education Evaluation Centre (Metsämuuronen & Seppälä, 2022) summarized their pandemic-era survey outcomes (e.g., Goman et al., 2021; Metsämuuronen & Nousiainen, 2021) and other relevant studies and reviews in Finland (e.g., Bernelius & Huilla, 2021). They argued that distance teaching and learning was not appropriate for all students, and a significant portion of learners at all levels of education experienced study-related stress and problems related to their study capabilities. Those students who had internal or external motivation, self-regulation skills and strong support from their families suggested they learned as much or more in distance education than in a normal classroom setting. However, those with low motivation and self-regulation and low support from families seem to have struggled. New methods of teaching and student guidance have since been developed at all levels of education (Goman et al., 2021). Considering these new

developments, fewer students are expected to fall behind if distance education occurs again.

A national sample-based assessment of ninth-grade students' learning outcomes in mathematics was administered 1 year after Finland switched to distance learning during the COVID-19 pandemic (Metsämuuronen & Nousiainen, 2021). Finland has seen a downward trend in students' performance in mathematics since 2006, and the post-COVID distance teaching and learning assessment deepened that trend. Moreover, the difference between high-achieving and low-achieving students grew. The researchers interpreted the change as a possible result of the COVID-19 pandemic. In particular, vulnerable students and those who had problems related to motivation, workload, and learning felt that the progress of their studies was slower and that the support they received from the school was weaker than that provided to other students (Goman et al., 2021). Vulnerable groups in Finland include those with an immigrant background, learners in need of special and enhanced support, and learners with weak information network connections (Metsämuuronen & Nousiainen, 2021). There were no significant differences in performance among different types of municipalities, between Finnish- and Swedish-speaking schools, or between genders. However, the differences between schools increased from previous assessments. This increase is a result of an increase in regional differences, such as the unemployment rate and the socio-economic backgrounds of parents in the region (Nissinen et al., 2018).

Based on an assessment of ninth-grade students' learning outcomes in mathematics, Metsämuuronen and Nousiainen (2021) argued that distance teaching influenced student responses. For example, the responses often lacked arguments and evidence of reasoning processes, especially among the lowest achievement group. The researchers hypothesized why there was a sharp drop in the achievement of this group based on the background variables. They argued that the lack of interest, self-directedness, and motivation of the low-achieving students, combined with the possible lack of a control mechanism at home, influenced the decrease. On the other hand, guardians belonging to higher socio-economic groups, especially those with degrees in higher education, were generally more involved in their child's schooling. In these families, the guardians ensured that the connections needed for the distance lessons were functional, the lessons were attended, and the assigned homework was completed.

Regarding elementary students, a recent Finnish study identified lower reading skills among 198 grade 3 students during the COVID-19 pandemic compared to their peers before distance learning (Lerkkanen et al., 2022). More specifically, they identified slower learning fluency and decreased comprehension (Lerkkanen et al., 2022). There was little change seen in math performance.

Our own datasets collected from students allowed us to identify both different groups of students and different phases in student well-being during the pandemic (Salmela-Aro et al., 2021, 2022). Based on our longitudinal data collected both before and during the pandemic from 2500 students in the Helsinki area (Salmela-Aro et al., 2021), we were able to identify both those whose engagement increased, leading to less chance of burnout (24% among grades 5–6, and 16% among those in

grades 7–8), and those whose engagement decreased, increasing chances of burnout (76% among grades 5–6, and 84% among those in grades 7–8). Thus, burnout among students increased and well-being significantly decreased. We also identified that students who indicated better socioemotional skills, curiosity, grit, resilience, and social skills were more likely to show increased school engagement during the pandemic (see also Guo et al., 2022). Moreover, those students were more likely to be from a higher SES (Salmela-Aro et al., 2021). Unfortunately, the results showed that among all students in our longitudinal study, loneliness increased, and relatedness decreased during the pandemic (Salmela-Aro et al., 2021, 2022).

We can identify changes in school burnout in terms of student feelings of exhaustion, cynicism, and inadequacy through the large-scale Finnish school health data. This data includes students from grades 8–9 as well as high school and vocational school students (see also Salmela-Aro et al., 2022). We can identify trends in 15 years of school burnout starting in the year 2006 until the pandemic. These results show that school burnout increased among students in grades 8–9 as well as in high school students (See Figs. 4.1, 4.2, 4.3, and 4.4). Moreover, girls in Helsinki showed a dramatic increase in all the components of school burnout (exhaustion, cynicism, and inadequacy) during the pandemic (See the last three Figs. 4.2, 4.3, and 4.4).

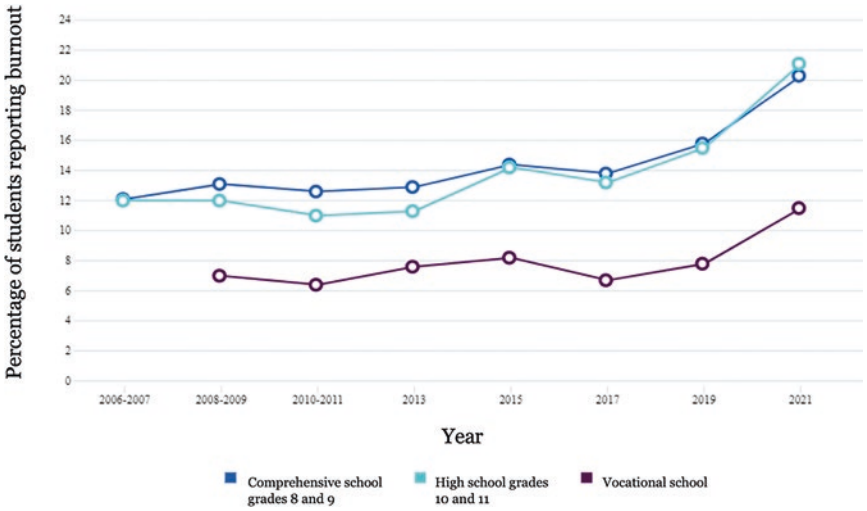

Fig. 4.1 Change in student reports of school burnout before and during the pandemic. Note: This information is adapted from Finnish school health data. The legend and labels were translated from Finnish to English

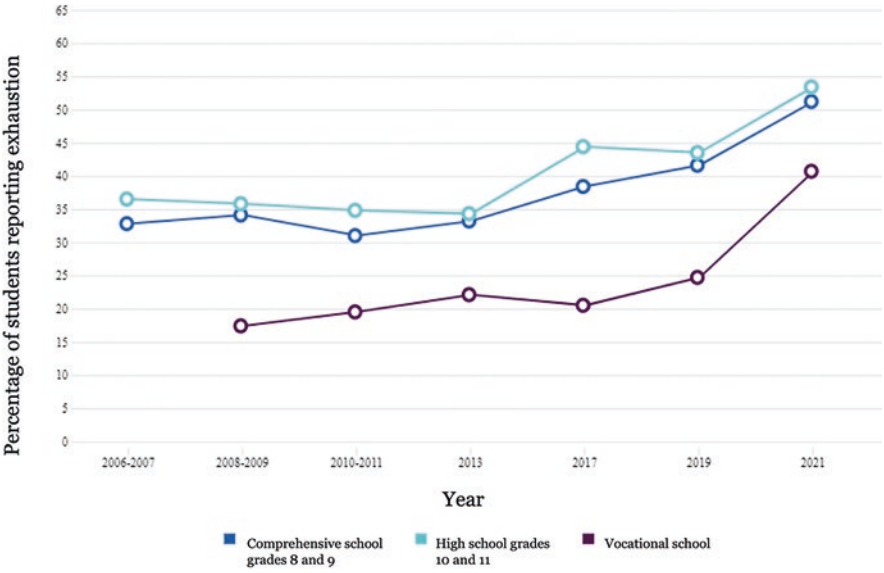

Fig. 4.2 Percentage of students reported exhaustion among girls in Helsinki. Note: This information is adapted from Finnish school health data. The legend and labels were translated from Finnish to English

Principal, Teacher, and Student Experiences of Teaching and Learning During COVID-19

Together with the Trade Union of Education (OAJ), we surveyed teachers regarding their working conditions from Spring 2020 to Spring 2022 (Salmela-Aro et al., 2020). The COVID-19 period highlighted the importance of teachers, regardless of the level at which they work. However, there is clear evidence of increased teacher burnout during the pandemic (Figs. 4.5 and 4.6).

Teachers' work engagement – including energy, dedication, and absorption – and work burnout – including exhaustion, cynicism, and inadequacy – profiles changed between May 2020 and Fall 2021. In May 2020, 10% of teachers identified as burned out, 37% as at risk of burnout, 11% as engaged-exhausted and 42% identified as engaged. In fall 2021, only 20% were engaged, whereas 29% were engaged-exhausted, 14% were suffering burnout, 9% were burnout-cynical and 29% were at risk of burnout. These results show that teacher burnout approximately doubled during the pandemic, and the number of engaged teachers was cut in half. Thus, we determine the pandemic had severe and long-term well-being costs for teachers.

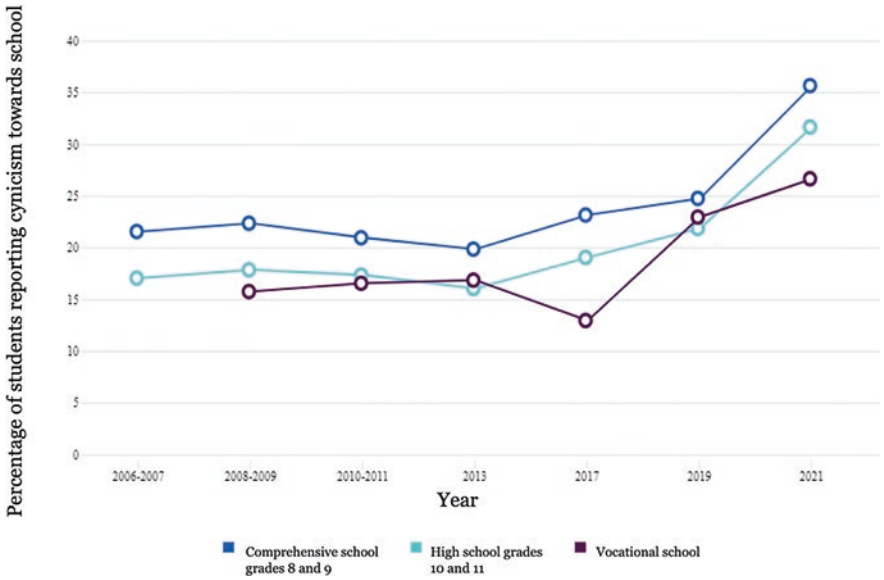

Fig. 4.3 Percentage of students reported cynicism towards the school among girls in Helsinki. Note: This information is adapted from Finnish school health data. The legend and labels were translated from Finnish to English

Despite these challenges, we were also able to identify some silver linings. Information collected every 6 months during the pandemic from May 2020 to May 2022 from about 4500 teachers in Finland indicated that teachers' work engagement decreased between spring 2020 and December 2021 (See Figure, solid line). However, work engagement started to recover in the spring of 2022. Similarly, teachers' work burnout increased after May 2020 during every measurement until December 2021 (See Fig. 4.7 below, dotted line). It then showed a moderate decrease during May 2022. During the last measurement in spring 2022, rapid recovery was seen in work engagement and teacher burnout partially recovered. These important results show how teacher motivation towards work started to recover earlier. This silver lining stands in contrast to the long-term effects of the pandemic, which have cast a long shadow on teachers' well-being and related work ability.

According to the principal barometer, which is based on data collected among all principals in Finland in collaboration with SURE, the Finnish principal organization, the number of principals who were exhausted or at risk of exhaustion increased during the pandemic from the spring of 2019. Additionally, the 2022 results showed that the proportion of principals indicating burnout is twice as high as it was in 2019 (See Fig. 4.8). Before the pandemic, about 10% of principals identified as burned out; the number was almost 24% in 2022 (See Fig. 4.9). We identified three profiles:

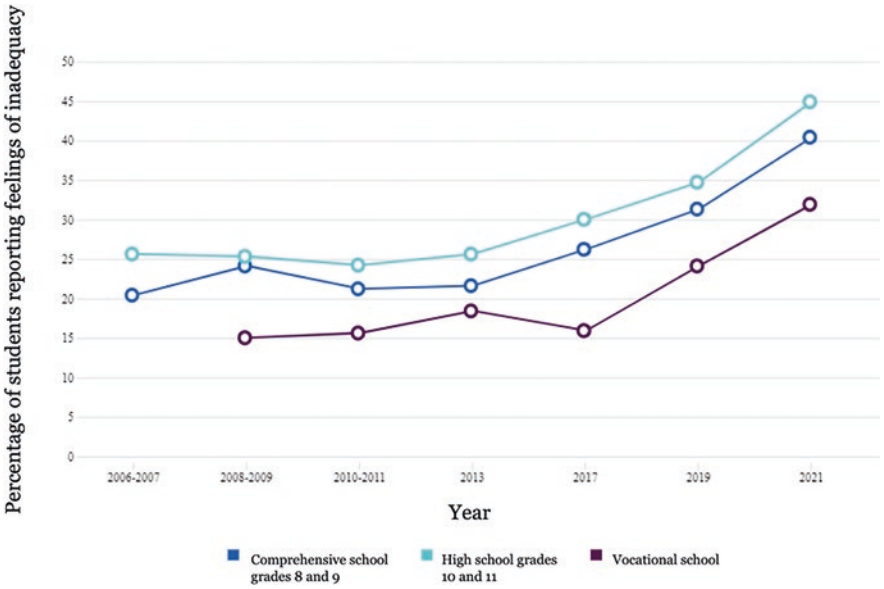

Fig. 4.4 Percentage of students reported inadequacy among girls in Helsinki. Note: This information is adapted from Finnish school health data. The legend and labels were translated from Finnish to English

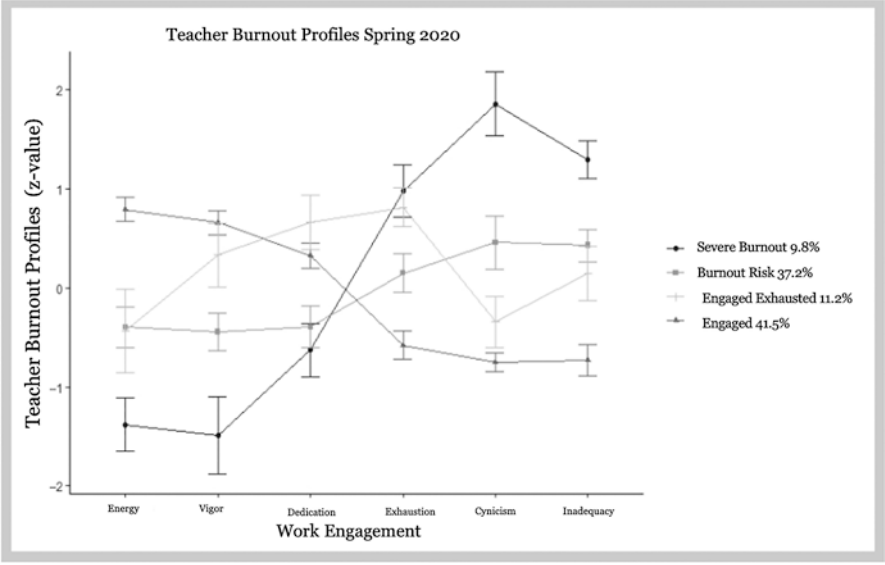

Fig. 4.5 Teacher's burnout profiles spring 2020

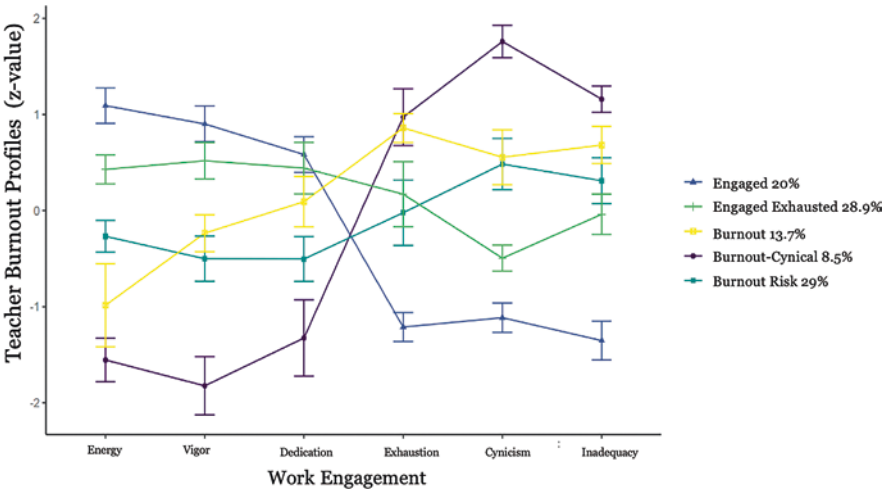

Fig. 4.6 Teacher's burnout profiles fall 2021

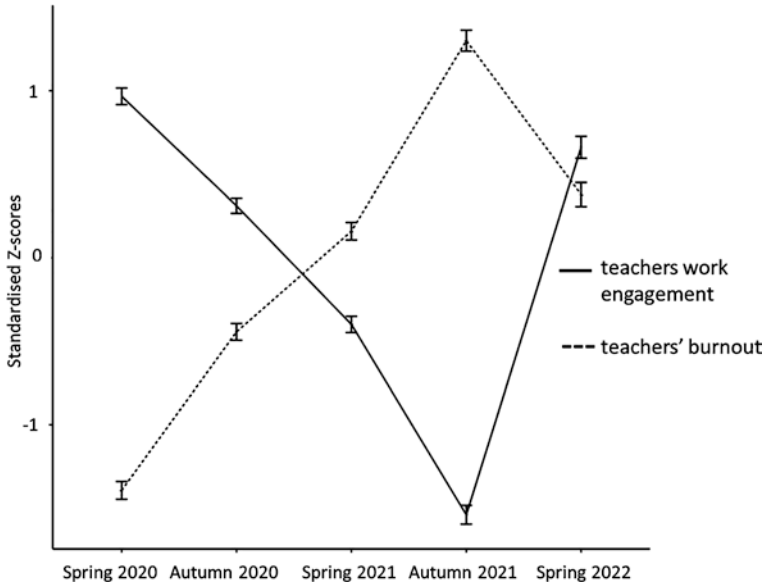

Fig. 4.7 Teachers' standardized work engagement and work Burnout from Spring 2020 to Spring 2022

burnout, normative (or at risk of burnout), and engaged. Almost half of the principals were identified as at risk of burnout (normative). Principals play a key role in the context of the school ecosystem, and they had to lead the whole system during the COVID-19 crisis. Principals are burned out after being loaded with work and responsibility for almost three crisis years. Thus, we find the crisis has had a

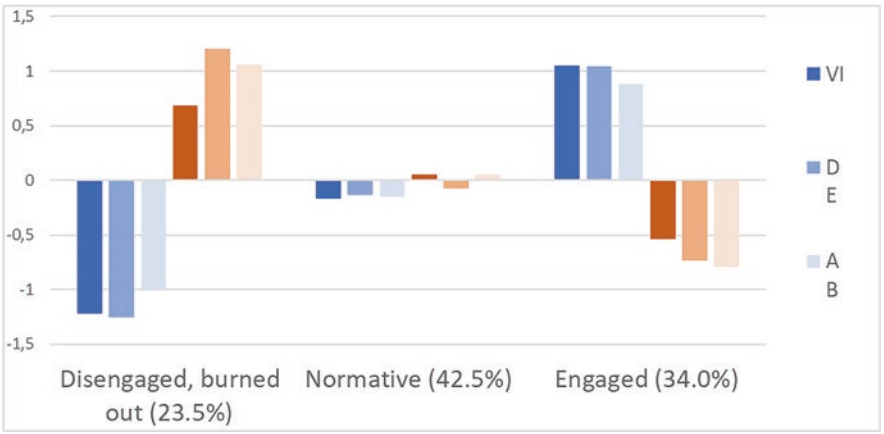

Fig. 4.8 Three Principal Work Engagement and Burnout Profiles in 2022. Note: From darkest to lightest blue – vigor, dedication, and absorption. From darkest to lightest orange: exhaustion, cynicism, and inadequacy

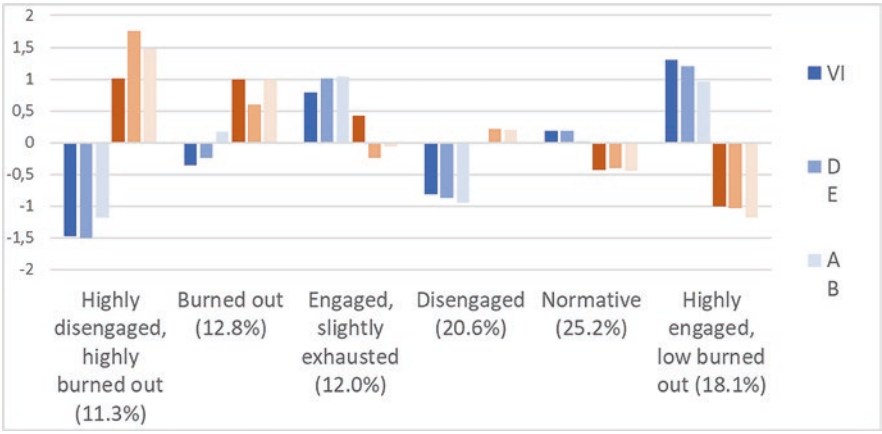

Fig. 4.9 Six Principal Work Engagement and Burnout Profiles in 2022. Note: From darkest to lightest blue – vigor, dedication, and absorption. From darkest to lightest orange: exhaustion, cynicism, and inadequacy

long-term effect on principals' work-related well-being. We also identified six profiles (See Fig. 4.9). These results show that about 12% of principals were simultaneously overcommitted and exhausted. Now is an important phase in which to recognize these different principal profiles and offer opportunities for recovery. We need a resilient educational system more than ever before.

Discussion

In summary, the transition to distance teaching and learning went technically well, but the distance-learning period weakened the equality of teaching and the conditions for learning. The challenges brought by the pandemic can be analyzed from three perspectives: the teaching and learning loss; student, teacher, and principal well-being loss and the challenges brought by distance-teaching pedagogy.

Preconditions for a Smooth Transition to Distance Teaching

In the spring of 2020, the nationwide shift to distance teaching and learning was accomplished without significant technical problems. During the beginning of the second COVID-19 school year, schools in several municipalities switched to distance teaching and learning for 2 or 3 weeks, following the recommendation of medical authorities at the local level. However, since autumn 2021, school closures have decreased dramatically, as the Finnish Institute for Health recognized that the closing of schools had no impact on COVID-19 infection rates (Juutinen et al., 2021).

There are several reasons why the shift to distance teaching was relatively successful. First, all Finnish teachers are educated in master's-level programs, and their digital skills are at an appropriate level. According to a COVID-19 follow-up study (Tanhua-Piiroinen et al., 2019), about 50% of secondary and primary teachers stated that they have basic digital competency, and about 40% stated that they possess advanced competency. König et al. (2020) emphasized that teachers' digital competences and the opportunities to learn those skills are instrumental in adapting to online teaching. High-quality teachers, combined with local-level decision making in decentralized education systems, made it possible to make decisions at the teacher level, including how to organize distance teaching, what kind of digital pedagogy will be used, and how teachers will collaborate. In addition to their education, there are two main reasons for digital pedagogy competence among teachers. Since the 1980s, digital strategies have been made available and resources have been allocated for their implementation via support for teacher professional learning. Despite relatively high digital competence, some schools faced a lack of digital competence among teachers. This resulted in an increased stress for principals during the COVID-19 pandemic. Therefore, it is important to support teachers with low digital competences moving forward. In addition to teacher digital competence, student competences were also recognized as a component in the successful transition to distance teaching and learning (Tanhua-Piiroinen et al., 2019). The third reason for the successful transition to distance teaching was the level of good digital infrastructure throughout the country. In Finland, almost all schools had versatile digital tools available at the start of the pandemic, including software for working with

text, numbers, and pictures as well as learning management systems. Laptops were loaned to students who did not have a laptop at home, and companies also donated laptops to students. A lack of digital tools was not reported by any surveys during COVID-19. König et al. (2020) emphasized the availability of digital tools as a precondition for success in distance learning.

Based on the national surveys completed during the pandemic, many believe that practical guidelines could be offered if distance learning were implemented again. Additionally, these surveys found that more attention should be given to supporting students individually and to guiding students through peer support and collaboration (cf. Ahtiainen et al., 2020). Teacher collaboration and networking should also be supported, according to the surveys. Teachers at the same grade level in primary school and those who teach the same subject in lower secondary schools could benefit from such collaboration. These teachers might plan and practice lessons together to support the education of all students, including those with special needs. (cf. Iivari et al., 2020). International collaboration is also needed to identify the best practices for distance teaching and learning and to address future crises.

Learning and Well-Being Loss by Students

We can identify well-being loss among both teachers and students and learning loss among the students during the coronavirus period. Notably, the difference between high-achieving and low-achieving students increased during this time. Vulnerable students – including those who had problems related to motivation, workload and learning during the exceptional circumstances – felt that the progress of their studies and the support they received from the school were less than that achieved and received by other students (Goman et al., 2021). For some students, remote working and focusing on tasks was difficult to achieve independently and would have required more support. For example, these students may have benefitted from remedial teaching, extra support, limited distraction, or a study plan. As a result, learning loss arose for some students (Metsä-Muuronen & Nousiainen, 2021). Thus, we have identified increasing heterogeneity among Finnish students. The performance of most low-achieving students has decreased largely due to a lack of self-directed learning skills and motivation to participate in distance teaching and learning. This decrease can also partially be explained by low support from guardians and a lack of learning spaces at home.

Although the emergence of some learning loss during the COVID-19 pandemic is evident, less is known about how much genuine and permanent learning loss emerged. Therefore, it is important to map the issue in more detail in future national learning outcome assessments. In addition to the long-standing decline in learning outcomes, the COVID-19 era accelerated the growing differences between schools

in Finland and in other Nordic countries (e.g., Kavli, 2018). This can be seen in the 2020 national assessment of learning outcomes in mathematics (Metsämuuronen & Nousiainen, 2021). Consequently, more support should be given to low-performing schools to organize more effective special education and counseling.

The crisis has also revealed how learning and well-being go hand in hand (Refer to the OECD Learning and Teaching Compass). Results reveal increases in feelings of burnout, inadequacy, exhaustion and cynicism among students, principals and teachers. The lack of well-being is related to perceived loneliness and externality, among other factors (Junttila, 2021) and may be connected to the emergence of a skills gap. The crisis highlighted that schools perform various important functions. School is an important ecosystem for collaboration and relatedness, which is an important psychological need for children and adults. Thus, closing schools should be avoided as much as possible in any future crisis. In addition, special efforts should be made in the future to assure that vulnerable groups receive the support they need. The crisis also revealed the important role of social-emotional skills, in addition to academic skills, in a student's success. Social-emotional skills should be promoted at schools, thus encouraging more resilient students and school ecosystems in the future (Guo et al., 2022).

Challenges in student self-direction and self-regulation skills seem to be the main reasons for the teaching loss turning into a learning loss in Finland and elsewhere (Goman et al., 2021; Schleicher, 2020). Motivated and self-directed students with adequate social-emotional skills – such as grit, curiosity, resilience, and social skills – did not suffer as greatly from the lack of in-person teaching. A lack of self-direction was especially evident in some students' goal setting and in their lack of peer interaction in learning situations. Students who face challenges in self-direction require teacher guidance and support in distance education. Therefore, it is important to understand how self-direction can be developed in the school context. On the other hand, there are indications that during the pandemic shutdowns, parents belonging to higher socio-economic groups and, more importantly, more educated parents were more interested in their children's learning (Metsämuuronen & Nousiainen, 2021). In these families, the parents ensured that the connections needed for remote classes were functional, that classes were attended, and that homework was completed.

According to Goman et al. (2021), students of all ages were burdened during the pandemic by their studies and by incompetence related to readiness for learning. The support students received during distance learning was not sufficient in many respects, and there were also challenges in organizing and distributing counselling in basic education, upper secondary schools, and vocational schools. The lack of face-to-face teaching increased the need for support, especially for learners who had more significant problems with the progress of their studies. In particular, the needs of learners whose native language is not Finnish or Swedish were not effectively identified, which resulted in a special learning and competence deficit for this group of learners during the crises.

Therefore, the Government Equality Development Program for Compulsory Education and Early Childhood Education, which was started just before the pandemic, has become even more critical to Finnish society (MEC, 2020). This program aims to strengthen educational equality and learning outcomes, broaden student possibilities to receive support and guidance, and enhance the quality of teaching. The Right to Learn Project allocates resources for equalizing the effects of the emergency, for providing guidance and support, and for the development of digital environments. Metsämuuronen and Seppälä (2022) argued that in the coming years, the effectiveness of these measures must be systematically monitored at both the national and local levels.

The pandemic had a significant influence on both teacher and principal well-being. Immediately after the crisis, work engagement among teachers decreased while work burnout increased. However, we now find some signs of recovery among teachers. Interestingly, the impact on principal work engagement and work burnout was delayed. Principals needed to lead during the crisis, act as role models, and make important and challenging decisions. They also felt that the teachers' increased burnout was a serious challenge. Thus, principals are now suffering from work burnout at twice the frequency exhibited before the pandemic. It is important to learn from the pandemic so that we can rely on a more resilient school ecosystem in the future, and resilient principals are crucial to that ecosystem.

Future Challenges

We do not yet know the extent and long-term duration of the learning loss, which may be strengthened further by the continuing decline in the competence of young people in Finland that has been happening for many years (Ukkola & Väätäinen, 2021). This decline seems to be significantly connected to the support and guidance available at schools, the socio-economic background of families, and the marginalization and lack of self-direction among students. Therefore, it is important to identify student needs – regarding support in learning, cooperation, and self-direction – and develop effective solutions to support various student circumstances. In addition to the growing differences in learning outcomes among individuals, there is an increase in differences between school-level learning outcomes. Finland should recognize the diverse needs of schools related to teaching and guidance and develop effective solutions to support these school needs. Based on national evaluations in Finland, Goman et al. (2021) suggested that the challenges can be addressed by developing learning support, guidance, and professional learning opportunities for teachers. In addition, better national guidance is needed, as well as monitoring, evaluation, and development of teaching and teachers at the local level. Strengthening self-direction and study readiness for students serves both to prepare for similar exceptional circumstances in the future and to increase the integration of multimodal teaching and different learning environments at different levels of education.

Despite some of these challenges, the use of digital devices in learning has increased, and this increase has changed learning. For example, online collaboration, information retrieval, and information processing have facilitated learning and made it possible to learn together and to learn outside of school. The issues regarding equality include how to support the use of digital devices and encourage the development of sufficient digital competence for all students to enable continuous learning and preparation for working life. In the future, digital pedagogy must continue to be developed at all schools so that the needs of special groups and learners from diverse circumstances are considered.

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Chapter 5
What Japan's Education Has Lost and Gained After Almost Succeeding in Preventing the Spread of COVID-19 Infection and Guaranteeing Academic Achievement

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Abstract In Japan, the first wave of the Covid19 pandemic began in the spring of 2020 and almost all schools were closed. Thereafter, vaccinations and infection prevention efforts progressed, and most schools did not close entirely after the second wave. Many schools shortened their summer vacations significantly and held classes, the MEXT distributed one information terminal to each elementary and junior high school student, and the MEXT opened the "Children's Learning Support Website". As a result, learning delays were almost recovered. On the other hand, the repeated waves of COVID-19, the prolonged wearing of masks, and the lack of normalization of relationships with friends had a significant negative impact on the mental health of junior and senior high school students. The silver lining of COVID-19 was the progress made in ICT in education, which had not been well spread.

Introduction

At the 15th meeting of the Novel Coronavirus Response Headquarters on February 27, 2020, the Prime Minister indicated that the government would request the temporary closure of elementary, junior high, and high schools across the country with the aim of preventing the spread of COVID-19 (PMO, 2020). In response to this, the Ministry of Education, Science, Technology, Sports, and Culture (MEXT) requested for the mass temporary closure of schools nationwide from March 2 until the commencement of the spring break. As a result, nearly all schools across the country temporarily closed (MEXT, 2020a).

In Japan, the new school year begins in April. At this point in 2020, most school officials assumed that the entrance and commencement ceremonies would be held

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as planned. On March 24, MEXT issued a statement about the reopening of schools for the new school year and attempted to return to the normal form of operation. They stated that only infected schoolchildren and close contacts should remain home from school (MEXT, 2020b).

However, because of a declaration of a State of Emergency on April 7 in seven prefectures and then for all prefectures nationwide on April 16, most schools across Japan remained closed (PMO, 2020).

Schools gradually reopened after the State of Emergency was lifted in all prefectures on May 25, and as of June 1, 98% of schools were open again. However, this was not a full reopening. Among public schools, only 54% of elementary schools, 56% of junior high schools, and 57% of high schools across Japan fully reopened (MEXT, 2020). Most prefectures began with shortened classes and staggered school attendance, expanding this in stages.

The timeline for reopening differed by region, but in the Tokyo metropolis, some schools took approximately 3 to 4 months to reopen completely. It was not until June 29, 2020, that metropolitan high schools in Tokyo fully reopened. During the three-month period when schools were temporarily closed, children were forced to stay at home for long periods of time. As students were unable to go to school, continued learning via digital means and other methods became required. This led to an increase in stress experienced by children due to the change in lifestyle, as well as an increase in the burden on parents.

Following the first wave of COVID-19 from January to June 2020, there were multiple subsequent waves of infection. However, schools began carrying out infectious disease control and were able to continue operation, rather than mass school closures.

By January 2023, the Japanese government determined that COVID-19 would not be classified as a new influenza or other infectious disease under the Infectious Diseases Control Law after May 2023 and would instead be placed in Category 5 infectious diseases (PMO, 2023). This meant the healthcare delivery system for COVID-19 would transition from special response by limited medical institutions with government involvement on inpatient measures to an autonomous normal response by a wide range of medical institutions. With this announcement, the fight against this new type of coronavirus infection virtually came to an end.

This chapter examines the impact the spread of COVID-19 and the response by schools have had on children's learning and growth in Japan.

Preventing the Spread

Elementary schools, junior high schools, and high schools in Japan generally succeeded in preventing the spread of infection. This was in stark contrast to universities, where there were clusters of outbreaks and the spread of infection fluctuated.

On March 28, 2020, the government determined the Basic Policies for Novel Coronavirus Disease Control, which were revised numerous times through

September 2021 (PMOc, 2020). Throughout the pandemic, MEXT distributed questionnaires about the reopening of school and educational activities, provided guidelines for school operations, and a manual regarding hygiene procedures in schools during COVID-19 (MEXT, 2020).

MEXT also developed documents providing health education guidance materials for teachers, a handbook for health education in junior high schools, and a slide deck about the prevention of infectious diseases (MEXT, 2020). Each school used these materials to provide developmentally appropriate guidance for children of varying ages.

Furthermore, the Japan Society of School Health developed a detailed instruction manual in 2013 for personnel involved in school health, titled "An Explanation of Infectious Diseases to be Prevented in Schools." (Gakkohoken, 2018). At the time of the COVID-19 pandemic, they updated the manual and launched a dedicated website with many effective content, including videos.

Due to the protocols and resources distributed, mentioned above, Prefectural Boards of Education and Municipal Boards of Education were able to carry out detailed guidance for schools, and the schools made their best efforts to prevent the spread of COVID-19 based on the notifications and guidance. For example, the below measures were implemented by the Tokyo Metropolitan Government (TMG, 2020).

Ensuring Basic Infection Prevention Measures In June 2020, infection control equipment– such as acrylic boards, alcohol disinfectant, thermography, CO2 measuring devices and circulators– were deployed to all schools in Tokyo. Municipalities utilized national aid and were subsidized by the Tokyo Metropolitan Government for the purchase costs (TMG, 2020; TMBE, 2020). During the spread of infection, an easy-to-read checklist was created and distributed showing the infection control measures that children and schools should carry out.

Specialists in infectious diseases visited schools in the Tokyo metropolitan area to inspect and evaluate the infection measures, as well as give advice about specific initiatives (MEXT White Paper, 2021, MEXT, 2021).

Before long holidays and an increased risk of infection, pamphlets raising awareness about situations with a heightened risk of infection and a checklist about infection measures that could be done at home were distributed to parents (TMBE, 2020).

Using Tests In September 2021, a system was established for conducting PCR tests to close contacts when someone tested positive to COVID-19 at school (TMG, 2021). PCR testing was also recommended before and after educational activities involving overnight stays and other activities with limited distancing (PMO, 2021).

In collaboration with the national government, simple antigen test kits were distributed to promptly check the infection risk when children, students, or teachers became unwell at school (MEXT, 2021).

Based on the Tokyo Metropolitan Government's intensive implementation plan, a system for qualitative antigen testing was established for teaching staff, public kindergartens, elementary schools, and special support schools with kindergartens

or elementary schools (TMG, 2021). In addition, schools which were not covered by the plan– public junior high schools, special support schools without kindergartens or elementary schools, and high schools–had the same testing system established by February 2022 (PMO, 2022).

Vaccination Recommendation Leaflets were created and distributed to students and their parents to raise awareness about correct information on the COVID-19 vaccination and a summary of large-scale vaccination venues in Tokyo. Teaching staff had priority at the large-scale vaccination venues established by the Tokyo Metropolitan Government, and inoculation was actively promoted (TMG, 2022).

Appropriate Implementation of Class Closures For the sudden spread of the Omicron variant, a manual was created which summarized the appropriate response for when positive cases were identified and the associated period for school closures or home isolation of close contacts at each school (TMBE, 2022).

Formulation of School BCP (a Plan for the Continuation of Educational Activities) To enable the continuation of educational activities as much as possible, a BCP plan was formulated at each school to refine the selection of tasks and adapt the division of roles to account for teaching staff unable to attend work. The personnel support system was also reinforced to support the continuation of school operation during the spread of infection.

Teacher nurses played a large role in infection control at schools nationwide. Thanks to their guidance and collaboration with all teaching staff, students received thorough hygiene education and preventive actions were ensured. The preventative actions included maintaining distance from others, wearing masks, hand washing and other hand hygiene, ventilation, and the avoidance of "the three C's"– closed spaces, especially closed spaces with poor ventilation, crowded places, and close-contact settings, such as close-range conversations where you can touch the other party if you reach out.

As a result of the above, cluster infections in elementary, junior high and high schools were minimized.

Academic Performance: Overcoming the Impact of COVID-19 on Academic Performance

Ensuring Learning

Due to the mass long-term school closures in the spring of 2020, many students did not receive enough class time. Multiple waves of infection arrived after schools had reopened again, and schools were forced to implement shortened classes and staggered school attendance. As such, it was not possible to ensure the same amount of

learning time as before. Due to this, there were concerns about significant declines in the academic performance of children and students. However, these fears of declines in academic performance were overcome because of various response measures.

At the same time as the mass school closures, MEXT announced a learning support content portal website for the duration of the school closure period called the Children Learning Support Website. There was content for early childhood education, elementary school, junior high school, high school, and special support education. Additional content was uploaded and updated over time. Eight hundred fifty types of video content were eventually developed and published for elementary and junior high schools alone (MEXT, 2020).

The Ministry of Economy, Trade, and Industry (METI) also launched a Future Classroom website so students can keep learning. Future Classroom, STEAM library, and similar private, education-related and education technology companies provided digital content and software for schools and households free of charge (METI, 2020).

MEXT initially estimated that students would have approximately 45 less days of school than regular years because of school closures. They considered recovering 15 days of the delay of learning through a shortened summer vacation and making up the remainder through homework at home and supplementary lessons at school (MEXT, 2020).

In May 2020, MEXT released a statement acknowledging that the learning content set in the curriculum guidelines would be shifted to the curriculum for the following year or the year after. However, they called for the necessary teaching for final year students– such as sixth year elementary students, third year junior high school students, and third year high school students– to be completed by the end of the school year. To adjust for these protocols, there was a proposal to reduce the class time for each period and increase the number of periods in a school day, in addition to having shortened summer and winter breaks and the implementation of Saturday classes (MEXT, 2020).

To maintain academic performance, MEXT announced a Comprehensive Package for Ensuring Children's Learning (MEXT, 2020). The overview of this package is as follows:

- Focus on learning activities that can only be done at school, such as collaborative learning in the classroom and teaching effectively in the limited class time.
- Carry out learning activities that can be done alone outside of class.

Through cooperation with textbook publishers, post reference materials related to focused learning activities on the Children Learning Support Website

- Enable special measures to shift part of the learning content to the following year or later.
- Urgent development of personnel/material systems 31 billion yen in the second supplementary budget for 2020; 9 billion yen for the budget in 2021)

- Deploy additional teaching staff (3100 people), learning guidance staff (61,200 people) and school support staff (20,600 people) so sixth year elementary students and third year junior high students could learn in small-sized classes.
- Establish school/student support personnel banks to seek assistance from retired teaching staff and university students.
- Support schools with 1 to five million yen per school to use promptly and flexibly for infectious disease control and learning (distributed according to factors such as infection status and school size)
- Establish online learning using information and communication technology (ICT)
- Prioritize deployment of devices and mobile routers, etc., for children, especially for children without an ICT environment at home.
- Enable online learning at schools in regional areas that should be prioritized in preparation for the second wave, with the provision of (online) training or teaching staff through school site support systems nationwide.
- Use long-term evaluation (LTE) telecommunications equipment (mobile routers) and distance learning equipment.
- Begin development without waiting for decisions on the supplementary budget grant for the municipality.
- MEXT collaborates with supply manufacturers and other industry players.
- Experts directly advise municipalities to advance rapid procurement and the commencement of utilization projects for ICT use.
- Develop environments for online learning using ICT for all students, with an emphasis on schoolchildren in regions designated as prefectures under special precautionary measures, schoolchildren in their final years, and for families unable to provide an ICT environment for financial reasons.
- Cover communication costs to support home learning for low-income households through subsidies for schoolchildren needing protection and assistance, special education support, and for high school students.

MEXT secured 231.8 billion yen in the 2019 supplementary budget and 229.2 billion in the 2020 supplementary budget for the integration of hardware, software, and human resources under the GIGA School Program, which calls for the prompt provision of one computer per student and the preparation of communications environments that connect to students' homes (MEXT, 2020).

Through these government measures, online learning spread rapidly throughout regional areas.

For example, when the nationwide temporary school closures were initially implemented and device procurement and loans in municipalities were underway, the Tokyo Metropolitan Government provided subsidies for routers and other equipment. They promoted the use of loaned school-deployed devices and personal devices. Digital introduction and use were promoted through the assignment of support personnel to enable online learning at both school and home. As measures were required to avoid "the three Cs" in line with the level of infections, a hybrid learning

model was implemented, combining staggered and dispersed school attendance and online learning.

As of June, 95% of the 1794 Boards of Education nationwide had scheduled for a shortened summer break. More than 70% of elementary schools had more than 20 days of summer instruction. 19% of the schools added instruction on Saturdays (MEXT, 2020).

The Measures Worked, and the Delay in Academic Achievement Was Virtually Overcome

Despite there already being a lag in academic achievement among low-income families before COVID-19, the academic measures were successful, and the delay due to COVID-19 was virtually overcome.

On March 28, 2022, MEXT announced the results of the Long-term Change Analysis Survey, a survey which examined the changes in academic achievement, targeting sixth year elementary school students and third-year junior high school students (NIER, 2022). Specifically, the survey was based on the nationwide academic performance and a learning status survey conducted by MEXT in June 2021. The survey contained Japanese, arithmetic/mathematics, and English (only third year junior high school students) and used Item Response Theory (IRT) to compare with results from 2016. The target students were comprised of approximately 11,000 elementary school students and approximately 27,000 junior high school students in 2016, and approximately 16,000 elementary school students and approximately 25,000 junior high school students in 2021. There were concerns about the impact of reduced face-to-face classes due to the long-term school closures over three months from March 2020, but the results of the survey MEXT concluded that there was no decline in academic performance on average (NIER, 2022).

Specifically, there was little change observed in the academic score distribution for Japanese among elementary school students compared to 2016. The median score in 2016 was 503.4 and 504.3 in 2021. Excluding outliers, the lowest scores were 192.7 in 2016 and 200.0 in 2021, and the bottom 25% of scores were below 426.1 in 2016 and 428.4 in 2021. This suggests there was no observed impact from COVID-19 on the lower tier of scores (NIER, 2022).

For elementary school arithmetic, the distribution of academic scores in 2021 suggests overall academic scores may have shifted slightly higher than the 2016 academic scores. The median scores for 2016 and 2021 are 501.7 and 508.1, respectively. This can be interpreted to mean that academic performance has increased slightly for Japan as a whole. Excluding outliers, lowest scores were 199.1 in 2016 and 193.8 in 2021 and the bottom 25% of scores were below 425.7 in 2016 and 429.6 in 2021, demonstrating no notable impact of COVID-19 on the lower tier of scores (NIER, 2022).

In terms of Japanese in junior high school, there was little change observed in the academic score distribution compared to 2016no change in academic performance. The median score for 2016 was 503.5 and 510.0 in 2021. Excluding outliers, the lowest scores were 202.4 in 2016 and 208.6 in 2021, and the bottom 25% of scores were below 429.0 in 2016 and 434.6 in 2021. This suggests no significant impact of COVID-19 on the lower tier of scores (NIER, 2022).

For junior high school mathematics, the distribution of academic scores in 2021 moved slightly higher than the 2016 academic scores distribution overall in terms of academic scores. This can be interpreted to mean that academic performance has increased slightly for Japan as a whole; however, it is necessary to analyze it in conjunction with the results from next year onwards. The median score was 500.3 in 2016 and 512.1 in 2021. Excluding outliers, the lowest scores were 202.3 in 2016 and 196.3 in 2021, and the bottom 25% of scores were below 425.6 in 2016 and 431.8 in 2021. These results are in line with the previously presented results (NIER, 2022).

The regional mass temporary school closure period due to the impact of COVID-19 from April 2020 onwards was the longest recorded closure. Schools were closed between 40 to 70 days. According to the 2021 and 2022 academic performance and the learning status surveys conducted in these years, there was no correlation observed between the length of the temporary school closure period and the average percentage of correct answers in each subject.

However, depending on the financial situation of the family and the parents' employment status, there was variation in the level of enrichment of home learning, and the possibility of a widening gap in terms of academic achievement cannot be completely ruled out. As such, continued careful investigation into the topic is necessary.

Welfare and Financial Situations: The Impact on Working Parents and Poor Families

(NCCHD, 2020a, 2020b, 2020c, 2021a, 2021b, 2021c, 2022a, 2022b, 2023)

The mass school closures impacted single-parent families, dual-income families, and poor families in ways other than education. During this period, it was very difficult for parents who had to go to work as they were unable to look after their children during the daytime. In response to these needs, many schools accepted children who needed somewhere to go during this time.

In addition, some students from poor families were unable to eat a satisfactory number of meals because the school closures meant no school-provided lunch.

During this time, the National Center for Child Health and Development, a national research and development institute under the jurisdiction of the Ministry of Health, Labour, and Welfare, established a "Corona x Children's Headquarters" and conducted online surveys titled "Corona-Codomo Survey," targeting children and

their parents nationwide. The online survey targeted students in their first year of elementary school to those in their third year of high school, as well as parents of children between the ages of zero and their third year of high school. With the aim of identifying the lifestyles and health of children and their parents during the pandemic, the survey was conducted seven times between April 2020 and December 2021 for continued monitoring of the COVID-19 situation for children (NCCHD, 2020a, 2020b, 2020c, 2021a, 2021b, 2021c, 2022a, 2022b, 2023).

The financial burden on families continued even after schools reopened. The below results are from the National Center for Child Health and Development survey.

The proportion of respondents who answered that their family's current living (economic) situation was 'somewhat difficult' or 'very difficult' by grade is as follows:

1st	2nd[a]	3rd	4th	5th[a]	6th	7th[a]
19%	—	26%	20%	—	21%	—

[a]Note: There was no response for the second, fifth, or seventh survey

When asked if they were 'more distressed now compared to January 2020', the response 'more distressed' was the most common response among all respondents. The proportion of students who selected this answer by grade is shown below.

1st	2nd*	3rd[a]	4th	5th	6th[a]	7th
24%	—	—	25%	23%	—	23%

[a]Note: There was no response for the second, third, or sixth survey

According to page 128 of "Trends in School Health in 2021," 10.9% of households in Tokyo often struggled to buy staple foods such as rice, and this figure rose significantly to about 20% for meat and fish (Akaishi et al., 2021). Being unable to buy these ingredients, 10% of households indicated that financial hardship had an impact on children's health and weight loss. Financial hardships increase the risk of depression, which may result in an increase in suicides (Aida, 2021). Between July and October 2020, there were increased reports of female, child, and adolescent suicides in Japan (Tanaka, Okamoto, 2021).

In response to this situation, more than half of the nationwide Kodomo shokudo, or children's cafeterias, changed their activities to the distribution and delivery of packed lunches and ingredients.

In the supplementary budget for 2020, the Ministry of Health, Labour and Welfare allocated for the support of private entities carrying out initiatives such as delivery for the Kodomo Shokudo (MHLW, 2021). In addition, a survey conducted by the Asahi Shimbun in 74 municipalities reported about 30% of local governments were providing a lunch fee for households receiving school assistance due to their children not being able to receive the school lunch anymore (Shinbun, 2020).

A report by the Central Council for Education issued on January 26, 2021, included the following: "As a result of the long-standing 2020 temporary school

closure measures, it was reaffirmed that not only do Japanese schools play a role in ensuring learning opportunities and academic achievement, but they also play a role in holistic development and growth, and a welfare role in terms of ensuring physical and mental health as a place to go and a safety net."

With consideration of the burden on working parents with school-aged children, great efforts were made to avoid mass school closures and to keep schools open while carrying out various infection prevention measures.

Physical Fitness and Sleep

(NCCHD, 2020a, 2020b, 2020c, 2021a, 2021b, 2021c, 2022a, 2022b, 2023)

1. About physical health

The National Centre for Child Health and Development measured children's quality of life in terms of physical health with the Japanese version of KINDLR. The "Norm" was measured in 2014, followed by six surveys during the pandemic.

	Norm	1st	2nd	3rd[a]	4th[a]	5th	6th[a]	7th
Lower primary	78.7	84.6	79.3	—	—	78.5	—	80.2
Upper primary	76.2	82.8	75.8	—	—	72	—	78.7
Junior high	65.9	78.9	70.8	—	—	63.1	—	66.5
High school	64.5	73.9	67.9	—	—	60.3	—	67.5

[a]Note: There was no response for the third, fourth, or sixth survey

As shown above, the physical health of first to third year elementary school students increased while school was closed as compared to the norm and remained at a high level after that. For fourth to sixth year elementary school students, junior high school students and high school students, although the level increased temporarily during the school closure period, it declined after this, and the level of physical health dropped below the norm during the fifth wave, and then returned above the norm during the seventh wave.

2. Children's lifestyle routine and disrupted sleep

During the mass school closures, there were disruptions in sleep routines for schoolchildren. This has now improved to some extent.

In the first survey conducted by the National Center for Child Health and Development, 60% of children of all school levels responded that their bedtime and waking time had shifted "more than two hours" or "under two hours" compared to before the pandemic. Of this, 26% of high school students and 19% of junior high school students responded that it had shifted "more than two hours," indicating a significant impact on their lifestyle routines. Changes were also observed in children's bedtimes. Forty percent of children responded with "It takes time to wake up

properly in the morning" and 30% responded with "I sleep at least two hours longer on weekends than weekdays." Even after schools reopened, many children could not correct their disrupted routine and struggled with chronic sleep deprivation.

In a survey conducted by the National Center for Child Health and Development after schools had reopened and COVID-19 infections had dropped, most students responded that "there [was] little change" in their routine compared to before the pandemic. This suggests that the shift in routine has been reduced to approximately one hour.

3. Lack of physical exercise and a decrease in physical strength due to increased screen time

As a result of the spread of COVID-19 infections, there was a decrease in children playing outside and an increase in screen time at home. This led to a decrease in children's physical strength.

In the National Center for Child Health and Development's first survey, over 70% of children and their parents responded that they exercised less than before the pandemic. During the mass school closures in the spring of 2020, over half of children spent their days rarely going outside, exercising, or playing.

Screen time spent watching TV, on smartphones, and playing electronic games also increased. Regardless of their child's age, over 80% of parents reported an increase in screen time. Moreover, 51% of parents of high school students and 50% of parents of junior high school students reported more than four hours of use per day.

By the third survey, collective responses about screen time having increased by more than an hour compared to before the pandemic were 85% of lower-level elementary school students, 80% for the upper grades of elementary school, 73% for junior high school, and 74% for high school. However, the percentage of those who responded with screen time of more than four hours per day was less than reported in the first survey. Responses were 9% for lower-level elementary school, 16% for the upper grades of elementary school, 22% for junior high school, and 28% for high school.

Every year, MEXT carries out a nationwide survey on physical strength, exercise capacity, and exercise habits at national public and private schools. The survey recorded approximately 1.03 million responses for elementary students and 980,000 for junior high school students. It was canceled in 2020 due to COVID-19. In the 2019 survey before the pandemic, there was a declining trend for physical strength, and in the 2021 survey, the total score for physical strength had declined even more for both males and females. In addition to the decrease in time spent exercising; an increase in screen time outside of learning; and an increase in obese schoolchildren– which were pointed in the 2019 survey as main factors for the decline– it was suggested that the results were spurred on by a decrease in time spent exercising at home and an increase in screen time due to COVID-19.There was also a decrease in initiatives for improving physical strength outside of physical education classes due to restrictions on activities in schools.

About Mental Health

(NCCHD, 2020a, 2020b, 2020c, 2021a, b, c, 2022a, b, 2023)

Reduction and Cancelation of Special Activities and School Trips

Special activities such as sports festivals, group camps, and club activities are a defining characteristic of education in Japan. However, maintaining academic achievement was given priority, and these special activities were reduced or shortened. There are concerns that this will lead to future occurrences of social and development issues.

In Japanese schools, it is common for students to go on school trips in their graduating year of elementary school, junior high school, and high school. MEXT requested that Boards of Education reconsider implementing these trips if they had been canceled or postponed due to the educational and emotional significance they hold.

Decline in Mental Health

One of the biggest issues was the decline in mental health. Stress accumulated because of the mass school closures, and results suggest that the prolonged COVID-19 pandemic was complex and significantly affected the mental health of older students.

Several institutions have investigated the impact of the mass school closures on student mental health. On May 20, 2020, the Japan Pediatric Society reported: “Not only did the school closures deprive children of learning opportunities, but coupled with a decrease in outdoor activities and social interaction, children were falling into depressive tendencies; furthermore, due to the restrictions on work and going out, both children and their parents were being kept at home, which was feared to increase the risk of family violence or child abuse from increased stress. The Japan Pediatric Society concluded that, for children, it was expected that the health damage occurring in relation to COVID-19 would be greater than the direct impact of COVID-19 itself.”

The Center for Birth Cohort Studies (CBCS) at the University of Yamanashi conducted an online survey from April to May 2020, targeting 1200 children between ages 3 and 14. About 70% of children reported struggling with some type of problem. Many children over the age of 13 had problems with sleep physical problems, or psychological problems.

The survey conducted by the NPO After School in April 2020 reported that 82% of parents and 64% of children were experiencing stress due to the closures. The most common reasons for parents' stress were "balancing both work and looking after [their] children," and followed by "[worrying] about [their] child's study" and "an increased burden of household chores." For children, the most common reasons were, "I want to see my friends and my teacher" and "I'm lonely because I can't play with my friends as much."

In an emergency survey conducted in March 2020 by the NPO Florence, the number one concern for parents during school closures was their child not getting enough exercise. Following this response was concern about their child's stress and mental care and learning delays.

After schools reopened, MEXT issued a statement with student guidance after the resumption of educational activities. The key items of the notification are as follows.

- Suicide prevention for schoolchildren
  - (1) Initiatives for early detection at schools
  - (2) Promotion of parents watching over children at home
  - (3) Strengthening of internet patrols
- School absences in schoolchildren
- Child abuse
- Discrimination and prejudice against schoolchildren

In addition to the conventional measures, the checklist of infection control measures in schools compiled and issued by MEXT in August 2021 included new items for the mental care of schoolchildren, infection control and mental health measures for teaching staff, and prevention of discrimination and prejudice.

Prior to the COVID-19 pandemic, MEXT had already focused on the issue of mental health in children and students. A health center usage survey was conducted every five years since 1990.In the 2016 survey, the most common reasons for schoolchildren visiting the health center were "mainly mental-related problems," "mainly physical problems" and "mainly family/living environment problems". In addition, the main contributing factors were "relationships with friends," "basic lifestyle habits," "anxiety and worries that manifest as physical symptoms," and "relationships with family." About the mental health issues addressed by the school nurse, "developmental disability problems" and "relationship problems with friends" were most common in elementary school, respectively. In junior high school and high school, the most common issues were "relationship problems with friends" and "developmental disability problems," respectively.

The surveys by the National Center for Child Health and Development repeatedly asked about the mental state of respondents.

Some results from the children were as follows:

- I feel worse when I think about COVID-19.
- I get frustrated easily.

- I've been struggling to concentrate recently.
- Even if I'm with someone, I feel like I'm all alone.
- I have trouble falling sleep and I wake up multiple times in the night.
- Sometimes I harm my body or act violently toward my family or pets.

One result from a parents was as follows:

- They get frustrated easily, have emotional outbursts even if it's not something to get angry about, and they have fierce temper tantrums.

Through the seventh survey, over 70% of the children who responded reported at least some stress reaction. This trend has not improved much.

The proportion of children with some stress reaction.

	1st	2nd	3rd	4th[a]	5th	6th	7th
Children	75%	72%	73%	—	76%	70%	71%

[a]Note: There was no response for the fourth survey

In addition, children's quality of life was measured in areas such as physical health, mental health, and self-esteem through the Japanese version of the KINDLR scale. It uses 2014 data as the standard.

In the first survey, "physical health" ranked higher than in the standard data, demonstrating good results in general. "Self-esteem" and "relationship with family" also ranked equivalent to or higher than the standard data.

In contrast, "mental health" was lower than the standard data in all year levels, which suggested that children's mental health was declining.

The results were as follows:

	Norm	1st	2nd	3rd	4th[a]	5th	6th[a]	7th
Lower primary	78.3	75	77	78.5	—	77.7	—	75.9
Upper primary	79.9	73.4	74.1	77.1	—	73.8	—	76.4
Junior high	76.3	69.7	72.1	70.5	—	66.1	—	68
High school	73.3	67	65.9	67.8	—	62.8	—	63.6

[a]Note: There was no response for the fourth or sixth survey

In terms of mental health, there were varying characteristics for the shift in each school level group. The impact of COVID-19 on one's mental health was greater among older students, indicating the possibility of its complexity and persistence.

Lower-level elementary school students, on average, showed no significant decline in mental health from the standard value. The decline directly after the school closure due to COVID-19 was not very large, and it had generally recovered by the second survey when schools had reopened. For the third survey, it recovered to slightly above the standard value. It remained at this level for the fifth survey, but dropped slightly in the seventh survey, when there was another wave of infection.

For upper-level elementary school students, there was some decline from the standard value due to COVID-19, and the recovery after schools reopened was slower than in the lower-level students. During the third survey after the summer break, it had virtually recovered to nearly the same level as the standard data. Following this, the level dropped slightly as the wave of infections continued.

For junior high school students, the impact of COVID-19 was significant. Although the level improved after schools reopened, it did not reach the standard value and worsened after the summer break. In the fifth survey, it declined further due to the prolonged COVID-19 infections. The slump continued, and the problem did not seem to improve by the seventh survey.

The impact of COVID-19 on mental health was significant for high school students as well. After schools reopened, the level dropped lower than during the school closures, and the situation did not improve after the summer break. Moreover, in the fifth survey, it continued to worsen due to the prolonged COVID-19 infections, and it remained low in the seventh survey.

After the fourth survey, a survey about symptoms of depression was circulated. For students in their fourth year of elementary school to their third year of high school, a survey was conducted using the depressive symptom severity scaled Patient Health Questionnaire for Adolescents (=PHQ-A)–. It was reported that there was a high percentage of children with depressive symptoms, and that there was a negative impact on the mental health of older children. It was revealed that even during the seventh survey, the condition had not improved in junior high school or high school students.

The results for the proportion of children with suspected moderate or higher levels of depression are as follows.

	4th	5th	6th[a]	7th
Upper primary school students	15%	15%	—	10%
Secondary school students	24%	24%	—	22%
High school students	30%	30%	—	23%

[a]Note: There was no response for the sixth survey

In response to the question, "I have actually hurt my own body before (such as pulling out hair or hitting oneself)" in the seventh survey, 14% of fourth to sixth year elementary school students, 12% of junior high school students and 25% of high school students responded with "a few days," "more than half" or "nearly every day."

For the question, "I have thought about using violence against my family, pets or friends (hitting or kicking, etc.)," 9% of fourth to sixth year elementary school students, 15% of junior high school students and 8% of high school students responded with "a few days," "more than half" or "nearly every day."

For the question, "I have actually used violence against my family, pets or friends (hitting or kicking, etc.)," 8% of fourth to sixth year elementary school students, 9% of junior high school students and 3% of high school students responded with "a few days" or "nearly every day."

Furthermore, the National Center for Child Health and Development summarized the findings into the "Report on the Actual Conditions of Adolescent Children and their Parents during the COVID-19 Pandemic" on March 23, 2022 (revised on June 15).

According to the report, 9% of fifth- and sixth-year elementary school students and 13% of junior high school students who responded by post had moderate or severe depressive symptoms. For the online responses, 13% of fifth- and sixth-year elementary school students, 12% of first and second year junior high school students and 42% of third year junior high school students had moderate or severe depressive symptoms.

The results of these surveys show that, although MEXT has strong awareness of the issue and is raising attention to it, the mental health of schoolchildren is not improving and continues to be a serious condition.

Increase in Eating Disorders

The research group for the Japan Society for Eating Disorders conducted a survey from May to July 2022 targeting medical institutions involved in specialist treatment for eating disorders nationwide. They received responses from 28 facilities. According to these responses, there were 400 first-visit outpatients with anorexia nervosa in 2019, but this increased 1.2 times to 480 people in 2020 and 1.5 times to 610 people in 2021. In particular, 199 of those outpatients in 2019 were in their teens, a number which grew about 1.5 times to 296 people in 2020 and 1.7 times to 347 people in 2021. Just over 30% of outpatients in 2019 and 2020 appear to be related to COVID-19. The group suggests that changes in students' lifestyles such as school closures and the worsening of their families' economic situations caused stress, which may have led to their illness. Dr. Takeshi Inoue from Dokkyo Medical University Saitama Medical Center, which was one of the medical institutions surveyed, comments that "one contributing factor may be that [patients] had less chances to interact with other people, which led to a decrease in opportunities for relieving stress. It is important to listen to what they have to say and emphasize with them."

Increase in Suicides by Young People

Since 2009, the number of suicides reported by the National Police Agency had been on a downward trend. However, following the start of the COVID-19 pandemic, there was a sudden increase in suicides by young people, especially women. The number of people who committed suicide increased by 4.5% from 2019 to 2020. The number of suicides in men is high, but in contrast to the downward trend for men, the number continues to increase in women. Moreover, the number of

suicides increased for students overall. There was an increase from 888 students in 2019 to 1039 students in 2020. In an analysis conducted by the Study Group on the Challenges of the COVID-19 Pandemic on Women of the Gender Equality Bureau Cabinet Office, there was a large increase in suicides among high school students, with an increase of 14 male high school students and 59 female high school students compared to the previous year. These figures are shown in the table below (NPA, 2022).

		2019	2020	2021
Total				
	Total reports	20,169	21,081	21,007
Gender				
	Male	14,078	14,055	13,939
	Female	6091	7026	7068
Age				
	Ages 13–18	659	777	749
	Ages 20–29	2117	2521	2611

The Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology indicates that the suicide rate increased among children and adolescents under the age of 19 in the second wave. Suicides in young people also increased 49% in the second wave (TMIGG, 2021).

Despite this issue, no effective measures have been taken.

Increase in School Absences

The 2020 and 2021 "Survey on Problematic Behavior, Chronic School Absences and Other Issues Relating to Student Guidance and Counseling" highlighted the prolonged increase in absences among elementary and junior high students. The number of prolonged absences from 2019 to 2021 increased by over 60,000 students. The percentage of student absences has nearly doubled since 2010. Further, the number of elementary and junior high school students who were absent for at least 30 days to avoid COVID-19 infection increased by almost 40,000 from 2020 to 2021 (MEXT, 2022).

Furthermore, prolonged absences for reasons other than COVID-19 grew from 0.27% to 0.55%. Some speculate that many of these absences are due to school refusal by parents. In this case, it can be estimated that about 1.17% of all students had prolonged absences due to COVID-19 in 2021 (MEXT, 2022).

In the third survey by the National Center for Child Health and Development, in response to the question to children of "have you felt that you did not want to go to school in the past week?" the percentage that responded "always," "usually," or sometimes" was as follows:

	3rd	4th	5th	6th	7th
Children overall	30%	—	—	38%	—

For the question to parents of "has your child seemed like they didn't want to go to school within the past week?" the responses were as follows:

	3rd	4th	5th	6th	7th
Parents	21%	—	—	10%	—

From this, it can be inferred that COVID-19 was related to the increase in the number of absences from school.

COVID-19 had a large impact on student absences. The challenge to increase attendance rates is complex and finding a solution is not easy. However, measures were taken to increase the number of participants in class, such as having students join classes online from their home.

COVID-19-Related Discrimination and Bullying

A social pathology of COVID-19 discrimination and COVID-19 bullying emerged in Japanese society. There were successive cases of children of nurses and hospitals workers being rejected at their schools. The illness created anxiety, which led to discrimination and furthered the spread of the illness. In the second National Center for Child Health and Development survey, 32% responded that they would want to keep COVID-19 diagnoses in their family a secret 22% responded that they would not want to play with someone who has had COVID-19, even if they have recovered (MEXT, 2022).

The Mental Health of Parents

(NCCHD, 2020a, b, c, 2021a, b, c, 2022a, b, 2023)

The Deterioration of the Mental Health of Parents

The Center for Birth Cohort Studies conducted an online survey in 2020 with 1200 children between the ages of 3 and 14. The results indicated that just under 30% of parents had severe psychological distress and that just over 20% had moderate psychological distress. More than double the number of parents had psychological distress compared to a similar survey conducted in 2016.

According to surveys by the National Centre for Child Health and Development, the severity of mental health strain on parents with junior high school students was as follows:

	1st	2nd	3rd	4th[a]	5th	6th	7th
Moderate	32%	29%	32%	—	30%	29%	35%
High degree	13%	15%	13%	—	17%	11%	10%
Extremely high	12%	12%	17%	—	16%	12%	14%

[a]Note: There was no response for the fourth survey

Parents with children aged 3 to 5 were most likely to feel extremely high psychological strain, followed by those with elementary- and junior high school-aged children. In another survey, 28% of parents with children in junior high school had moderate to severe depressive symptoms.

From the above, the mental health problem of parents since the start of the pandemic has had little or no improvement and continues to persist.

Worsening of the Parent-Child Relationship at Home

There was an increase in the number of parents who lost their jobs and fell into financial distress because of COVID-19. In addition, children and parents were spending increased time cooped up in a small house together during the daytime. Consequently, there was an increased build-up of stress for many parents.

The proportion of parents who reported that they "emotionally lashed out" at their children were as follows:

	1st	2nd	3rd	4th	5th	6th	7th
Parents overall	49%	—	49%	64%	48%	—	—
Parents of lower primary	60%	70%	62%	77%	59%	—	—

[a]Note: There was no response for the 2nd (parents overall), sixth, or seventh survey

An Increase in Child Abuse

As parents and children spent longer periods of time together because of the mass school closures, the risk of child abuse also increased. In comparison to the same month of the previous year, the Ministry of Health, Labour, and Welfare reported an 11% increase of child abuse in February 2020, 18% in March, and 9% in April.

Although May had a decrease of 1% in reports, June saw a 12% increase. The rates then fluctuated through January 2023.

During the school closure period, there was also an increase in the number of notifications by the police to child consultation centers. According to crime statistics published by the police, between January and December 2020, the number of notifications made by the police for suspected child abuse was 106,960 children, an increase of 8.9% from the previous year. Psychological abuse accounted for 73.3% of the overall reasons for notification.

In Tokyo, there were 811 notifications from police in March 2020, an increase of 258 compared to the previous year. Police reported 825 notifications in April, which was an increase of 261 from 2019. Other prefectures reported similar trends.

The Silver Linings of COVID-19

Despite the many challenges, there were some aspects that improved because of COVID-19. For example, dramatic improvements in the education and learning environment because of ICT, as well as some improvements in humanity and human relationships.

Enhancement of the Education and Learning Infrastructure with ICT

In poor households and single-parent households, 30% did not possess any ICT equipment before COVID-19. Most public schools in Japan in 2020 had a high percentage of students lacking an adequate home environment for online classes distributed paper materials or had students and children use local television, rather than implementing online education. However, some municipal schools such as Saga Prefecture, Shibuya Ward in Tokyo, Tsukuba City in Ibaraki Prefecture and Kumamoto City completed the deployment of one ICT device per person and were able to implement online education. Nevertheless, most public schools across the country were not able to carry out online education.

In response to such a situation, over 480 billion yen were invested in the Global and Innovation Gateway for All (GIGA) school program as subsidies from the government (MEXT, 2020). By the end of March 2021, all elementary and junior high schools distributed one information device per student. At the same time, high-speed, large-capacity communication networks were installed in schools. This was a bright spot as developing an ICT education environment was a major issue in public schools in Japan before the pandemic.

In terms of learning content, MEXT announced a learning support content portal website– the Children Learning Support Website– for the duration of the temporary school closure period in March 2020. This website now has over 850 educational videos on it (MEXT, 2020).

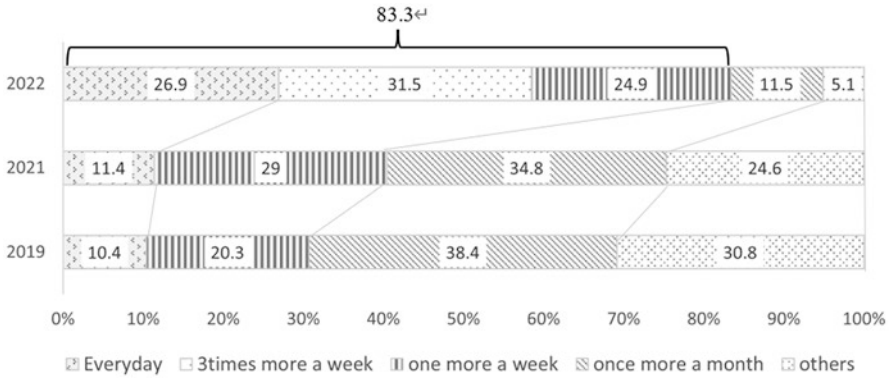
METI also launched a Future Classroom website so that learning never stops. Combined with the Steam library and other private education-related companies, including Edtech companies, digital content and software was provided for schools and households free of charge. Group learning support tools and learning drills were also provided by private EdTech companies to support students and teachers (METI, 2020).

Moreover, the Japan Broadcasting Corporation (NHK) developed and released teaching materials corresponding to each unit in the curriculum guidelines in "NHK for School."

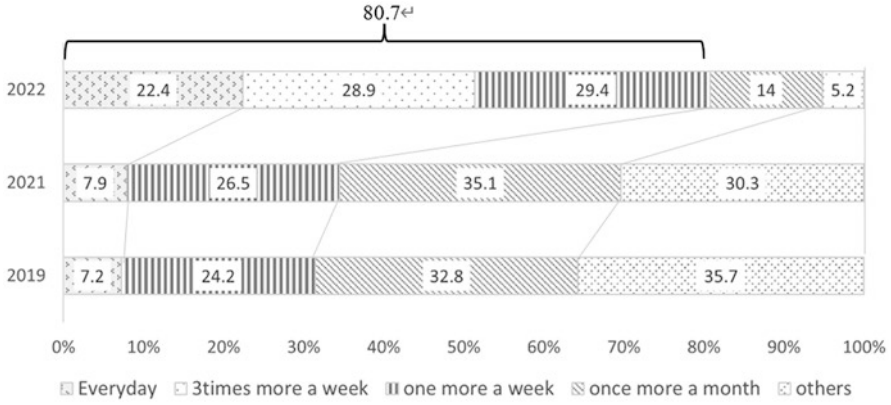
As of January 2022, 95.2% of public elementary and junior high schools reported complete preparation of take-home learning devices for times of emergency, and of these, 72.4% of schools stated that they would loan out routers and other equipment as an alternative means for students who do not have a telecommunications environment at home. Although there is a growing gap in the ability to utilize ICT among teachers and schools, 83.3% of elementary schools and 80.7% of junior high schools were using ICT in 2022 (NIER, 2022).

This digitalization of education made it possible to carry out class in a hybrid format, with some students going to school and others staying at home. As a result of this, school attendance was staggered, and the Three Cs defined above could be avoided, enabling schools to remain open. In addition, the learning efficiency in class was enhanced, and the home learning environment was improved. The introduction of ICT in education contributed to ensuring learning for all students.

How many times have you used ICT equipment such as PCs and tablets? (Elementary School) (NIER, 2019, 2021, 2022).



How many times have you used ICT equipment such as PCs and tablets? (Junior High School) (NIER, 2019, 2021, 2022).



Improvement in Self-Esteem and Self-Affirmation in Children and Students

Although there was an increase in fears related to mental health due to COVID-19, there was an increase in self-affirmation among elementary, junior high, and high school students. In an online survey conducted by the National Center for Child Health and Development, children's quality of learning was measured for self-esteem using the Japanese version of the KINDLR scale.

The results are as follows:

	Norm	1st	2nd	3rd	4th[a]	5th	6th[a]	7th
Lower primary	61.3	62.4	69.4	65.6	—	67.4	—	69.8
Upper primary	49	55.9	62	57.2	—	55.8	—	61.7
Secondary school	35.4	48.4	51.1	43.9	—	44	—	50.1
High school	31.3	41.3	47.3	42.1	—	42.6	—	46.1

[a]Note: There was no response for the fourth or sixth survey

There was an improvement in self-esteem compared to the 2014 standard value was observed in students in the upper levels of elementary school, junior high school, and high school. This trend has continued since the reopening of schools.

Improvement in Prosocial Traits in Children

In September 2019 (before the pandemic), a team from Tokyo Metropolitan University led by Professor Yusuke Moriguchi conducted an online survey targeting 420 parents with children between the ages of 4 and 9. This survey collected responses on the five topics of hyperactivity in children, emotional problems, behavior problems, peer relationship problems and prosocial behavior. After the declaration of a State of Emergency, moderate differences were observed in peer relationship problems and prosocial behavior, particularly for prosocial behavior. There were little differences in hyperactivity, emotional problems, and behavior problems. Under the State of Emergency, there was an increase in prosocial behavior. This suggests a possibility of children being more kind to others in the circumstances of the pandemic. The same survey was conducted in October 2020 with the trend continuing.

Improvement in Parent-Child Relationships

In a survey by the National Center for Child Health and Development, the relationship between children and their families was similar or better than before the pandemic.

For children's responses in the first survey, more than three-quarters reported feeling at ease when they were with their parents. Half responded that their parents explained everything in an easy-to-understand manner, and nearly half of the respondents said that their parents understand their feelings and they can talk to them about anything. There was a higher rate of elementary school students responding positively to the survey than junior high or high school students, which indicates that positive interactions and relationships with parents are more often recognized in younger children.

In the third survey, more than 60% of students responded that their parents explain the reason for changes in school routine (class, homework, events, etc.) in an easy-to-understand way at least some of the time.

In contrast to this, about 86% of parents from elementary and middle school students reported that they tried to explain the current situation with COVID-19 in a way that their child would understand at least some of the time. This number was 74% for high school students. Additionally, most parents responded that they created opportunities to empathize with their child without denying their feelings. About 65% of parents responded that they tried to discuss COVID-19 and school closures with their child as a family, and many parents reported trying to praise their child by focusing on what they are doing their best with or what they can do now instead of the results. Except for the parents who were involved in child abuse or similar behavior, the survey data suggests that, overall, a high proportion of parents are positively interacting with their children by empathizing with their feelings.

Summary

During the COVID-19 pandemic, academic. Achievement for children and students was successfully maintained through various efforts, such as hard work by teachers on site and the utilization of ICT equipment. Many families have seen improved or stable parent-child relationships. However, the reality is that there was an increase in the number of parents who had major issues with their mental health because of their worsening economic situation. There was also a worsening of some parent-child relationships and an increase in reports of child abuse. The mental health of children was also significantly negatively impacted. Many children struggled with stress, and there was an increase in school absences and suicides among students. The educational field has continued to face difficulties in relation to these problems, and there does not appear to be any immediate benefit from increased budgets or notifications from MEXT.

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Chapter 6
Understanding Potential Causes of Learning Loss: Teachers' Perceptions Regarding Educational Challenges During the COVID-19 Pandemic in Mexico

Sergio Cárdenas, Ignacio Ruelas, and Edson Sánchez

Abstract School lockdowns due to the COVID-19 pandemic resulted in a rapid transition from face-to-face to distance learning without considering teachers' capacities and experience. Deep educational inequalities observed in Mexico before the pandemic made this change complex, disproportionately affecting the poorest students and their families. Estimations about the magnitude of the adverse effects of the transition on student learning are now available for different countries and regions. However, research on the factors explaining these adverse effects is limited, including how teachers reacted to the lockdown policies and adapted their instructional practices during the pandemic to adequately support all students. This chapter describes and analyzes teachers' perceptions regarding the main barriers that affected their instructional activities during the pandemic to identify policy lessons that may inform the design of educational interventions for a post-pandemic stage.

Introduction

During the COVID-19 pandemic, school lockdown was the primary policy aimed at reducing the probability of increasing the number of infections among the student population and their families. This response immediately interrupted traditional face-to-face instructional activities, and school communities had to rapidly implement distance education programs, thus depending on educational technology. Suddenly, decision makers, school principals, teachers, and parents had to make rapid decisions with minimal, and sometimes contradictory, information. Therefore, many school communities had to improvise, adapt, and implement new and untested instructional approaches to respond to the rapidly changing conditions due to the pandemic.

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Unfortunately, in several low- and middle-income countries, including Mexico, the implementation of distance education activities during the school lockdown resulted in unexpected effects. Factors like the digital divide and the uneven distribution of education quality became significant barriers to rapidly implementing effective emergency education interventions, thus escalating longstanding educational inequalities.

Adverse effects on educational outcomes were immediately foreseen and later confirmed through different estimations and evaluations. In Mexico, researchers identified significant learning loss due to the COVID-19 school lockdowns, despite the lack of an official and reliable government estimation of the pandemic's impact on educational outcomes. For instance, Hevia et al. (2022), analyzed data from 3161 children between 10 and 15 years old and found a statistically significant difference in test scores associated with the effects of the COVID-19 pandemic. In addition, these authors found a negative association between the socioeconomic status of students' families and their results in Reading and Mathematics tests administered during the pandemic, suggesting differentiated effects for the poorest population.

In addition, Monroy-Gómez-Franco et al. (2022) reported that the pandemic may result in a learning loss equivalent to a third of a school year in the short run and one school year in the long term, assuming the distance education policy adopted by the Mexican government was effective. If the distance education strategy adopted by Mexico during the pandemic turns out to be ineffective, the learning loss will likely increase to an entire school year in the short term and two school years in the long run. These authors also pointed out a substantial variation in the distribution of adverse effects across regions and states. The country's poorest region will likely experience a learning loss up to three times higher than the loss experienced in the wealthiest area of the country, called the central region (Monroy-Gómez-Franco et al., 2022). This finding confirmed the likely deepening of educational gaps due to the COVID-19 pandemic, just as some researchers forecasted at the beginning of the sanitary crisis in early 2020 (Reimers & Schleicher, 2020).

In addition to the adverse effects of the COVID-19 pandemic on learning, studies have indicated potential negative effects on enrollment rates. According to preliminary figures included in a recent report from the governmental "National Commission for the Continuous Improvement of Education" (MEJOREDU), at the beginning of the 2020–2021 school year (September 2020), Mexico had nearly 29.4 million students enrolled in preschool, primary, lower, and upper secondary systems. Compared with the enrollment reported in the 2019–2020 school year, nearly 763,299 students abandoned public and private schools in the country, representing a drop around 2.5% of the total national enrollment (Comisión Nacional para la Mejora Continua de la Educación, 2021). This estimation suggests a significant reduction in preschool enrollment rates, where nearly 406,439 students dropped out in the first months of the pandemic, while 159,668 students dropped out from upper secondary schools. In addition, nearly 200,000 students dropped out of primary and lower secondary schools. Regrettably, other regions and countries found similar adverse effects. As a recent study pointed out, in a systematic review of 36 robust studies,

authors found that learning losses, on average, represented up to 0.17 of a standard deviation, which is equivalent to about half a year worth of learning (Patrinos et al., 2022).

Another adverse effect associated with COVID-19 is the increased number of orphans. According to Hillis et al. (2021), 76.4% of global COVID-19 deaths (as of April 30, 2021) were parents who have children younger than 18 years old in countries the following countries: Argentina, Brazil, Colombia, England, Wales, France, Germany, India, Iran, Italy, Kenya, Malawi, Mexico, Nigeria, Peru, Philippines, Poland, Russia, South Africa, Spain, the USA, and Zimbabwe. In Mexico specifically, the reported number of orphaned children was 131,325 (33,342 mothers and 97,951 fathers deceased) from March 1, 2020, to April 30, 2021.

Beyond the estimations of the magnitudes of the adverse effects, more research is required to better understand the causes of these effects. It is critical to explore how teachers and principals made decisions and implemented instructional strategies during the pandemic. This investigation will help identify potential lessons to address the new and deepened educational inequalities and to be better prepared for future emergencies.

In this chapter, we describe and analyze how a small sample of teachers perceived and reacted to specific problems students and their families faced during the school lockdowns in one state in Mexico. Based on information collected through interviews, we analyze how teachers perceived the barriers affecting their instructional activities. We describe how teachers reacted to specific conditions affecting student performance during the pandemic. This analysis aims to provide evidence regarding how teacher perceptions and decisions resulted in different learning experiences across population groups during the pandemic. This study may help identify practices and conditions explaining learning loss and increased dropout rates. It also provides suggestions for potential routes to strengthening the teaching and managerial skills required for the successful implementation of recovery interventions in the post-pandemic period.

Educational Policies in Mexico During the COVID-19 Pandemic

According to the World Bank, more than 180 countries implemented temporary school lockdown policies, affecting nearly 1.6 billion students worldwide (Azevedo et al., 2020). In Latin America alone, more than 144 million students spent nearly 5 months out of school during the 2019–2020 school year (García, 2020). Mexico was among these countries interrupting school activities in response to the sanitary crisis. According to the National Statistics and Geography Institute (INEGI, 2020a, b), data from the National Survey for the Measurement of the COVID-19 Impact on Education (ECOVID-ED) estimated around 33.6 million Mexican students were directly affected by the pandemic due to school lockdowns.

During this period, educational materials and educational technology were the primary resources available to help students continue learning, since technology is a "bridge between teachers and students" (García, 2020; Saykili, 2018). Therefore, access to digital instructional material was fundamental to supporting students during the initial stages of the COVID-19 pandemic in Mexico.

The initial pedagogical response in Mexico was the implementation of the "Learning at Home" program, a distance education strategy to support students (MEJOREDU, 2021). This strategy included five components: (a) the production and broadcasting of televised educational programs; (b) the broadcasting of educational radio programs; (c) the design and distribution of educational materials to support instructional activities in regions with limited access to digital media; (d) the publication of websites to distribute digital resources; and (e) the operation of a national call center to provide support and feedback to students, teachers, and parents (National Council for the Evaluation of Social Development Policy [CONEVAL], 2021). However, the lack of access to technology was one of the main challenges initially faced by teachers. In 2019, only 44.3% of all Mexican households had a computer, 56.4% had internet access, and 75.1% of students older than 5 years had access to a cell phone (INEGI, 2021).

During the 2020–2021 school year, the Mexican Ministry of Education continued the implementation of distance learning and the second and third versions of the "Learning at Home" program since in-person school activities did not resume until the beginning of the 2021–2022 school year after the Ministries of Education and Health designed and published a "Guide for a Responsible and Safe Return to Schools" (Gobierno Federal, 2021). According to the Ministry of Education, this Guide included several mandatory actions to promote the return to face-to-face learning, including creating Participatory School Health Committees (CPSE) to share information with local health centers about school conditions.

The Guide also recommended providing socio-emotional support to students and teachers and promoting the organization of professional activities like the online course referred to as "Safe Return" designed to provide information to reduce the number of SARS-CoV-2 infections.[1]

In addition, the Ministry of Education and MEJOREDU implemented teacher professional development programs to promote the adoption of collaboration strategies to develop digital skills, along with other professional development programs designed to familiarize teachers with new technological tools required to implement distance education models. Furthermore, the Ministry of Education published two websites aimed at developing digital skills among teachers by offering free online courses with audiovisual content.[2]

[1] See: https://climss.imss.gob.mx/resultados.php?buscar=coronavirus

[2] Google provided educational materials for different subject (class cards), through the Google Classroom spaces. During the first semester, more than 19,000 digital resources were made available to students, their families, and teachers, for use and consultation. 197 of these resources including contents to support indigenous communities (SEP, 2022).

An essential factor in the analysis of the educational response to the COVID-19 pandemic in Mexico is that during the "return to school" period, the Federal Government began the implementation of curriculum reform. From January to May 2022, the government conducted a public consultation with different educational actors– namely, the teachers´ union– about a new curriculum, organizing public forums to analyze and discuss the design and content of new textbooks (SEP, 2022). Various criticisms argue that the design of this curricular reform did not consider the adverse effects of the pandemic.

In addition to the efforts on behalf of the federal government, some state governments implemented different strategies to support students during the COVID-19 pandemic. The case of the state of Quintana Roo stands out because it developed initiatives to reduce educational gaps and promote socio-emotional interventions in schools. Another example is Guanajuato, where government officials implemented a pilot project to support back-to-school activities, including a diagnostic test for primary and higher education students. In Chihuahua, learning recovery activities were defined for all educational levels, which included administering teacher surveys and promoting initiatives to diagnose student achievement. Finally, the state of Nuevo León implemented different evaluation activities to support the design of comprehensive learning recovery strategies for primary and upper-secondary students (Escuela de Gobierno y Transformación Pública & México Evalúa, 2021).

Local authorities in the state where we conducted this study implemented a Distance Education Strategy at the beginning of the pandemic, based on the implementation of teacher professional development programs to develop digital skills, like the use of the following digital platforms: Microsoft Office (Word, Excel, PowerPoint), Google Classroom, Zoom, and Google Meet. Their strategy was based mainly on the publication of web platforms and a model already used by teachers, which guided the implementation of different academic activities and allowed for the organization and use of virtual classrooms. These platforms aimed to facilitate schoolwork, distribute learning activities, and improve coordination and communication among supervisors, school principals, teachers, students, and parents (Government of the State, 2021).

In addition, the state education authority adjusted the school calendar to compensate for the lack of face-to-face instructional activities, delivering tablets to students through a program to reduce dropout rates, implemented during the 2020 and 2021 fiscal years.

Teacher professional development activities conducted in 2020 focused on providing tools and developing pedagogical skills (14 courses) – such as improving class dynamics, curricular planning, transmission of skills, design of evaluations, and learning based on projects. These trainings also covered the use of technological tools and digital skills (6 courses) – including using mobile devices for educational use, collaborative digital skills, digital platforms, delivery of student-centered online classes, and Google tools for education. Likewise, there were reference courses to train teachers on socio-emotional conditions (1 course), suicide (2 courses), peacebuilding (2 courses), gender (1 course), and administrative skills (1 course). These courses are referenced in Table 6.1.

Table 6.1 Courses for public primary school teachers

Year	Courses per year	Content
2020	28	Pedagogical skills: 14
		Use ICT's: 6
		Suicide: 2
		Society, democracy, and peace: 2
		Emotional: 1
		Administrative skills: 1
		Gender: 1
		Electricity and plumbing: (internal workers of IEA): 1
2021	33	Pedagogical skills: 18
		Use ICT's: 3
		Emotional: 3
		Administrative skills: 3
		Healthy life: 2
		School dropout: 1
		Inclusion scholar: 1
		Financial education: 1
		School safety: 1

Source: Created based on government reports

According to this information, most courses organized in 2021 focused on improving teachers' pedagogical skills (18). Other courses addressed mental health (3), information and communication technology (ICT) skills (3), and managerial skills (3). However, new courses included topics like school safety (1), harassment and bullying (1), school inclusion (1), healthy habits (2), financial education (2), and school dropouts (1). It is important to note that courses organized in 2020 focused on developing teachers' technological skills, unlike courses taught in 2021. Furthermore, the number of participant teachers in 2021 decreased by 60% compared to 2020.

In 2021, the state education authority distributed more than 72,000 cleaning kits among public schools to protect students and staff. The local government invested in the rehabilitation of school facilities (e.g., repairing electrical and hydraulic systems). These local authorities implemented an online system to facilitate parent consulting scorecards, as well as for printing grades and school certificates (Gobierno del Estado, 2004).

Vaccination Policy in Mexico

In addition to educational interventions, the national vaccination policy was a critical factor in facilitating the resumption of face-to-face instruction. The vaccination process started in December 2020, during the implementation of the Learning at Home program. Vaccination occurred in military and civilian facilities, where health

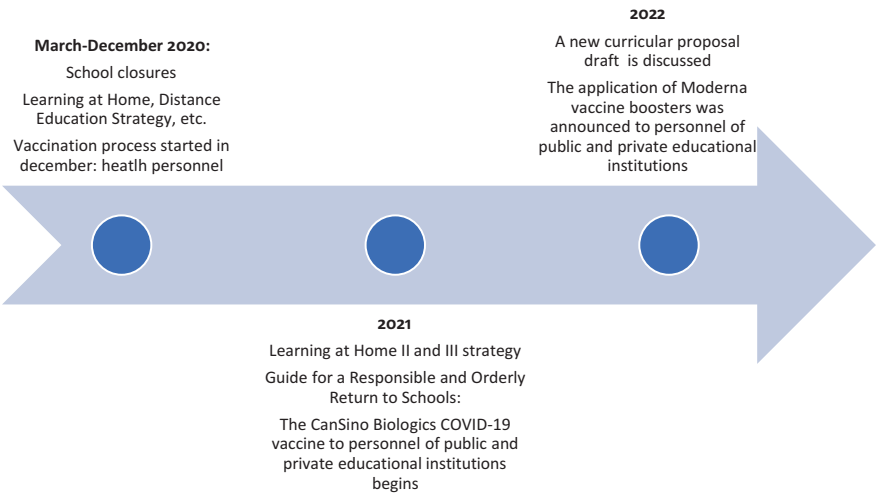

Fig. 6.1 Lockdown, school closures, educational policies, and vaccination in Mexico. (Source: Created based on Plataforma Nacional de Transparencia (2022))

personnel on the front line of COVID-19 and teachers were vaccinated. In the second phase, vaccination started according to defined age cohorts. At least 155 vaccination centers opened in Higher Education Institution facilities throughout the country, and the vaccination of teachers concluded in June 2021 (Federal Government, 2021). In December 2021, the administration of vaccine boosters began among older adults, as well as among health and education personnel (SEP 2022_Blog). The Federal Government distributed 105,472,648 million vaccines against COVID-19 in 32 states from September 2021 to June 2022. Vaccination finally occurred for the population between ages 12 and 17 in the first semester of 2022 (Fig. 6.1).

Analytical Strategy

Since the primary goal of this chapter is to describe teachers' perceptions regarding challenges faced while conducting instructional activities during the pandemic, we collected information using semi-structured interviews. This design helped us understand the contexts and the primary motives influencing teachers' perceptions (MacDonald & Headlam, 2011; Creswell, 2013; Hernández-Sampieri & Mendoza, 2017; Wentz, 2014). Interviewed teachers were selected based on three conditions. First, they should work in public primary schools located in the same municipality. Second, teachers must have taught classes during the school lockdown period, that is, between March 20, 2020, and the last school day in the 2020–2021 school year

calendar. Third, teachers must work in different schools to include a more diverse community.

Our sample was selected based on a snowball sampling process recommended by Parker et al. (2019). The sample size for this study totaled ten interviews. The analysis of each interview began with open coding, followed by axial coding to address the specific objectives of this study, as suggested by Woolf and Silver (2018). In the coding process, we followed the five stages proposed by Creswell (2013, as cited in Uysal, 2021). Finally, we identified different themes based on the collected information, as proposed by Bernard (2016). Following an inductive approach, we adopted thematic units identified in previous studies for this analysis.

Main Findings

Based on our analysis, teachers identified situations corresponding to five main barriers that influenced the way they interacted with students during the instructional practices implemented during the pandemic:

1. Teachers described some effects associated with the quality and characteristics of the available instructional materials, particularly those corresponding to the "Learning at Home" strategy.
2. Teachers described how the lack of access to reliable technology (both for students and teachers) significantly affected their performance as instructors or facilitators.
3. Teachers highlighted how variations in their digital skills determined different instructional practices.
4. Teachers identified a lack of or inadequate parental involvement during the pandemic as an important factor usually explaining student academic performance, but with a more considerable impact in the pandemic.
5. Teachers pointed out how perceptions regarding the use and characteristics of educational technology affected the implementation of instructional activities.
6. Teachers highlighted how the effect of previous inequalities associated with socioeconomic status increased during the pandemic.

From the teachers' perspective, the following factors were the main barriers students faced while implementing distance education during the COVID-19 pandemic.

Quality of Instructional Materials

Based on data from the interviews, teachers emphasized that the organization of educational activities through educational television resulted in significant barriers to teaching. Many students needed help to watch and learn from televised programs due to a combination of factors. Among these factors were the relevance and quality

of the instructional materials, distribution of grades and subjects across schedules, and an overall lack of access to technology.

Some interviewees pointed out that students frequently ignored teachers' recommendations about watching specific educational television programs. Most interviewees believed their advice had no impact on their students' decisions due to the following two conditions: the characteristics of the instructional material and a lack of access to electronic devices.

Although interviewees generally agreed that the "Learning at Home" initiative had the potential to support student learning, one of the notorious complaints about this strategy was that the design of the TV programs was inadequate to support the learning of the least advanced students. As Interviewee 1 described, "TV programs were so long that children fell asleep." Other interviewed teachers considered that educational content was explained very rapidly, at least for an average learner. For instance, Interviewee 8 pointed out that "["Learning at home"] hosts will present a lot of information and questions, and some students can barely understand one question at the end of the program. As a teacher, you had to ask them to copy and answer all the questions, and our children were writing questions, but they could not answer. Because of this problem […], students had to wait to watch the program again at night, hoping they could understand the questions. [Unfortunately], if students did not have access to the Internet, they would not be able to watch the program on YouTube, and therefore, they would not finish their homework."

To address this problem, some teachers decided to support students in rural communities by distributing printed booklets to support independent learning activities (National Council for the Evaluation of Social Development Policy, 2021). However, this adaptation does not necessarily correspond to the design of the national strategy, representing additional challenges regarding the implementation and adaptation of instructional practices for teachers with students different from the initial population for which the program was designed.

Digital Divide

According to the interviewed teachers, a considerable proportion of students did not have access to the Internet during the pandemic. In generous predictions, the percentage of students with access to the Internet in each group went from 29% to 50%. As Interviewees 1, 3, 5, and 7 pointed out, "Out of thirty-four students enrolled, only ten were able to connect [during lessons…]. It was a problem since I wanted to teach them via videoconference, but I could not do it because I would affect the rest of the students [who lacked connectivity]" (Interviewee 1). Another teacher considered that "only ten of…thirty-five children were able to connect (Interviewee 3)," while another interviewee stated that "only 50% percent [of students were] able to connect, sometimes only 40 percent […]" (Interviewee 7).

The lack of technology at home was a permanent problem during the pandemic. As one of the interviewees pointed out, "During the first year, only two students had

access to a computer at home. Requesting everyone to get a computer was simply impossible" (Interviewee 5). In addition, most of the interviewed teachers reflected that they did not have access to technology to support their students adequately. Several teachers had to purchase more powerful smartphones with their own resources because their current devices would not record high-quality video or were not powerful enough to connect to specific apps they used to organize virtual meetings, such as Google Meet or Zoom.

The main difference between teachers and students was that teachers could access new communication technology because they could afford to acquire new devices with their salaries. Interviewee 1 stated, "I had to buy a phone […] The phone I had could only record one video. Go figure! So, we had to buy a new phone." Interviewee 8, however, mentioned, "I had no limitations because I like to own different technological devices in my house. My students did not have the same opportunity because, as I mentioned, some did not have access to this technology. They had one cell phone for the whole family, some students did not have Internet access, and others had access only because a neighbor or a relative supported them. Some students did not have a single computer or tablet. I could not do anything. Sometimes they even had problems downloading a simple file."

Although access to computers, smartphones, or tablets did not present a significant problem for teachers, several mentioned that the quality of their internet connection needed to be improved to support distance education activities. The main problem was the unexpected interruption of services. This resulted in disrupted or adapted lessons, sometimes by sending recorded videos via WhatsApp instead of organizing a synchronous session.

Interviewee 4 reflect, "I had to switch Internet companies due to […] connectivity issues. The main barrier for me was the unreliable Internet connection. I had to switch companies because sometimes the connection failed while I was at a live video conference. When this happened, I told the children, 'You do not answer … answer me!'. [It was not] until a mother sent me a WhatsApp message, [telling me that] 'they are answering you,' [that I realized] my Internet connection was failing."

Similarly, other barriers related to connectivity were observed, such as the type of connection students and teachers used to interact through the Internet. Teachers who implemented online classes or virtual meetings could connect through a landline Internet connection. However, students had to connect to the Internet using mobile data plans from cell phone companies.

Interviewees 5 and 8 noted that lack of access disproportionately affected the poorest students: Interviewee 5 stated, "I had mothers who told me that they were single mothers and had been recently fired from their jobs, and they did not receive a severance payment, so they could not afford food, let alone pay for printed copies of textbooks." In addition, Interviewee 8 posed the following reflection:

> There were sad stories where families had to choose between paying for a cell phone data plan to participate in an online class or paying for groceries. Sometimes they told me, 'Teacher, I am not going to turn the camera on because I can run out of data.' How do you deal with this? […] In addition, if students do not have money to pay for data plans on their cell phones, they would spend long periods without contacting their teachers. They just got

> in touch again when they had funds to pay for a data plan to get access to the Internet. This situation is regrettable because it increased educational inequalities. After all, parents must pay for education, and the poorest families were the ones that faced the most significant challenges to have access to education.

Students from the city's poorest neighborhoods did not have access to education during the pandemic. They had Internet connection only through prepaid plans and did not have constant access to the Internet. Some families only had one smartphone per family, and more than one person was attending school. In a more complex situation, the family's father owned the only smartphone in the home, and when he went to work, he took it with him. This situation affected students' education.

An additional problem was reported in households with more than one enrolled student. If they had only one TV set, all the students could not watch educational programs as the schedules for broadcasts on different channels frequently overlapped. This problem was one of the main challenges faced by families and teachers. As Interviewee 6 explained, parents frequently complained about this problem: "[They told me,] 'We try to watch the programs, but I need to spend the whole day on it since one of our children is a second grade student, another is in the fourth grade, one child is a fifth grade student, another is enrolled in a secondary school, and their TV schedules always overlap.'"

Digital Skills

Some teachers pointed out that using technology was beneficial because it meant less time for planning. For instance, as one Interviewee 1 stated, "Speaking of time, [technology] was the most significant benefit for me. Let me explain. The videos I recorded could not be long because I cannot share long videos through WhatsApp. After all, videos must last three to four or five minutes, maximum. So, I prepared my class the day before and recorded the videos in half an hour. I sent [to the students] five to six videos daily; the minimum was four because of the same number of subjects: Spanish, Mathematics, knowledge of the environment, and socio-emotional education."

However, not all the teachers shared the same perspective. Interviewee 6 believed the "workload was [now] three times more than usual, and the results are less than half of what we had before." The interviewee said, "Furthermore, working remotely means more effort because the educational content had to be greatly diversified: the workbooks, the online classes, and the homework review; the work multiplied greatly." Another interviewed teacher considered that any class preparation would require more time than before.

The variation in the time demanded by teachers to plan classes using technology depended on their students' abilities and whether teachers had the required digital skills to support their instructional practices. On the other hand, teachers with a considerable proportion of students lacking computer equipment and Internet access had to use printed workbooks and digital technology, which required more time.

Interviewees 6 and 8 stated, “Regarding training activities, some teachers needed previous knowledge and skills to use educational technologies, such as digital platforms or free applications, to organize online classes. However, other teachers were fine with using technology. According to the information collected, teachers with problems using educational technologies did not have an age pattern. There were teachers over fifty years of age, probably with more than 25 years of teaching service, and teachers of 35 years of age, with seven years of teaching service. Both needed help managing digital platforms due to a lack of training.” According to Interviewee 8, “There was that frustration of thinking, ‘I do not know,’ ‘I do not understand,’ and ‘How do you use [Google] Classroom? How do we send information using WhatsApp? How do we create groups?’ Perhaps for one who is younger, there was no frustration or barriers regarding the use of technology. However, it was stressful for a teacher who barely used WhatsApp used email or worked with groups on various platforms.”

Teachers who believed they had no problems using educational technologies, agreed this situation was explained by the training in managing digital platforms given by the local education authority, and because they had access to different internet tutorials. Therefore, the lack of knowledge and skills about educational technologies among teachers was not necessarily associated with the teacher’s age in our small sample of teachers.

In addition, many teachers with more seniority considered technology as “an evil device” prior to the pandemic. Therefore, they shared a negative belief about the effects of educational technology and believed “there was no possibility of using it within educational practice,” based on their own experiences. The pandemic forced them to change their beliefs and adopt a new attitude towards technology as a support tool to teach in primary education. According to Interviewee 1, for instance, “Well, I will tell you one thing. I thought technology was an evil product. I did not even want to use a computer. Now it is a vital tool for my work.”

As expected, differences regarding perceptions about technology in education before the pandemic were observed. Other teachers conceptualized educational technology as an essential tool that fostered student learning, directly impacting students whose learning depends more on visual and auditory experiences. One teacher noted, for instance, that student interest in school improved with technology. Another considered that technology created opportunities to improve educational quality. Other teachers perceive technology in education as a resource that helps to promote teamwork and teach any topic, for example, through images and videos. One teacher described this situation as follows: “We read something about salmon. There are no images of salmon in the printed material. So, a child asked me: ‘Teacher, what does a salmon look like?’. Then I used my cell phone, and I told them: Look! ‘Oh look, it is pretty,’ ‘Look, it is such a color,’ so I show them that technology can be used for educational purposes […] and therefore technology is helpful. I have a projector [...] I use it with them to see topics, share books, and organize teaching exercises on our blackboard [...] We watch many educational videos [...] We see an infinite number of topics in a single film. So, this is how I show them […] that technology can be helpful for educational issues.”

Regarding the ability and confidence to use ICT in educational activities during the pandemic, teachers mentioned they did not have enough skills to use technology in classrooms and were forced to learn quickly. Teachers sometimes expressed fear and frustration due to difficulty handling digital platforms and software or simply using the computer or mobile phone to send instructional videos. According to Interviewee 1, "Technology, in the beginning, was very complicated; step by step, I began getting used to it, practicing, and even sending some PowerPoint presentations." Another teacher reflected, "We had to learn at the speed of light". "That was better […] because now I use part of this learning, even though we are teaching face-to-face, a potential benefit from the pandemic."

Moreover, regarding the current willingness to change their instructional practices once schools reopened, teachers realized that they developed new skills during the pandemic. They learned to use digital platforms to teach online lessons, educational applications to assess students, and mobile applications to communicate. This change allowed them to modify their instructional practices. Interviewed teachers now use different educational technologies to support students, distribute educational content, design new teaching plans, or make classes more appealing. According to Interviewee 1, "I did not even want to write plans on the computer; now, it is a vital tool. I cannot work without a computer, without a browser. In other words, it became part of my teaching practice because we must renew our teachers." Another interviewed teacher mentioned that "[technological] tools that are not new […] I had never used them, but they are excellent […]. The pandemic […] left something positive because these are tools that I continue to use. Although we are already in face-to-face classes, it allows me to use them and make them more appealing" (Interviewee 3). Finally, another teacher recognized, "We use the internet now to complement the information in textbooks. It is an essential material for sixth grade because we can use a projector to show an image that gives us some idea about the Middle Ages, functions or fractions, and multiplication of fractions, among other content" (Interviewee 7).

Parental Involvement

Another relevant topic pointed out by interviewed teachers was the lack of parental involvement during the pandemic, usually due to the long working hours among many parents. Because of this, teachers had to extend their working schedules since they had to answer parents' questions about courses content in the late hours. According to Interviewee 1 "Some mothers worked until 10 pm, and I had to answer their questions at that time." Interviewee 4 "requested parents to send comments only from 8 am to 5 pm. This teacher reflected, "I had to tell them that was my schedule because some parents returned from work until night. They expected me to answer questions at 8 pm […], so I usually spent the whole day on the phone" (Interviewee 4). Finally, another teacher mentioned that it was difficult to "convince parents to avoid intervening in my [personal] activities [...]" (Interviewee 7). "One

of the students, for example, was very lazy. His mother always wanted him to do their homework on time, so she sat and worked with him, but I would prefer that he try to do it alone [...] So, I had to explain to them that they should not intervene unless I asked them to do it so.," Interviewee 7 said.

Previous Inequalities

In addition, other interviewees described different reactions from parents regarding the lack of student participation in distance education activities. For instance, one teacher pointed out that the lack of parental involvement affected students significantly during the pandemic. Interviewee 1 said, "[I] used to teach [children] from a poor neighborhood, where many children missed online classes or stopped answering messages." Unfortunately, according to this teacher, "When you visit their homes, you realize there are drug problems, most of their parents are young couples, and some do not have access to the Internet or TV. They had to pay their rent and could not afford the Internet service. Their situation was unfortunate" (Interviewee 1). Other teachers pointed out, "It wasn't easy to have a strategy for every student because each lived in different conditions. In a group, some children could not continue with distance education because they did not have money even for the copies of the workbooks that they left at the school. We do not even talk about computers or the Internet" (Interviewee 3).

Another interviewed teacher described, "Some students stopped sending their homework, and others moved to a different state" (Interviewee 4). Interviewee 4 recalled a student whose mother moved with him to Tijuana because she had lost her job. "When I contacted the mother, she told me she could not access the Internet or television service. I discussed it with my supervisor, and the order was that he would have to turn in all the evidence when he returned to our state. I mailed his textbooks to Tijuana [with my own money]," said Interviewee 4.

Based on these teachers' recollections, examples recounted in previous categories remind us that the adverse effects of traditional educational barriers – such as teaching quality, inadequate instructional material, parental involvement, socioeconomic inequalities – were magnified during the sanitary emergency. For example, many students who usually did not have access to the Internet, computers, mobile devices, or digital tablets were disproportionally affected during the pandemic because face-to-face instructional activities were interrupted. In other cases, parents who did not have a modern smartphone to install the WhatsApp application to receive homework, booklets, and class activities were automatically excluded from instructional activities. Some students did not have a television to watch educational programs, and some teachers could not attend professional development activities to develop new capacities.

These conditions increased the complexity of the implementation of educational programs during the COVID-19 pandemic. As it was explained, a lack of prior training in digital platforms or tools, a lack of parental involvement, faulty learning

materials, and the interaction of these conditions with previous inequalities resulted in significant deficiencies that may be associated with the reported learning loss and higher dropout rates. Although additional research is needed to establish this connection, the related experiences highlight some potential mechanisms that affected students' trajectories during the sanitary crisis.

Final Comments and Recommendations

This study examines the context where teachers had to deal with the aforementioned barriers. The strength of this study rests on teachers' behaviors during the pandemic, which is "described from the actor's point of view" and "is context specific" (Tracy, 2013, p. 25). The factors explained in the previous section may help to highlight the challenges interviewed teachers faced during the pandemic, according to their recollections. Most of these factors confirm findings from different studies about educational inequalities before the COVID-19 pandemic, and so it is essential to highlight how their impact increased during this emergency. Furthermore, our sample is small and not representative of the population; however, teachers´ reflections about their decisions and the type of activities conducted during the pandemic help to identify potential factors explaining the adverse effects of school lockdowns. Table 6.2 summarizes the main challenges identified and reported by interviewed teachers.

As deduced from Table 6.2, "traditional" factors remained as significant barriers to implementing educational policies during school lockdowns. However, some differences are expected regarding their magnitude and the type of observed interactions. Furthermore, additional factors are not usually studied– for example, the limitations imposed by male partners on female teachers due to the extended schedule or the restrictions they imposed regarding the distribution of video-recorded lessons. Both the more established and the newer factors help to visualize different considerations for the design of post-pandemic interventions, suggesting potential changes in the causes of educational inequalities.

Beyond these preliminary findings, some recommendations arise based on the experiences and decisions reported by teachers:

1. It is important to understand that the negative impacts resulting from the pandemic and school lockdowns must be a source of ongoing concern and commitment to identify potential avenues to reform our education systems.
2. Standard inputs (like improving teaching quality) are still one of the main available tools to increase the effectiveness of educational systems, even though the intensive use of educational technology during this period may stimulate significant challenges in how we prepare future teachers.
3. More research is needed to inform the design and implementation of programs to address the lack of access to technology for students and teachers.

Table 6.2 Main factors potentially explaining adverse effects

Topic	Finding
ICT in schools	Difficulty organizing online classes due to a lack of computers, access to internet (funding), or lack of training
Lack of parental involvement to support students	Parents working long hours resulted in teachers investing more time than in face-to-face classes
Factors affecting students	Distance education was based mostly on printed materials because of the lack of resources (such as access to the internet or lack of computers) and, in some cases, through online education
	Printed materials were the main resource due to a lack of public investment to support families and teachers
	There were differences in the quality of internet services– For example, teachers often had better connections than students
	Many families only owned one cell phone or one TV set
	There was a lack of resources to pay for open internet access. Families invested in prepaid and expensive data plans
Factors affecting teachers	Teachers had inadequate phone equipment and a lack of professional development programs
	Teachers had to pay for their own equipment
	Teachers experienced unreliable and slow internet service
	Many teachers lacked familiarity and skills to use apps, platforms, and digital tools
Consequences	More experienced teachers had negative attitudes towards technology
	Teachers experienced frustration during teacher learning
	Smartphones and WhatsApp became the most popular devices and applications to support learning
	A digital divide and the lack of skills among teachers resulted in limited access to distance learning
	Female teachers reported limitations to recording lessons, due to negative reactions from male partners. Also, late hour calls resulted in conflicts with spouses or partners

4. It is necessary to remember that redesigned professional development programs are needed to help teachers reflect on their newly acquired skills after the pandemic and to identify the core competencies teachers will need in the post-pandemic stage.
5. Gender became a significant issue during the pandemic since female teachers had more problems performing their professional activities, suggesting potential research lines to understand better how to address this problem in future emergencies.

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Chapter 7
The Fragility of the Norwegian Policy Response: How Relying on Digital Infrastructure and Local Autonomy Led to an Increase in Inequality in Education

Marte Blikstad-Balas

Abstract Norway is in a privileged position globally in the sense that the country is wealthy, the population is well educated, and the digital infrastructure is robust and accessible to the entire population. However, Norway has some painful lessons to learn when evaluating its response to the global pandemic. Key aspects addressed in this chapter are the lack of a national response other than keeping schools open as much as possible, and the results of requiring individual principals and teachers to define the content and form of remote teaching. The lack of a national response targeting remote learning resulted in increased variation—and inequality—in the education available to students in Norway during the school years 2020 and 2021. Students spent a significant amount of time alone and unaided as they worked on individual written tasks. Furthermore, the system's heavy reliance on pre-pandemic solutions to new problems may have resulted in a failure to recognize that the label, "vulnerable student" may mean something different during a pandemic than it traditionally would. For example, high-achieving students with two high-earning parents who worked long hours as physicians may have also suffered from a lack of support when school relied so heavily on parental involvement and self-regulation. Toward the end of the chapter, I will highlight some silver linings.

Norway: Education System and Policy Priorities Prior to March 2020

Norway is a prosperous country with around 5.3 million inhabitants, and a GDP per capita of €43,900 (Ursin et al., 2020). To understand the Norwegian response to the pandemic, it is necessary to outline some key characteristics of the Norwegian school system and how it compares to other countries. Since the end of World War

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II, equal opportunity for all has been a cornerstone of the Nordic model for education, which is internationally known to emphasize features that are critical for high-quality education (Klette, 2018). All children in Norway have a legal right to 13 years of free education, starting the year a child turns 6. Unlike many other countries, public school is the preferred choice for most parents, and a vast majority of students (96%) attend public school rather than private (Norwegian Directorate for Education and Training, 2020). Norway does not allow private school owners to profit from their educational activities, and establishing a private school requires the school to follow an alternative pedagogy (e.g., Montessori schools or Waldorf schools) or to be a religious school. Additionally, the few private schools that exist in Norway still must follow the same national curriculum as public schools (Klette, 2018).

The Norwegian compulsory school system is divided into two parts: primary school and secondary school. Primary school consists of the lower primary level (grades 1–4, ages 6–10), the intermediate level (grades 5–7, ages 10–12), and lower secondary school (grades 8–10, ages 13–16). The school year starts in August and ends in June. Students receive only formative feedback until grade 8, when they begin receiving grades. As in the other Nordic countries, the school system is considered a key approach to ensure a fair and equal society supporting democracy, participation, welfare, and lifelong learning for all—regardless of social, economic, and geographical background (Klette, 2018).

In terms of academic performance, Norwegian students are still performing at or above the Organization for Economic Cooperation and Development (OECD) average in science, reading, and mathematics. Regarding equity, the Program for International Student Assessment (PISA) results show little variation in test scores compared with other countries, which suggests that Norwegian schools are "broadly able to offer an equitable education to pupils from different backgrounds and that the vast majority of schools have pupils performing at different proficiency levels" (Norwegian Directorate for Education and Training, 2020, p. 35). No country in the world could claim that it has successfully eliminated socioeconomic inequalities in education; however, egalitarian Scandinavian countries have higher levels of social mobility than countries with higher levels of inequality (OECD, 2018). Ethnic diversity has increased in recent decades, with 18% of all students in compulsory education in 2019 having an immigrant background. These students generally perform well in the Norwegian education system, although their grades are slightly lower than those of other students (Norwegian Directorate for Education and Training, 2020).

The national curriculum covers all grades in compulsory school and consists of two parts: a core curriculum describing key values of education and subject-specific curricula describing competencies teachers should aim to teach their students. The descriptions of core values includes elaborations on how the following values should permeate the Norwegian school system: human dignity; identity and cultural diversity; critical thinking and ethical awareness; the joy of creating, engagement, and the urge to explore; respect for nature and environmental awareness; and democracy and participation. The descriptions of principles for the school's practice

emphasize the importance of an inclusive learning environment, differentiated instruction, and cooperation with the home (Ministry of Education, 2019). Regarding teaching and differentiated instruction, the core curriculum states that "pupils come to school with different experiences, prior knowledge, attitudes and needs. School must give all pupils equal opportunities to learn and develop, regardless of their background and aptitudes" (Ministry of Education, 2019, p. 17).

While the national curriculum provides some guidance in the form of competency descriptions that students should have at different stages of their education (for example, after grade 4, after grade 7, and after grade 10) in each subject, teachers in Norway also have great autonomy in deciding how to adapt the curriculum and how to teach their subjects. In other words, the national curriculum is an overall framework indicating thematic areas and goals rather than how specific subjects should be taught (Mølstad & Karseth, 2016; Sivesind & Wahlström, 2016). All teachers and schools are thus expected to make deliberate interpretations of the curriculum, such as determining their pedagogical methods and deciding which resources (e.g., books, apps, and software) to include, as well as adapting them to the local context of each municipality. Mausethagen and Mølstad (2015) summarized Norwegian teachers' autonomy by pointing to three important factors: (1) pedagogical freedom and absence of control, (2) the will and capacity to justify practices, and (3) local responsibility (municipalities as school owners). The lack of national high-stakes control, such as teacher evaluation and national high-stakes testing and exit exams, fosters a high degree of both autonomy and responsibility for Norwegian teachers (Hatch, 2013; Hatch et al., 2020). As I will show in the next section, the combination of high teacher autonomy and high responsibility for assessing their own students became more challenging than ever during the COVID-19 pandemic. The long tradition of teacher autonomy also offers some possible answers as to why the Norwegian educational authorities did so little to ensure equity on a national level during the period of school closures.

Immediate Impact: How Did Norway Respond to the Crisis?

On March 11, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak to be a global pandemic. Around the world, governments had to rapidly decide how to deal with the spread of the deadly virus. Like many countries, Norway introduced social distancing measures, which reduced the ability of many people to meet others and greatly limited the possibility of physically attending work, kindergartens, and schools. The Norwegian population exercises significant trust in the government, and Norway acted quickly to stem the spread of the virus (Ursin et al., 2020). The policy emphasis shifted from a main concern about economic impact, to support of specific vulnerable industries (e.g air travel, entertainment industry), to a later focus on the social impacts of different policies (Ursin et al., 2020). Regarding education, the main goal was to keep the school closed as little as possible—in many ways this could be considered a key part of the response. In March 2020, all

Norwegian schools were closed and all students were abruptly transferred to an improvised remote education situation, drawing mainly on existing platforms and equipment. Most schools already used digital platforms, and those who did not rapidly started using them. The national lockdown did not last as long in Norway compared to many other countries; by mid-May 2020, after less than 2 months of national closure, all schools were officially able to reopen. However, the lack of a national closure does not mean that all schools were open from May 2020 onward. Throughout the stages of the pandemic in 2020 and 2021, infection rates and virus mutations caused a number of (often repeated) local school closures. As a result, while some students in Norway were impacted to a small degree after the initial school closure, other schools had to partly close a number of times. In addition, different cohorts of students rotated between teaching at school and learning at home; and of course, all students and teachers who tested positive for COVID-19 had to stay in quarantine. Thus, neither 2020 nor 2021 could be labeled as a normal school year, which is also why all national exams were canceled for those 2 years. The following timeline shows key events in the Norwegian response (Fig. 7.1).

Different countries adopted different ways of ensuring that their students were still learning and attending school in some manner during periods of school closure. While many countries shared the ambition to limit the pandemic's impact on education, the alternative measures that countries adopted to continue education varied greatly in content and scope. As Reimers (2022, p. 2) highlighted, these arrangements also "varied in their effectiveness, and reached students in different social circumstances with varied degrees of success." This variation is what makes it crucial to dig into how each country responded and how this response impacted the educational offerings to different students in the short and longer term. Facing school closures, governments had to choose whether to maintain or adjust their curricula, for example, by teaching fewer concepts at greater depth or giving priority to specific subjects. In Norway, unlike in the other Nordic countries, no such national adjustments were made to the curriculum (OECD, 2021). The main national response was to keep and assess the entire curriculum but to move from in-person education at school to digital education overnight.

The 2021 OECD report entitled "The State of School Education—One Year into the COVID Pandemic" showed that many countries have made major efforts to

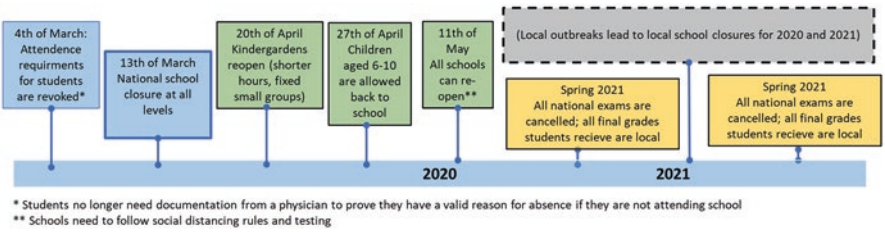

Fig. 7.1 Key information on school closure periods, press conferences for children, and cancellations of national exams in 2020 and 2021

mitigate the impact of school closures for learners and teachers, often paying particular attention to those in the most marginalized groups. Children who would have been home alone (for example, if their parents were working in the medical sector) and some children in very vulnerable situations (e.g known unstable home situation) were offered the chance to attend school in person; however, the educational offer for other marginalized groups (for example students with special needs) was not prioritized by the Norwegian government. The OECD (2021) also showed how many countries prioritized implementing new channels to facilitate communication between students, families, teachers, and school authorities; however, Norway made no such national effort. Each school had the autonomy to make all decisions about the organization of remote schooling. The only national decision concerning all students was that all national final exams (normally held in May) were canceled for 2020 and 2021. The mandate for teachers in Norway to plan, deliver, and assess the learning of each student—and the class as a whole (Norwegian Directorate for Education and Training, 2020)—was never questioned by the national educational authorities during the pandemic. The authorities made no national efforts to support teachers in reaching all students digitally or to supplement the education of marginalized students who needed extra support. An exception to the claim that the authorities did very little other than reopening schools as soon as possible is the aforementioned fact that some vulnerable students—mostly students with parents in critical professions who needed someone to provide childcare—were allowed to physically attend school. Despite this concession, the numbers are clear: while 5.8% of schoolchildren were given educational opportunities in a physical school setting during school closures, less than half of this group (2.1%) were vulnerable students or students at risk and 1.3% were students with individual education plans (Caspersen et al., 2021). Thus, most students with special needs or those who became vulnerable during the pandemic did not receive any national attention or extra support.

Furthermore, no national measures were in place to compensate for the discrepancy between students who had access to their parents at home during remote teaching and those who did not (Blikstad-Balas et al., 2022). This does not mean that individual teachers were not following up with their students, but it does mean that there were no national guidelines or support to make sure such help was consistent. When comparing Norway's response to several other countries, it becomes clear that the Norwegian government did very little on a national level to ensure equity in education for all students during the time of school lockdown. This is particularly concerning when we consider that while the national, synchronous school closure lasted for a short time (less than 2 months), there were numerous local outbreaks that caused schools to close or enact a hybrid learning model on and off for almost 2 years. The critique of the Norwegian response in this chapter concerns the lack of targeted efforts to provide equal educational opportunities for all during remote teaching periods, while also acknowledging that the national closure of schools was among the shortest in the world.

What Were the Consequences of Norway's Immediate Policy Response?

While Norway responded rapidly to the pandemic in terms of establishing clear and strict rules for social distancing and vaccination, the response for school students has been heavily criticized. Norway's early educational response to the pandemic relied on pre-existing resources, such as a solid digital infrastructure and teachers' ongoing responsibility to assess their students locally (OECD, 2020). In March 2020, all teachers were supposed to perform their teaching from home through digital devices and remote teaching.[1] As in other countries, Norwegian teachers and school leaders were not prepared to go digital overnight despite good technological infrastructure and a curriculum that explicitly emphasizes the importance of digital competence across subjects. There is a significant difference between planned online education and an emergency transition from traditional learning to digital learning (Misirli & Ergulec, 2021). The Norwegian response has been criticized because teachers were not supported in this transition on a national level and because they were expected to provide the same educational opportunities for their students that they would have provided when not in a temporary emergency situation.

A range of studies have indicated that teachers were not able to provide the same kind of instruction, support, and assessment for their students during the crisis as they normally would have. Three aspects of remote learning were problematic. First, teachers received minimal and insufficient guidance on how to teach and assess their students digitally. Second, students received very traditional instruction that relied heavily on their individual completion of a large number of tasks. Finally, vulnerable students who needed extra support for various reasons were not sufficiently cared for. In the following sections, I will delve deeper into the documented deficiencies with this remote teaching and their consequences for equity; however, these observations are not intended to place blame on teachers. On the contrary, we know that teachers around the world were in an extremely demanding situation where they had to enact significant and rapid changes to their instructional models with varied support (Audrain et al., 2022; Hamilton & Ercikan, 2022; Reimers, 2022)—and they all deserve recognition for their attempts to meet the crisis.

Lack of Support for Teachers, Leading to Variation in Instructional Quality

Several evaluations of teachers' experiences during the pandemic have shown considerable variation in how much they knew about digital teaching. While we can assume that teachers responded quickly and tried to adapt to a demanding situation

[1] For more details on what characterized remote teaching in Norway during the period of school closure, see Blikstad-Balas et al. (2022).

(Bubb & Jones, 2020; Federici & Vika, 2020; Gudmundsdottir & Hathaway, 2020), they had no room to reflect collectively on good digital practice. Digitalization was not at the teachers' own pace or founded in pedagogical discussions; rather, it was a technological necessity to allow educators to keep teaching in an unprecedented situation. In addition, expectations for digital teaching were unclear. Each school owner, each school, and even each teacher could decide what a typical day of remote teaching should be like for their students. Lien et al. (2022) conducted a study on school principals' experiences during COVID-19 in Norway. They found that while the educational sector had a very important role in upholding a sense of normalcy during the pandemic, few guidelines or procedures existed to determine how a school should be managed during school closures. As they explained, school principals were forced to improvise with limited or no guidance (Lien et al., 2022). Andersen et al. (2021) investigated how school owners[2] placed different expectations on schools during periods of remote teaching. While some counties and municipalities expected schools to follow their normal timetables, this expectation was not a national norm. Interviews with school leaders revealed that even in the counties where such an expectation was formulated, it was impossible to fulfill due to teachers' varied digital competence levels and their home situations. They summarized that there were "different interpretations of the national guidelines on which students should be offered physical teaching. Local variations in interpretations have necessarily led to large differences in the educational offer for students during the period with school closures" (Andersen et al., 2021, p. 7, my translation).

In addition to variations in the local expectations for remote teaching, the large gap in teachers' digital competence also led to inequalities in teaching. Previous studies have revealed that teachers' use of technology in Norwegian classrooms has been traditional, focusing on using software in transmissive ways (Blikstad-Balas & Klette, 2020; Kure et al., 2022). Before the COVID-19 pandemic, the most common way for teachers to develop their digital competence was their own "trying and failing" rather than more systematic efforts at the school level or structured forms of professional development (Fjørtoft, 2020). This resulted in large variations in teachers' digital competence and use of technology in their instruction.

Early in the pandemic, one in five teachers said they received too little pedagogical support and support from school management during the period of school closure (Fjørtoft, 2020). This lack of support reinforced an existing inequality in teaching that drew on digital technology. This tendency toward increased differences in teaching quality has been found across studies with principals, teachers, and parents (Blikstad-Balas et al., 2022; Fjørtoft, 2020; Lien et al., 2022). In Lien et al.'s (2022) interviews with principals, they described the difference in teachers' digital competence as an important challenge. While some teachers flexibly adapted to the digital format and shared best practices with their colleagues, others would pull back, become less accessible, and work less than before. Lien et al. (2022)

[2] *In Norway, this would be the mayor or county mayor on behalf of the municipality or county municipality in a state school; alternatively, this would be the chairman of the board in a private school.*

noted, "In this way, the pandemic magnifies differences between those who handled the digital everyday life and those who did not" (n.p.). The main point here is that the variation in teachers' digital competence, combined with unclear expectations, resulted in significant variations in what constituted a typical day of remote teaching. In Fjørtoft's (2020) study, one teacher described the large differences between teachers that resulted in very different instruction for different students, even within the same school:

> It has varied from full days of daily direct teaching through Teams in real-time (as if we were all in a classroom) to… a daily conversation with each student without any form of real-time teaching. The students are at the mercy of the teacher they have got. (p. 43, my translation)

As the quote shows, how much real-time teaching students got varied across teachers. Some students received synchronous, real-time teaching, while others communicated with their schools through asynchronous tasks (Blikstad-Balas et al., 2022). This variance is, of course, problematic in the short term and raises crucial questions about equity in education from a long-term perspective. This will be addressed in the final section of this chapter.

Traditional Teaching with Individual Tasks

Closely linked to the lack of support for how to teach digitally is the fact that remote teaching often meant very traditional teaching, where each student had to complete a large number of tasks that they would find on their learning platform. This point cannot be emphasized enough, as many technology enthusiasts would expect a digital learning environment to be a collaborative, flexible, and innovative endeavor.

School leaders, teachers, and students who participated in an evaluation of remote teaching provided in upper secondary school all agreed that the initial phase of school closures in 2020 was mostly characterized by individual written tasks (Andersen et al., 2021). A similar situation existed for younger students in primary and lower secondary school (Blikstad-Balas et al., 2022; Caspersen et al., 2021; Fjørtoft, 2020). In a national survey of parents with children in grades 1–10, Blikstad-Balas et al. (2022) found that the most dominant educational activity across all grades during remote teaching was to let students complete tasks individually. The fact that many of these assignments were necessary for teachers to be able to grade their students reduced the possibilities students had to work collaboratively (Fjørtoft, 2020). This trend is highly problematic if one is concerned with equity in education and becomes particularly concerning when we consider the fact that many parents reported that they spent a lot of time supporting and reviewing their children's schoolwork. In Fjørtoft's study (2020), teachers expressed concern that the high need for parental involvement in schoolwork reinforced differences between students. Caspersen et al. (2021) raised similar concerns and demonstrated that students who normally had high parental involvement and support were better

positioned to handle the individual tasks because the parents were still there, despite significantly lower teacher support than usual. Not all parents were able to provide qualified help, which brings me to the next trend in the immediate consequences of the pandemic in Norway: namely, that vulnerable students were not prioritized.

Vulnerable Students During a Pandemic: Time to Reconsider Who Counts as Vulnerable?

Principals and teachers alike were concerned about reaching vulnerable students during the period of remote teaching. Reaching those who needed schooling the most was a key concern for many, and much public debate centered on this issue. However, studies across Norway have agreed that students with special educational needs, from vulnerable family situations, and who benefit most from close collaboration with teachers suffered. Parents whose children had special educational needs were far less satisfied with guidance and support from the school (Caspersen et al., 2021). Parents in this group also reported a lack of real educational opportunities for their children and expressed that they often did not get the support they would normally have in a classroom environment (Blikstad-Balas et al., 2022). In a national survey, only 27% of teachers in primary and lower secondary schools and 23% of teachers in upper secondary schools confirmed that they were able to follow up with vulnerable students who needed special support during this period (Federici & Vika, 2020). Teacher interviews also showed that teachers worried about specific groups of students, particularly immigrants or refugees who had recently moved to Norway (Andersen et al., 2021).

Mælan et al.'s (2021) study on student engagement during the COVID-19 pandemic found that it was harder for low-achieving students to maintain engagement and motivation during the period of remote schooling compared to regular school. They also found that students experienced less support from their teachers and concluded that there was reason to be concerned for low-achieving students in particular, as well as for the effects that home schooling may have on all students in general (Mælan et al., 2021).

The significant increase in individual tasks combined with less teacher support also raises the question of who the "vulnerable students" are during a pandemic. Dalland et al. (2021) found that in Norway, the two most important factors for ensuring equity during remote teaching were: (1) access to relevant equipment and (2) support at home with their schoolwork. This may mean that students who would traditionally not be labeled as vulnerable based on socioeconomic status or prior academic achievement may have become more vulnerable during long periods of individual work at home if their parents were not present due to, for example, their own work situation. In general, students were expected to be self-regulated and monitor their own learning. Previous studies from Scandinavia have shown that individualized teaching methods, where students must decide how and when to

work with different individual tasks across subjects, may put too much burden on the students (Dalland & Klette, 2014, 2016; Klette, 2018). Results from the parent survey conducted by Blikstad-Balas et al. (2022) also suggested that some parents who would normally support their children were pressed at work during the pandemic in ways that made them unable to follow up as closely as they would have liked. This issue of what makes a student vulnerable may need reconsideration. In addition to groups that have been pre-defined as vulnerable (e.g., due to very low socioeconomic status, special needs, or other issues known by the school), the students' need to be independent may have created a new kind of vulnerability. Students in this potential group would be those who normally do well in school with teacher support but who did not have the required high self-regulation skills or the presence of a parent to closely monitor their schoolwork.

How Can We Understand the Choices Made?

Compared with other countries, Norway did very little to ensure equal opportunities for all students during the pandemic (Blikstad-Balas et al., 2022; OECD, 2021). Where other countries rapidly changed their curriculum, adapted new online platforms and national TV broadcasts, or took measures to support teachers (Azevedo et al. 2022; Costa et al., 2022; Misirli & Ergulec, 2021; OECD, 2021), Norway relied heavily on pre-existing structures. As such, pre-existing inequalities were allowed to increase and even expand to new groups of students—something that has been debated politically to a limited degree. An essential question to ask is *why* these inequalities were allowed to increase in a country that prides itself on promoting ideals of equity in education for all, regardless of issues such as socioeconomic background (Klette, 2018). Of the several possible explanations, I will go deeper into three: the significant teacher autonomy, the variation in corona infection across municipalities and schools, and the general tendency to overestimate digital tools.

It is crucial to understand that teacher autonomy in Norway has a long tradition. An examination of the Norwegian assessment system may help illustrate the level of teacher autonomy present in the system. First, students do not receive any grades until they reach lower secondary school (grade 8, 13-year-old students), and all tests that are graded beyond that point are created or chosen by the teacher. No rules dictate how many tests or assessment situations each teacher needs to be able to grade a student in each subject, and there is local variation between schools in how they assess their students. On a normal secondary school diploma in Norway, a clear majority of all the final grades after 13 years of education have been set by the students' local teachers, without any kind of external control or supervision. The few national exams that students take make up only a very small portion of their overall averages used to enter higher education. The new national curriculum also places great emphasis on the single teacher or group of local teachers (i.e., the professional

collective of teachers) and their ability to choose what is best for their students (Ministry of Education, 2019), again reinforcing teacher autonomy. There is no tradition in Norway for interfering with how teachers should teach, and there is no tradition for external control or supervision. These facts must have played a role when the educational authorities decided that each school and each teacher was best equipped to decide what remote teaching should be. In hindsight, teachers may have benefitted from more guidance, clearer expectations, and more support during this particularly difficult time for teachers around the world (Audrain et al., 2022; Hamilton & Ercikan, 2022; Reimers, 2022). Other countries have shown that it would be possible to support teachers by offering common resources, broadcasting content, or making new platforms for collaboration (see Reimers, 2022, for country-specific examples).

Another aspect crucial to understanding the Norwegian response is that there was significant variation in the extent to which the coronavirus was spreading in different regions of the country. The goal of keeping schools open as much as possible led to differences between schools, as schools with more contamination would have to partially close more often. In some areas, such as the capital Oslo and other big cities, schools could be closed for longer stretches of time. The variation was also considerable across households and neighborhoods within cities. If someone in a student's household tested positive for COVID-19, the student would normally have to stay at home for over a week. In some households, this situation could happen cyclically, reducing the student's physical attendance at school. While many schools were closed, partially closed, or teaching with half the students absent in quarantine, schools in other regions were operating on an almost normal basis due to less contamination. Some schools remained open for the entire school year 2020 and 2021, except for the weeks that were included in the national closure in 2020. Thus, keeping all schools closed at the same time was not necessary, which may also explain why the inequalities were allowed to increase between schools.

Finally, there is ample evidence that the discourse around use of digital tools often revolves around acquisition of the tools rather than the actual use (Blikstad-Balas & Klette, 2020; Jewitt et al., 2007). It rapidly became evident that having access to platforms such as Microsoft Teams or Google Classroom was not enough to secure innovative and broad use of digital technologies. By telling all teachers that they should "keep teaching" over digital platforms rather than in a physical classroom, the Norwegian authorities failed to recognize the significant difference between planned online education and an emergency transition from traditional learning to digital learning (Misirli & Ergulec, 2021). This finding may suggest that the importance of access to relevant digital technology alone was overestimated—something that unfortunately has a longstanding tradition (e.g., Jewitt et al., 2007). Other countries, like Finland (see Chap. 4 by Salmela-Aro and Lavonen), appear to have been far better technically prepared than Norway was despite good technological infrastructure in both countries.

Current Policy Concerns

From the very beginning of the pandemic, there was a general concern about students learning less due to a lack of in-person teaching. Around the world, students' education has been disrupted, and some have predicted that the COVID-19 pandemic will result in a "learning inequality catastrophe" (Azevedo et al., 2020, 2022). Politicians in Norway have also been concerned about learning loss, and a national task force group was appointed in 2021 specifically to suggest measures to remedy the consequences of the pandemic for children, young people, and adults in school, giving them the opportunity to make up for lost academic and social learning. In their report, the task force emphasized the difficulty of establishing what learning has been "lost" and suggesting ways to remediate this problem (National Task Force on Learning Loss, 2021). Their main recommendations revolved around monitoring each student closely in their local school context while relying on existing support structures. The task force expressed that it is unlikely to find a "quick fix" solution that would work well for all students, as they have had very different learning trajectories, different supports, and different assessments.

It is not easy to determine and evaluate what a student should or could know compared to the competence they *have* developed at any given time. In Norway, it may be even harder than in other countries to establish or estimate the learning losses. Since all national exams for 2020 and 2021 were canceled all grading of students was left to the discretion of their local teachers. The available data from these local assessments do not suggest any learning loss compared to previous years, but we also know that teachers did what they could to provide assessment in accordance with the teaching they had provided (Andersen et al., 2021). In other words, areas that may not have been taught at all due to the pandemic have not been assessed either. We also know that many parents actively helped their children with written assessments that did play a role in the final grading (Blikstad-Balas et al., 2022; Caspersen et al., 2021; Fjørtoft, 2020). Thus, Norway lacks reliable, comparable data on student outcomes to inform debates about the long-term consequences of the varied educational opportunities students received in 2020 and 2021. We can expect an increased spread in the future national exam results compared to those pre-COVID-19, and it could be expected that these differences would be related to the variation in education in 2020 and 2021.

One probable expectation is that transitions between different school types (e.g., kindergarten to first grade, lower secondary to upper secondary, and upper secondary to university) may become more difficult for students affected by COVID-19. These transitions could be harder because the next level in the system often takes for granted that all students have the competencies they are supposed to have from the prior level, which is now more uncertain than before. We already know that those who transitioned from one school level to another during a period with many local school closures and strict cohorts may have suffered emotional and social losses. The National Task Force on Learning Loss (2021) expressed an explicit concern about the lack of belonging many students now experience in a school context due

to the long periods with abnormal attendance and organization. Another connected concern is that many students now entering higher education have very limited experience with exams or more formal assessments, and most of their grades have been set by their teachers in formative and flexible assessment situations. This may lead to unfair comparisons in entering higher education between students who did not have to take a national exam and those who did because they graduated before or after 2020 and 2021.

In summary, the Norwegian response was limited on a national level, and the distribution of authority on all remote teaching matters to the local school level—and, in some cases, the individual teacher level—resulted in increased inequality in education. In addition to all the vulnerable students who did not get the education they had a legal right to during the period of school closures, there may be severe learning loss, social loss, and emotional loss for individual students who would normally not be considered vulnerable. Once again, teachers are tasked with a very demanding challenge: namely, mapping how different students experienced the pandemic, determining what knowledge and competencies these students possibly lack, and monitoring each one individually.

Silver Linings in Hindsight: What Have We Learned from the Pandemic?

When discussing the unequal opportunities students had to learn in Norway during the period of remote teaching, it is easy to focus on the fact that many students had a worse education and that they suffered in different ways. Still, there are also some silver linings.

First, many parents were involved in their children's education in an unprecedented way. Several studies have found that parents reported increased involvement (Caspersen et al., 2021; Dalland et al., 2021; Fjørtoft, 2020), which could have positive educational and developmental outcomes. In a survey, Blikstad-Balas et al. (2022) asked parents to describe in their own words what they considered beneficial with remote teaching. The most common responses revolved around better insight into what today's students are expected to be able to do, how they work across subjects, and what kinds of competencies schools actually value. This finding indicated that many parents valued getting closer to their children's everyday lives at school. Even though parents found it demanding to spend so much time assisting their children with schooling, they also gained new insights into their own child and the school. The fact that so many parents expressed that more insight into their own children's schooling was the key benefit of remote teaching suggests that parents have the potential to be more involved than they already are in traditional schooling. Policymakers should consider this fact while also considering that not all students have access to parents who want to or are able to take on a more active role.

A second silver lining lies in knowing that digital technology alone will not lead to more innovative education. When all teachers were simultaneously forced to move to remote instruction, this live experiment showed very clearly that transmissive teaching was the norm; specifically, students were asked to spend long hours alone working on individual written tasks. They were seldom asked to collaborate, create, or communicate. A lesson learned, hopefully once and for all, is that technology itself is not a guarantee of educational change. If teachers are going to implement technology well, they need time and support. One could imagine that this kind of shock-digitalization would greatly increase teachers' digital skills, but the evidence from research so far has pointed to very limited digital teaching repertoires and limited use of technology for collaboration, creative tasks, and real-time communication.

Third, while technology in itself will never lead to better learning, some teachers may still use it in innovative ways that are, in fact, an improvement. This possibility became evident during the pandemic, particularly when it came to the potential of real-time formative assessment. While most teachers had less contact with their students and provided less support than in a traditional teaching situation, some teachers experienced the power of digital tools to really monitor students' learning in real time. These teachers were able to access the learning processes of students, for example, through collaborative work on platforms such as Microsoft Teams or Google Docs, where they could see who was working well, who needed more support, and who needed specific advice. As one teacher in grade 8 explained:

> As a teacher, I am up to speed with all feedback on work that [students] are doing every single day. I experience that I have better one-to-one contact with the students than before. I also note that I have a better overview of all the students' capacity for schoolwork, because I see every day what they are doing. (Blikstad-Balas, 2021, p. 121)

While this kind of use was not the norm, there is a silver lining in the fact that some teachers and school leaders experienced what many hold to be the greatest advantage of technology in education: the possibility to track students' work while it is happening and to offer support when they need it, rather than hours, days, or even weeks later. In terms of developing twenty-first-century skills, the potential of providing such digital feedback is evident. When students communicate with others to improve their work, they emphasize process over product, experience the value of collaboration, and learn ways to use digital tools that will also be relevant to their future education and work life. The potential of digital, real-time feedback is high, both in regular school and in blended learning, raising the question of what can be done to promote more use of formative digital assessment in appropriate situations. Some teachers and school leaders who have experienced the power of real-time digital feedback have expressed that they will continue using this format in traditional classroom situations (Blikstad-Balas, 2021).

Finally, for a small group of students, the period with remote teaching was better than with normal schooling. For students who cannot normally attend school due to chronic illnesses, students who struggle with being bullied or lack a social network at school, and students who received better help at home and flourished

academically during the school closures, the period was a very positive experience (Blikstad-Balas et al., 2022; Fjørtoft, 2020). These students may be few, but their experiences are still real and impactful.

Current Educational Landscape: Some Conclusions

For Norwegian society at large, the period of school closure was a powerful reminder of the importance of school, not only as a place where students acquire certain academic skills but also as the heart of students' social and emotional development. Closing down schools reminded us of how much face-to-face interaction means, how much friendships mean, and how much "other stuff" that is important in young people's lives takes place within the school building every single day.

While we know that the pandemic resulted in learning loss and increased social inequalities, there are no concrete plans on how to mitigate these effects other than trusting each school and each teacher to do the best they can with students who may have an even more diverse school background now—due to the pandemic experience—than before. This fact is particularly concerning when considering the teacher shortage in Norway and acknowledging that many people who have a full teacher education have left schools to work somewhere else. These people once wanted to work in schools, but they found the working conditions to be unacceptable. The pandemic reinforced this tendency, especially when the government did not prioritize teachers when deciding who should get vaccinated first. Perhaps great teacher autonomy is not only a gift, but also a burden, when the system around each teacher fails to offer sufficient support for what many of us consider the most important job in the world.

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Chapter 8
Reframing Schools: What Has Been Learned and Remains in the Post-COVID-19 Period in Portugal

Estela Costa and Mónica Baptista

Abstract This study aims to analyze the policy measures adopted by the Portuguese government after the pandemic and examine teachers' perspectives on school responses regarding these policy measures. A qualitative and interpretative methodology was used based on an analysis of official and public documents from the Ministry of Education. Interviews were also conducted with 12 teachers from various Portuguese schools. The results show that the policy measures implemented during the first period of confinement continued and were extended into the second period. To respond to the pandemic, various resources were offered to help solve teaching problems, as well as digital training for teachers. Following the pandemic, the strategy was to create a single instrument to bring together a set of initiatives developed during the pandemic. Results showed that these initiatives were positively received by the schools, according to teachers. Furthermore, the COVID-19 crisis inevitably forced schools to try to do things differently. The role of public authorities was essential because of their organizing power with schools. These public authorities adjusted and tailored their determinations and recommendations and selected the solutions they considered best responded to their internal needs. Likewise, schools created local innovations by adapting or creating new solutions.

Introduction

The global crisis scenario posed by the COVID-19 pandemic brought new challenges to schools and policymakers. In Portugal, new rules and procedures were quickly created and implemented, requiring schools to provide a broad response to the student needs. This is described by the National Education Council (CNE) as follows: "For the first closure of schools, there was no possible preparation.

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The Portuguese educational system had to react, with the forces and means at its disposal and which it could invent, to ensure educational continuity, in a 'live' experience" (National Education Council, 2021, p.13).

In such a context, widespread apprehension emerged about all students, especially the most vulnerable, putting equity at the center of all concerns (Costa et al., 2022a). Students with less access to digital materials– such as computers and conditions to work at home– and students with special educational needs who are considerably vulnerable, were of particular concern to public authorities (Education International, 2020).

Therefore, diverse policy initiatives were established, with the publication of guidelines and diplomas produced by the Ministry of Education and the use of informational and communication tools– such as a TV program, YouTube channels, Facebook, and a platform for school principals.

In schools, there was a collective effort to prevent and control the pandemic and maintain social stability. Schools put together their E@D (education at a distance) Plan, to guide students, teachers, and families. This was a strategic instrument for schools to organize their work during distance learning and an essential tool for communicating with the community. Also, schools made decisions at the local level to mitigate the educational effects of the public health crisis, involving a vast network of actors (e.g., municipalities, scouts, post offices, parents' associations, etc.). that proved to be fundamental to support the most vulnerable students.

Despite the efforts made by all, these were also times of overcoming challenges. In line with Fernando Reimers' introduction to this volume, schools had outdone themselves and urgently searched for solutions to the unexpected and dangerous circumstances. In Portugal, this resulted in a national endeavor to build new solutions and different ways of doing things.

Considering previous works about policy measures to assure equity and learning during the pandemic in Portugal, the importance of networking in emergencies, and reflecting on teacher agency and creativity in crisis management, this chapter focuses on lessons learned and initiatives adopted following the COVID-19 pandemic in Portugal (Baptista et al., 2020, 2022; Costa et al., 2022a, 2022b). Therefore, it is intended to: analyze the policy measures adopted by the Portuguese government after the pandemic and examine teacher perspectives on measures taken by schools regarding the policy measures.

This chapter comprises three parts. The first part of the paper includes the policy measures implemented by state authorities during the emergence of COVID-19, the pandemic period, and in the post-pandemic phase, where we present measures to recover students' learning. The second part examines teacher perspectives on measures taken by schools after the lockdown. The chapter closes with a summary of the key lessons and what remains in the post-COVID-19 period.

Policy Measures Taken by Public Authorities During the Pandemic

In the 2019–2020 school year, the arrival of COVID-19 prompted public authorities to move quickly with measures to provide teachers with digital tools to work with students at a distance. In Portugal, COVID-19 forced emergency distance learning to be used in two moments– from March to June 2020 and from January to February 2021.

Several measures were launched to support schools, students, and families. During the first period of distance learning (March–June 2020), the Ministry of Education (MoE) provided schools with a website with tools, strategies, and support in different domains (i.e., assessments and digital teaching). Likewise, a daily program of classes in different subject areas (except secondary education) was created on state television. A 'Digital Teacher Training Plan' (PTDP) was also developed, which consisted of a large-scale training of teachers across the country to develop their digital skills so they could develop Action Plans for Digital Development in their schools. Moreover, there was concern about schools responding to all children and students within the scope of distance learning plans, and several platforms and digital tools were offered free to students as part of Office 365. Schoolbook publishers also contributed to free teaching platforms with strategies and suggestions. Likewise, there were changes in school functioning and organization regarding health procedures both inside and outside of the classroom. Furthermore, the school year was extended, and class breaks and moments of interaction between students and their peers were reduced.

In the second period of interruption of face-to-face teaching (January–February 2021), the website continued to be expanded and improved, as well as the TV Program and the PTDP, which included two massive implementation phases of teacher training. Moreover, exceptional measures were implemented for the promotion and monitoring of apprenticeships, as well as the enhancement of the teaching and learning process, curriculum management, student tasks, and the recovery of learning losses (PORTUGAL, 2020). Figure 8.1 shows the timeline with the main measures by public authorities during these two periods.

Next, we present each of the measures succinctly.

Website "Apoio às Escolas"

Since March 16, 2020, the MoE across the Directorate-General for Education (DGE), in collaboration with the National Agency for Qualification and Vocational Education (ANQEP) created a website called "Apoio às Escolas" ["Supporting Schools"], which contained information for the use of digital platforms and distance assessments. The platform also included a functionality that made it possible for teachers to share practices with other teachers.

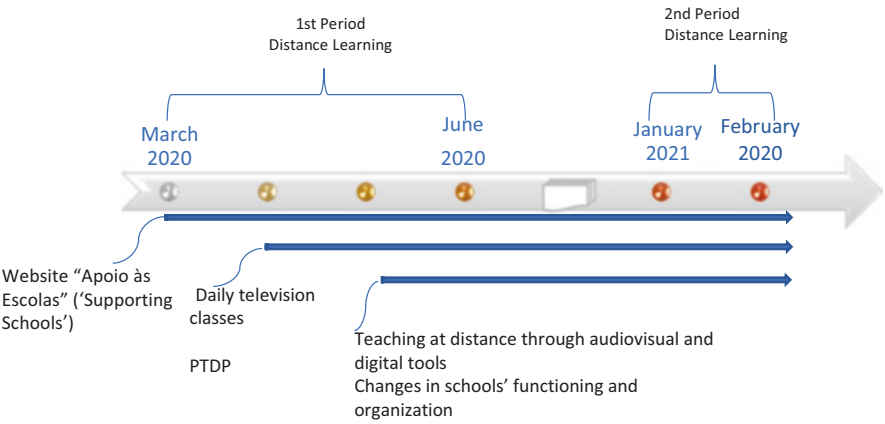

Fig. 8.1 Timeline with the main measures taken by public authorities during the pandemic

Daily Television Classes: #EstudoEmCasa Program

Since April 20, 2019, the MoE and the State television, Rádio Televisão Portuguesa (RTP), launched a program called *#EstudoEmCasa* [Studying at home] with the support of the Calouste Gulbenkian Foundation that consisted of daily television classes. It was broadcast until the end of the school year from 9:00 A.M. to 5:50 P.M. with relevant content for student learning for different school years. The program was made up of 30-minute sessions structured in thematic blocks. *#EstudoEmCasa* was developed by teachers from eight schools in the country, who created it in addition to continuing their current positions. Each segment was inserted into the program sequentially but could be used independently and contained instruments and resources with diverse methodologies. The program was used in different ways, complementing and/or constituting the basis of distance classes. In the specific case of lower secondary education (Grades 5 through 9), students were confined for the rest of the school year, and the program was the base from which teachers developed their work for these students.

In 2020 and 2021, the TV Program returned with two novelties: the 1st- and second-year classes. These were conceived together at the end of the previous school year but are now separated, which is an upgrade that the Minister highlighted since these groups of children have different needs. The upper secondary level was also included.

The Digital Teacher Training Plan

On April 21, 2020, the Digital Teacher Training Plan (PTDP) (PORTUGAL, 2020) was developed by the Directorate-General for Education (DGE) in collaboration with the Teachers Training Centers (CFAE). It comprised three training workshops (Levels 1, 2, and 3) to develop the digital skills of teachers, depending on their level of digital proficiency, and contribute to the Plan for the Digital Development of the School (PDDS). The training of teachers took place on two levels: (1) participation in training in digital skills; (2) participation in complementary training and other initiatives, according to the school's strategic plan.

Moreover, there was a massive training of teachers to train their peers in schools. The schools benefited from PTDP ambassadors, who provided training and accompanied schools in developing their Action Plans for Digital Development. The PTDP Ambassadors were teachers with 50% mobility in each CFAE, who articulated with the DGE and CFAE and the various associated schools. They provided technical and pedagogical advice and organized teacher training in response to the needs identified by the schools.

Teaching at Distance Through Audiovisual and Digital Tools

Since the beginning of May 2020, 80% of schools provided digital activities to all groups of preschool children compared to only 54% before the pandemic. There was an increasing concern about schools responding to all children and students within the scope of distance learning plans that involved cross-cutting responses to the respective educational communities (DGEEC, 2020, p.27).

Microsoft Teams was offered free to students as part of Office 365, providing a space for tasks, videos, proposals, and more recently for student assessment and feedback. Moreover, schoolbook publishers contributed by providing free teaching platforms with strategies and suggestions (e.g., Escola Virtual [Virtual school]). In addition, several Portuguese start-ups helped distance by learning offering different teaching platforms.

Changes in Schools' Functioning and Organization

On May 18, 2020, schools organized themselves to guarantee the return to face-to-face classes of upper secondary students (Grades 10 through 12) to prepare them for the national exams. At that time, most secondary schools decided to rotate face-to-face activities on separate days (or periods of the day), reducing the concentration of students in the facilities and creating "bubbles" that minimized the risk of contagion (DGEEC, 2020, p.29). Most schools also opted to split classes and reduce the

number of students in each classroom (DGEEC, 2020, p.29). However, about 40% of schools did not follow this option, and 10% of schools adopted it only in a small number of classes (DGEEC, 2020, p.29). In Vocational Education and Training (VET) courses, more than 50% of students who started face-to-face classes on May 18, 2020, began face-to-face teaching in practical activities (DGEEC, 2020, p.31).

The following year (2020–2021) started in a face-to-face format for all levels of education. Also, contingency plans were prepared in advance by schools to face the possible resurgence of the pandemic. These plans added to the physical distance requirement internal circuits for circulation in schools, as well as rules for cleaning rooms and equipment. Schools were prepared for different scenarios, depending on the evolution of the pandemic (such as mixed or distance education). Many held meetings with families and other actors working in the education sector to raise awareness of the new rules and school contingency plans. In addition, the school year was extended, and class breaks and moments of interaction between students and their peers were reduced.

In the first cycle (Primary Education), student schedules, breaks, and meal periods were organized to avoid contact with other classes. They had a fixed room and a fixed desk. Breaks were as short as possible, and students were directed to stay as much as possible in specific areas defined by the school.

From the second cycle onwards, students were required to always wear masks and take breaks of only five minutes, and classes started earlier and ended later. Students also helped to disinfest rooms, and canteens started with takeaway services. Schools were given autonomy to decide schedules in the second and third cycles. The classes were divided, mostly in Grade 7 and onward: some students attended classes only in the morning and others in the afternoon.

The Response of the Public Authorities after the Pandemic: The 21|23 Escola+ Plan

The *21|23 Escola + Plan* (PORTUGAL, 2021) is an integrated plan for recovery learning in primary and secondary education that was implemented to mitigate the effects of COVID-19. It is in line with the educational policies currently underway to reinforce the autonomy of schools and differentiate strategies that aim to promote school success and fight inequalities through education (PORTUGAL, 2021).

The 21|23 Escola+ Plan Axis and Domains

The Plan is structured around three axes of action, with the following objectives:

Axis 1: Teaching and Learning: It aims to promote an autonomous and contextualized management of the curriculum.

Axis 2: Support Educational Communities: It aims to give schools resources to strengthen learning, inclusion, and community involvement.

Axis 3: Knowing and Evaluating: It aims to develop indicators and instruments for monitoring the Plan, sharing strategies and practices, and evaluating it in PORTUGAL (2021) (adapted).

Each of the Axes integrates several 'domains' for which actions to be taken by schools are suggested (Table 8.1).

Each of the domains contain recommended actions that are presented in Table 8.2.

Table 8.1 Axes of action and domains of the 21|23 Escola+ Plan

Axis	1. Teaching and learninG	2. Support educational communities	3. Knowing and evaluating
Domains	Reading and writing Curricular autonomy Educational resources Family Assessment and diagnosis Inclusion and Well-being Territory	Qualified teams Training Vocational training Digital	Data Information

Table 8.2 Actions by domains of the Axis 1: the 21|23 Escola+ Plan

Axis 1: Teaching and learning			
Domain 1. Reading and writing	Domain 2. Curricular autonomy	Domain 3. Educational resources	Domain 4. Family
School reading Reading - knowing, learning & teaching Writing diaries Reading more	Cycle management Start a new cycle Dynamic classes Educational teams Early recovering. Learn by integrating Curricular references and evaluation School calendar	Promoting school success – Primary #EstudoEmCasa supports Digital library of Educational & Training Recover with math/through experimentation/ with art and humanities Recover including/ with digital Create value with VET. The voice of students Participatory budget of schools -inclusion	Family closer Back to study
Domain 5. Assessment and diagnosis	Domain 6. Inclusion and Well-being		Domain 7. Territory
Assess, diagnose, and intervene Empower to evaluate	Support tutoring Program for social and emotional skills Personal, social and community development plans Most supported inclusion Portuguese in immersion "The fourth period" School sports – Communities/on wheels		TEIP - phase 4

Axis 1. Teaching and Learning

The 21|23 Escola+ Plan has a contingency and structural nature, as it articulates measures adopted to face the pandemic and other within the framework of the new policies of inclusion, autonomy, and curricular flexibility that were already underway. In this sense, the different domains of the plan are related to different aspects of education, such as adult training, with a view to better preparing and empowering families, relationships between schools and their territories, and improving student competencies in the field of reading and writing skills.

This chapter focuses on some of the domains of Axis 1 and how it is related to student assessment and teaching and learning strategies, assessment, and digital resources from an organizational point of view. Therefore, we can note the description of each of the domains of this axis in Table 8.3.

Within Axis 1, some domains and actions gained greater prominence (see Table 8.4).

Table 8.3 Axis 1 domains

Reading and writing
According to a Diagnostic Study conducted by the Institute for Educational Assessment (IAVE, 2021), reading and writing skills were particularly affected during the pandemic. This is in line with the results of national benchmarking tests and indicators of international assessments
Curricular autonomy
Aims to promote school-centered decision-making, following current policies regarding school organization and curriculum management (PORTUGAL, 2018, 2019)[1]. Regardless of a contract with the MoE, schools can implement proposals of "recognized effectiveness" within the framework of autonomy policies
Educational resources
Includes resources that are available to support responses so that schools can choose from a more diverse range of work tools
Family
Aims to build more effective parental involvement, foster cooperation, and empower families by raising their qualifications
Assessment and diagnosis
Schools are given diagnostic and mid-term evaluation tools
Inclusion and Well-Being
Based on a whole-school approach to inclusion, valuing social and emotional skills for school integration
Territory
Aims to support municipalities and other local actors in the development of inclusion tools and promoting better learning in and through the community

[1]The new education curriculum gave schools greater autonomy, allowing them to manage the curriculum to 25% (PORTUGAL, 2018). Also, schools can manage up to 25% of the curriculum after submitting an innovation plan to the ministry for validation. (PORTUGAL, 2019).

Table 8.4 Domains and recommended actions of Axis 1 adopted by schools

Domain	Recommended actions
Curricular autonomy	Cycle management Educational teams School calendar
Educational resources	#EstudoEmCasa supports Digital library of Educational & Training
Assessment and diagnosis	Assess, diagnose, and intervening
Inclusion and Well-being	Program for social and emotional skills

Domains Adopted by the Schools

Then, we focus on understanding the content of the recommended actions presented in Table 8.4, which are included in Axis 1 of the 21|23 Escola+ Plan and were adopted by the schools of the teachers interviewed.

Curricular Autonomy

School Calendar

Changing the school calendar consisted of organizing the school year into two semesters rather than three academic periods. It was tested in six school clusters for three years, within the framework of a pilot project that ended in the 2018/2019 school year. In 2019/2020, the experience was opened to other schools and gaining popularity. The pilot's external evaluation showed that teachers, students, and parents were enthusiastic about it (Costa & Almeida, 2019). Presently, the 2021/2022 school calendar welcomes the possibility of adopting a semester organization of the school year, in addition to other measures that may be adopted– such as weeks/days with specific activities aimed at strengthening the priority areas of intervention– to promote the quality of learning and success of all students (PORTUGAL, 2021). Currently, the organization of the school year by semesters is closely associated with the idea that it helps to promote and monitor student apprenticeships and enhance the recovery of learning losses are being carried out.

Cycle Management

In the context of the substantial disruption of two academic years, it was considered difficult and even penalizing for schools and teachers to organize curriculum development with watertight annual goals. Thus, it was suggested that different organizing and articulation strategies of the contents and competencies be allowed.

Educational Teams

One of the most effective measures developed within the framework of the new policies of autonomy and curricular flexibility was the constitution of educational teams, which consisted of fixed sets of teachers concentrated in shared sets of classes, in which the same teacher can teach more than one subject in the same class. This measure allows teachers to have fewer students from different classes.

Educational Resources

#EstudoEmCasa Support

The availability of educational resources through television and other platforms was essential support for students and their families during the pandemic. Originally conceived as a resource for students with greater accessibility problems, over the two academic years of the pandemic around three thousand thematic blocks were produced that will remain accessible as a repository of support for students, including for integration into face-to-face classes. In the future, these resources will be on an open-access platform to provide support tools for students, including autonomous methods of study, explanations given by experts from different areas, forums, webinars for discussion around recurring issues, and suggestions that allow families to monitor usage.

Digital Library / "Apoio às Escolas" Website

Under the *21|23 Escola + Plan*, the Directorate-General for Education (DGE) and the National Agency for Qualification and Professional Education (ANQEP) produced a Digital Library of Educational and Training Resources with a wide range of educational and training resources made available on the "Apoio às Escolas" website. These support materials and other resources that were quickly developed are being reorganized more clearly and intuitively to be used by teachers.

Students' External Assessments

External assessments are carried out through national tests and exams for different purposes, namely, student achievement and monitoring in lower secondary education and certification of access to higher education in upper secondary education.

In 2019–2020 and 2020–2021, lower secondary education tests and exams were suspended, and the number of exams in upper secondary school for admission to higher education was reduced. During the two school years, national exams would only be carried out on the specific exams required for access to higher education.

In 2021–2022, given the impact of the COVID-19 pandemic on student learning, in line with the last two academic years, the government decided (PORTUGAL, 2022) to maintain exceptional and temporary measures. Therefore, schools were instructed to:

(a) Carry out all the measurement instruments foreseen to have indicators on the development of learning and be able to monitor the applied learning recovery strategies, aiming to adjust the measures to support schools and students.
(b) Carry out the Grade 9 tests for benchmarking purposes, complementing the instruments developed to monitor the system. From the results of the Grade 9 tests, school reports disaggregated by subdomains should be produced, similarly to what happens with the second, fifth, and eighth grades tests.
(c) Extend the exceptional conditions for completing Secondary Education, with national exams taking place only for access to higher education.

It should be noted that this measure is not included in the plan, having been legislated separately. However, the fact that it was very well received by students, families, and schools makes it one of the most acclaimed by all stakeholders who want it to become definitive in the future.

Inclusion and Well-being

Social and Emotional Competences

The pandemic context worsened inequalities, especially among students from more vulnerable contexts, for multiple reasons. Students were isolated from regular interactions with colleagues and teachers and distanced from school rules and routines, which had consequences for their well-being and psychosocial balance. As a result, students returned to schools more anxious, aggressive, and individualistic. In the 2020–2021 school year, some schools hired more technicians to develop support plans for learning recovery focused on psychosocial support, community involvement, and well-being.

Lessons Learned by Schools

In this section, we present the data collected in interviews with 12 teachers from secondary education who teach in diverse schools. The interviews were carried out to examine teacher perspectives on how schools put policies into action after confinement and our key takeaways.

Following the domains and recommended actions of Axis 1 adopted by schools (Table 8.4), four main dimensions emerged from the results, showing which aspects are most valued by the interviewees and which lessons learned. The four dimensions are as follows: (i) organizational changes related to the possibility of the

academic year becoming a semester, allowing the management of the curriculum by cycles, facilitating work teams, and getting better time management for teaching, evaluating, and learning; (ii) student well-being related to the return to school of more anxious, aggressive students and those with interaction and communication problems; (iii) the use of digital resources, allowing a better inclusion of students by contributing to improving learning, but also the relationship with families; (iv) the widespread willingness to maintain the changes made to external student assessment during the pandemic.

Therefore, each one must be examined.

Organizational Changes in Work Structures and Time Management

According to the interviews, the changes in the school calendar were very significant. There was a better distribution of time, which helped to relieve pressure on teachers and students. Moreover, it enabled the development of other work methodologies and new classroom dynamics, allowing students to consolidate their learning.

Teachers in the interviews highlighted how the organization by semesters impacted students' activities and learning. Teacher 9 stated,

> One of the measures in my school was the organization of the year by semester instead of having three periods. It is working in terms of the time we have to consolidate student learning (Teacher 9).

Moreover, the reduction from three to two summative assessments that took place at the end of each semester permitted more time for formative assessments and regular feedback from students. Pauses made students and teachers feel less anxious. Teacher 9 also said,

> There is no rush to do tests, grades, or evaluations. We can give more time to what is important: learning and doing different activities that involve group work (Teacher 9).

Also, the teachers stressed that the changes in the school calendar made it possible for more articulation between teachers and more teamwork, as can be seen in the following example:

> Working in groups, together with colleagues from various disciplines, is an asset for students. We prepared very interesting Curricular Autonomy Domains that involved students and allowed them to recover their learning in a logic of integration of several programs. In the same activity, we have Portuguese, chemistry, languages… We have had great experiences! (Teacher 8).

Moreover, this measure helped to create opportunities to recover the learning that was lost during the pandemic, especially by changing teaching based on a logic of academic years (seventh, eighth, and ninth grades) to teaching based on a learning

cycle rationale (Third cycle).[1] As one teacher revealed, cycle management was a solution. Teacher 10 stated,

> During the confinement, students couldn't learn everything that was foreseen in the essential learning and, therefore, when we resumed, we did this learning management, but in a cycle logic (Teacher 10).

In addition, it facilitated greater articulation between the subjects. Teacher 10 also said,

> At the end of the Third cycle, in Physics and Chemistry, students must be able to learn what was expected. This also forced more articulation between physics and mathematics or between other disciplines. For the students, it is working, and the experience is positive (Teacher 10).

Students' Well-being: More Interaction and Sharing

Other measures of the plan were much appreciated in schools. Student well-being, for example, was supported through the creation of more cohesive and extended teams consisting of technicians and teachers responsible for supervising groups of students. These multidisciplinary teams were an asset to better supporting student learning, facilitating teamwork, and working with one another.

This was particularly important because, according to the interviewees, students, especially from more disadvantaged backgrounds, returned to face-to-face school more individualistic and aggressive, and with difficulties communicating and sharing. Faced with the consequences of confinement, these educational teams had to implement some measures to overcome it, such as promoting group work (inside and outside the classroom) and mutual help.

During the interviews, all teachers mentioned that students' individualism and aggressiveness were two main aspects they observed in students when they returned to school after confinement. As an example, an excerpt from Teacher 1 is presented:

> The students arrived at the school and had many difficulties in sharing, in knowing how to be. For whatever reason, they attacked each other verbally and physically. They spent a lot of time on platforms, having distance classes, and closing in their rooms without socializing with each other. Socializing and knowing how to be in a group are very important, and you must learn that there are rules. Now, without this component during the two years, they arrived at school, especially the children from the most disadvantaged backgrounds, with more economic needs… they didn't even have a computer to communicate with the school… they arrived with aggressiveness, intolerance, and without competence to work with others… this is very visible (Teacher 1).

Confronted with this scenario, schools had to act and take urgent measures under Plan 21/23. The following examples illustrate this:

[1] In Portugal, it corresponds to lower secondary.

> My dilemma and that of my school was: how do we get these young people to share? For now, let's start with the classroom. Work in groups and teams and preferably do activities that depend on everyone. Within each group, assign them roles: one is the organizer, the other the team controller, the other the supervisor, and the other the spokesperson, making them depend on each other (Teacher 2).

Moreover, this is challenging for teachers and educational technicians, especially when dynamics are established inside the room and are expected to continue outside the classroom. However, many of these students needed supervision when they left the classroom, as Teacher 2 highlights:

> I did investigative activities with them. They formulate hypotheses, plans, etcetera. It requires teamwork. But there is a problem at recess, as we had students who insulted each other… this had to be worked on! With these kids, families are not present, so it's not worth calling their parents. The school must respond… How? Some group games or activities with tidying up in the cafeteria, going together, talk (Teacher 2).

As can be seen in the previous excerpts, schools and teachers faced several challenges in returning to school, and strategies that fostered student cooperation were essential to help them work as a team, interact with each other, and know how to be within a school community. In this sense, groups of classes called bubbles were created at recess. This was another measure adopted by schools that had positive effects on breaking the isolation of students. Teacher 3 stated,

> We try to find breaks and lunches in the school cafeteria, the so-called 'bubbles' to avoid COVID contamination. It was positive because were fewer students, and the staff could pay more attention when they became aggressive. And even the kids, at first, were afraid of contact, but then they relaxed and interacted even more with others because they were fewer and had 'more time'. This grouping organization … we make a positive balance, after COVID we will keep it (Teacher 3).

From the words of Teacher 3, it is possible to realize that one of the measures designed to face problems related to student interactions and aggressiveness was the organization of recess and school space. As a result, the school intends to maintain this in the future. Furthermore, schools developed other activities that sought to promote inter-help and solidarity and to address the individualism of the students. Teachers 1 and 3 highlighted these aspects in the interviews:

> There were dramatic situations. The two unemployed parents who worked in catering… were already resorting to food banks. We think as a group in helping and involving students. It is also a way to break with isolation, individualism and think about actions that help others. We made some very interesting initiatives about this (Teacher 1).

At Teacher 3's school, mutual assistance and solidarity initiatives were also promoted, which, in turn, helped to break with the aggressiveness of the students. She said,

> There was greater aggression and sometimes it was even related to not having bread at home or to the father who, due to isolation, became depressed. We answered some questions like these and promoted solidarity campaigns for a week. It was very positive, and I think it will be maintained when the pandemic is over (Teacher 3).

Digital Resources for Inclusion: Improve Learning and Communicating with Families

The digital tools adopted during the pandemic brought innovation to the classrooms and most of them remained, as Teacher 5 mentioned,

> We all went home. At first, it was difficult to get everything working. We were all lost and had the option of #Estudo em casa. But how was that possible to teach physics like that!? I looked like a crazy person looking for interactive simulations, videos, and platforms to record things. I will continue to use this with my students in the future because they have a lot of potential. Just this week, I used it, and I could have done it another way, but this works (Teacher 5).

Regarding the materials of the television program, Teacher 12 pointed out,

> I needed to take advantage of some of the materials produced in the #Estudo em Casa. I used them this year with my students because they are educational resources that are well done and interesting, allowing me to explore some things in my discipline. So, in one or another class, I used them as homework and asked students to see resources and try it (Teacher 12).

Digital tools were also an instrument of communication with families during the pandemic and continued in the post-pandemic period via email and in other ways, such as 'Padlets'. These often included weekly activities completed by students. The teachers during the interview underlined these aspects. Teacher 8 stated,

> For some students… the confinement did not help them to evolve though they could not leave their homes, they would go to their friends in the neighborhood. Distance school? They have the 'elsewhere' in mind. Then, they were back to school, and we had to think about what to do with them. During the pandemic, we used email and phone a lot to talk to families, and now we continue to maintain that. It was a way for us, together with parents, to help these students. With my class director I did this 'look at him he's more aggressive now', 'look at how he needs to improve his behavior', 'look how he didn't do the job' (Teacher 8).

In the same sense, Teacher 2 reflected,

> When we were confined, we used a 'padlet' with the days of the week and the time for the activities that students had to do. The feedback from the parents was very positive because it helped them to keep up with their children's work. When we resumed, we decided to continue using this feature (Teacher 2).

Teacher 4 also highlighted the need to keep communication with families and parents through email after reopening schools, especially for students with disabilities. Teacher 4 stated,

> The reopening was beneficial for all students, teachers, and parents. Students enjoyed going back to school with friends. Families can't play the role of teachers, but they have an important role. Who got a gift? Confined, we try to do our best to call the parents of some and send things by email. We reopened. I think it was good to keep some things, such as email communication, that we didn't use to do in such a systematic way (Teacher 4).

Moreover, teachers continued to inspect the potential for student learning that they discovered during the pandemic (e.g., virtual laboratories). In the interviews, several teachers mentioned it:

> During the pandemic, I was forced to look for resources I could use in physics and chemistry classes. I invested in this and found great things I did not know. It is true. Necessity forced it. I used a remote lab that allowed students to do the inclined plane activity, collect data on the fly, and in the background experience the experience. I have a more disadvantaged group. What I did was... now that they were back, I paid more attention and saw if they had any doubts. This is an excellent resource that I will use again after the pandemic is over. There are other examples (Teacher 7).

Another teacher mentioned that he explored a virtual laboratory with students after returning to school to provide a more individualized follow-up to the most disadvantaged students who, during the pandemic, did not have access to digital/internet resources or had difficulty:

> I had students who didn't have access to the internet, and we had to find solutions. Kids with siblings had to share; others couldn't buy it... I resorted to the e-lab virtual laboratory for the experimental activities. So, what then? Some didn't get a chance to use it! When the face-to-face classes returned, I had to, especially with these kids, introduce them to the virtual laboratory, we explored and that… Yes, I will continue to use them in classes (Teacher 6).

Keeping Changes Made to External Student's Assessments

During the pandemic, there was a government measure highlighted in the interviews related to student assessments regarding national exams, as can be seen in the two excerpts that follow:

> For students who do not want to continue [studies for higher education] not having to take an exam, or in the case of the physics and chemistry exam, the students were able to select the group of questions... it was all an asset; I think it should be kept. For a student who wants to finish the 12th grade and doesn't want to continue, not taking the exam was a great option because it's heavy for someone who wants to leave school and enter the job market, having to take the exam. I think this example during the pandemic should be kept for the future (Teacher 11).

Teachers consider the measures implemented during the pandemic to be positive, related to the assessment of students at the end of secondary education, and many expressed that this measure should be maintained even after the end of the pandemic. Teacher 12 stated,

> The student's assessment to enter higher education and finish secondary school is always complicated. I think the measure of not using this instrument for students who do not want to continue studying was a good measure. The pandemic brought this discussion. We should summarize this issue and discuss it. It is a complex discussion that has even had positive results during the pandemic (Teacher 12).

Conclusions

In this chapter, we investigated the policy measures adopted by the state authorities after the pandemic and analyzed teachers' perspectives on how those measures were enacted in schools. Official and public documents created and made available during the two periods of confinement (March to June 2020 and January to February 2021) were examined, as well as those after the pandemic period. Data was also collected through interviews with secondary education teachers who teach in diverse Portuguese schools. The interviews aimed to examine teachers' perspectives on how schools turn policy measures into action after the confinement period and what lessons were learned.

The results show that the policy measures implemented during the first period of confinement continued and were extended in the second period. To respond to the pandemic, various resources were made available to help solve teaching problems. Changes were made to the organization of the school year, which has had an impact on student assessment, team building, and time management. Exceptional measures were also taken in the external assessment of students. Digital training for teachers was developed, and the dissemination of good practices was encouraged.

Moreover, the post-pandemic strategy brings all the measures taken during the pandemic together into a single instrument. This instrument combines the resources used with the initiatives and good practices of the autonomous and curriculum management policies that have been implemented in the last decade in Portugal. The main initiatives fall within the scope of curricular autonomy (such as the school calendar, cycle management, educational teams, and student external assessments), at the level of educational resources (such as a TV program, digital tools, and teachers training, as well as communication with families), and students well-being.

The results showed that the measures were received positively in the schools. According to teacher perspectives, those measures have positively influenced the distribution of time, teaching practices (e.g., promoting collaboration between teachers as well as innovative approaches such as inquiry-based learning), teaching methodologies (e.g., greater emphasis on formative assessment, rather than summative), and the articulation between teaching cycles. The plan also responded to issues related to student well-being through more cohesive and broader multidisciplinary teams (e.g., teachers and technicians responsible for supervising groups of students). These teams worked together to minimize some effects felt in schools after confinement, such as aggressiveness and individualism. Some of the actions carried out were related to promoting group work (inside and outside the classroom), mutual assistance, and solidarity. In addition, teachers gave positive feedback regarding the digital resources developed within the framework of the television program that they continue to use even after the pandemic, as well as in the maintenance of instruments of communication with families (e.g., email and Padlets).

Regarding the question of what lessons can be drawn from the pandemic and which ones remain, it is possible and necessary to innovate, seek solutions to crises, and go further. Moreover, despite the drama inherent in the pandemic situation, it

appears that the concrete problems imposed by public health issues have given rise to innovative solutions in different contexts. Therefore, the COVID-19 crisis has inevitably forced schools to try to do things differently. However, the temporary and contingent nature of many changes affected the education system and those in it beyond the health crisis, being implemented to solve other problems.

From the perspective of teachers, most of the solutions implemented and developed are maintained in the classrooms now and are seen as positive. Therefore, they considered it is needed to give continuity to the reorganization of the school calendar and to work in teams. Moreover, it seems to be relevant for Schools to invest in innovative teaching practices and assessment by teaching cycles and use digital resources (e.g., simulations, virtual laboratories, and use of materials from the television program #Study at home), as well as maximize communication with families through digital means of communication.

Finally, the role of public authorities had an organizing effect on schools allowing for the filtering and selecting of solutions that best met their internal needs. Likewise, adapting or creating new solutions, schools made innovations emerge locally.

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Chapter 9
Pandemic Lessons: Story of Cooperation and Competition in Russian Education

Anastasia A. Andreeva, Diana O. Koroleva, Sergei G. Kosaretsky, and Isaak D. Frumin

Abstract This chapter examines how main actors such as policymakers, school teams, and Edtech companies faced the pandemic challenges and whether they cooperated with each other. The analysis demonstrates that while before COVID-19, Russian schools and Edtechs rarely cooperated with each other, the partnership developed in response to the necessity of an emergency transition to distance learning. The government attempted to establish a nationwide infrastructure for distance learning and the vetting of educational content during the initial stages of the pandemic, however, this strategy was not implemented. Since the government did not immediately react to the situation, schools were forced to cope with the transition themselves. EdTech helped students, teachers, and regions deal with the crisis. After the pandemic, EdTech companies found themselves in a situation of increased government regulation, to which they reacted differently: some companies preferred to focus on B2C formats, while others responded with investments in the B2G sector. The school-Edtech partnership might be one of the most far-reaching positive changes of the pandemic for education, but our analysis shows this lesson has rather not been learned.

By the time the pandemic began in Russia, there were over 44,000 schools, 16.3 million students and 2.16 million teachers in the Russian school system (Rosstat, 2020). The first cases of COVID-19 in Russia appeared in February 2020. The spread of the epidemic in Russia matched the widespread international model of two successive waves and peaks. The first peak of the epidemic (with an average of 11,656 new cases daily) occurred in early May. The incidence of the disease

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subsequently fell until September 2020. This was followed by the second wave of the pandemic between September and December 2020, with a peak (averaging 29,935 new cases daily) just before the beginning of the winter holidays and school vacation. The strategy of the Russian education system changed considerably between the two waves of the pandemic. During the first wave, what amounted to a nationwide lockdown was introduced, and approximately 95% of schools switched to distance education, with some distant rural schools continuing to work in person. During the second wave, the restrictions greatly differed from region to region, and most schools remained open. School closures did not exceed 11% at the peak of the second wave. Interestingly, the second wave was a lot more extensive and serious than the first. The prevalence and incidence rate of the disease increased. Nevertheless, this situation did not lead to a mass transition of the education system to the distance learning format, as had been the case during the first wave (Kosaretsky et al., 2022).

According to statements from the Ministry of Education, citing test results from the fall of 2020, the pandemic did not affect the quality of education. The Ministry claimed that students did not have any serious problems related to mastering material during the period of distance learning (TASS, 2021). At the same time, official data on the impact of the pandemic on the quality of education, on educational losses, was not openly available. Unlike many countries, Russia did not declare or carry out any national plan for restoring the quality of education.

According to World Bank data, Russian students missed about one third of the school year due to the pandemic. According to the World Bank's calculations, each year of schooling equals about 10% of added future income, so it's possible to calculate future losses in income by months of education lost (World Bank, 2020). Empirical study shows that the level of functional literacy of the "pandemic" cohort of Russian schoolchildren, controlled for contextual characteristics, was significantly lower for students of 6 and 8 grades. The biggest loss was found in scientific literacy (Chaban et al., 2022).

To identify the lessons that the Russian education system took away from the forced transition to distance learning during the pandemic, our study focuses on the development of cooperation among government agencies at the national and regional levels, schools, and Edtech companies at different stages – before, during, and after the schools' transition to the pandemic modality– through analyzing statistical data and interviews.

We show that even during mass school closures, the education process was not completely abandoned. Students continued to learn despite the closure of school buildings, aided largely by digital tools. A major role in creating this new education environment was played by EdTech companies, who offered their services and met the needs of teachers, schools, and regions. Thus, players both within and outside the schooling system were able to coordinate and meet the challenges facing the education system. However, after schools returned to the usual in-person format, these three parties began to act without coordination. As a result, the government began to build its own systems, while private companies engaged and worked

directly with parents. While all parties learned specific lessons from the initial steps taken, none of them learned the most important lesson: the need to act with coordination and to engage with parents.

Brief Overview of the Russian Education Policy Priorities Prior to March 2020

The School System: Policy, Trends, Crisis-Preparedness

The key initiator of both general strategies and specific programs of digitalization of education launched before the pandemic was the federal government. It is important to note that the Russian government acted as a solo player in strategy development, despite there being examples of effective cooperation between governments and other sectors and states. For example, the IT sector partnered with the government in Hungary, and there was a unified effort among all players in German states (Koroleva & Naushirvanov, 2021). In this sense, the digitization of Russian schools was a process of "top-down" innovation.

The federal project "Digital Education Environment" aimed to update school facilities and provide equipment for the implementation of a digital education environment, as well as open centers of digital education for children (Ministry of Education of the Russian Federation, 2022a). The "Information infrastructure" project, part of the "Digital economy" national project, had similar goals. Another federal project, "The modern school" (or "Building Schools"), provided children's tech campuses and updated facilities and equipment for special-needs schools (Ministry of Education of the Russian Federation, 2022b). Just before the pandemic there was an attempt to make a national platform for distance learning called "The Russian Electronic School." However, this was not done on a large enough scale, and has been seen by researchers as ineffective. In this project, the focus was mainly on providing video content, digitized texts, and images. Despite the site showing large user numbers, teachers complained of a lack of systemization in the content platform and poor navigation. As a result, teachers use the platform sporadically, despite insisted recommendations to use it with consistency Thus, the main policy focus was digitization of instructional materials and providing the appropriate infrastructure in schools and strengthening the traditional pedagogical approach, but not offering innovative opportunities for the education process.

Without a centralized toolkit being offered at the federal level, the demand was met by the private sector. In the 2010s, a market of private digital education resources and services emerged, both for distance learning and hybrid formats. This included the (Business to Business) B2B segment, with contracts at the regional, municipal, and school levels, as well as a (Business to Customer) B2C segment for family services. The federal government did not show much interest in this market prior to the pandemic, neither in regulation nor support.

The 2012 Law on Education was meant to pave the way towards electronically enabled learning programs and distance learning technologies. However, it lacked concrete guidance for implementing electronic education and distance learning technologies, the government's responsibilities in creating the needed conditions, and the requirements and standards regulating digital resources and services.

The government did not formulate a clear policy regarding the use of portable devices. In one school there might have been a ban on devices in the classroom, while a bring-your-own-device approach was taken by another teacher.

By the start of the pandemic, Russian indicators of computerization and connection of schools to the Internet were above the OECD average (FIOCO, 2020). The reports show that 99% of schools had access to the Internet, but about 22% of them had connection speeds below 1 Mbps. (Rosstat & HSE University, 2020). Many Russian schools, especially in regions with difficult geographical or climatic conditions, lacked the high-speed Internet needed for effective learning. Also, the researchers note that the availability of equipment was not identical to the digitalization of education. It is important to ensure the effective use of technology. Many schools did not effectively consider the transition to a new communication and information culture based on mobile, small-format resources designed for small screens and low-power devices.

At the start of the 2019–2020 school year and before the pandemic, only 797,000 Russian school students (5% of the total) used distance-learning technologies. Of these, an insignificant number (around 8000) used an exclusively remote format. Such technologies were used in 21% of schools; 28% in secondary schooling, and 24% in elementary (Mertsalova & Senina, 2022).

Studies have shown that Russian teachers were not familiar with distance-learning formats. Fity-seven perfcent of teachers had no experience with them before the quarantine. Slightly less than a quarter (23%) had conducted online lessons a few times, and only 5% had done so regularly (Koroleva et al., 2020a). A post-quarantine survey revealed that two-thirds of teachers considered themselves totally or partially unprepared to work in those conditions.

With regard to the parents' view of the situation, more than one-third of parents (38%) indicated that their child had experienced distance learning before the pandemic. As compared to students from lower-income families, higher-income students were more than twice as likely to have participated in distance learning outside of school, such as online courses or standardized test preparation (EGE, BSE). They were almost 4 times more likely to have worked with tutors remotely, outside of standardized test preparation. Rural students were the least likely to have taken online classes outside the school curriculum or worked with tutors outside of test preparation (6% and 1%). It is interesting to note that more than a quarter (30%) of parents whose children had pre-pandemic experience with online classes viewed these lessons as being completely useless (Mertsalova & Senina, 2022).

We conclude that the government did not view the support for online education as an important task, despite there being three main levels of familiarity: active users, intermittent users, and those that have never used the resources at all.

Overview of the EdTech System

Assessments measuring the potential of the Russian EdTech market are varied. Researchers note that this is partially due to different definitions of the industry and what constitutes EdTech. For example, should private tutors who work over Skype or Zoom without registering as a business be counted? Estimates of the size of the EdTech market in 2019 before the pandemic ranged from 30 to 40 billion rubles, which is on par with the global average of 1.5% relative to the size of the education market as a whole. However, the EdTech sector showed a high rate of growth, about 20% per year (Obukhov & Tomilina, 2021).

The leading companies in 2019 were SkyEng, an English language learning program established in 2012 with tutoring and specially designed curriculum, and Maximum Education, a standardized exam preparation program active since 2013 (Ryzhkova et al., 2020). The primary business model in this market was B2C. EdTech users before the pandemic were school students, their parents, and teachers. The B2B segment, where the school acts as the buyer, was very underdeveloped. This is largely because some schools lacked the needed funds, so there was little demand for purchasing EdTech products. The private education sector is not very large, which made a market strategy of creating customized products for schools ineffective (Chavkin, 2020).

Furthermore, as noted earlier, the Ministry of Education and regional governing bodies did not make a concerted effort to create conditions for the growth of EdTech. They did not deter EdTech companies from developing but tended to stay out of the online education market entirely. Among the 85 regions, the level of engagement with EdTech companies and informal market players varied extremely. There were specific cases of intense collaboration between regional authorities and online companies, such as the Republic of Dagestan's work with Dnevnik.ru– a unified electronic environment for teachers, students, parents, and local governments, in the market since 2007. Most often, however, the government was absent both in terms of subsidies as well as regulations for third-party companies, and often these initiatives "reinvented the wheel" by giving public funding for services that already existed in the market.

Summary The pre-pandemic period in Russian schooling is marked by numerous government-led digitization initiatives. These were developed and executed by the government, without the participation of EdTech companies or other outside experts. They were imposed on schools, which tended to greet these initiatives with little enthusiasm and implement them only on the surface. The EdTech market was growing quickly in the pre-pandemic years, not yet reaching its full potential but slowly filling empty niches in the education system.

Response of the Russian Education System to the Pandemic

The Government's Response

The moment of transition to distance learning at the start of the COVID -19 pandemic in Russia can be dated to March 18, 2020, when Russian Education Minister Sergei Kravtsov announced the extension of spring break to three weeks. He also announced that schools should prepare to transition to a new format at the end of this break and stated that the final decision should be made by local (or regional) authorities, depending on the epidemiological situation (Voronov, 2020).

The main limitations of the current school system in addressing the organizational challenges of the pandemic were lack of internet in a number of territories, and/or low connection speed; lack of computers–including desktops, laptops, tablets– among students and teachers; lack of reliable and universal platforms (or services) for distance learning; insufficient experience in distance education among all participants; and insufficient access to state-of-the-art education resources (Avksentiev et al., 2020). In July 2020, Minister Kravtsov acknowledged that only 25% of schools were prepared to provide quality distance education, and the others required at least some assistance (Kolesnikova, 2020). During the pandemic, the Russian federal and regional governments addressed some of these gaps by delivering computers and laptops, connecting schools to the internet, and developing IT competencies among teachers.

By March 20, 2020, the Ministry of Education prepared a document including a set of methodological recommendations for schools and regional and local administrations (Ministry of Education of the Russian Federation, 2020a). The recommendations included a basic model of how to carry out education programs with distance learning, as well as in-progress and final assessment methods. Subsequently, several other regulatory documents were produced that provided more specificity about the mechanisms and standards for implementing this model. However, the model and oversight regime that was offered throughout the pandemic was a general framework. The regions and schools that were ready and able to make independent choices and find solutions on their own were given the opportunity to adapt to their specific conditions. This caused difficulty for those looking for direct instructions. We illustrate this using quotations from interviews we conducted with the heads of regional and municipal governing bodies in the education system (interviews were conducted in April–October 2020):

> We were given recommendations on how to organize distance learning from the Ministry of Education. At first, they were vague, and then narrowed somewhat, so we decided to go our own way. We created our own methodological recommendations, and these remain relevant and doable today. We were able to create the basic structures for guidance that teachers are most concerned with, doing so in a way that was not vague, but gave specific instructions on how things should be done, etc.

> We got used to a situation where things were strictly organized. We wanted there to be a centralized decision - say, three lessons per day. So that both teachers and parents were on the same page. So that everything was coordinated, and it wasn't a situation where one teacher gave 20 assignments and the other 2 assignments. There needed to be some kind of structure, but no one had created a structure before.

In March 2020, the Ministry of Education published recommendations for using the federal and regional online education platforms, available free of charge to every student, teacher, and parent (Ministry of Education of the Russian Federation, n.d.). These included both government platforms, such as Russian Electronic School and Moscow Electronic School, as well as private platforms like Yandex.Textbook, Learn.ru, New School Plaftorm, Foxford, InternetUrok.ru, and Skyeng.

While some regions tried to follow the recommendations closely, others acted outside of this framework. They contracted with companies that were not among recommended by the government. For example, the Tatarstan region had its own list offering 10 additional platforms to schools, which helped the regional government provide optimal service and content for all levels and subjects. The Moscow region and the Yaroslav region made their own deals with some Edtech companies for certain services. Moscow, which had its own platform and experience working with it before the pandemic.

In addition to usable services and content, an important challenge was providing methodological support for teachers in learning how to use the new resources and technology. There was no existing centralized solution for this. National programs were insufficient in both number and quality. In response to this during the pandemic, the work of EdTech companies and leading universities became an important resource, with horizontal cooperation between school systems and schools. Online communities were also formed, and webinars and conferences were organized to show best practices and share experience.

> We engaged with 19 online communities. We supported not only teachers, but also students and parents. The VKontakte social network was used to create a community around school subjects, psychological/pedagogical support, special-needs teaching, and coordination. The moderators were the top teachers and methodology specialists from universities. Moodle was used to organize computer courses and webinars. The community worked out solutions to practical cases, solving common problems for teachers. When the basic narrative framework of a case is created, it becomes a concrete example that can be put to use.

In the leadup to the second wave of the pandemic in August 2020, the Russian Ministry of Education began to demonstrate greater engagement and a desire to manage the process. The government announced the creation of a national platform that would provide all the necessary content and communication services for schools. This served as an alternative to internationally popular services such as Zoom (Alizar, 2020). However, these plans came to fruition slowly, behind the schedule announced by the Ministry. While the state digital content platform was launched in the second stage of the pandemic, it did not play a key role (Mediateka, 2022). The plans for a national service that were announced during the pandemic were not completed.

By the beginning of the second wave, Federal government agencies had not issued any teaching or organizational recommendations, stressing that regions should make all managerial decisions on their own. Only in early October did the Russian Ministry of Education elaborate and publish new recommendations on amending curricula due to the coronavirus infection (On recommendations for amending study programs, 2020) and on using information technologies (On recommendations for using information technologies, 2020). The Ministry published practical recommendations on organizing the work of teachers in the distance-learning format in November (On sending recommendations, 2020). In these conditions, reflected in the interviews we conducted and in analysis of media coverage, regions continued to provide curricular support to schools and train teachers on their own.

At the same time, the government called for the creation of a vetting process for digital teaching materials (TASS, 2020). It sought to create rules for approving electronic content for schoolchildren in accordance with the federal education standard (FGOS). Plans were also announced to create a competition for those who wanted to contribute their content to the Ministry's resource catalog.

During this period, a decision was made to amend the law regarding the use of electronic education materials. However, discussions on the content of these amendments continued until the end of the pandemic.

The Schools' Response

Russian schools were asked to transition to a distance learning format in just a few weeks (Ministry of Education of the Russian Federation, 2020a, b). Digital technologies allowed learning to resume while the virus-related closures were still ongoing.

A significant limitation ended up being teachers' insufficient skills and know-how in using distance learning platforms and electronic services. Only 48% of students believe that their teacher had sufficient competency in organizing distance learning. Even less parents (36%) agreed on that (Saprykina & Volokhovich, 2020).

Analyses of schools' coping reactions (see Fig. 9.1) revealed a pluralism of approaches to adapting to the emergency transition. Some of the coping strategies aimed for a fast response to the pandemic and were limited in effectiveness: a lack of attention to increased workloads (5a) and stress (4a); exclusionary practices in decision-making (7a) and organizing the education process; suspension of certain standards in quality and effectiveness (1a-3a). All this is seen by the informants as acceptable, or even optimal, given the perception of the pandemic as an extraordinary and temporary phenomenon. However, this prevents them from learning lessons from this time. Many schools missed the opportunity given by the pandemic to develop schools' digital potential.

Other coping strategies involved a more comprehensive solution but required more time and resources. Some schools took the opposite approach to the issues

Fig. 9.1 Russian schools' approaches to adapting to the emergency transition. (Source: Study of schools' coping strategies in the context of the transition to distance learning, based on interviews with teachers and administrators (N = 43) (Andreeva, 2022))

listed above and instead prioritized the following approaches: endeavors to optimize workload (5b), reduce the stress of the situation (4b), inclusive decision-making processes (7b), inclusive education formats (6b), and increased attention to quality and efficiency standards (1b-3b). Here, faculty and staff were willing to put forth the effort needed for a successful transition (including bringing in external resources), and review adopted practices. They viewed it in terms of leading a transformation and creating a long-term system for distance learning. These approaches were especially relevant to ameliorating resistance to technology and the threat of teacher burnout, as well as developing schools' potential for digital transformation.

In most schools, there was an opportunity to create partnerships with EdTech providers. Our surveys showed an increase in the flow of information about digital technologies, both in the social environment of teachers, as well as among school administrators. They indicate increases of 85% and 94%, respectively (see Fig. 9.2). Additionally, we identified an increase in direct engagement between schools and EdTech companies. This was largely felt on the part of administrators (65%), but the share of teachers reporting increased engagement was also high (51%), as seen in Fig. 9.3.

Given that government initiatives offered only a general framework, schools had to develop specific practices to set up distance learning. A large share (38%) of administrators indicated that the school made an independent plan to transition to distance learning, and another 36% said they did not wait for a transition plan

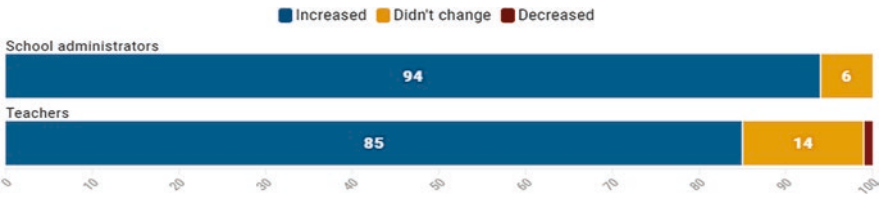

Fig. 9.2 Amount of information about EdTech for teachers and school administrators (percent of respondents). (Source: (Koroleva et al., 2020a))

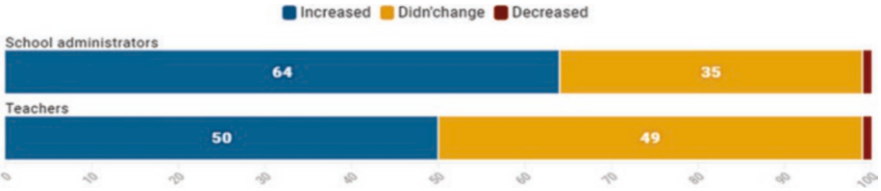

Fig. 9.3 Amount of interaction with Edtech companies for teachers and administrators (percent of respondents). (Source: (Koroleva et al., 2020a))

from above, but rather relied on the experience of their colleagues at other institutions (Koroleva et al., 2020b).

Moreover, not only in different schools, but also within the same school, different distance-learning formats were employed. Forty-three percent of parents said that their children were learning in a live online setting, the format closest to in-person education at school (Fig. 9.4). But most teachers used asynchronous formats– such as sending materials, assignments, and feedback via email (70%), telephone (5%) or delivering printed materials (about 2%). The choice of distance learning format depended on the size of the city or town. In Moscow, the synchronous format was very widespread, while in small cities and rural areas it was half as common, which revealed a problem of increased inequality.

During the pandemic, schools also used a variety of digital platforms. The leader in terms of regions covered was the private education platform Uchi.ru (35%). Other companies in the top 10 are listed in Fig. 9.5, with shares ranging from 8% to 20%. This shows that there was no monopoly over the market by one or more companies. The figure shows that the B2G market– where the service is purchased by the region– included both private and public EdTech companies.

Ultimately, most schools did not stop the education process during the pandemic, and many took steps to set up distance learning by engaging with EdTech companies. However, schools adapted in different ways: organizing distance learning in synchronous and asynchronous formats and adapting various public and private education platforms, as well as various coping strategies.

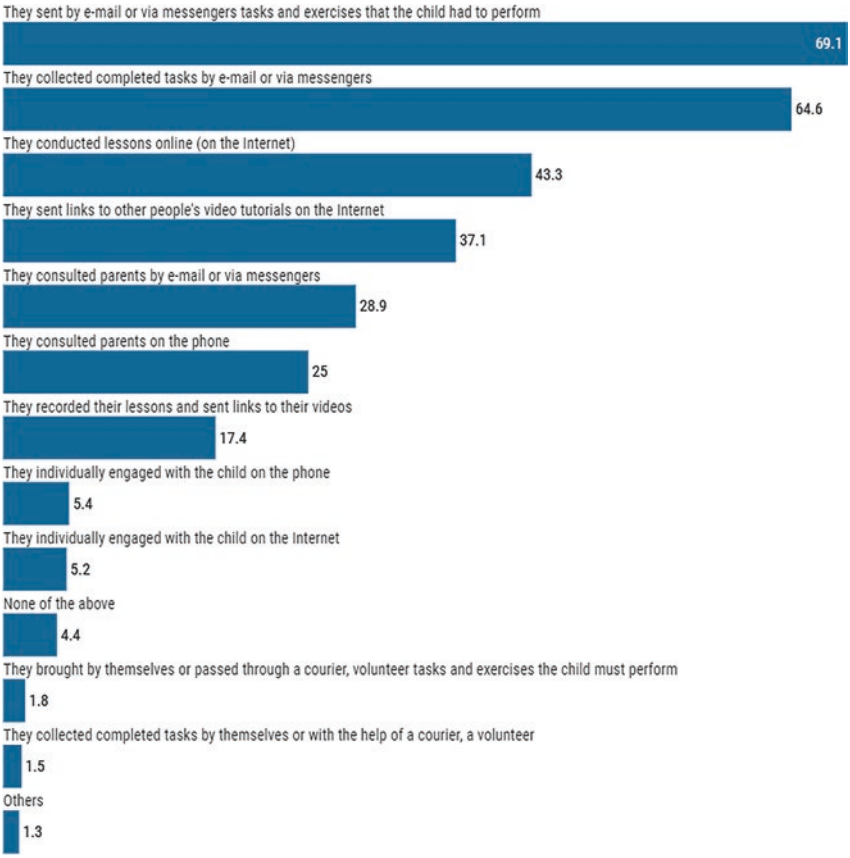

Fig. 9.4 What forms of work with your child were used by teachers during the period of remote work?. (Source: HSE University, n.d.)

EdTech's Response

Summing up, the year 2020, we saw rapid, exponential growth in the demand for online education (Smart Ranking, 2021). The total revenue of the top 60 EdTech companies grew by 113% from the previous year, reaching almost 34 billion rubles. The sales volume of these companies also increased substantially. For example, sales of the online foreign language school Skyeng reached 4.1 billion rubles, which was 141% more than the 1.7 billion reported in 2019. Uchi.ru's revenue was 2.5 billion rubles, 150% more than the 1.0 billion in 2019. Site visits to Uchi.ru grew to three million users per day, 6 times more than before the quarantine. The platform's total users increased to about eight million school students.

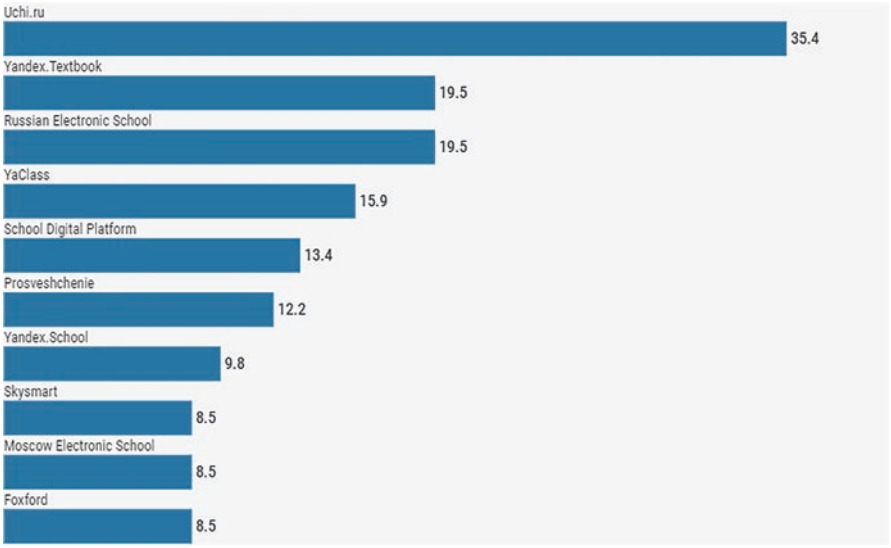

Fig. 9.5 Rate of use by regions of the general education platforms, based on contracts with outside partners. (Source: Laboratory for Digital Transformation of Education, n.d.)

Based on the interviews with Russian Edtech CEOs (Skyeng, Cifrium, Vk, GlovalLab, Internetlesson, Mobile electronic school, Stimul, Sberclass), this jump can be explained in the following way. First, the pandemic led to many EdTech companies expanding their free content, taking advantage of the "freemium" format. The increasing demand was mostly for this "freemium" category of materials. Skyeng, for example, offered a free service that helped teachers check homework assignments. To promote the service, Skyeng reached out directly to teachers using standard marketing practices. EdTech companies also offered discounts on basic content and expanded their product lines. Thus, companies were able to attract additional B2C customers: school students, families, and teachers in need of quality education resources. Second, there emerged greater trust between formal and informal market players. Regional departments overseeing school systems, municipal departments, groups of schools, and individual schools worked with EdTech companies to integrate online solutions into their teaching methods. One Edtech company CEO said:

> One thing that helped us and opened increased opportunities was the fact that in Moscow Oblast we gave free access to our content during the pandemic. This was beneficial to them, and some students were able to continue their studies, if they needed it or were interested. And after that, the Moscow regional authorities had a warmer disposition towards our company and became more open to partner with us to meet the challenges of digitizing education.

Another example is the Uchi.ru platform, which gave special access to children of medical workers who were battling the pandemic (B2C) and increased free access to tools for conducting online classes (B2B). Out of the available subjects, the most popular on the platform were mathematics for grades 1 through 9; Russian, English, and nature studies for grades 1 through 4; and computer programming for grades 1 through 6.

It is important to note that third-party EdTech services outperformed previous platforms from the government in terms of user experience, user interface, feedback, support, etc. This was due to the companies' greater experience in product integration.

The analysis of the interviews with CEOs of Russian Edtech companies highlights several strategies employed by EdTech companies during the pandemic. These strategies differed for players of different sizes of market capitalization. The first strategy can be called "*run as fast as you can just to stay in place*,"[1] which was characteristic of smaller companies who had a narrow focus. These companies generally oriented themselves towards the B2C segment and lost clients at the start of the pandemic. They were forced to find new segments, diversify their business, and optimize their products to stay afloat. Such companies did not always lose revenue, nor did they see the explosive growth that the other groups did. The second strategy was to "*bet on stability, quality, and organic growth.*" This strategy was also common among smaller companies. Most EdTech companies continued to provide quality content and grew about 25% to 35% during the pandemic year. According to representatives of these companies, the pandemic did not significantly affect their operations. They saw steady, organic growth in their user base both before and after the pandemic. One CEO reflected:

> It was not because of the pandemic, but because the market overall is growing…we were able to grow. We were also growing at the same rate before the pandemic. Every year we create our business model, a business plan, and plan for a rate of growth. And these plans more or less correspond to reality.

The third strategy can be defined as "*maximum diversification and servicing a large flow of clients*." This strategy is characteristic of most of the major players in the online education industry, who were able to respond to the explosive growth in demand across the full spectrum of B2C, B2B, and B2G strategies.

Summary To sum up the immediate response of the Russian education system to the pandemic, our analysis shows that the pandemic led to a period of shock innovation for Russian schools, which found several coping strategies to deal with the crisis. Since the government did not immediately react to the situation, schools were forced to find outside resources to solve their problems– including technical ones. These resources were often EdTech companies, which helped students, teachers, and regions deal with the crisis. The Russian education market began to produce an ecosystem that included both formal and informal actors (such as schools and EdTech companies), and connections between the two.

[1] Paraphrasing Lewis Carrol, *Alice in Wonderland.*

Pospost-Crisis Period

The Government's Actions

After a delayed response with top-down solutions, the government remained almost indifferent to bottom-up innovation. Neither schools nor EdTech representatives were seen as valued partners in designing post-COVID policies. The government took a course towards centralization and strict state control in the field of digitalization. Although policy in this area is part of a general policy of the state to unify everything and reduce autonomy, the rigidity of their position regarding school digitalization has its own specific reasons. On the one hand, this is due to security issues, especially in terms of students' personal data. On the other hand, this causes the market to become monopolized in the interest of a limited number of companies.

One can claim that the Russian education authorities, while slow in reacting to the crisis brought on by the pandemic, was able to recover from the lost ground. The lessons of the pandemic resulted in the clarification of the goals and challenges facing federal projects and new education standards. These changes were made irrevocable and in favor of centralized solutions.

The "Digital Education Environment" project (COS) now offers a federal information and service platform for digital education, which was not widely available during the pandemic. This platform includes a library of approved teaching content, a platform for assignments, a social network, and a video conferencing system. The primary entry point to the system has become the "My School" platform.

The Mail.ru group and Rostelekom were contracted by the Ministry of Education and the Ministry of Communications to create an information and communication platform called "Spherum." The platform allows school students to participate in remote classes through a video conferencing system. The software can be used in a quarantine situation or on an individual basis, such as if a student is sick. Schools are equipped with cameras that point at the teacher in the classroom. In addition to videoconferencing, schools and teachers can create closed communities and chat rooms where they can invite students and parents. The new service is integrated with the "My School" platform, which provides access to verified teaching materials.

The government is seeking to put into law the process for selecting electronic education resources that are approved for use in schools. The federal law "On amendments to the federal law 'On education in the Russian Federation'" gave the Ministry of Education the right to set the rules for creating a federally approved list of electronic education resources. The list included a selection of organizations that are allowed to provide teaching materials and approval for electronic education resources that may be used in public schools. To be included in the list of education materials, companies must be approved by a commission of experts. On August 2, 2022, the Russian Ministry of Education issued an order "On confirming the federal list of electronic education resources approved for use in accredited education programs in K-12 education" (2022).

We note that the decision to increase state control in the area of electronic education was two-fold. On one hand, this increase was the result of the experience during the pandemic and the lack of comprehensiveness and quality in the resources being offered to schools and students. On the other hand, this decision was part of a trend towards reducing variation and unifying the methodological approaches within the school system. This trend began in the middle of the 2010s vis-à-vis textbooks. The number of officially approved textbooks was considerably reduced at that time, and this trend has noticeably accelerated in the past two years, now including teacher training and professional development. The Russian Ministry of Education created a list of organizations that are allowed to provide teaching materials and methodological support for schools (TASS, 2020), as well as a "federal registry of additional professional programs for pedagogical education." It is important to note that a number of experts have pointed out that arguments in favor of greater control in the interest of quality have been used by large companies with ties to the government in order to gain competitive advantage.

Another factor leading to increased government centralization and control is the increased concern by authorities over the threat of influence on the youth by "Western ideology." Education with the freedom of choice and variety, similar to internet resources, is looked upon as high risk for "state interests." There is now a demand to create tools for state control that would limit choices available to schools and families. A notable example of this is the April 2021 "Law on educational activities," officially the Federal Law "On Education in the Russian Federation." (On amendments to the federal law "On education in the Russian Federation", 2021). This law established the concept of "educational activities" and the foundation for a regulatory regime, giving regulatory authority over such activities to the Russian government. Subsequently, the government established guidelines for conducting educational activities (On approval of the rules for the implementation of educational activities, 2022). This document placed limits on who had the right to carry out educational activities, while keeping the definition of such activities quite broad. Educational formats– both in-person and online– such as lectures, presentations, seminars, master classes, roundtables, and discussions were listed. Special attention was given to educational activities conducted by foreign agents. This document also impacted the sector of informal education for children both within and outside of the curriculum. Both the law itself and the discussions about its implementation revealed that a major motivating factor for the government was ideological control over the content of education resources available to families.

Additionally, quasi-official statements from government officials show a high level of anxiety related to the risk of nongovernmental providers getting access to the private data of school students.

Nevertheless, the existing ecosystem of private digital services was not entirely ignored. The library of verified content and approved communications applications is supposed to be composed of two separate segments.[2] The first list is composed of

[2] These two segments were not yet completed at the time this section was written.

free and universally accessible content covering the whole school curriculum, including assignments with automatic grading, video materials, and interactive presentations. The second list includes additional content from EdTech providers, which will be displayed in a separate section called a "Marketplace" (Mironova, 2019). This content needs to be approved by a commission, in accordance with established norms.

In addition to the Russian Ministry of Education, the EdTech sector also interacts with the Ministry of Digital Development, Communications, and Mass Media. This ministry has launched a project called "Catalog of digital education content. Unified free access to materials from leading online education services in Russia." This project is under the auspices of the federal project "Cadres for the Digital Economy," which is part of the national program "Digital Economy of the Russian Federation." The project is funded by a federal budget allocated by the Ministry of Education. The project aims to provide unified, universal access to materials created by leading online education service providers in Russia. Teaching materials that are included undergo special checks to make sure they comply with federal education standards. Free access to educational content is provided to students at schools, lyceums, and gymnasiums from grades 1 to 11, as well as at vocational schools. Parents or legal guardians must register on the site, and students over 18 years of age may register independently. Teachers at schools, lyceums, gymnasiums, and vocational schools may also register.

The project offers more than 1500 educational courses, and other online platforms are being added with new content. Six months after the launch of the project, 30,000 schools and 85 regions of Russia have engaged with it. More than 1.6 million students and 240,000 teachers have already gained access to the online course materials. By 2024 there are plans to give free access to these materials to all schools and vocational programs.

Another lesson realized by the government from the pandemic was the necessity to increase investment in the infrastructure for digital resources. The "Digital Education Environment" project launched after the pandemic is aimed at providing teachers with personal devices and schools with Wi-Fi networks that cover more than just classrooms and libraries but also hallways and cafeterias.

The "Help Me Learn at Home" project provided half a million devices to assist with online learning to low-income families. 332,171 devices were supplied by regions, 72,282 devices were donated by citizens, and more than 96,000 devices were donated by business companies (Pomogi uchit'sya doma, 2022).

We note that large-scale initiatives to improve the infrastructure for Russian education tend to favor hardware, which leaves out the training of teachers and students to gain the skills necessary to use digital tools. Professional development and retraining programs for teachers are now the purview of the regional level of digitization strategy. This makes the process more individualized and local, However, there is a lack of specific guidelines and goals, which make the process uneven and nonmandatory.

It is important to note that digitization initiatives are not supported by many parents, and many actively oppose them. The parent community views these initiatives not as a rational strategy based on lessons from the pandemic and in preparation for future risks, but rather as an unnecessary strategy of replacing traditional learning. Since the government is not in cooperation with key market players, it is left addressing the population of unhappy parents.

Schools' Post-Crisis Actions

Research shows that there is a long-term impact from the pandemic on the education system. Thus, we can offer hypotheses about the presence of certain initiatives taken by schools to advance school development and compensate for negative consequences. Our analysis of interviews with teachers and administrators shows that not all schools took such initiatives.

In one group of schools, we find a lack of any post-crisis strategy. The administration and most teachers in such schools have not looked for opportunities to adapt the experiences they gained from the pandemic to the post-COVID era and have not reflected on the positive or negative effects of the pandemic, such as teacher professional development or gaps in education, the latter of which often corresponds with negative attitudes to digitization in the school as a whole.

Another group of schools gained positive lessons from the pandemic, and often makes use of the pandemic experience since returning to the "normal" way of working. However, their adaptation of the innovations is done chaotically or spontaneously. Only some teachers use digital tools in the classroom, and administrators rarely put forth effort to instill best digital practices throughout the school. The use of digital tools in these schools is sometimes driven by parental demand. In one class, parents may understand the importance of these tools and are willing to pay for them, while another class may not find such an enthusiastic audience and students continue with a more traditional program. In these cases, the school's strategy does not explicitly define a digital transformation. Instead, projects within the school have their own independent development paths. Such schools are only interested in working with EdTech companies if they can successfully integrate these projects into their community. For example, schools may partner with EdTech companies targeting gifted children only if there is a gifted population at the school.

Finally, the third group of schools viewed the pandemic as an opportunity for "growth and a new course towards digitization." In these schools, leaders reflected on the pandemic experience and are ready to scale digitization in the post-pandemic context. This includes using distance-learning formats when needed, as well as integrating digital tools into the in-person teaching process. These schools took advantage of the unusual situation and used it as a catalyst to change attitudes that previously blocked integration of digital innovation into school practices and

to master digital tools along with a new pedagogical paradigm. One school principal reflected:

> If it wasn't for the bad, we wouldn't have the good. We took a huge step forward in using the [digital] platforms, in our own personal growth. We took this step forward because of the pandemic, took a step into the digital world, which would not have happened without this unfortunate event. We would have taken a long time to get moving. It was truly a jolt forward, a breakthrough. We all stepped into the digital world (School principal).

In summary, school leaders' attitudes varied greatly in terms of their desire to apply the lessons of the pandemic to traditional in-person education. There is a distinct group among educators and administrators with highly negative attitudes about the pandemic experience and who fail to reflect on the opportunities to apply the lessons learned in the future. On the other hand, some school personnel view the pandemic situation as a trigger for professional growth and display readiness to adapt the experiences and methods developed during the pandemic to longer-term needs. The effects of this can already be seen in schools today.

EdTech's Post-Crisis Actions

EdTech company revenues in 2021, after the pandemic, continued to grow, and reached 73 billion rubles. Growth for the year was about 70%, which was lower than the 113% rate pushed by the pandemic in 2020 but higher than the pre-pandemic growth rate of 20%. Companies generally attribute the slowdown to market saturation. Despite this, investors still view this as a very promising market. In 2021, the volume of investments in education startups ranked fourth, following FinTech, SaaS, and AI/ML.

Representatives of the EdTech sector noted more active participation from the government in regulating the market for online education following the pandemic. However, there is a lot of uncertainty in the market since it is not possible to know what kind of regulations will appear in the future.

On one hand, government regulation is viewed by EdTech companies as a damping force on the market. Companies note that being included on the list of recommended content providers involves reorganizing business processes, closing the door to certain opportunities, and standardizing the content for the average user. On the other hand, the government provides vetting, control of quality and safety, and the applicability of content to public education curricula and the new FGOS standards. Given the limitations imposed by the government, several EdTech companies that interacted with the public school system in B2B or B2G formats preferred to focus on B2C formats, which allowed for greater independence. Another aspect of EdTech that is related to the regulatory issue is the export of technologies to foreign markets. Researchers note that the Russian market is oversaturated, and– given the instability coming from unpredictable public policy– EdTech companies are diversifying their target audiences and markets. The most popular foreign markets for Russian EdTech are Europe and Latin America. One EdTech company CEO said:

> "We now have a partner school in Spain. This is very important for us at this point. Especially because our students can now pass standardized testing in an accredited Spanish school, in Europe. They are accredited in Russia; it is a Russian school. So, we can collaborate with them now."

Another contrasting strategy for EdTech companies is to focus on developing B2G. In this case, companies often view the government as an investor and partner. In this light, the B2B model, where EdTech companies partner with individual schools, functions differently. Startup founders note that after making deals with individual schools, they must go to regional authorities and initiate B2G cooperation to secure funding and then return to the schools. Thus, the government no longer implements software solutions from the top down, but it acts as the middleman and controls engagement on the lower level.

Summary Summing up, the post-pandemic period has been marked by many programs and projects initiated by the government, largely without the participation of EdTech companies and other outside experts. Some of the long-term initiatives have yet to be adopted. However, an important innovation of this period has been the creation of an EdTech marketplace and the development of a mechanism for subsidizing schools to help them make use of it. The government has thus become a market maker and a middleman between EdTech companies and the school system.

Conclusion

The Russian education system was unprepared for the challenges of the pandemic in terms of offering a timely, full-featured infrastructure for distance learning. One of the reasons for this was a lack of a coherent policy on the federal level. The government failed to create a centralized system of public services and failed to act as a full-fledged mediator between various players in the free market before and during the COVID-19 pandemic.

Given the lack of a national system during the first phase of the pandemic, the government was limited to a broad framework of recommendations, shifting responsibility onto regions and schools. Schools found themselves in an unusual state of autonomy. Being given the opportunity to make decisions locally led to a pluralism of coping strategies and digital initiatives, resulting in the emergence of local innovations. This autonomy also provided some flexibility for schools to find the best option for their context and work in a way they could "afford." Nevertheless, this autonomy also posed a challenge for educators and administrators, who took on the responsibility of transitioning to the new realm of digital learning. Additionally, the absence of support for teachers led to a disparity in instructional quality and the efficiency of digital technology usage, ultimately leading to an increase in educational inequality.

The pandemic also encouraged collaboration between Russian schools and EdTech companies. When schools needed tools for providing distance learning,

they were forced to agree to implement digital tools into their practice. Some even formulated their own requests to EdTech companies. Governmental policies have not instituted any official initiatives towards fostering a conducive environment for collaboration between EdTech companies and schools. However, there have been no active efforts to impede such partnerships. The nature of the interaction between these two entities has been ambiguous and lacks clear delineation, which heightens the potential for risks for both the schools and the EdTech companies. This situation could prove particularly challenging for schools, given their established practices and reliance on stable and regulated conditions. The absence of governmental interventions in facilitating partnerships between schools and EdTech companies cannot be regarded as the optimal strategy. This is since certain schools may not possess the capacity to assume a proactive role in establishing collaborative relationships with EdTech enterprises. Consequently, there is a pressing need for targeted governmental programs aimed at assisting such schools. Nonetheless, collaborations between these entities' present advantages to education organizations, as they provide a means for teachers and school leaders to advocate for their specific needs and interests.

While remaining silent about the school-EdTech interaction, the government attempted to establish a consistent, nationwide infrastructure for distance learning and the vetting of educational content during the initial stages of the pandemic. A variety of motives factored into this choice. One of these was the apparent weaknesses of the existing model where the national government provided a framework and regional governments created the specific conditions for digital learning. This led to inequality in terms of resources and administrative potential among regions. Another set of motives surrounded political and ideological concerns, with the federal government seeking greater ideological control over education. There were also economic motives, including lobbying efforts from quasi-public companies in the EdTech space.

However, this strategy was never implemented during the pandemic period and still needs to be fully applied. After rejecting the idea of a unified platform, the government decided to regulate the growing number of relationships on the market between EdTech companies and schools. Having adopted the role of mediator, the government initiated strict control over content being provided to schools, as well as formats for cooperation between the formal and informal sectors. This legitimized the relations between schools and EdTech companies. It also led to changing strategies and restrictions for private EdTech companies, including its partial withdrawal to the B2C sector. Futhermore, it deprived schools of their voice in articulating commissions for projects.

While the EdTech sector was not sufficiently developed or prepared at the start of the pandemic, it supported regions, schools, and families in overcoming the challenges of pandemic. EdTech companies now have increased government regulation, which led many to react by focusing on B2C formats with greater independence and others to increase their investments to B2G sector.

In the B2C segment, many families learned to use private EdTech resources during the pandemic, which provided them with help in the moment. It also gave them a new understanding of the potential of the digital age.

In conclusion, all the players in the four-sided constellation of government, schools, EdTech, and families took valuable lessons away from the pandemic. The government began to pay attention to the private sector and offered mechanisms for working with existing and competing companies, albeit under rather strict regulation. Schools found their voice and opened themselves up to third-party players to solve common problems. EdTech companies shifted their focus towards formal education and developed frameworks for supporting teachers. Many families started to use EdTech resources to supplement the education of their children. Despite these lessons learned, there was a missed opportunity in the lesson of mutual support and trust between schools and EdTech companies. There is a tendency towards letting the horizontal mechanisms of spreading innovation developed during the pandemic dwindle. This leads to an imbalance between top-down and bottom-up flows, which are the two key sources of development in the education system (Esteves et al., 2021; Fullan, 1994; Rivera-Vargas & Romani, 2020). It also blocks the path towards actualizing the potential of a holistic and collaborative approach, which is needed to align all the relevant stakeholders to create sustainable and effective lifelong learning systems (Fung, n.d.). By relying on a single actor for decision-making and rule-setting, the government exposes the public education system to new risks. Without fresh views, it thereby deprives the system of resources that could be used to solve the "old problems" of education.

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Chapter 10
Singapore's Endemic Approach to Education: Re-Envisioning Schools and Learning

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Abstract The COVID-19 pandemic continues to impact lives worldwide, long beyond its initial wave of infection and emergency responses. Alongside health concerns are impacts to education pertaining not just to learning loss but also to paradigm shifts and other social and psychological effects. These include long-term shifts to curriculum and pedagogy, disproportionate effects on vulnerable populations, and ripple effects on mental health and wellness. Policymakers are prompted to rethink perspectives in education to accommodate the aftermath of the pandemic. This chapter will address Singapore's endemic approach to public health and education, a couple of years after the start of the pandemic. The nature of our chapter is to share the Singaporean experience, which represents an Asian perspective that is someone unique in its context. Singapore continues to draw from the principles of science and social responsibility, which were the bedrock of its effective response efforts in early pandemic times. This resulted in high vaccination rates and strong research and development efforts to cushion the impact of growing infection rates, allowing citizens to continue with their daily routines with as much normalcy as possible. In education, Singapore experienced two rounds of home-based learning for students in April 2020 (lasting 28 days) and May 2021 (lasting 9 days), in tandem with national lockdowns. In-person lessons resumed after each round of home-based learning, alongside growth in digital innovation in a ground-up manner, due to the autonomy afforded to schools by ministry leadership. This helped optimize learning in the increasingly digital environment where blended learning models became commonplace. On the other hand, prominent issues related to inequity and mental health became forefront concerns and areas of development. Our chapter will discuss how educational policy will benefit from shifting priorities moving forward. We propose that an ecological perspective will be advantageous for the education sector, helping us to understand education and learning beyond school walls. We conclude the chapter by discussing future challenges and insecurities that Singapore will have to overcome.

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Introduction

Since its independence in 1965, Singapore has transformed from a small colonial outpost to a modern and well-developed city state in the span of a few decades. It has managed to do so due to its adaptability in shifting and rebalancing political priorities in accordance with changing global and social contexts. As an initial third world country rife with high unemployment rates, ethnic tensions, and other economic and political problems, priorities were placed heavily on economic security, nation-building, and eradicating political corruption to ensure Singapore's survival as a newly independent state. As time passed, public issues became increasingly complex and multi-faceted, especially in the twenty-first century. To target such multidimensional issues, Singapore's governance before the COVID-19 pandemic was one of government-wide collaboration, tapping into the diverse capabilities of the various public sectors under the helm of a centralized leadership. This collaborative approach allowed for coherent policy decision-making and coordinated implementation. Singapore's small size (of about 5.7 million people) also facilitated this integrated and coherent approach to government policy.

Singapore's Education System

Education has always been at the forefront of Singapore's priorities, receiving heavy emphasis and investment. Political leaders compensated for Singapore's lack of natural resources by developing the country's only resource: its people. Therefore, much effort was put into building a strong education system which would develop good and contributing citizens. In the earlier decades of the nation's history, Singapore invested heavily in stabilizing curriculum and practices to ensure a strong foundation for education. Over the years, the focus has shifted towards keeping education aligned with prevailing, real-world contexts and challenges such as shifting demographics or economic markets. It is believed that this has allowed Singapore to remain competitive in an increasingly globalized world. Thus, education was and continues to be viewed as essential to Singapore's sustainable and long-term growth.

Based on the Singapore Ministry of Education (MOE)'s Education Statistics Digest 2021, Singapore has 316 public primary and secondary schools, and about 394,721 students (Ministry of Education, 2021a). There has been a decreasing number of schools and enrollment rates due to declining birth rates. The MOE manages the development and administration of public schools and retains a supervisory and advisory role in independent and private schools. Increasing autonomy is being afforded to schools in terms of their curriculum and practices, as long as guidelines are adhered to. From 2000 to 2019, Singapore's education spending accounted for roughly 20% or more of the country's annual government expenditure (Macrotrends, 2022; UNESCO Institute for Statistics, 2022b). This is roughly 4–5% more than the world average (UNESCO Institute for Statistics, 2022a).

Impact of the COVID-19 Pandemic in Singapore

To understand the impact of the COVID-19 pandemic in Singapore, a summary timeline of the government's policy response would be useful. Table 10.1 summarizes the evolution of events and measures from 2020 to 2022 by extracting key milestone measures in public health and education. There is generally close alignment between public health and education measures due to Singapore's integrated multi-ministry approach to governance.

When the pandemic first hit Singapore in early 2020, the government's priorities were to protect citizens' lives and economic livelihood using two main principles: (1) relying on scientific evidence to shape policies and administrative measures, and (2) keeping others in the community well and safe by tapping on collectivist sentiments as well as social responsibility and accountability. These principles formed the bedrock of Singapore's policy response efforts throughout the pandemic. For example, Singapore was one of the earlier countries to implement airport screening measures and aggressive testing when scientific evidence spoke of the high infectiousness and asymptomatic presentation of the newly prevalent coronavirus (Tan & Chua, 2022).

As the pandemic progressed through 2020 and 2021, Singapore continued to be steadfast in its policy response facilitated by existing science and technology research and development infrastructures. Science and technology permeated:

Implementations in testing (e.g., the Agency for Science, Technology and Research and Tan Tock Seng Hospital developed local test kits to detect the presence of the virus using real time RT-PCR; (A*STAR, 2020))

Crowd management and distribution (e.g., contact tracing apps such as TraceTogether and SafeEntry, smart and automated thermal scanners and gantry systems, and crowd analysis for safe distancing where the public was provided with regular updates on crowd levels in public places)

- Community support (e.g., GoBusiness COVID portal which is a support portal for reopening businesses) (Singapore Government Developer Portal, 2022).

The wide adoption of these measures, motivated by a sense of community and social responsibility, cushioned the impact of growing infection rates, especially in 2021 when newly mutated variants drove infection rates up. Singapore was also early in procuring vaccines from other countries and obtaining high vaccination rates. An expert panel was put together to select vaccines deemed safe and effective, and advanced purchases were made to ensure that they were administered as promptly as possible (Abu Baker, 2021). Singapore was the first country in Asia to receive its first shipments of the Pfizer-BioNTech and Moderna vaccines on December 21, 2020, and February 17, 2021, respectively (Table 10.1). Social responsibility was emphasized when communicating vaccine importance. The public was encouraged to get vaccinated to protect their loved ones and others in the community. Singapore started its vaccination campaign on December 30, 2020; within 8 months, 80% of Singapore's population was vaccinated with two doses (Table 10.1). First priority

Table 10.1 Summary timeline of Singapore government's milestone responses to the pandemic in public health and education (2020–2022)

Year	Date	Government milestone responses	
		Public health	Education
2020	Mar 27		Primary and secondary schools start implementing 1 day of HBL[a] per week.
	Apr 7	Start of lockdown period (also known as "circuit breaker").	
	Apr 8		Start of full HBL.
	Apr 15		MOE loaned laptops, tablets, and internet devices to needy students.
	May 5	Extension of circuit breaker.	End of HBL, start of mid-year school holidays (June holidays brought forward to month of May).
	June 1	End of circuit breaker, start of phase 1 reopening.	End of mid-year holidays, start of school-reopening (graduating cohorts given priority, while other cohorts rotate weekly between HBL and in-person lessons).
	Jun 17	End of phase 1 reopening, start of phase 2 reopening.	Schools fully reopen to all cohorts.
	Dec 21	First shipment of Pfizer-BioNTech vaccine arrives in Singapore	
	Dec 28	End of phase 2 reopening, start of phase 3 reopening.	
	Dec 30	Singapore is first country in Asia to start vaccination campaign (frontline health workers and senior citizens given priority).	
2021	Feb 17	First shipment of Moderna COVID-19 vaccine arrives in Singapore.	
	Mar 10		Start progressive offering of vaccination to education personnel.
	May 16	End of phase 3 reopening, start of phase 2 (heightened alert)[b]	
	May 19		Start of HBL.
	May 28		End of HBL, start of mid-year holidays.
	June 13	End of phase 2 (heightened alert), start of phase 3 (heightened alert).	
	June 28		End of mid-year holidays, start of school-reopening.
	July 22	End of phase 3 (heightened alert), start of phase 2 (heightened alert).	
	Aug 18	End of phase 2 (heightened alert), move towards endemic Singapore.	
	Aug 29	80% of Singapore population received 2 doses of vaccine	

(continued)

Table 10.1 (continued)

Year	Date	Government milestone responses	
		Public health	Education
2022	Mar 29	Singapore introduced streamlined COVID-19 measures[c]	
	Aug 29	Singapore introduced further streamlined COVID-19 measures, where masks will only be mandatory on public transport and in healthcare facilities.	Masks no longer mandatory in schools

[a]HBL *home-based learning*
[b]Singapore entered different phases of "heightened alert" in 2021 after the onset of Delta and Omicron waves, where Singapore reverted between different levels of restrictions. Phase 2 (heightened alert) can be perceived as between phase 1 and phase 2, while phase 3 (heightened alert) can be perceived as between phase 2 and phase 3, in terms of level of restrictions
[c]Following reports that the waves were subsiding, Covid-19 measures were streamlined with lifted restrictions. Main ones include: optional mask-wearing outdoors, full-reopening of borders for vaccinated travelers, and lifting of all restrictions on live performances

was given to frontline healthcare workers and senior citizens, although education personnel were also prioritized in March 2021. This included non-teaching staff who come into regular contact with students, such as administrative staff, adjunct staff, student care center staff, and canteen staff.

Impacts on Learning

In terms of education, virus spread prevention necessitated the closure of schools and a sudden shift to full home-based learning (HBL) during the lockdown period. In Singapore, lockdowns lasted about 8 weeks from April 7, 2020, to June 1, 2020 (known as the "circuit breaker"). The shift to full HBL was a challenge for students and teachers for two reasons. First, although the concept of home-based learning was not new to schools and teachers ("e-learning" days had been implemented following the SARS pandemic in 2003), it was the first time that schools were closed for such a prolonged period of time. Second, although educational technology infrastructure was already in place before the pandemic (e.g., the Student Learning Space (SLS), an online learning portal for teachers and students), they had not been extensively adopted across schools and classrooms prior to the pandemic. Thus, there were high levels of uncertainty and change, and teachers and students scrambled to prepare for and adjust to online learning. The Academy of Singapore Teachers, which is the main academy responsible for teacher professional development in Singapore, supported teachers in their implementation of HBL through increased provisions of professional development courses and sharing sessions on the creation of e-resources and e-lesson packages on the SLS. This support, along with the fact that many teaching and learning resources (e.g., lesson plans) were already on SLS, allowed teachers and students to adapt to the new learning style.

Another innovative policy measure used to lighten the impact of school closure on students' learning was expediting the month-long mid-year school holidays from June to May in 2020 to coincide with the second month of the circuit breaker. This helped minimize loss of learning days in in-person school to about 1 month in 2020, while maintaining learning opportunities during that month via online HBL (Tan & Chua, 2022). In the second round of HBL in May 2021, teachers and students were more adept at switching to HBL as they had experience to draw from, and it was for a shorter period (9 days).

While learning loss was ostensibly minimized due to the implementation of the above measures, there remains limited publicly-available evidence on the actual impact of learning loss due to the circuit breaker and pandemic. There is a paucity of published statistics on learning loss, although it was communicated that the overall performance of students in the 2020 national examinations was comparable to previous years in a parliamentary response (Ministry of Education, 2021b). It was suggested that based on this and student surveys conducted by the Ministry of Education on their full HBL experiences (where the majority indicated that their learning has not been severely affected during full HBL) that there was no significant negative impact on students' learning. Nonetheless, it is important to remain cognizant of other possible effects of the circuit breaker that cannot be measured by quantitative means or captured by aggregate-level data. For example, the media surfaced issues of inequity, where vulnerable student populations suffered disproportionately during the circuit breaker. There were also rising concerns from the ground, disseminated by the media, about the impact of the pandemic on students' and teachers' health and development.

Impacts to Vulnerable Student Populations

During the circuit breaker in 2020, attention was drawn to the needs of vulnerable populations including students from low socio-economic status (SES) backgrounds, students with special needs, and those whose parents work in essential services which remained open during the lockdown. There were strong attempts by the government to provide support for these vulnerable student populations, although there has been limited specific and objective measures of how beneficial the measures were made publicly available. Firstly, inequity was apparent when issues pertaining to a lack of digital devices, internet, and a learning space at home impacted the learning of students from low SES backgrounds disproportionately. For example, the Singapore Longitudinal Early Development Study (SG Leads) found that 44% of vulnerable families living in rental flats[1] do not have a computer or laptop at

[1] In Singapore, families' SES can be roughly identified by their housing types. The most vulnerable families from low SES backgrounds live in rental units by the Housing Development Board (HDB), whereas the most advantaged families from high SES backgrounds live in private properties like condominiums and landed properties.

home (as compared to 4% for those from higher-SES families living in private properties) and 8% of these families do not have their own Wi-Fi subscriptions (Yeung, 2020). 40% of them have 5 or more family members at home sharing the small living space (36-45sqm) of the rental flat, leaving little space and privacy for learning. To support equitable student learning during the circuit breaker, MOE loaned roughly 12,500 laptops and tablets as well as 1200 internet enabling devices to students by Apr 15, 2020 (Ang, 2020a). About 47,000 primary and secondary students (i.e., the number of students on MOE's financial assistance schemes, roughly 9.4% of students in total) who typically receive meal subsidies for meals in schools were also given their meal subsidies in the form of School Smartcard top-ups (S$60 for primary school students and S$120 for secondary school students). They could use these top-ups to purchase food and essential groceries from selected food places and markets.

Secondly, students with other special learning, behavioral, or emotional needs lacked the face-to-face support usually provided by allied educators and counselors in school. Students whose parents work in essential services lacked necessary caregiving and supervision at home. In response to this, MOE allowed a small group of students with high support needs, as assessed by each school, to return to school for limited services and school-based interventions. Others received provisions in terms of adjustments to online materials and pedagogy to accommodate their learning needs. Overall, about 1% of students were returning to schools during the circuit breaker, for provisions such as access to digital devices, face-to-face engagement, as well as lunch meals (Ang, 2020d; Ministry of Education, 2020b). While most schools were directed by the ministry to provide such accommodations, in reality priority and affordances were based on school assessments of needs and resources. Overall, while there is no doubt that the government responded with measures to support vulnerable student populations, there is a lack of specific evidence available to the public to understand the level of benefit these measures afforded them.

Other Impacts in Education

When in-person lessons were being conducted throughout 2020 and 2021, safety management measures continued to be in place. These included safely distanced seating arrangements, mask wearing, and restrictions on large-scale activities and congregations (Ng, 2021a, b). There were concerns surrounding student and teacher development and health, as reported qualitatively. The effects of prolonged mask wearing and restrictions on social interaction on children's development – such as being unable to learn through facial expressions and lip cues – aspects important for phonics and literacy, as well as social development became apparent (The Straits Times, 2022; Yeo, 2022). This would become one of the considerations for removing the indoor mask mandate in August 2022, as explained by Singapore's prime minister, Mr. Lee Hsien Loong, in the 2022 National Day Rally speech (Lee, 2022). Limitations on large group activities also meant less opportunities for play, social

interaction, and physical activity for students. Indeed, limited outdoor playtime was found to be linked to increases in body mass amongst Singaporean children (Sum et al., 2022). In addition, teachers began taking on unprecedented roles related to the administration and implementation of safety management measures, with many working longer hours at a greater risk of burnout (Teng, 2021). There were rising sentiments and awareness amongst the public of teachers being overworked during this period.

Shifts in Singapore's Education System in Response to the Pandemic

In August 2022, Singapore announced that masks would only be mandatory on public transport and in healthcare facilities. Group size limits on social gatherings and safe distancing were no longer required. In-school restrictions had loosened to pre-COVID levels, allowing students to attend school without having to wear a mask. As society and education regained normalcy, present interests, and concerns shifted beyond learning loss and public health, and related more to long-term educational, social, and psychological impacts that not only influence students and teachers, but also the larger ecosystem of education and its agents.

Increased Adoption of Educational Technology in Singapore

One of the silver linings of the pandemic observed in Singapore has been the flourishing of digital innovation across schools. We have started to see and will continue to see long-term shifts to curriculum and pedagogy which incorporate digitization and technology in schools and education. There were digital initiations by teachers and schools in a ground-up manner, partly due to the autonomy given to schools by ministry leadership. The MOE has also prioritized the utilization of technology in shaping its education plan, which will be described later in the chapter. As a result, many teachers harnessed SLS data analytic capabilities to assess students' learning progress, using it to monitor individual and overall performance of a class. This allowed them to adjust their approach and address learning gaps in subsequent lessons before moving on. Other creative uses of technology in learning have also started to surface in some schools and learning situations. There have been case studies of teachers and educators using gamification and augmented reality to enhance the learning process for students, such as creating a mobile app to improve communication proficiency in Chinese (O'Brien et al., 2021) or getting students to sketch and manipulate three-dimensional shapes in augmented reality apps to facilitate understanding of chemistry structures and bonding (Lim, 2021). Other examples of harnessing technology include installing interactive digital flipcharts to

facilitate teacher-student interaction (Inavate, 2018) and using swivel mounts such as Swivl in hybrid synchronous lessons so that students who login remotely can experience more intimate and authentic interactions in the class, as if they were present in person (Tan, 2022). In addition, technology has also been used to facilitate learning beyond classroom walls. Virtual reality (VR) techniques have been used to "bring students outside the classroom," especially when restrictions on large outdoor activities such as field trips and overseas trips were still in place. For example, Primary 6 students in Kranji Primary school were transported to overseas locations using VR goggles as part of a two-day Virtual Overseas School Immersion and Cultural Learning Journey.

Such digital advancements and innovations by schools and teachers have transformed education and learning. Arguably, this created an opportunity for the Singapore education system to adapt fully to global trends in digitization and technology that had been forming over the past decade. Technology has long been ubiquitous in our and the younger generation's lives. Students have been exposed to digital means to learn, communicate, and interact with others through online information and social media platforms, and habitually turn to technology to navigate information and interactions. However, education systems have yet to fully embrace technology by developing methods that harness it in a healthy and effective manner. Now is thus a good opportunity to transform education into a technologically enhanced sector, while equipping students with digital literacy and safety skills to protect them from potential negative impacts. Striving for balance is vital for our increasingly digitized world, where technology has penetrated our lives in an inseparable way. With the growing importance of a learner-centered approach, it would be beneficial for education systems to understand our learners today and how they are involved with technology. Education systems should meet learners where they are, providing a safe and effective learning environment that caters to their environment and skills. The pandemic nudged education systems and its agents to modernize learning, but we believe this sets the scene for larger restructuring and redevelopments of education to safely incorporate technology to enhance learning.

In Singapore, the government has been shifting education policy priorities based on insights from the pandemic. There has been a definite increase in digital adoption and a continued emphasis on self-directed learning based on the learner-centered approach. These rose in tandem with recognition of the benefits of blended learning and the proliferation of technology in our students' lives. For example, by the end of 2021 all secondary students owned a personal learning device (PLD) under MOE's National Digital Literacy Programme (NDLP) launched in 2020. This was brought forward 7 years from the original timeline (Ministry of Education, 2020a). Under the same program, students are expected to acquire digital skills across four components in the "Find, Think, Apply, Create" framework which equips them with the appropriate skills to gather and evaluate information (find), interpret and analyze data for problem-solving (think), use software and devices to facilitate the use of knowledge and skills (apply), as well as produce digital products and collaborate online (create) (Ministry of Education, 2022b). Cyber wellness is also emphasized in the program curriculum to ensure the safe and responsible use of technology.

In addition, home-based learning days became a regular occurrence in many secondary and post-secondary schools, and all such institutions were expected to be on board by the last quarter of 2022 (Ang, 2020c). These occurred after many educators noticed the benefits of home-based learning during the lockdown and called for them to be implemented regularly to complement classroom teaching. Ministry leadership promoted a balanced approach where home-based learning days are neither packed with curriculum teaching nor left entirely up to students' own devices (Ang, 2020b). Home-based learning days are now implemented every fortnight, giving students more autonomy in their self-study or learning within certain guidelines. To protect against technology-related risks, some of which surfaced during the circuit breaker (e.g., incidents of hijackers in Zoom lessons; (Elangovan, 2020), MOE emphasized the use of a common secure infrastructure and enhanced security measures when using third party platforms (Channel News Asia, 2020).

Maximizing Opportunities for Disadvantaged Students in Singapore

Reflecting on the pandemic, Hargreaves (2021) and Sahlberg (2021) emphasized the importance of equity in education in the post-pandemic world. Countries should welcome and pursue an economic expansion in public education investment that benefits every child. In Singapore, the government has doubled down on efforts to maximize opportunities for disadvantaged and at-risk students. In the case of educational technology, this would mean creating the possibility of a digital dividend, instead of a digital divide. The acceleration of the nationwide distribution of personal learning devices (PLD) was targeted towards supporting accessibility to digital learning amongst lower-income students, and in hope of minimizing the digital gap. It was ensured that they received additional support so that there were no out-of-pocket payment for their PLDs. The UPLIFT Enhanced School Resourcing Program, originally a pilot launched in 2019, doubled its reach, to provide schools with more teachers and resources to help disadvantaged students stay in school. Each of the 57 schools it operates in will be provided with additional capacity to implement structures, processes, and customized programs to support these students (Today Online, 2021). For example, teachers could be deployed to provide re-integration and academic support for absent students, while other teachers could be deployed to conduct after-school programs. The original pilot program supported about 2000 disadvantaged students in improving attendance and behavior. The program will be extended to 100 schools in following years to support up to 13,000 pupils (Ministry of Education, 2021c).

Singapore is also expanding its inter-agency community support network to support disadvantaged students, consistent with its multi-agency and government-wide approach where different sectors are tapped on for their expertise. The network refers students and families who need help attending school regularly to community-based agencies and resources. For example, volunteers may check in on families to

provide necessary practical or socio-emotional support. Around 80% of students who have been placed on the pilot program (UPLIFT Community Pilot) for 1 year since early 2020 are attending school more regularly (Ministry of Education, 2021c).

Supporting Mental Health and Wellness in Singapore

Another prominent issue that arose since the pandemic started relates to the declining mental well-being of students and teachers. In Singapore, there has been evidence of mental health concerns in the general public during the pandemic. The interagency Singapore COVID-19 Mental Wellness Taskforce, established by the Ministry of Health (MOH) and the Institute of Mental Health (IMH) in October 2020, released findings in August 2021 that 8.7% of 1058 participants met criteria for clinical depression, 9.3% met criteria for mild to severe stress, and 9.4% met criteria for clinical anxiety (Ministry of Health, 2021). Amongst Singaporean youth (aged 16–34), as polled by the National Youth Council (NYC) between April and December 2020 on their challenges and sentiments on COVID-19, 52% reported that mental well-being is a challenge for them. Top stressors cited were anxiety over the future (53%), stress over finances (41%), and worries about academic or work performance (39%). Although these findings are concerning, it is difficult to measure the true impact of the pandemic on mental health without baseline statistics to compare them to. The study did not record pre-pandemic data in this categories, nor did they poll students under the age of 16.

Increased suicide rates recorded by the Samaritans of Singapore, a non-profit suicide prevention center, suggest that mental health concerns of youth aged 10–19 may be on the rise due to the pandemic. In 2020, overall suicide rates were at its highest in 8 years since 2012 (Samaritans of Singapore, 2021). From 2020 to 2021, the crisis hotline has seen a 127% increase in calls from youth aged 10–19. The incidence of suicide amongst this group also rose 23.3% from 30 deaths in 2020 to 37 in 2021 (Samaritans of Singapore, 2022).

Preliminary findings from the Singapore Youth Epidemiology and Resilience Study released in early 2022 (YEAR, 2022) found that 1 in 3 youths report experiencing internalizing mental health symptoms such as sadness, anxiety, and loneliness, while 1 in 6 youths report experiencing externalizing mental health symptoms such as hyperactivity, rule-breaking, and aggression. The study was conducted on 3336 young people aged 11–18. Youth aged 14–16 reported more serious symptoms. Based on another survey by the Singapore Counselling Centre, more than 80% of the sampled 1325 teachers reported that their mental health had been affected by their work during the pandemic (Ang, 2021). Overall, this is consistent with other international systematic reviews on COVID-19 and mental health studies which point towards the importance of improving mental health prevalence rates amongst students (e.g., Elharake et al., 2022; Loades et al., 2020; Samji et al., 2022) and teachers (e.g., Ozamiz-Etxebarria et al., 2021) ever since the pandemic started.

In response to rising concerns towards mental health issues amongst students and teachers, education policy measures were and continue to be shaped and restructured. For example, mid-year examinations in Singapore were canceled to reduce anxiety for students amidst the pandemic (Ang, 2022a, b); however, national examinations were retained as they were deemed essential and important for benchmarking and graduating. As an added measure, topics that were not covered due to the pandemic were taken out of the examination papers. This is in line with recent policy changes in past years to cater to students' different strengths and interests, nurture their joy of learning, move away from an over-emphasis on results and academic comparisons, and reduce mental and psychological stress. For example, the Primary School Leaving Examination (PSLE) scoring system was revised to reduce fine differentiation of students' examination results at a young age and recognize students' achievement regardless of their peers' performance (Ministry of Education, 2021d). Originally based on a T-score system which norms students' results in accordance to their cohort, the exam is now an achievement level system which reflects how students have done relative to learning objectives. Full subject-based banding was also introduced in secondary schools, in which students are given the option to pursue their strengths and interests at higher levels should they wish to. In school teaching and report cards, teachers are encouraged to focus on students' holistic and character development and not just results.

Moving forward, the government aims to continue destigmatizing mental health issues, strengthening peer support, recruiting more full-time counselors, and training more educators as para-counsellors to provide additional mental health support for students. Under MOE's refreshed Character and Citizenship Education (CCE) curriculum, students will be better equipped with the knowledge and skills to understand mental health problems as well as when and where to seek support (Ministry of Education, 2022c). This aims to destigmatize mental health issues and nurture empathy and care. All schools are also establishing a peer support structure by 2022. All levels from primary to pre-university are expected to be conducting lessons from the refreshed curriculum by 2023. There are also plans to strengthen peer support for teacher well-being: the Wellness Ambassador Initiative, introduced in 2021, nominates school officers to be Wellness Ambassadors and receive training (Ministry of Education, 2022a). The government has also recently reviewed teachers' pay and introduced a pay increase of between 5% and 10% (Teng, 2022).

Future Directions and Challenges

The COVID-19 pandemic provided lessons and silver linings for Singapore and education. It is clear that the pandemic has impacted us in complex ways. There is a need to rethink approaches and continuously adapt to shifting perspectives, trends, and contexts. Moving forward, we believe it will be beneficial to embrace educational technology and harness it in the best way possible, as well as to adopt an ecological perspective. However, complex challenges and insecurities continue to lie in the way.

Embracing Educational Technology for the Future

As mentioned, technology has become so pervasive in our lives that it would be impossible to negate it in education. The pandemic had only served to accelerate this use. Thus, education systems should embrace technology-enhanced learning in healthy and effective ways. From 1997–2019, Singapore incorporated technology in education through its ICT-in-Education masterplans. Currently, Singapore's MOE is systemizing, concretizing, and implementing a new educational technology plan, called the EdTech plan, with strong directions towards a technology-enabled future for students and education. The new name reflects a shift in approach beyond just incorporating "ICT in education," to develop a technology-enriched school environment which is adaptive, responsive, and agile in reacting to contextual changes (Ministry of Education, 2021e). The plan has goals to make education more:

1. self-directed, by developing pedagogies, tools, and structures that develop intrinsic motivation and self-ownership
2. personalized, by creating learning experiences catered to each student's needs
3. connected, by developing collaborative learning experiences
4. human-centered, by leveraging data-driven understanding of students' interests, attitudes, and motivations

Strategies include using artificial intelligence (AI) to enhance personalization, digital making to connect students in collaborative networks, and using technology for learner-centered assessments.

Adopting an ecological approach to this programming allows other agents in education to be recognized as enablers of the EdTech plan, including teachers, parents, and the community. Teachers are given professional development opportunities, teaching, and learning guides, and lesson design resources to aid in developing their e-pedagogy skills and data literacy in interpreting students' learning and assessment data. There is also increased parent engagement with MOE's communication channels to ensure that parents are provided with relevant resources and suggestions to ensure students' effective and safe learning with technology at home. Lastly, there is increased involvement with community stakeholders and industry partners to provide authentic learning opportunities and address digital inclusion.

Adopting an Ecological Approach Towards Education

Taking a step back, we believe that adopting such an ecological approach for education as a whole is beneficial. Re-envisioning education and school policies from an ecological perspective could be the way forward in education, especially in the aftermath of the pandemic. This is rooted in the Ecological Systems Theory (Bronfenbrenner, 1992), which proposes that a child's development is influenced by its different environments. In education, we identify the following different

environments and agents that contribute to students' learning: (1) schools, (2) teachers, as well as (3) home and parents. Firstly, education will benefit from re-empowering schools with resources to support every student in their learning inside and outside the classroom. It involves rethinking the concept of schools as beyond a physical site, but a facilitator for continuous learning. Next, as teachers are most directly involved with students, it is important for them to be empowered with continual professional development. Initial teacher training programmes should also equip them with the appropriate skills and knowledge. Lastly, understanding a child's home and family background is also essential, as these familial and social factors can affect learning, behaviour, and motivation. This is also how we can better understand vulnerable students who may be underperforming in school due to home or family factors.

Future Global and Local Challenges

The world is now met with an era of profound global pessimism and fragility, with several insecurities coming together and dampening the possibility of global prosperity. We are met with a complex combination of insecurities related to geopolitics and war, economics and rising inflation, as well as existential concerns and climate change. In terms of education, COVID-19 hindered learning goals everywhere around the world, but most prominently in developing countries. Before the pandemic, the World Bank estimated that 52.7% of children aged 10 in low and low/middle-income countries did not have basic literacy abilities ("learning poverty"). Two and a half years into the pandemic, this is around 70%. This only serves to underscore the urgent need to address education equity and is a point of reflection for all countries on their social mobility.

In Singapore, the privilege of prioritized education has led to high literacy rates (97.6% in 2021; Singstat, 2021). There is also a coherent and well-planned perspective in governance which has allowed Singapore to circumvent global crises like the pandemic, as well as support systems in place to protect vulnerable populations as much as possible. However, Singapore remains vulnerable due to its geopolitical size, and is very much susceptible to external forces and shifts. We must not be complacent despite past successes, as the world presents very novel challenges to come. As a country who has only people as its main resource, there is a need to further develop the intrinsic capabilities of our people, so that Singapore remains competitive and resilient in the globalized world. Developing a strong global and cultural mindset that embraces cultural breadth and civic discourse is essential, especially with the increasing number of foreign students in our education system. Developing creative and unconventional minds is also important, as agility and innovation is now an important trait. There is also a need to refresh our social compact to uplift the bottom rungs of the population and to achieve a higher degree of social mobility and equity. These are all future questions and goals that are relevant to Singapore's education system and policymakers.

In conclusion, it is apparent that the COVID-19 pandemic impacted our lives in ways far beyond public health and learning loss concerns, which were the main concerns in the initial waves of the crisis. Although Singapore was negatively impacted by paradigm shifts, vulnerable populations, and mental health and wellness, progress in digital innovations and technology-enhanced learning can be seen as a silver lining. While this was mainly discussed within primary and secondary school stages in this chapter, trends are similar in higher education. As Singapore continues its endemic journey, many challenges remain, and new ones arise. Will Singapore be able to remain resilient and stand the test of complex uncertainties? It will depend therefore on the innovation of its new leaders and the ability of its educational system to be nimble.

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Chapter 11
Reforming Education in Times of Pandemic: The Case of Spain

Alejandro Tiana-Ferrer

Abstract This chapter examines how the impact of the pandemic interacted with the process of development and implementation of an education reform. The suspension of in person instruction was minimal, compared to other countries, and several programs supported the distribution of devices and connectivity. The pandemic heightened attention to wellbeing and mental health, and to pedagogical and organizational challenges, such as the overcrowded curriculum and the lack of teacher collaboration, as well as the conditions of vulnerability of socially marginalized students, the poor, immigrants, and students with disability. The recognition of these issues fed back into the process of development of the reform and incorporated them into the post-pandemic policy agenda.

During the second week of March 2020, schools in several of Spain's autonomous regions[1] began to suspend their in-person (face-to-face) activities partially or completely in response to the spread of the Covid-19 pandemic. This was one of the first measures taken at a local level to contain the transmission of the disease that had begun to surge throughout the country. On Saturday of that same week, 14 March, the national government declared a nation-wide state of emergency. Among other measures, in-person educational activities were suspended in all schools and at all levels (Real Decreto 463/ 2020). Subsequently, on Monday, 16 March, all schools

This work is based on two previous studies focusing on the immediate impact of the Covid 19 pandemic on Spanish education. (Tiana, 2020a, b)

[1] We remind readers unfamiliar with the Spanish political system that the country, while not a federal state, is highly decentralized. Its 17 autonomous communities (which in other countries might be called states, provinces, or regions) have competencies in a broad range of fields, including education. While there is a common educational system, there are many regional particularities in its organization and management.

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and educational institutions remained closed and in-person education and administrative affairs were replaced by remote activities.

As a result of these circumstances, school life was abruptly and unexpectedly altered. While the days prior to the school closure provided some inkling that such a measure could be taken, there was very little time to prepare or carry out a careful adaptation. As a result, educational programming that had been designed by schools and teachers for the academic year were left in limbo. With the second trimester of the 2019–2020 school year ending, educators had numerous questions about resuming teaching activities after the Spring holidays and through the end of the school year.

The Royal Decree establishing a state of emergency and general confinement of the Spanish population also determined that educational activities should be continued remotely and online using the available means. Consequently, in-person education was substituted, virtually overnight, by remote teaching that resorted as best it could to available technological and didactic tools according to contingency plans prepared by the regions and the situation of schools.

Education Reform Initiatives Preceding the Pandemic

In Spain, the pandemic's exceptional circumstances coincided with a process of transformation that had begun shortly after the change of government in June 2018. The new government was determined to carry out a significant reform of the Spanish educational system and lost no time in getting to work. Its proposed reform focused primarily on the pre-university level, where the need was most urgent. Although certain measures affected the university as well, we will limit our discussion here to the earlier educational stages, elementary and secondary schooling, where the impact of the reform was more significant.

In the immediate years before 2018, a vivid educational debate arose in Spain, namely after the approval of a conservative education law changing many of the traditional features of the Spanish education system (LOMCE, 2013). The new government was committed to changing that law and consequently a process in that direction was started in September 2018. As has occurred in other countries, the social, technological, cultural, and economic changes of recent decades have incited lively, even raucous debate in Spain about the need to introduce educational changes that will respond to new demands. Some of the controversies grab the attention of the media, at which point education, in addition to being discussed by pedagogues and teachers, becomes a subject of debate in political, economic and media circles. The publication of the OECD's annual *Education at a Glance report* and, to an even greater degree, the PISA results, tend to spark a flurry of analyses, opinions, proposals, and reactions. While the diagnosis of the educational reforms that are needed is not always objective and balanced, there is something of a consensus about certain points, even if the solutions proposed for these issues vary considerably. The mere fact of a broad consensus regarding the importance of facing the new challenges

should be seen positively and as something that, regardless of the discrepancy among the proposed solutions, constitutes a common starting point for the pursuit of often hard-won agreements.

– At 13.9% in 2022, Spain has the highest school dropout rate in the European Union.Dropout rates have decreased over the last two decades; however, they must decrease at a more rapid pace if Spain wishes to improve the general formative level of its population.
– There is a clear need to improve the configuration of secondary education and to promote the development of vocational education and training by increasing the rate of continuing studies after compulsory schooling. While the percentage of students enrolling in higher education is above the European average, the low rate of upper secondary education graduates continues to be a problem. This deficit can be seen most clearly in the realm of vocational education and training (VET), where the rates in Spain are approximately half of the rest of Europe (Ministerio de Educación y Formación Profesional, 2021).

Rates of grade retention, or requiring students to repeat a course, in Spain practically triple the average of other OECD countries. Despite the many voices that denounce the uselessness of grade retention as a pedagogical tool, Spanish pedagogical culture continues to consider it a solution, especially in the lower stages of secondary education (Save the Children, 2022; Tiana, 2008). The good news is that the awareness of how important it is to reduce this rate of grade retention seems to have increased and spread throughout Spanish society and the educational system in general.

– This array of problems is also related to two traditional features of our educational system. The first of these is the overly broad curricula, whose virtually encyclopedic nature makes in-depth study or manageable amounts of schoolwork impossible, as well as limiting students' and teachers' autonomy. The second problem has to do with limited transfer pathways among different modalities of studies, such as general and technical education – especially in secondary education – which can stymie more open, flexible study trajectories.
– Naturally there are socioeconomic connotations to these issues, as they do not affect different social groups equally; students from lower socio-economic status, together with vulnerable groups and immigrants, are disproportionately affected. While Spain has traditionally had a reasonable rate of educational equality in student learning outcomes, as measured by PISA (OECD, 2018), in the last decade inequality has increased, and we find increasing instances of school segregation, particularly in certain regions such as Madrid (Murillo & Martínez-Garrido, 2018).
– Finally, we should mention the importance of fostering educational inclusion, following various recommendations by the United Nations Committee on the Rights of People with Disabilities. While the integration into regular public schools of students with special educational needs begun in the 1980s has undoubtedly made important strides, with 85% of students with disabilities inte-

grated in regular schools, there is still considerable work to be done to make educational inclusion effective. And we must not forget to pay attention to students with severe disabilities who continue to be included in special education schools.

Faced with this scenario, the new government constituted in 2018 undertook the transformation of certain aspects of the pre-university stages of education. A draft legislative bill was prepared, partially modifying the existing law. The project was approved by the ministerial cabinet on February 15th, 2019, and sent to the parliament for approval Among the outstanding proposals included in this law were various changes that, in addition to giving an idea of the roadmap to be followed, would have a notable impact on decisions adopted during the pandemic.

- The bill adopted a childhood rights orientation in accordance with the guidelines laid down by the United Nations Convention on the Rights of the Child (1989) and the Convention on the Rights of Persons with Disabilities (2006). It included an acknowledgement of the best interest of the child, of the right to education, of the state's obligation to ensure that the rights of the child are protected, and the adoption of several measures aimed at encouraging inclusive education and educational equity.
- The bill adopted a gender equality orientation through coeducation and equality between males and females at all education levels, the prevention of gender-based violence, and respect for affective-sexual diversity. These elements were incorporated into the curricula and into measures relating to school life.
- The bill established an objective continuous improvement plan through curricular reform and more personalized teaching. The reform was based on a model of competency development through the early detection of learning problems, coupled with their prevention and recovery. Greater personalization and attention to diversity were given more emphasis as general educational principles.
- The bill acknowledged the importance of applying the Agenda 2030, which implied that education for sustainable development, global citizenship, peace, and human rights, and intercultural education would be incorporated into the new curricula.
- Emphasis was given to bolstering digital transformation in education, including the development of digital competencies among teachers and students at all stages through specific contents as well as from a transversal perspective.
- Measures were implemented to decrease the phenomena of grade repetition and dropout. This included more flexible school itineraries allowing for greater possibilities of attending to all students and offering them the chance to continue their education after compulsory schooling.
- Measures were established for the purpose of reinforcing school organization, with an emphasis on cooperation and group work among teachers as well as on encouraging a more flexible, participatory approach.

When general elections were set for April 28th of the same year, the parliamentary process for approving the law was suspended. The educational debate, however,

continued. After further elections on November 20th, 2019, the coalition government that was formed in January of 2020 took up the legislative project from the previous year. The ministerial cabinet approved the project law again on March third, 2020 and it was only after a difficult process – caused by the effects of the pandemic on parliamentary processes – that the law was finally passed on December 29th, 2020 (LOMLOE, 2020). Its application and normative development began immediately and continues to this day.

As can be observed by its timeline, the process for the passage of the law in parliament began at the start of the pandemic, a fact which had an impact on the procedures. At the same time, the coincidence of the parliamentary debate with the adoption of measures to respond to the disruption of school life provided an opportunity to establish connections between the two processes. We could go as far as to affirm that the experience acquired during the pandemic and the need to react to unforeseen situations likely resulted in changes and improvements to the law and its subsequent development. This worked the other way around as well; the pandemic forced lawmakers to reconsider aspects that were insufficiently dealt with in the original drafting of the law, while discussion of the law led to a rethinking of some of the decisions pertaining to the needs arising from the new health concerns. We can see it as a process of mutual interaction, as I will attempt to demonstrate below.

The Immediate Reaction to the Pandemic

As we alluded to above, in-person educational activity was replaced overnight by remote teaching, bringing a profound change to everyday school life. Part of this involved resorting to available technological and didactic tools, even when these were not always adequate.

The Spanish educational system had begun taking decisive steps towards its digitalization in prior years. The program *Escuelas Conectadas,*[2] financed by the European Union, had brought technological infrastructure – including high-speed and wireless connectivity – to more than 40% of Spanish schools and 45% of non-university students. Programs for developing digital competency among teachers had been established, along with the digital community eTwinning,[3] associated with the Erasmus+ program. Regional administrations, as well as schools operating on their own initiative, had developed platforms such as web portals and educational software, often in conjunction with private enterprises working in the technological and editorial fields.

Notwithstanding these advances, Spain was still not able to offer an exclusively online education in regular schools. As in other educational systems, the use of digital technology had been seen mainly as a support for in-person teaching, and in no

[2] https://www.red.es/es/iniciativas/escuelas-conectadas (Retrieved on 10 September 2022).

[3] https://intef.es/formacion-y-colaboracion/etwinning/ (Retrieved on 10 September 2022).

way an alternative system to be used independently. According to a recent survey,[4] 50. 8% of teachers and headteachers use technology for making school reports, 32. 9% for formal assessments and 30. 2% for non-formal assessments. In addition, 81% of teachers and 87% of headteachers think that the use of technology should combine with traditional resources and current teaching methods. These conditions contributed to limiting the use of technology under the new circumstances. However, teachers, students, families, and educational authorities wasted no time in trying to ensure the continuation of teaching activity, even when this meant relying on very diverse, unequal means. Lacking any precise idea as to how long the exceptional situation might last, teaching activity continued to move firmly in the direction of remote, online education, with the objective of avoiding an interruption in the student learning.The reaction to the new situation was immediate, with all the educational authorities, national and regional, and school teams striving to find answers to the new challenges they were facing. Table 11.1 synthesizes the key activities developed and decisions taken from March to September 2020.

A sample of policy decisions made by the Ministry of Education and Vocational Training during the months of confinement includes[5]:

– Effective immediately, all the autonomous regions were provided access to materials for remote VET that the Ministry had been elaborating starting in 2019 (a total of 1162 professional modules corresponding to 104 diplomas and specialization courses). Access was also given to all materials used in other levels (primary, lower secondary education and baccalaureate) available in the *Centro de Innovación y Desarrollo de la Educación a Distancia* (CIDEAD).[6] Autonomous regions incorporated this material into their educational portals and platforms, allowing for access by teachers, who did make use of it.
– Also in the very first days, the web portal *Aprendo en Casa*[7] was created, offering educational resources, tools, and applications for teachers, students, and families. This was complemented by a variety of initiatives from the autonomous regions. The portal received more than 15 million page visits per day, with a peak of 23 million visits on 23 April.
– Through the *Instituto Nacional de Tecnologías Educativas y Formación del Profesorado* (INTEF), the web portal *Recursos Educativos para el Aprendizaje en Línea*[8] was launched, providing tools and resources for teachers to continue remote teaching. Specific courses for teacher training, some with assigned tutors and others open to all, offered resources for online teaching as well as

[4] https://www.prometheanworld.com/es/microsites/estado-tecnologia-en-educacion/ (Retrieved on 28 October 2022).

[5] http://www.educacionyfp.gob.es/dam/jcr:cbbd1a79-514e-4a34-9ec6-3d9a25d591e5/informe-de-gobernanza-del-sistema-educativo-ante-la-covid19.pdf (Retrieved on 10 September 2022).

[6] https://www.educacionyfp.gob.es/mc/cidead/portada.html (Retrieved on 10 September 2022).

[7] https://aprendoencasa.educacion.es/ (Retrieved on 10 September 2022).

[8] https://intef.es/recursos-educativos/recursos-para-el-aprendizaje-en-linea/ (Retrieved on 10 September 2022).

Table 11.1 Timeline of key activities and decisions affecting education since March 2020 to beginning of 2020–2021 academic year

Date (2020)	Activities and decisions
March 14th	Declaration of state of emergency
March 16th	Shift of school activities from in-person to remote
March 17th	Meeting of the education commission to coordinate with the regions the transition from in-person to remote education. Agreement on cooperation for opening the *Aprendo en casa* web portal and offering existing instructional materials for distance and on-line learning
March 23rd	Beginning of *Aprendemos en casa* TV channel
March 25th	Meeting of the education conference with the regions for sharing experiences and adopting the first agreements for continuing educational activities for the rest of 2019–2020 Decisions taken on exams to access university (dates and organization) Decisions on VET practical activities Decisions on Spanish students abroad (follow-up and different solutions for diverse situations)
March 30th	Distribution of high-priority equipment and connection cards for most vulnerable students
April 15th	Meeting of the education conference with the regions Agreements about criteria for ending 2019–2020 and starting 2020–2021 academic years
May 14th	Meeting of the education conference with the regions Decisions on gradual return to in-person school activities from the end of may
June 11th	Meeting of the education conference with the regions for sharing school contingency plans for 2020–2021
June 16th	Approval of an extraordinary budget of two million € for supporting extra educational activities in 2020
June 22nd	Adoption of measures for facing Covid-19 in schools during 2020–2021 (joint document from ministries of health and education)
July 7th	Approval of the *Educa en digital* program for providing schools with equipment for vulnerable students
July 17th	Meeting of the education conference with the regions
July 31st	Approval of the #PROA+ program
August 5th	Creation of a permanent coordination commission with the regions and the Ministry of Health to follow-up the medium and long-term impact of Covid-19 in education
August 27th	Joint education and health conference with the regions to coordinate the beginning of 2020–2021 academic year with in-person activities

project-based teaching and cybersecurity. Some 22,000 teachers participated in the 16 open courses that were offered between March and July

– With the collaboration of the Spanish public television channel *Radio Televisión Española* (RTVE), the educational program *Aprendemos en Casa*[9] was launched.

[9] https://aprendoencasa.educacion.es/aprendemos-en-casa/ (Retrieved on 10 September 2022).

The program, which aired for five hours daily from Monday through Friday, was designed for students between the ages of 6 and 16 and soon became quite popular. More than 2600 videos were shown over the 60 days that it was broadcast (until July 2020), provided by more than 110 entities and individuals who collaborated on a voluntary basis. These included publishers, educational portals, Youtube creators, teachers and other providers of online educational content. Some 14. three million viewers benefitted from the project, even if there is no precise data about the percentage of students following them regularly. The program did not continue after schools were re-opened in September 2020.

– To close the existing digital gap, private entities were called upon to provide technological resources that would enable the most vulnerable students to enjoy access to online teaching in the most efficient manner. Beginning on 30 March, the Ministry distributed to the autonomous regions 23,000 cards for access to high-speed Internet, 1000 *smartphones*, 2400 *tablets*, 131 computers, and 1500 scientific calculators. This was meant to be a first, urgent response for the most vulnerable sectors of the population and was subsequently followed by more ambitious initiatives.

As we can see, the pandemic spurred a rapid flurry of more or less accurate responses to the problems observed. Some of these problems, such as the need to develop the digital competencies of teachers, students, and families, the need to equip schools with programs, platforms, and computer equipment, or the need to accompany vulnerable students to avoid dropout, had been identified previously and were already being addressed. Other problems had been diagnosed but were waiting for a response, such as the digital gap, the insufficient cooperation between teachers, and the revision of the basic knowledge that was meant to constitute the core of the curriculum. These issues, which the Spanish educational community had been debating and discussing for years, took on a new urgency and relevance in the new situation (Trujillo, 2020).

Responses to problems after March 2020 came from different sources, offering a varied picture of initiatives. On the one hand, the Ministry of Education and regional authorities worked cooperatively to provide resources and materials according to a common strategy debated at the *Conferencia Sectorial de Educación*. On the other hand, schools, and school associations (for instance, private school organizations) made their own decisions about web resources, teaching materials, and models for remote instruction (teleclasses, online teaching and learning activities, asynchronous communication). This variety of initiatives created disparities among schools and students, even if this situation was not subject to a rigorous evaluation. Many schools reported a positive experience with remote learning, while others were non-committal.

Main Challenges and Lines of Response

To confront these challenges, cooperation between state and regional educational authorities needed reinforcement. Secondly, it was necessary to establish connections between the provisions contained in the law that was working its way through the parliament and the decisions being adopted for the purpose of enabling school activity to continue through the 2019–2020 and the 2020–2021 school years. Finally, additional resources were required for new personnel and for putting the programs designed for facing the new challenges into operation.

State and Regional Authority: The mechanisms for territorial cooperation within Spain's highly decentralized educational system worked smoothly in the new, unforeseen circumstances (Tiana, 2020a, b, c). In the six months between the declaration of the state of emergency and the start of the 2020–2021 school year, the *Conferencia Sectorial de Educación and its work committees* held a total of 21 meetings that included regional education authorities from each autonomous region. They collaborated on decisions concerning the continuity of the school year, exchanged relevant information, wrote up or requested legal and technical reports on thorny issues, and shared educational resources.

In a parallel fashion, the European Union and other international organizations launched a variety of collaborative forums and mechanisms to exchange information and experiences and for adopting coordinated decisions. Especially relevant for Spain were the monthly meetings of European Union education ministers where national plans of action were presented and shared. These meetings served to establish contact with other countries and obtain first-hand information regarding measures that had been taken as well as to attempt to work in a coordinated manner in such difficult circumstances. Latin American organizations as well as others associated with the OECD also held special meetings. Some of the documents coming out of these meetings proved valuable in designing educational policies with which to confront the COVID-19 pandemic.

Building a Coalition: we should remember that the parliamentary debate about the new law took place during the end of the 2019–2020 school year and the beginning of the following academic year, after which it was passed in December 2020 (LOMLOE, 2020). During this period several important measures were adopted to ensure the smooth continuation of school life. Chief among these was the "*Acuerdos para el desarrollo del tercer trimestre del curso 2019–2020 y el inicio del curso 2020-2021*" (Agreement concerning the completion of the third trimester of the 2019–2020 school year and the start of the 2020–2021 school year), adopted at the *Conferencia Sectorial de Educación* meeting held on April 15th, 2020. This document contained seven proposals:

1. Taking care of people's well-being as a fundamental principle
2. Maintaining the planned duration of the 2019–2020 academic year
3. Adapting teaching activity to the circumstances
4. Conferring flexibility to the curriculum and to didactic programs

5. Adapting evaluations, certifications, and decisions on students' matriculation to the following grade for the 2019–2020 academic year
6. Working in a more coordinated way
7. Preparing for the 2020–2021 school year.

Five of the seventeen autonomous regions failed to subscribe to the document (Orden EFP/365/ 2020) due to their disagreement with points concerning increased flexibility around students' matriculation to the next grade and receiving certifications. In a conference held on June 11th, 2020, fifteen of the seventeen regions signed an important document dealing with the organization of the 2020–2021 school year (Orden EFP/561/ 2020).

Some of the novelties of the law that were under discussion took the form of immediate, urgent measures in response to the pandemic; This was the case for the new criteria for student assessment or course repetition, adopted after strong discussion during the *Conferencia Sectorial de Educación*, which were later incorporated into the law. In some cases, the correspondence between pandemic measures and reform was direct, while in other instances adaptations were made to respect previous legislation until the new law was in place. Either way, there is no doubt that the reform work that had been carried out in previous months would become invaluable in the aftermath of the pandemic. At the same time, it spurred political and ideological debates that carried through the parliamentary processes and remain to this day.

The debates that took place within the *Conferencia Sectorial de Educación* and in the media foreshadowed some of the positions that would be espoused during the parliamentary debate about the law, providing a glimpse of potential points of contention or agreement. This.

Additional Resources: Implementing the COVID response measures required the use of new, additional resources that enabled Spain to re-open school relatively quickly in comparison to other countries. Respecting interpersonal distance required smaller groups of students, meaning that new teachers needed to be hired. In some cases, school buildings had to be remodeled to adapt spaces to social distancing requirements. Equipping schools with technological, didactic, and hygienic-sanitary material also required new resources. Among the most important decisions in the sphere of special funding and resources were the launch of a program providing individual computers and IT equipment for students most affected by the digital gap; the allocation of 2 billion Euros to the autonomous regions for the adaptation of personnel and schools; the establishment of special programs for the school populations most affected by the pandemic; and the increase in the amount and number of grants and scholarships. These contributions undoubtedly helped facilitate a return to in-person teaching at the start of the 2020–2021 academic year, making Spain one of the countries whose schools were closed for the shortest length of time. This first disbursement of resources was followed by the passage and application of the P*lan de Recuperación, Transformación y Resiliencia*, promoted and underwritten by the European Union. Over the course of three years (2021, 2022, and 2023) we have seen a robust investment in economic and social transformation within European countries, who have placed a special emphasis on education and

vocational education and training. During this period, Spain has invested 5 billion additional Euros in the improvement of the educational and formational capital of its population. This funding has enabled programs that can respond to new challenges such as the digitalization of the educational system, early school leaving rates, attending to vulnerable school populations, encouraging VET and improving educational access to children under the age of three.

To arrive at a more objective, precise analysis of the efforts made so far and their degree of success, we need to focus more closely on some of the specific areas that represent the greatest challenges. The presentation and analysis of some of these will provide us with an idea of the current situation of educational transformation and its relationship to the impact of the COVID-19 pandemic.

Digitalization and the Digital Gap

The overnight switch from in-person teaching to an online, remote mode of education made the need for an increased, rapid digital transformation clear. But it also served to underline the value of in-person schooling, which was declared to be an indispensable principle in the agreements adopted by the *Conferencia Sectorial de Educación* and which was crucial in the rapid reopening of schools. A certain consensus exists in Spain around the idea that exclusively online education, while necessary in some situations, – is not desirable in general. The Minister of Education, Isabel Celaá, declared at the beginning of 2020–2021 academic year that remote education was very useful during school closure, but does not replace in-person teaching and students' socialization. While certain voices call for extending the use of digital technology in education, in-person instruction is still seen as something for which there is no substitute, especially among younger and more vulnerable students. Consequently, the challenge posed using digital technology in education has less to do with building models and resources as an alternative than with developing types of models that can be combined in a flexible manner with group and in-person teaching.

We must also keep in mind that there is a digital gap in Spain, usually associated with access – or lack thereof – to technological connectivity and devices (INE, 2021). But this disadvantage, which we could call an *access divide*, is only the first level; to this we must add the *use divide* – relating to the time and quality of use - and the *school divide*, having to do with the competency of teachers and the availability of platforms and resources for teaching support (Fernández Enguita, 2020). Furthermore, other studies confirm the fact that the digital divide is at the same time a social divide, as it affects households situated in the lower quintiles to a greater degree (Save the Children, 2020).

In consequence, the Ministry of Education and Vocational Training, in collaboration with the public enterprise Red.es, launched a program of territorial cooperation ("*Educa en digital*") in 2020 that provided devices and connectivity to more than 600,000 students who were lacking these resources. As part of the Plan de

Recuperación, in 2021 this initial measure was followed by two investment programs that reinforced the provision of individual computers to needy students and improved schools' technological infrastructures. A complement to this can be found in the ambitious program that aspires to bring by 2024 the digital competency of 80% of the around 720,000 non-university teachers up to the levels outlined in the framework approved by the *Conferencia Sectorial de Educación.*[10] Additionally, the LOMLOE includes several dispositions pertaining to the digitalization of the educational system, such as the elaboration of a digital plan for each school and curricular guidelines for the digital competency of students.

The Care and Well-being of Students

As important as reducing the digital gap was, there were other important challenges that could not be neglected. The interruption of in-person activities meant that many students found themselves disconnected from the educational system, increasing their risk of dropping out. This issue is not socially homogeneous in its effects, having a greater impact on vulnerable and underprivileged students. While the inequalities of society have always been felt in the realm of education, during COVID they were further exacerbated.

In consequence, the Spanish education system was forced to reconsider the kind of support that these students receive and to determine the best way to help them overcome their marked disadvantages. An array of national reports have highlighted the importance of attending to these vulnerable collectives that find themselves in a situation of educational emergency (UNICEF, 2020).

To address this matter a special emphasis was placed on reinforcing tutorial activities and on performing early diagnoses of students' difficulties. While tutorial action is crucial for the student's orientation and emotional management, as well as for mediating between family and community, early diagnostic measures are essential in allowing for timely, individualized preventive interventions. For this purpose, two programs forming part of the Plan de Recuperación were launched in 2020. *Programa para la orientación, avance y enriquecimiento educativo #PROA+* (Program for educational orientation, advance and enrichment #PROA+) provides support and orientation for vulnerable students in 3000 Spanish schools.[11] The second program is centered on the creation of *Unidades de Acompañamiento y Orientación* (Units of Support and Counseling) for educationally vulnerable students and their families, and aspires to create 2500 of these units by 2024.[12]

[10] https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-8042 (Retrieved on 13 September 2022).

[11] https://www.educacionyfp.gob.es/mc/sgctie/cooperacion-territorial/programas-cooperacion/proa.html (Retrieved on 13 September 2022).

[12] https://www.educacionyfp.gob.es/mc/sgctie/cooperacion-territorial/programas-cooperacion/uao.html (Retrieved on 13 September 2022).

The need to attend to situations of personal and emotional frailty extends beyond the needs of the vulnerable collectives and applies more generally to the care and well-being of students. In fact, a study made by the Multidisciplinary Working Group on Mental Health among Children and Adolescents (*Grupo de Trabajo Multidisciplinar sobre Salud Mental en la Infancia y Adolescencia*), composed by several organizations of Pediatrics and Psychiatry, revealed that mental health has deteriorated since the beginning of the pandemic. Mental disorders in 2021 had increased by 47% and suicidal behavior by 59% in comparison with 2019 data.[13]

While the concept of care has always been an object of debate in education (What does it mean exactly? Who is responsible for it? How should it be organized?), in times like these it takes on added importance. We hear more and more voices calling for schools to actively pay attention to the well-being of their members and to make this an explicit objective. This in turn has led to a rethinking of the terms of personal and academic orientation, of the systems used in the monitoring and support of vulnerable students, and of the personalization of learning. The LOMLOE contains various provisions pertaining to these matters, conferring an importance and regulation to them that allows for more efficient responses to growing challenges in a post-pandemic world.

Basic Knowledge and the Development of Key Competencies

Another important effect brought by the change in teaching mode in the final months of the 2019–2020 school year was the difficulty in completing the intended curricula for each level, grade, and subject. The obstacles were such that prescribed curricula had to be reconsidered as well as the methodology required to work on them. In some cases, it was possible to maintain the rhythm of teaching thanks to the availability of materials and the commitment of all, while in other instances the pace slowed down considerably. Some students had limitations in their access to certain contents, while others were unable to study them adequately or stumbled upon serious alterations in their learning process. This led to a need to reevaluate the criteria and practices used in evaluating the knowledge acquired. These evaluations, which had important implications in determining whether a student matriculated the next grade or received a diploma, became a contentious matter in the political and public sphere.

Retention decreased during the 2019–2020 school year across primary and secondary levels of the education system. Although rates of retention had been gradually decreasing in previous years, the pandemic exacerbated these rates considerably. For some people the decision to consider repetition as a last measure (replacing it for prevention and recovery measures) meant a clear, unacceptable reduction of

[13] https://www.aeped.es/sites/default/files/20220407_np_salud_mental_infancia_y_adolescencia.pdf (Retrieved on 28 October 2022).

academic rigor. But for many other people an excessive retention demonstrated a need for reform across the Spanish education system. The pandemic provided Spanish educators with an opportunity to open a discussion on that issue and to incorporate some of the lessons learned as part of the process of preparation of the new law.

The difficulty to deliver high-quality instruction during the pandemic also raised several debates about the consequences on learning. A debate was raised regarding learning losses, chronic absenteeism, and increase in student dropout rates. The Spanish education system's challenges regarding these issues were relatively mild compared to peer OECD countries due to its successful reopening campaign. On the other hand, the true academic impact of COVID on Spanish students has not yet been properly evaluated due to regional debate on the issue. The lack of pre- and post-COVID evaluation means that data is only available in some municipalities. One of the most rigorous, independent studies conducted in the Basque Country did not find evidence of learning loss between students by socioeconomic status:

> This suggests that the reopening campaign was successful in mitigating inequality, and that there is no trade-off between a safe reopening and catching up interventions. A safe reopening which focuses on all students could be, in the short-term, the most efficient catching up strategy for the pandemic's learning loss. However, we find that factors linked to schools are crucial mediators driving learning loss differences. The results show that the learning effects of the pandemic are mostly explained by between-school differences: we observe a large decline in learning for public schools, as well as a learning loss in private schools with prior low performance (Arenas & Gortázar, 2022).

The release of results of the last rounds of PIRLS and PISA will provide Spain with valuable information about learning outcomes which will allow educators to measure the exact dimension of learning losses.

Beyond these controversies, what became clear immediately, given the difficulties brought about by remote teaching, was the need to revise the curricula actually taught at school. According to a survey made in June 2020, more than 55% of teachers prioritized adjusting curricula to their students' needs (Trujillo et al., 2020: 39). Consequently, the debate surrounding school curricula, which had been going on for some time, focused on what has come to be known as basic knowledge or essential learning: the knowledge that students need to navigate unforeseen circumstances and interpersonal challenges in their day-to-day lives. Some authors conceive this type of knowledge as basic cultural capital, something all students need for their personal and professional development (Soler, 2020). To address the importance of this domain, competencies surrounding cultural capital were added to LOMLOE. The law being drafted in 2020 contained important provisions in this direction. One of the central elements was a revision of the curricular model, one that would bring it closer into line with that being used in other countries, Portugal among them.

In Spain, the pandemic provided a policy window to fine-tune some of the provisions included in an already-in process educational reform to produce even greater

results and improve upon the original project. It also played a part in the development of the curricular aspect of the LOMLOE. During the 2020–2021 and the 2021–2022 academic years, significant work was done on the design and development of shared curricula for the pre-university levels, part nation-wide and part regional. The new curricula have begun to be applied starting in September 2022 and will be completed over the 2022–2023 and 2023–2024 school years.

The Strengthening of the Teaching Profession

The pandemic has also shone a light on the need to develop new approaches to teaching practices and schoolwork. For example, the way students organized their work changed considerably during lockdown, when they received assignments from different teachers and were expected to complete each of these tasks. Under these circumstances of altered timetables and school calendars, the importance of coordination and cooperation among teachers – to ensure the relevance and manageability of students' workloads – was more evident than ever. The difference between coordinating teaching activities appropriately or not doing so had a significant impact on students, as they and their families discovered.

The Spanish educational system is known to suffer from the lack of cooperation among teachers in general, a fact shown in several national and international studies (Ministerio de Educación y Formación Profesional, 2019, 2020). An increasing number of voices – ranging from specialists to administrators and teachers – are calling for greater cooperation and coordination. Even the calls to develop *codocencia* (co-teaching, i. e., several teachers working with one group of students) have received considerable support. The pandemic, in revealing the inadequacy of traditional practices for responding to contemporary challenges, has only made the need for change more evident. Nevertheless, only 35% of teachers are concerned about the lack of cooperation as a determinant of success in schools. (Trujillo et al., 2020: 31). As a number of educators believe that cooperation is the key to COVID recovery, many of them have responded with a surge of pedagogical innovations whose effectiveness can just now begin to be scrutinized.

While cooperation and pedagogy represent only two of the many categories of change that may be introduced into instruction in Spain, the debate has created a sense of urgency regarding the need for a careful revision of the teaching profession in general. This includes paying adequate attention to elements such as initial formation, access to the profession, and professional development. To address this sense of urgency, the Ministry of Education and Vocational Training has recently opened a process, currently under development, of public debate and reflection on the reformation of the teaching profession (Ministerio de Educación y Formación Profesional, 2022).

New Governance of the Educational System

The effects of remote learning made immediately clear the need to adopt new forms of governance of the educational system and schools. Decision-making could no longer follow traditional criteria, given that the channels used for making decisions, for the orientation and supervision in schools, and for monitoring school activities, were new.

The need for reform could be felt at two levels. Although limited school autonomy has been a characteristic trait of the Spanish educational system, the pandemic revealed its considerable shortcomings. Schools were able to exercise during the pandemic an autonomy that system norms have usually limited. However, the myriad, unforeseeable situations that schools had to deal with, along with the ever-changing circumstances in which they carried out their instructional activity, showed that schools may be trusted, making the need for greater school autonomy patent. The limited school autonomy, a characteristic trait of the Spanish educational system, revealed, under these circumstances, its considerable shortcomings. A reform, therefore, was needed to reinforce this autonomy in several directions - including at the curricular and organizational levels – and measures for this purpose were included in the new law. While it is still too soon to evaluate the real impact of the proposed modifications, the pandemic did serve to make school communities and educational authorities more aware of the need to reinforce school autonomy and of the benefits that this could bring.

On the other hand, the need to respond to the demands of students throughout the entire country required the adoption of decisions made through consensus among the different regional administrations. Spain's highly decentralized educational system – a product of the Spanish Constitution of 1978 – has yet to fully develop the channels for coordination among its territories. The principal entity for such collaboration is the *Conferencia Sectorial de Educación*. The model, like those found in Germany and Canada, needs to go further in fostering the cooperation that we now view as indispensable. We have already seen how increased cooperation produced positive outcomes for students and teachers during the pandemic, making it critical that cooperation be written into guidelines. As with the previous question, it is still too early to evaluate the impact of the changes made, which in this case have more to do with the entity's operation than with its norms.

Current Situation and Future Perspectives

In September 2022, a new school year began with virtually no pandemic-related restrictions, and schools were ready to carry out their work in a way that resembles "normal" practice. However, some of the experiences from the last two years have left their mark on aspects of the usual school organization, both in matters of health and hygiene as well as in pedagogical issues. Schools have now formed contingency

plans and structures to prepare for and respond to unforeseen events. Many of the new provisions contained in the LOMLOE have already begun to be implemented. While the implementation of some measures began in September 2021, most of the regulations are meant to be adopted during the school years 2022–2023 and 2023–2024. Such is the case for the new curricula for different educational levels, designed to produce changes in the teaching and learning processes and school operations.

The last two-plus years have offered Spain a glimpse of a curious interaction between a reform project that was in the process of being drafted, debated, and applied and pandemic response measures. The reform project contained in the LOMLOE included several measures dealing with, for example, basic knowledge; the processes involved in evaluation, diplomas and matriculation; and cooperation among teachers. The experience gained during this period served to debate, fine-tune, and explain some of the new provisions. Political and ideological debate was also a reality, and it will continue to be so, but a process of change has already been launched.

Spain's pandemic response not only allowed the continuation of educational activity, albeit by different means; but also provided an opportunity to propose, modify, and anticipate aspects of the educational reform that the government committed itself to in 2018. The experience resulting from this interaction has been interesting, to say the least, and the time has come to analyze and evaluate its real impact. While it may still be too soon, the process has begun, and these next few years are likely to produce specific studies on many of the matters under consideration. For example, educational administrations have already launched plans for the evaluation of programs implemented during this period to determine their real impact. There is no question that this is an important moment for the Spanish educational system and its future perspectives, and it is critical that we work together to help identify its achievements as well as its shortcomings.

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Chapter 12
Fragility Compounded: The State of the South African Educational System in the Aftermath of Covid-19

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Abstract In this chapter we undertake an assessment of how Covid-19 impacted the South African education system two years on. Our argument is that COVID-19 compounded the challenges of an inherently fragile education system. Important elements of this system were precipitously weakened as budget cuts were instituted and funds for infrastructural maintenance diverted towards emergency requirements. The chapter begins with a description of the major structural features of the South African education system that were there before the pandemic, highlighting the country's racialised and classed inequalities. It then describes how government, labour unions, parents and civil society, including non-governmental organisations, responded. The chapter then estimates the losses on contact time, dropouts, and learning. Extrapolating from annual achievement studies conducted in one province, we estimate that after two years of COVID-19-related losses, the national achievement scores were even lower than what we earlier estimated. Our analysis showed that the most fragile parts of the system, serving the poor, struggled to sustain basic levels of functionality. The privileged parts of the education system also experienced further learning losses. Ground previously gained due to targeted intervention was severely eroded. The contribution ends with an evaluation of the responses of the South African government using the ideas presented by the International Commission on the Futures of Education.

Introduction

The primary purpose of this chapter is to undertake an assessment of how COVID-19 impacted the South African educational system. The chapter builds on an earlier study by Soudien et al. (2022), which documented the path of the pandemic after one year, its effects on teaching and learning, and the response of the educational system. The South African educational system aimed to bring children safely back

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to schools, stabilize the learning experience and mitigate the negative effects of the disruption on children.

The results of these efforts were mixed. Poorer children were estimated to have lost 65% of contact teaching time (Gustafsson, 2020). Learners in more privileged contexts were less affected (Spaull & van der Berg, 2020). These insights, however, are not strong enough to provide empirical information about the impact of the decisions made by the government or particular efforts to address the challenges brought about by the pandemic. Our previous studies estimated potential learning losses through a speculative learning-loss model. We speculated that, on average, learning achievement would drop to the 2015 levels – that is, the educational system would regress by five years– as a result of school closures in 2020. In this chapter, we aim to use learner attainment data collected at the end of 2021 to deepen our original analysis.

We argue that the system is inherently fragile, and COVID-19 intensified this fragility. Elements of the system are precipitously weakened because of budget cuts and diverted funds towards emergency requirements for infrastructural maintenance. To make this argument, our paper begins with an overview of the major structural features of the South African educational system. Drawing from official government data and several large-scale studies, such as the TIMSS 2019 and annual systemic assessments conducted in one of the nine provinces, this overview highlights the compounding racial and class achievement inequalities in the education system. It shows the efforts that were taken to improve the system prior to the pandemic and the impacts of these improvements. Then, we describe the response of the national government and the attempts by the Department of Basic Education at both national and provincial levels to maintain minimum levels of functionality during the pandemic. This includes the response of the labour unions and the responses of parents and civil society, including non-governmental organisations. We review the known results of these responses and identify the most fragile parts of the system that struggled to sustain basic levels of functionality. These parts of the education system instead lost gains they had previously made in relation to key indicators such as attendance, enrolments, and learner performance data. The more privileged areas mobilized structures and systems to which they routinely had access and were able to not only maintain standards of education delivery but even to improve it (Gustafsson, 2020). Following this analysis of the losses and the gains of the system, the chapter moves to describe the system as it has settled into a post-COVID-19 form. This part of the paper reviews the formal policy changes, actions taken, and announcements made by the national and provincial departments of basic education. We consider what these indicate about the official response to pandemic and aim to answer the following questions about the policy decisions: Were they reactive, responsive, analytic, or forward-looking? Did they appreciate the depth of the difficulties communities experienced? Were policies and strategies designed generally implementable in classrooms? Did they promote innovation and improvement to the system? Did they reflect systemic capacity to address the specific features and experiences of the teaching and learning crisis? We conclude with a prognosis of what lies ahead for the post-COVID-19 educational system.

Major Structural Features of the South African Education System

The South African education system provides nearly universal access with a participation rate of 96.7%, representing approximately 14.7 and 15 million learners at school in 2020 and 2021, respectively (StatsSA, 2021, 2022; Government of South Africa, 2022). However, while most children attend school, inequality in their experiences persists. Much of this inequality derives from the country's apartheid history which resulted in unequal treatment of racially divided groups of children. Children who were classified as Black African were the most disadvantaged group while those classified White were inordinately privileged.

To address educational injustice due to the apartheid regime, the democratic government promulgated key legislation. One crucial act related to educational governance, for example, was the National Education Policy Act (NEPA, No. 27 of, 1996). This centralized educational planning at the level of the state but provided autonomy to the provincial departments. It is based on cooperative governance where the Minister of Education consults with provincial departments of education and relevant stakeholders and determines national policy for the following: planning, provision, financing, staffing, coordination, management, governance, monitoring, and evaluation. The provincial departments, in turn, are responsible for funding decisions and the implementation of national policies (Sayed & Kanjee, 2013). However, the autonomy provided to provinces rests on the assumption that they have the necessary competences to fulfil their obligations (Carrim, 2013). The South African education system (like other sectors) has been lauded for its policies, but the implementation of these policies has been criticized (Sayed & Kanjee, 2013). Another important element in the strategy of the reforms was a focus on the poor. Schools were classified into five income quintiles reflecting the socio-economic status of the communities in which they were set. Schools in the lowest three quintiles were funded at higher student per capita levels than those in the higher quintiles, and so school fees were minimized. These schools were thus termed 'no-fee' schools (Spaull, 2019).

Despite the significant attempts to redress past injustices, schools continue to reflect their apartheid legacies and fall into two categories: no-fee schools and fee-paying schools. No-fee schools are under-resourced and largely serve black African and coloured learners.[1] Fee-paying schools, that are now racially mixed, serve learners from more affluent households and are well-equipped to provide quality education, but which in the past served only white learners under conditions of privilege (Amnesty International, 2020). Spaull (2019) observed that 75% of all learners were in no-fee schools and 25% in fee-paying schools. As a result, the system has two tiers distinguished by race and class. These groups reflect "the kinds

[1] In South Africa the term 'Coloured' (a word of Afrikaans origin) denotes members of multiracial ethnic communities who may have ancestry from more than one of the various populations inhabiting the region, including African, European, and Asian.

and levels of inequality that are evident in the wider social system," as mentioned in our previous work (Soudien et al., 2022: 307). Reforms introduced as part of the democratization of the country after 1994 aimed to structurally equalize resources and other provisions but struggled to eliminate, or even mitigate, existing inequities inherited by schools leading to unequal outcomes.

Poor quality of learning is the one of the most disturbing outcomes of the country's structural inequality. Even prior to COVID-19, achievement gaps were linked to learners' socio-economic backgrounds and geographic locations. Reddy et al. (2020) showed that there was a difference of 75 points in 2019 TIMSS mathematics achievement of learners between no-fee and fee-paying schools in the pre-COVID period. Only a quarter of learners in no-fee schools were able to demonstrate the basic knowledge and skills for their grade compared to two thirds of learners from fee-paying schools. This disparity was exacerbated by the COVID-19 pandemic. Strikingly, the Department of Basic Education (DBE) Annual Report (2021) indicated that there had been a marked increase in underperformance on the Grade 12 National Senior Certificate examination in 2020. The number of underperforming schools increased from 1363 to 5367 from 2019 to 2020 on the National Senior Certificate examinations (Department of Basic Education Annual Report, 2021). The highest number of underperforming schools are in the provinces that have the highest number of schools that serve the previously disadvantaged groups, that is, the Eastern Cape, Kwazulu-Natal, and Limpopo provinces. While the DBE has not attributed this development to Covid-19, there can be little argument that it is linked.

COVID-19 and Responses of the South African Education System

The South African government declared COVID-19 a national pandemic in March of 2020 and proceeded to lockdown the country. A timeline of developments for the schooling sector are outlined below.

On March 14, 2020, all schools were closed. By April 2020, the DBE established a COVID-19 response programme with the support of civil society groups. This program included a multi-media learner support programme in conjunction with the national radio and television broadcaster, the South African Broadcasting Corporation. The program was called COVID-19 Learner Support, and curriculum support lessons were placed online for Early Childhood Development (ECD) and Grades 10, 11 and 12. Textbooks and teacher guides were provided, along with study guides and revision booklets for the senior phase (Grades 10–12). Multimedia learning material supported by APPS was also spread, and teachers received advice about how to manage learning. At one point, workbooks, and additional material for special needs groups and for those repeating their studies were provided. Advice for parents about learning and psychosocial resources was provided

on the DBE website (Department of Basic Education, 2021); Multimedia materials supported by APPS were made available on the DBE website.

From April 2020 to August 2020, the DBE consulted with teacher unions on issues that arose during lockdown. Two national consultations brought together approximately 100 educational experts to discuss plans and advice for lockdown. These meetings worked to establish a monitoring and evaluation programme to assess system readiness for the provision of personal protective equipment, water availability at every school, and capacity of each school to ensure learner safety.

In June 2020, the DBE (2020a) published its *School Recovery Plan in Response to COVID-19*. This included a three-year plan for the recovery of teaching and learning time. Attention was given to the length of the school day, the length of the school term, and a reduction of time allocated for examinations and assessment. There was also a focus on guidance for self-directed learning. The intention was to recover between 29 and 33 teaching days. This goal meant that the number of days recovered will be less than the number of days lost, and hence the system will need to trim and reorganize in all grades, for except Grade 12″ (Department of Basic Education, 2020a). Risk-level Adjusted Subject Plans were developed in all the subjects in the Intermediate (Grades 4–6) and Senior Phases (Grades 7–9). Three risk levels were established: the High Road with no disruptions to learning, the Middle-Level with 30% teaching lost, and the Low Road with 60% teaching time lost (Department of Basic Education, 2021). The response planned to recover time lost for Grade 12 learners through a shortening of the period scheduled for examination preparation and an extension of the school day. Social justice and equity principles were foregrounded to ensure that all learners could access the planned programs, particularly the most vulnerable (Department of Basic Education, 2021).

Finally, schools reopened in phases by grade and through a rotational approach in August 2020. However, schools closed for a second time because of the second wave of COVID-19 from December 2020 to February 14, 2021. On February 15, schools reopened following the nationwide closure.

In March 2021, the DBE conducted a survey on the impact of COVID-19 on curriculum delivery, teaching performance, learner performance, and psychosocial wellbeing. Then, the DBE amended the Risk Adjusted Strategy in May of 2021. The amendment stated that school attendance should be determined by the direction of the COVID-19 pandemic in each municipality and the entire country (Republic of South Africa, 2021a). It also suspended all contact sport. About a month later, teachers and school support staff were prioritized in the distribution of vaccinations. On July 31, 2021, the DBE issued a statement permitting schools to resume normal activities, including extra-mural activity such as sports without spectators (Republic of South Africa, 2021b). By April 2022, schools operated with relative normalcy.

The impact of these developments is explored in the rest of our analysis. In the next section, we make three estimations: the actual time lost in face-to-face teaching and learning, the number of dropouts, and learning losses because of school closures. The last section provides a sense of the responses and strategic planning of the South African national and provincial departments of basic education, the labour unions, and parents and civil society, including non-governmental organisations.

Estimating Pandemic-Related Losses: School Contact Time, Drop-Outs, and Learning

Schools closed on March 14, 2020, and reopened in a staggered manner beginning on June 8, 2020. Learners attended school on a rotational basis to adhere to social distancing protocols, most often organized in terms of attendance on alternate days. Schools returned to normal teaching and learning activities in August 2021. An analysis by the DBE estimated that 54% of school contact time was lost in 2020 and 22% was lost in 2021. This translated to an average loss of 108 days in 2020 and 44 days in 2021 (Department of Basic Education, 2022). In total, schools lost an average of 152 school contact days. Compared to the average school closure length as reported by the OECD, South Africa fell among the countries at the higher end–like Colombia, Costa Rica, and Brazil. At the other end of the spectrum, the European countries lost less than 50 days of school contact time (OECD, 2022).

Understanding the effects of COVID-19 on drop-out rates in South Africa is complex. Before the pandemic, about one third of learners were over-age for their grade. The throughput rates for grades 10 to 12 were concerning, and there were high levels of learner absenteeism. It is thus difficult to pinpoint the effects of the pandemic. Initial indications by the National Income Dynamics Study (NIDS) Coronavirus Rapid Mobile Survey suggested that there had been a significant number of students that had dropped out of the schooling system because of the pandemic (Mohohlwane et al., 2021). However, administrative reports in the DBE indicate that drop-out rates due to COVID-19 have not been as severe as the NIDS study suggested (Department of Basic Education, 2021).

In 2020, we sought to estimate the pandemic-related learning losses for that year (Soudien et al., 2022). With no administrative achievement data, we adopted a 'suggestive extrapolation' methodology. This was based on a Belgian study that used six years of standardized test and administrative data to calculate the learning loss effects (Maldonado & De Witte, 2020). The authors expressed the learning loss as a percentage of the standard deviation. Recognising the difference between Belgium and South Africa, we applied the Belgian data to the TIMSS 2019 mathematics scores to estimate the 'best case scenario' for TIMSS 2020 scores. We reported that the South African average TIMSS 2020 score would have regressed to the TIMSS 2015 levels at a minimum. In other words, the education system was expected to lose the progress made in the past five years.

In this chapter, we provide better estimates of the learning losses for the period two years after the onset of COVID-19 with the benefit of systemic studies conducted in parts of the country. In 2021, the Western Cape—one of nine South African provinces—conducted their annual literacy and numeracy systemic studies.[2] These population-based studies were conducted to provide feedback regarding

[2] The Western Cape systemic studies were not conducted in 2020 due to the pandemic but were resumed in 2021.

achievement in Grades 3, 6, and 9. The assessments used included trend items from previous assessments as well as new items.

Using only the trend items, van der Berg et al. (2022) measured the achievement changes for Grade 3, 6, and 9 learners in the Western Cape between 2019 and 2021. The table below shows the trend results before and after COVID-19. The top two rows show the average scores for language and mathematics in 2019 and 2021 with the third row indicating the decline in average score across this period. In both subjects in all grades, the average achievement scores decreased from 2019 to 2021. Through this quantification of pandemic related learning losses, we find that the achievement decline is higher for mathematics than for languages. The bottom rows relate to the percentage learners passing with an achievement score of 50% or higher. There were fewer students in 2021 than in 2019 who met the pass requirements (Table 12.1).

The achievement decline can be expressed as a percentage of the standard deviation. Among Grade 9 learners, the average mathematics decline of over six percentage points over the two years is equivalent to 32% of the standard deviation of the 2019 scores. The achievement decline is highest in no-fee schools, or Quintiles 1, 2 and 3, which serve learners from low-income households, and lowest in the most affluent (or Quintile 5) schools.

We also explored the following question: If the TIMSS 2019 achievement instrument was administered in October 2021 (termed 'TIMSS 2021'), what would be the average learner achievement score?

Table 12.2. provides estimates for TIMSS 2021 using the South African learning loss measure values and the South African TIMSS 2019 data. This analysis estimated an average TIMSS 2021 mathematics score of 364 points, had South African Grade 9 learners completed the TIMSS 2019 achievement instrument in 2021. This is a substantial decrease from the average national TIMSS 2019 score of 389 points and is even lower than the TIMSS 2015 score. We could broadly extrapolate that the education system lost at least six years of progress—a remarkable, pandemic-related learning loss. The estimated average achievement for Quintile 1 schools is like the TIMSS 2015 scores, while the estimated achievement drops further for Quintile 5 schools.

Table 12.1 Average scores and passes and performance decline in systemic tests, 2019–2021

	Language			Mathematics		
Average score	Grade 3	Grade 6	Grade 9	Grade 3	Grade 6	Grade 9
2019	42.4	50.5	59.1	59.5	55.7	37.7
2021	38.7	45.0	56.2	50.7	47.3	31.5
Decline in average score	3.6	5.4	2.9	8.8	8.4	6.2
Percent of leaners passed						
2019	44	56	69	58	64	26
2021	39	47	64	53	48	20
Decline in passes	5	9	5	5	6	6

Source: Van der Berg et al., 2022

Table 12.2 Estimated South African mathematics scores in 'TIMSS 2021'

	TIMSS 2015 math score	TIMSS 2019 math score (SD)	Estimated TIMSS 2021 math score	Estimated learning loss: SD and TIMSS points
National	372	389 (SD 77)	364	0.32 SD = 25 TIMSS points
Q1 schools	330	357 (SD 62)	333	0.39 SD = 24 points
Q5 school	460	464 (SD 80)	449	0.19 SD = 15 points

COVID-19 and the Way Forward

An important source for understanding the official response of the South African government and the challenges it faced in education is the publication, the *Action Plan to 2024: Towards the Realisation of Schooling 2030* (Department of Basic Education, 2020b). While the five-year plan was formulated before the pandemic, the key priorities for schooling have not changed. In fact, the government used the impact of the pandemic to focus on key development for national and provincial departments on the following: the National School Nutrition Programme (NSNP), an uninterrupted supply of water for all schools, stronger incorporation of teaching related to information about pandemics and viruses in the Life Orientation Curriculum and improving the supply and use of information and communication technologies (ICT) in schools (DBE, 2020b). These foci and other commitments provide a sense of the responses and strategic planning of the South African national and provincial departments of basic education. To guide this discussion and to evaluate the response of the South African government, our analysis uses the nine key ideas presented by the International Commission on the Futures of Education for navigating the aftermath of COVID-19. We focus primarily on education systems as a framework (International Commission on the Futures of Education, 2020). These ideas include:

1. Strengthening education as a common good
2. The right to education
3. Valuing the teaching profession and teacher collaboration
4. Promoting student, youth and children's participation and rights
5. Protecting the social spaces provided by schools.
6. Making free and open-source technologies available to teachers and students
7. Ensuring scientific literacy within the curriculum
8. Protecting domestic and international financing of public education
9. Advancing global solidarity to end current levels of inequality (International Commission on the Futures of Education, 2020)

It is important to note that all these ideas invoke action and offer countries around the world a framework for action. Next, we assess the national response of the South African government to the pandemic.

The first call presented by the Commission– strengthening education as a common good– requires an awareness that education not only includes children and young people but also adults and the publics. Community-engaged and community-led learning is a foundational part of education and must be incorporated into strategies that aim to address challenges within the system. The Commission also noted that the closure of public museums, libraries, and community centres during the COVID-19 pandemic highlighted the vital role that these institutions play in public education (International Commission on the Futures of Education, 2020). Two examples in the South African context offer an opportunity for comprehending the government's strengthened commitment to education and how it acted.

One example is related to Early Childhood Development (ECD) and the other is related to learner drop-out. While the first was not strictly impacted by COVID-19, its importance grew because of the need demonstrated by the pandemic for the strengthening the education system. This involved a shift in responsibility for ECD from the Department of Social Development (DSD) to the DBE. The DBE is now primarily responsible for ECD; however, it is noted that ECD is an integrated service that includes delivery from the Departments of Basic Education, Social Development, Health, and Cooperative Governance. Furthermore, Non-Government Organisation (NGO) networks, ECD Forums, Ward Councillors, and ECD Coordinators play critical roles in delivering ECD (Department of Basic Education, 2022). The many players in the administration of ECD demonstrate the largest problem for the system– the challenge of implementation. It is difficult to delegate responsibilities required for managing the system from the DBE to the provinces, and some provinces are better able to provide support than others. This uneven distribution leads to unequal effectiveness of national strategies. The Western Cape, for example, provides:

1. ECD infrastructure support and holds registration drives for ECD in communities.
2. Specialized learner support at ECD centers expand into Grade R.
3. One thousand days of services for maternal health and early childhood development (Western Cape Government [WCG], 2021). These initiatives suggest that the province can undertake additional initiatives to improve the quality of their ECD delivery that may not be possible for other provinces.

The second example relates to the drop-out problem. The *Zero Dropout Campaign* incorporated NGOs, parents, educators, and learners in their solutions. The latter groups of individuals were encouraged to assist in the process of mitigating the problems of dropping out. These included engaging with the provided materials around school dropout, talking about school dropout, sharing dropout prevention tips during everyday conversations and on social media, engaging in fun reading activities within the home, and registering to be part of their network of schools. There is little information, however, on how these engagements were and continue to be undertaken.

The Commission also emphasizes the right to education. There is an onus on countries to provide functional educational institutions and programmes with an

acceptable level of quality. There should also be an understanding that learning losses and retrogression are temporary and a reflection on the emergency responses and conditions to address these loses as soon as possible. Building on the strengthened public commitment to education, COVID-19 has shown that the right to education must be updated and broadened to be responsive to different contexts and changing societies. This should include digital learning and the provision of radio and television to support academic learning (International Commission on the Futures of Education, 2020).

South Africa's response to the right to education was shown at two levels. First, at the national level the improvement of the quality of education provided as well as the redress of learning losses were central concerns. Through processes of formal consultation, the DBE, and the Minister herself, Mrs. Angie Motshekga, convened at least twice with trade unions, educational NGOs, and other public stakeholders. At a more local level, South Africa's response included facilitated support for teachers in classrooms through the provision of teacher aides. The plan was for additional teaching assistants to be recruited through an intervention called the Basic Education Employment Initiative (BEEI). Its intention was to provide 287,000 unemployed youth with opportunities within the education sector, and the BEEI is still working to reach this goal. Recruited youth will receive training in one of the following areas: Education Assistant– including curriculum, ICT/e-cadres or reading champions– or General School Assistant– for example, a child and youth care worker, a handyman, or a Sports and Enrichment Agent (Department of Basic Education, 2022). In addition, the Zenex Foundation, and its implementing partner, Funda Wande, undertook a Teacher Assistant Programme in the Eastern Cape province from 2022 to 2024 to reduce learning backlogs in the Foundation Phase (Grades R-3) (Zenex Foundation, 2022b). The Zenex Foundation furthermore designed the *Foundation Phase Curriculum Recovery Project* that aimed to address learning backlogs by utilising a strategic approach that included a trimmed curriculum and the provision of teacher support, including teaching assistants, coaching, and training (Zenex Foundation, 2022a). About the curriculum, the national and provincial departments of education also provided the revised Annual Teaching Plans (ATPs) which prioritized specific core skills to compensate for the reduced amount of contact time (Department of Basic Education, 2022). The ATPs were grade and subject specific for Grade 1 through 9 and covered years 2021–2023. However, the ATPs for some subjects, such as Natural Science and Mathematics, were criticized as inadequate as they failed to sufficiently consider the limited learning time as well as continued disruptions from the COVID-19 pandemic (Bailey, 2021). The DBE (2022) itself noted that the ongoing loss of teaching time indicated that further learning losses were unlikely to be halted, let alone reversed.

The South African government acknowledged the vital role that digital technology plays in education, as well as the vast digital divide that existed within the country. Several initiatives were undertaken to improve this area by both national and provincial departments, and a hybrid teaching model was adopted. For example, in partnership with the National Education Collaboration Trust (NECT), the DBE developed the *Tswelopele Campaign* and the *WOZA Matrics 2021 Catch-up*

Programme to support students from Grades R to 9 and Grade 12, respectively. These campaigns provided both digital and non-digital learning resources through a variety of media platforms, such as television channels, YouTube channels, and digital and mobile chat platforms (Department of Basic Education, 2022). The Western Cape Department of Education is another example. They made available material and lessons via the ePortal to assist educators and students in the rapid shift to online learning (Western Cape Government, 2021). The DBE plans to build upon these programs (see Table 12.3) but several sources note that the digital divide in South Africa was extensive. Only one-tenth of South Africa households had fixed Internet within the home, with further differences across provinces and between urban and rural contexts. Access to the internet at home was highest in the Western Cape (26%) and lowest in Mpumalanga (2%) and Limpopo (2%). While 17% of households in urban areas had access to the Internet at home, only 1% of rural households had access (StatsSA, 2022). Teacher Unions also noted that online classes offered via TV and radio do not work for all learners (Sayed et al., 2021). Thus, the DBE stated that partnerships were integral to efficient implementation (Department of Basic Education, 2022). This response, however, was inadequate as it did not provide guidance towards implementation. Further investigation is required to develop evidence-based solutions that are appropriate for the South African context. The *Teachers and Parents Communication and Support Systems Action Research Project* by the Zenex Foundation is one such example. The project was conducted from July 2020 to June 2021 and aimed to test ideas for improving communication, such as cell phones, between Foundation Phase parents and teachers and to maximize support for learning in no-fee rural schools in the Eastern Cape province. The anticipated outcomes from this project were developed solutions that were effective in rural settings and considered available resources, time capacities and cultures. It focused on leveraging existing capacities and using proven solutions from rural settings (Zenex Foundation, 2022c).

Table 12.3 Planned initiatives by the Department of basic education

Level of initiative	Planned activities
Nation-wide initiatives	Strengthened broadband to accommodate all schools
	Finalized framework on online schooling
School-based initiatives	Laptops for every educator in the next five years
	Increased connectivity in schools
	Dedicated ICT support available to all schools
	School guidance on how to use norms and standards to procure ICT resources
	Online programs in south African sign language
	Built-in ICT requirements in all future infrastructure plans
Home-based initiatives	Remote digital learning programs in English first additional language (EFAL) as broadcast video lessons on the DBE Tswelopele channel
	Four radio stations secured for weekly EFAL 15- or 30-minute sessions

Source: Department of Basic Education, 2022

The third call from the Commission is to "value the professional expertise of teachers and create conditions that give frontline educators autonomy and flexibility to act collaboratively" (International Commission on the Futures of Education, 2020). The immense and critical role of teachers in all settings is unquestionable, but the additional challenges they face in South Africa place an even higher burden on their career and mental health. Padmanabhanunni et al. (2023) conducted a study that highlighted the transformed professional roles and responsibilities of South African teachers due to the COVID-19 pandemic, which left them vulnerable to mental health challenges. The authors completed a survey with 355 primary and secondary school teachers in South Africa regarding fear, resilience, and burnout in relation to COVID-19. Results showed that South African teachers had higher levels of fear of COVID-19 than reported in other contexts such as Spain or India. The authors noted that it was probable that this was due to contextual challenges that hindered the implementation of safety protocols. For example, many schools had inadequate infrastructure leading to overcrowded classrooms, poor sanitation facilities, and insufficient cleaning materials. The study also found that the higher levels of fear were related to greater emotional exhaustion and depersonalisation. One contributing factor to the higher levels of fear noted by the authors was the need for teachers and staff to quickly upskill online teaching and the use of technology (Padmanabhanunni et al., 2023). Furthermore, the study identified resilience as an impact on all three dimensions of burnout, indicating its prominent protective role (Padmanabhanunni et al., 2023). In agreement with this study and others that emphasized the role of teachers, the DBE (2022) acknowledged that teachers are the strength of the system and they be equipped with soft skills and curriculum support in collaboration with education partners and stakeholders. However, strategic planning in this area remained limited with a prominent focus placed on curriculum and providing additional teaching assistants. In direct contrast to the South African governments' statements regarding educators, teacher union officials reported that teachers had not been sufficiently consulted with regarding the responses to COVID-19 and curriculum adjustments, and professional development training was not provided. Teacher unions reported that psychosocial support for teachers was limited and ineffective (Sayed et al., 2021).

The Commission's fourth call was for "everyone with educational responsibilities, from government officials to teachers to parents, to prioritize the participation of students and young people broadly in order to co-construct with them the change they wish to see" (International Commission on the Futures of Education, 2020). The aim was to emphasize the mental health and wellbeing of students, youth, and children, as well their participation in designing policies and strategies that will guide educational spaces (International Commission on the Futures of Education, 2020).

There are limited professionals in the sector– such as social workers and psychologists– that support youth mental health, and thus the DBE aims to focus on building the capacity of Learner Support Agents (LSAs). The *Guide for Learner Support Agents and Schools on Providing Psychosocial Support to Learners* aimed to address this gap, and the Common Element Treatment Approach (CETA) provided training for additional skills to support these efforts. In addition, both the

DBE and UNICEF fund Childline's provided telephone counselling services across all provinces (Department of Basic Education, 2022).

Youth wellbeing was also emphasized in DBE planning, as illustrated in Table 12.4 below. As an example, the DBE introduced a Master Training program– the *Gender Responsive Pedagogy Toolkit for Early Childhood Education* (GRP4ECE)– to promote gender equality. Trainers attended workshops and were then expected to rollout the GRP4ECE. Trainers were responsible for ensuring that training was undertaken in all districts and schools and to empower ECD and Grade R educators to implement the GRP4ECE (Department of Basic Education, 2022). Although the participation of students, youths, and children was not emphasized, the DBE (2022) encouraged learners to join the Girls Education Movement and Boys Education Movement (GEM/BEM). These are interventions which are included under the DBE's Social Cohesion and Equity programs. Their purpose was also to encourage young people to take agency in the circumstances in which they found themselves. Intergovernmental Jamborees as well as exposure to career portals, social action groups, and job-shadowing were also listed as means through which learners could find opportunities to participate in socially responsible activities (Department of Basic Education, 2022).

The fifth call by the Commission is for the protection of the school as a space where children can be physically and intellectually supported and acquire social skills and social competencies. The DBE has fulfilled several of these functions, as outlined in Table 12.4 below. These include the NSNP which provides meals to schools in need. It also offers social cohesion and equity programs. However, because of its legacy of racial discrimination and other factors, the physical space and makeup of most South African schools is inadequate.

Schools require significant improvement to reach minimum physical infrastructure norms and standards. The DBE (2022) acknowledged that the pandemic exposed the scale and depth of the problems it had inherited from apartheid and the inadequacies of the attempted resolutions. Under the Sanitation Appropriate for Education (SAFE) Initiative launched in August 2018, the national and provincial education departments committed to replace pit latrines with appropriate sanitation facilities for schools across the country. The initiative identified 3898 schools using pit latrines. In the current period, there were 2753 schools where work was underway to provide schools with proper sanitation and ablution facilities. Another problem in the country is vandalism. During the COVID-19 lockdown, 1882 schools across the country were damaged through acts of burglary, looting, and in one case having been burnt to the ground. In response, the DBE worked with the Quality Learning and Teaching Campaign (QLTC) and other line functions– such Social Cohesion and Equity, School Safety, Governance, and Infrastructure– to engage with communities to protect their schools. In addition, a multi-sectoral violence prevention campaign was initiated by the Minister and Deputy Minister of the DBE to secure what it called 'high-impact results' (Department of Basic Education, 2022).

Both the sixth and seventh calls by the Commission have thus far received little attention within available South African documents. This is likely linked to their long-term nature as well as the DBE's emphasis on providing attention to more

Table 12.4 Planned educational enrichment services by the department of basic education for the 2022/23 financial year

Educational enrichment service	Program or initiative	Additional information (if provided)
Care and support in schools	National School Nutrition Programme (NSNP)	Program intends to provide nutritious meals in targeted schools to improve learning and access to education
		DBE plans to monitor 135 schools including compliance to menu specific and close observation of the school breakfast pilot programmes in Eastern Cape (EC) and North West (NW) provinces
	National School Deworming Programme	Program intends to implement in NSNP schools
	HIV/AIDS Life skills education programme	Program aims to integrate HIV/AIDS and relevant life skills (including sexuality education) into the school curriculum as a prevention strategy as well as to provide care and support for those infected and affected by HIV/AIDS. Prevention of tuberculosis (TB) will be included to align with the *National Strategic Plan for HIV, sexually transmitted infections (STIs) and tuberculosis (TB) 2017–2022*
		Aims to contribute to the reduction of new HIV and TB infections in schools and education departments and decrease learner pregnancy in schools as well as mitigate the impact of HIV and TB
	Psycho-social support	Upskilling of LSAs and funding of Childline's telephone counselling service
Social inclusion and partnerships in education	School sport and enrichment including: South African school choral eisteddfod National Spelling bee Reading clubs National School Sport Programmes	Aims to promote physical activity, indigenous games, language, arts, and cultural expression
	School safety, social cohesion and sports and enrichment programmes	Aims to ensure that the learning environment is characterized by good quality education, while also being safe and free from insecurity, gender-based violence, and other forms of violence
	Social cohesion and equity programmes including gender equity	Aims to promote social inclusion, equality, national unity, cohesion, and nation building

Source: Department Basic Education, 2022

immediate concerns, such as the recovery of learning losses. The sixth call urges that school systems not only focus on the provision of ready-made materials and content but also that they explore open licensing and open access policies to reuse, repurpose, and adapt (International Commission on the Futures of Education, 2020). There was little information regarding this in the available documents beyond the availability of online learning resources developed in line with the curriculum.

The seventh call by the Commission, that is, to "prioritize scientific literacy to ensure a curriculum with strong humanistic objectives that explores the relationship between fact and knowledge and is capable of leading students to understand and situate themselves in a complex world" (International Commission on the Futures of Education, 2020), was not significantly expressed in the South African government's response in the educational sphere. While an important feature of the government's response to the pandemic was to foreground the importance of scientific knowledge of COVID-19 and to contribute to enhanced levels of public understanding of the impact of the disease on the quality of life, these lessons did not translate to classrooms (Sayed et al., 2021). The DBE (2022) did note that scientific literacy, along with critical thinking, problem-solving, creativity, communication, and collaboration, should be one of several skills to improve public understanding of problems and foster job creation. However, it did not offer effective pathways, models, or examples of how to incorporate this into the curriculum (Department of Basic Education, 2022).

The Commission's eighth call highlighted the mobilization of national governments, international organizations, civil society, and citizens around the protection of public education and its financing. It states that those responsible should be held accountable for the just and effective use of these resources (International Commission on the Futures of Education, 2020). The DBE recognizes the need to retain and continue collaborations between national and provincial government, as well as partnerships with local and international donors. Its relationship with the NECT was strengthened and enhanced during the pandemic. These relationships are integral to the creation of evidence-based interventions in learning and instruction. The Early Grade Reading Improvement Programme, for example, was one such key initiative that aimed to reach South African children who lived in rural poverty without access to quality education and improve their reading and literacy skills (Department of Basic Education, 2022).

The ninth and final call asked governments to recommit to multilateralism and for all education actors to revitalize international cooperation and global solidarity. They emphasized the importance of empathy and appreciation of our common humanity at the core (International Commission on the Futures of Education, 2020). This was not a priority for the South African government.

Conclusion

After reflection on the severity of the pandemic on the South African educational system, has the response of the South African government been satisfactory? What assessment and conclusions might we find when considering the nine Ideas of the Commission?

The South African government at the central level took steps to address the effects of the pandemic. It is important to note that this response acknowledged the vulnerability of the systems most disadvantaged parts. The DBE stated that "the COVID-19 pandemic has disrupted education systems globally, affecting the most vulnerable learners the hardest. It has increased inequalities and exacerbated a pre-existing education crisis" (Department of Basic Education, 2022). The government acknowledged the large inequalities that existed across schools and grades. They note that approximately 70% of contact time was lost in 2020 in historically disadvantaged schools whilst only 54% of contact time was lost when aggregating across all schools in 2020 (DBE, 2022). This final point emphasizes the inequality in the system that was only exacerbated by COVID-19 (International Commission on the Futures of Education, 2020).

Notable about the South African government's response to the situation it saw and analysed was its emphasis on strengthening already existing initiatives. This was evident in relation to most of the Commission's recommendations. With respect to the Commission's first recommendation– to strengthen public commitment to education as a common good– it sought to put extra weight behind its teacher support initiatives that had been initiated a few years before the pandemic. It also accelerated its efforts to consolidate the coherence of the system by bringing ECD directly under the control of the DBE. To increase emphasis on learner mental health and well-being, which was the Commission's fourth call, initiatives such as *Gender Responsive Pedagogy Toolkit for Early Childhood Education* (GRP4ECE) were implemented and expanded. It also retained its commitment to the provision of facilities and the NSNP.

The DBE's most direct response to the pandemic was its curriculum trimming directive. This relates to the Commission's important call for the right of education to be broadened. The DBE devised ATPs, which prioritized specific core skills. It also secured the support of Zenex, the important non-governmental agency, to bring a focus to the Foundation Phase. With the help of the NECT, the DBE developed the *Tswelopele Campaign* and the *Matrics 2021 Catch-Up Programme* which utilized digital and non-digital resources to assist students. These interventions demonstrated the understanding that learners and parents in no-fee schools needed support for the acquisition and use of expensive digital equipment. Most significant about these responses, however, was the acknowledgement of the irretrievable damage from COVID-19 and the learning losses that were unlikely to be halted, and even less likely to be reversed.

In evaluating the South African government's response in terms of the Commission's framework, we find an emphasis on mitigating the worst effects of the pandemic. The government seemed aware of the scale of the challenge it faced and had a good understanding of the vulnerability of the poor. As a result, it planned to address the digital divide and specifically to ensure that every educator had access to a laptop. It also made clear its intentions to improve levels of care and support for the disadvantaged with respect to school-feeding, life-skills provision, psychosocial support, extracurricular activities, and school safety. These were important and provide evidence of an educational administration that understood the contexts of

learning and teaching in South Africa and, specifically, that the learners and educators in these contexts needed considerable support.

Through our exploration, we find two key components of the government's response that deserve emphasis. The first is the focus on recovery. The system's most critical imperative was stabilization. While this is understandable given the importance of sustaining an improvement trajectory following South Africa's apartheid past, it was perhaps a lost opportunity. That opportunity was essentially the gap which COVID-19 revealed for all to see – that developing a good education system would require the intelligence and input of all South African citizens, learners, parents, teachers, and the broader public. The opportunity existed for the government to speak not only with the major non-governmental agencies but also with parents, teachers, and communities to develop a national effort to advance the interests of all children. It failed to take that opportunity. It failed to capitalize on the insights parents developed about the complexity of the learning challenges and the role they could play in imagining and creating a new and revitalized learning and teaching system.

Second, there was an absence of implementation plans for the extensive initiatives announced by government. There was little evidence available about how the DBE intended to realize its objectives. We believe that an important element in meeting these objectives would be intensive engagements with parents and communities. The DBE's plans had little indication of how it expected and intended its provincial departments of education to give substance to the plans. The provinces also provided little indication of how they would work with these plans. With this, we believe the country's most severe challenge is an abundance of strong ideas but weak execution. Its capacity for realizing its initiatives is poor. This leaves the under-capacitated sections of the system without support. While the advantaged sections will be able to adopt and work with the ideals and intentions of the system, the more disadvantaged will not. A further compounding factor is the relationship between the central and provincial governments. The national government often develops policies without considering the conditions on the ground, which results in tension between the governments. Provinces feel they are not consulted, and that the national government is unaware of the system's realities. This further emphasized the chasm between policy development and implementation. Thus, fragility of the system is compounded. The education system has few concrete or material pathways through which it will make a way forward for the weak and vulnerable.

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Chapter 13
Leaning into the Leapfrog Moment: Redesigning American Schools in a Post-Pandemic World

R. Lennon Audrain and Carole G. Basile

Abstract Post-pandemic, the United States education system is challenged by substantial declines in student achievement as indicated by declining National Assessment of Educational Progress (NAEP) scores, heightening teacher dissatisfaction, and decreases in teachers' commitment to the teaching profession. All pose threats to the longevity of schools and schooling. Additionally, while American schools have received an influx of billions of dollars through Elementary and Secondary School Emergency Relief Funds to assist in remedying instructional loss, many of the initiatives these funds are being used for are temporary and provisional. These initiatives also miss the silver lining and leapfrog moment that the pandemic has offered American schooling. In this chapter, we present student and teacher outcomes in the United States from the past two years during the pandemic. We then detail how American schools have the opportunity to embrace a new norm for teaching and learning, which we call the Next Education Workforce. Finally, we discuss the initial findings of teachers' participation in these models, which hold implications for what teaching and learning could be in a post-pandemic world.

Introduction

Both because of the COVID-19 pandemic and having been exacerbated by the pandemic, the United States has faced a variety of challenges. Two years ago, as many American adults transitioned to work-from-home in the onset of the pandemic in March 2020, many American children also transitioned to school-from-home. 7 out of every ten public schools transitioned to distance learning formats in Spring 2020 (NCES, 2022). At this time, 50.8 million pre-kindergarten through twelfth grade students were enrolled in the American public school system (Sparks, 2022).

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Slowly, more schools began to re-open for in-person instruction or provided hybrid instruction opportunities. In 2020–2021, the following school year, 4 out of ten public schools were offering both remote and hybrid instructional opportunities (NCES, 2022). Yet only 49.4 million students were enrolled in American public schools (Sparks, 2022). At the end of the 2021–2022 school year, 3 out of ten public schools were offering remote instruction and only 1 out of every ten public schools were offering hybrid instruction. Although public school enrollment gained an additional 100,000 students during this school year, the overall decline in enrollment since the onset of the pandemic may demonstrate that some parents are choosing other learning options for their children, such as homeschooling or private schools (Sparks, 2022). In part, this may be because the pandemic "substantially altered parents' perceptions of the quality of schooling their children might experience" (Musaddiq et al., 2022, p. 1).

As remote and hybrid options began to fade, schools gradually returned to in-person instruction. By the end of the 2020–21 school year, 62% of public schools in the United States were offering in-person instruction. And, by the end of the 2021–22 school year, 98% of public schools were offering in-person instruction (NCES, 2022). To make this transition, school systems and educators endured harrowing narratives and trudged through poor working conditions to make teaching and learning happen every day. School systems had to pay increasing and unprecedented attention to their role in maintaining public health, which sparked debates on masking, the safest ways to approach school re-opening, and increased access to vaccines for all ages and what, if any, their accompanying mandates should be.

In this chapter, we present a timeline of the United States' educational response to COVID-19, beginning in March 2020. We discuss the revelation of "cracks in the normal"—longstanding inequities that have always existed in education—that were exacerbated by the pandemic. To illustrate this, we present recent findings related to student and teacher outcomes that signal the instability of our current educational system. Finally, we describe how the pandemic has, indeed, offered a "leapfrog moment" (Vegas & Winthrop, 2020) and detail a systems-approach to post-pandemic recovery: team-based staffing models. We present the models' initial outcomes and its promises as a mechanism for increasing student achievement and teacher satisfaction.

Reviewing the Timeline

To understand the rapid shifts in schools due to COVID-19 in the United States, this timeline illustrates some of the key moments starting in March 2020 (CDC, n.d.; NCES, 2022; OESE, n.d.) (Table 13.1):

Table 13.1 Timeline of key policy responses to COVID in the United States

March 11, 2020	The World Health Organization declared COVID-19 a pandemic
March 13, 2020	President Trump's administration declared the virus a nationwide emergency
March 15, 2020	Public schools began to close their doors, including new York City public schools, which is the largest public school district in the United States with 1.1 million students. Many schools remained physically closed and transitioned to delivering remote instruction for the remainder of the 2019–2020 school year
March 27, 2020	U.S. congress sets aside $13.2 billion of the coronavirus aid relief, and economic security (CARES) act for the elementary and secondary school emergency relief fund (ESSER), now known as ESSER I. these funds were used to purchase personal protective equipment, cleaning materials, and other supplies necessary to continue school operations. ESSER funds can also be used to support student learning and teachers
July 2020	Centers for disease control (CDC) releases resources to slow the spread of COVID-19 in the upcoming 2020–2021 school year
December 2020	After clinical trials demonstrate vaccine efficacy, those in high-risk environments (e.g., healthcare settings) begin to receive their first vaccine doses
December 27, 2020	An additional $54.3 billion is earmarked for ESSER II from the coronavirus response and relief supplemental appropriations (CRRSA) act
March 2, 2021	President Biden's administration directs all states to make pre-K-12 teachers, school staff, and childcare workers priority vaccine recipients
March 11, 2021	$122 billion is set aside from the American rescue plan (ARP) act for elementary and secondary school emergency relief
April 6, 2021	CDC estimates that nearly 80% of pre-K-12 employees have received at least one dose of the COVID-19 vaccine
May–June 2021	62% of public schools in the United States were offering in-person instruction at the end of the 2020–2021 school year
Spring 2022	Nearly all schools (98%) offered full-time, in-person instruction by June 2022

Exacerbating Cracks in the Normal

The pandemic brought on novel challenges for education, such as a rapid, system-wide shifts to remote instruction. But it also exacerbated "cracks in the normal" (Basile, 2020)—the looming inequities in school as "we've always done it." Recent data indicate that post-pandemic student achievement has declined, and historically underserved groups of students faced—and continue to face—disproportionate disparities in educational access and outcomes. Similarly, news outlet headlines continue to proclaim a "post-pandemic teacher exodus" due to unprecedented burnout and job dissatisfaction that the teaching profession has been reporting in the decade prior (e.g., Merrimack College, 2022). Both student and educator outcomes were troubling pre-pandemic, but the pandemic revealed "cracks" that can no longer be ignored.

Student Outcomes

Two years into the pandemic, researchers are beginning to uncover the impacts of instructional loss on student outcomes. Using Fall 2021 data from the Measure of Academic Progress (MAP) growth assessment, researchers analyzed 5.4 million students in grades 3–8 (Kuhfeld et al., 2022). Findings revealed that reading scores were 0.09–0.18 standard deviations (SDs) lower compared to their peers in the same grade in fall 2019, and math scores were 0.20–0.27 standard deviations lower (Kuhfeld et al., 2022). These findings are especially concerning when compared to effects on student learning after other major disasters. After Hurricane Katrina struck New Orleans, Louisiana, math scores dropped 0.17 deviations for those evacuee students (Kuhfeld et al., 2022). This same achievement data revealed "cracks" of students from underserved backgrounds: low-poverty schools grew by 20% (0.20 SDs) in math and 15% (0.13 SDs) in reading during the 2020–21 school year (Kuhfeld et al., 2022).

The National Assessment for Educational Progress (NAEP) also revealed the impacts of instructional loss, which The New York Times characterized as "erasing 20 years of progress" (Mervosh, 2022). For the first time since the NAEP assessment was administered in 1973, the United States saw a decrease in mathematics scores; similarly, reading scores faced their first drop since 1990. As of 2022, 41% of American fourth graders are proficient in mathematics and 35% in reading; for eighth graders, 35% are proficient in both math and reading; and for twelfth graders, 24% are proficient in math and 37% are proficient in reading (Nation's Report Card, 2022).

Finally, we would be remiss not to mention the impact of the COVID-19 pandemic on the socio-emotional wellbeing of American students. One national youth survey revealed that nearly half of students reported feeling depressed, anxious, or stressed (Chu & Lake, 2021). In 2021, the Adolescent Behaviors and Experiences Survey (ABES) revealed that more than one in three (37.1%) high school students had poor mental health during the COVID-19 pandemic. For students of color, students with disabilities, LGBTQ+ students, and other underserved groups of students, the pandemic exacerbated pre-existing educational disparities. Additionally, these students had limited access to mental health supports (OCR, 2022). To mitigate the academic and socio-emotional impacts of the pandemic on instructional loss, schools will need systemic solutions.

Teacher Outcomes

In addition to significant decreases in student achievement, the teacher workforce has faced significant strain as well. National polls continue to uncover alarming findings about the state of the teaching profession in the United States. A survey administered to National Education Association members revealed that more than

half (55%) of its members planned to leave education sooner than planned because of the COVID-19 pandemic (NEA, 2022). Other surveys, like the Merrimack College Teacher Survey, echo these sentiments - finding that almost half (44%) of teachers plan to leave the profession in two years (Merrimack College, 2022). 90% of NEA members report feeling burned out (NEA, 2022), and only 12% of educators are very satisfied with their jobs (Merrimack College, 2022). While these findings might reflect the combined effect of factors that teachers trudged through to deliver instruction during the pandemic, teacher satisfaction with their jobs was still less than ideal even before the pandemic. Between 1984–2012, the MetLife Survey of the American Teacher found that teacher satisfaction with their jobs fluctuated between 33% and 64%. These findings do give weight to the headline's proclamation of the impending teacher exodus.

Identifying the Cracks

For decades, the one-teacher, one-classroom model has been the prevailing structure of American schooling. American teachers are often found in classrooms — the sole trained individual responsible for facilitating teaching and learning — and working in isolation from their colleagues except for lunchtime conversations (Labaree, 2004; Lortie, 1975). We have considered these isolated conditions "normal" in American education (Basile et al., 2022). During the pandemic, teachers found themselves teaching in steeper isolated conditions—at home—and lost the limited moments they had in schools to interact and collaborate with colleagues.

While the gambit of programming has erupted with the support of federal relief funding and in response to the pandemic, these are short-term solutions. Previously stagnant—and now, declining—student achievement is not the sole reason that the education system needs long-term solutions, but it is one indicator that the way schooling has traditionally been conducted is ineffective. Another indicator is teacher satisfaction and teachers' commitment to the profession, which is also declining rapidly. No dosage of student tutoring will completely reverse the impacts of the pandemic on student achievement, and no amount of mentoring will keep the number of teachers schools need to operate in the classroom. The way the United States conducts teaching and learning will need to change before anything else can improve (Mehta & Fine, 2019) —and the pandemic has offered us the impetus to move toward this and to do it faster.

Actualizing our Leapfrog Moment

Some school systems' pandemic response was to simply double-down on sustaining the normative ways of teaching and learning: one teacher in their island-like classroom, isolated from their colleagues and given the responsibility of moving their

group of students through required curriculum, in lock-step, while simultaneously meeting the learning, socio-emotional, and mental needs of their students (Basile et al., 2022; Labaree, 2004; Lortie, 1975). Other school systems, however, embraced the leapfrog moment. They accepted the opportunity and challenge of rethinking their systems, how teachers worked together, and how learning experiences were delivered to students. These school systems undertook the U.S. Department of Education's Office for Civil Rights proclamation that the pandemic is:

> …a rare moment as a country to take stock and to begin the hard work of building our schools back better and stronger—with the resolve necessary to ensure that our nation's schools are defined not by disparities but by equity and opportunity for all students (US Department of Education. Office of Civil Rights, 2021, p. iii).

While we have seen a flurry of unsustainable short-term solutions, we have also seen an array of promising long-term, systemic shifts that are equipped to remedy students' instructional loss and increase teacher satisfaction and commitment to the profession.

As we reflect on what happened during the pandemic, we can see several factors that catalyzed new ways of thinking about schooling. First, remote learning. Where the technological infrastructure was available, teachers moved quickly and connected with learners online. However, even as technology connected learners and educators together, both still became isolated. Teachers gripped that learners wouldn't—or couldn't—turn on their web cameras, or that learners were not engaging with lessons. For those without the technological infrastructure, remote learning took the form of paper packets sent home with the hope that learners would engage with worksheets or other curricular activities. Other countries, such as Mexico, faced similar challenges with sustained student engagement and lack of technological infrastructure (see chapter by Cardenas et al., 2023 in this book).

Parents and caregivers were expected to engage in their children's education in a way they were not prepared for, nor did they have the time for. Many parents and caregivers were simultaneously working in the home, or for essential workers, working multiple shifts as others became sick or abandoned their positions. Additionally, many students were "lost" during remote instruction for various personal or family reasons, and schools had few ways to hold students and families accountable for attendance. Finally, a haze of fear and frustration developed and darkened as the pandemic continued. The politics and misinformation were discomforting and placed schools and teachers in the crosshairs of politicians and health experts, making decisions in the moment about a virus we knew little about. The discourse about masks, social distancing, cleaning procedures, and use of materials brought on angst and disruption to normal instructional practices. As a result of these conglomerating factors, we saw less collaboration—not only between teachers, but between schools and families—more isolation, and less student interaction. If the American educational system is to recover, the importance and urgency of building back a better system is not to be underestimated.

Building the Next Education Workforce

During the pandemic, the United States education system faced a myriad of staffing challenges across the nation. School systems experienced staffing shortages caused by teacher absences, unexpected resignations, a shortage of substitutes, and teacher burnout on a scale unlike ever before (Long, 2022; NEA, 2022). But even before the pandemic, education was facing these issues. Questions about the vitality of the teaching profession in the context of these swelling teacher shortages continue to linger.

Five years ago, Arizona State University's Mary Lou Fulton Teachers College (MLFTC) started asking different questions. Across the United States, the typical role of a teacher's college is to, of course, prepare teachers. The typical teacher's college might ask questions about the role of teacher preparation in remedying the teacher shortage, but MLFTC asked questions beyond the teacher shortage. Instead, MLFTC asked questions about the design of schools and the education workforce itself. The first was: "what would happen if we stopped building our schools around the one-teacher, one-classroom model?" The responses to that question from a variety of stakeholders have proven to be unending. Changing the modus operandi of schooling—one teacher in one classroom—is a fundamental shift that changes how we think about teaching, learning, and educators' roles and responsibilities in the workforce.

The hypothesis is that if school systems can move away from the one-teacher, one-classroom model, there are countless opportunities to rethink how teaching and learning happens. School systems can start to re-cement the cracks that were exacerbated by the pandemic. They can start to deepen and personalize learning, provide whole child support, create a more diverse workforce, stop the isolation of teachers, integrate more fully with others with differentiated expertise, and provide more educator autonomy. The premise is that no teacher would or should work in a classroom by themselves. They would take advantage of their individual strengths and work in teams that include professional educators, community educators, paraeducators, teacher candidates and residents, and others who would share a larger roster of students (Fig. 13.1).

The Promises of Teacher Collaboration and Teams

One recent systematic review of teacher collaboration revealed a variety of the model's benefits. Vangrieken et al. (2015) found that some of the benefits included improved performance for students, more motivated teachers, a decreased workload, reduced personal isolation, and the positive change of school climates. Given this, increasing teacher collaboration seems to be one way to bring recovery to a multitude of post-pandemic problems. Ultimately, while teacher collaboration is important, the pandemic has given us a chance to think beyond teacher

Fig. 13.1 Different roles in Next Education Workforce models

collaboration as an activity, to collaboration as a cultural and structural phenomenon in schools and school systems (Azorín & Fullan, 2022).

Beyond Collaboration and toward Differentiated Roles and Responsibilities in Education

One flawed, underlying assumption in the American education system is that teachers are widgets—that is, the effectiveness of the American teacher is relatively the same from classroom to classroom (Weisberg et al., 2009). This current assumption drives the organizing principle of schools: one teacher in their one classroom. Yet we ought to be considerate of the variety of backgrounds and experiences American teachers have, especially with the rise of alternative preparation programs.

Take, for instance, these examples of two American teachers. Teacher A is a third-grade educator. She has been teaching for fifteen years and was prepared through a traditional teacher preparation program. She is a highly effective reading teacher and an "okay" science teacher. Teacher B, who formerly worked in a biotech lab, is a fourth-year teacher who was prepared through an alternative licensure program. He is an "okay" third grade reading teacher but a stellar third-grade science teacher. The current design of the education workforce—the one-teacher, one-classroom model—expects both Teacher A and Teacher B to achieve the same student outcomes. Yet, Teacher B simply may not have the pedagogical knowledge and skill to execute effective reading lessons, and Teacher A may not have the content knowledge to execute effective science lessons. If Teacher A and Teacher B worked as a team, however, their expertise and the needs of the students would drive their teaching responsibilities - rather than being driven by the fact that they are both third-grade teachers. Perhaps they would switch classes for those subjects and share

responsibility for the outcomes of all the third-grade students in their school. Or perhaps both decide to teach reading and science but mix their rosters and re-group students based on their strengths and needs. While collaboration is still essential and may assist in helping to grow Teacher A and Teacher B's knowledge and skill, role differentiation enables teachers to focus their time and energy on what they are experts in.

A Case Study in Building the Next Education Workforce: Mesa Public Schools

With approximately 64,000 students across 90 schools, Mesa Public Schools (MPS) is the largest school district in Arizona. Like other school systems across the United States, MPS faced common challenges during the 2020–2021 and 2021–2022 school years, including staffing shortages due to the Omicron COVID-19 variant (Long, 2022). Prior to the pandemic, the superintendent of MPS had committed to moving at least 50% of her schools to team-based models. This meant that administrators and school leaders had to provide professional learning and other supports quickly. Even during the challenging days and months of the pandemic, this work continued to grow. Despite the obstacles, educators in the Next Education Workforce in MPS continued to embrace working as a team to deliver deeper and personalized learning to students.

The first year, one elementary school started with one team. By the end of the second year, all grade levels at that school were working in teams. By the third year, given the disparities they were seeing among students, the school created teams of educators to serve mixed-age and grade-levels of students. Teachers essentially worked in teams throughout the day, in-person or remote, and delivered instruction in large and small groups depending on what students needed. These teachers were given more collective autonomy to change schedules and collaborate, change roles and responsibilities based on expertise, and develop structures for their learning environments that were more conducive to serving all students.

One high school started with one ninth grade team of educators who shared a roster of 150 students. By the second year, the entire ninth grade was divided into 6 teams. These high school teams included academic content expertise but also expertise for career exploration, multilingual learners, and students with exceptional needs. Teams included professional educators, paraeducators, and community educators who were already in the building. Now, however, their roles and responsibilities have been re-configured to serve students in new ways. Here again, schedules changed to allow for longer blocks of time to serve students' needs, focus on interdisciplinary project- and problem-based learning, and provided protected time for teams to plan.

Researching these models has been critical to their development. ASU partnered with Johns Hopkins University's Institute for Education Policy (JHU) in March

2022, to administer a survey to all 3264 teachers in Mesa Public Schools that would explore the outcomes of these models. Almost 70% (n = 2260) of teachers responded to the survey. JHU established that, for a participant to be included in the survey, they must have completed at least 50% of the survey. Thus, 1418 (62.7%) were included in the sample in JHU's primary analysis. JHU conducted confirmatory factor analyses and prior evidence of the survey's constructs and determined that there was ample reliability and validity evidence (JHU, 2022). Initially, JHU found that teachers in Next Education Workforce models in MPS were statistically significantly more satisfied, collaborated more, and had better teacher-student interactions than their colleagues in traditional classroom models (JHU, 2022).

In addition to quantitative data collection, JHU interviewed and observed teachers and administrators implementing Next Education Workforce models in 10 MPS schools in March 2022. JHU noted that, from these interview and observation experiences, there was clear evidence that teachers were changing their instructional practices (2022). JHU also observed that teachers felt supported in the model (2022). As one educator in a Next Education Workforce model attested:

> I think I wouldn't want to go back to the other way of teaching before. How much support I have, I feel like we have done leaps and bounds and taken chances and done things that changed things, tried new things that would've taken 10 years and we've done in a year and a half.

Teachers also recognized the sustainability of their roles and responsibilities in these models. Another educator in a Next Education Workforce model voiced:

> I rarely, rarely do anything outside of school hours. There's occasional times where there's things we want to do to our classroom or things where we're putting in that extra where we'll come on the weekends just to do a couple things. But I do a lot less outside of school than I did when I was by myself.

Finally, educators in Next Education Workforce models see benefits to the models in helping to target students' individual needs. One educator remarked:

> We can break into small groups, like you saw me with the five kids there, and reach those kids that are either really gifted and need extra stuff, or those that are just really struggling. And we can give them that help that they need, that you can't do in a self- contained classroom with 25–30 kids.

This ability to regroup students based on their needs and provide targeted instruction may be a key component in helping to remedy instructional loss in a post-pandemic world.

Conclusion

The American education system is still strained in numerous ways. Many of these challenges existed before the pandemic, but the pandemic illuminated them in ways that demand our immediate attention. COVID-19 has exacerbated the long-term problems of instructional loss, teacher dissatisfaction, and teachers' commitment to

the profession. The American education system will not be able to address these long-term problems with short-term, isolated projects, programs, or activities. No amount of curricular change, professional learning, technology, or tutoring support will move the needle in the ways we need it moved right now. What we need now—in the United States and across the globe—is a new way to think about the fundamental structures and systems of education. If the pandemic has taught us anything, it's that we don't like isolation or inflexibility. Yet, the structure of schools in the one-teacher, one-classroom model is both isolating and inflexible.

The pandemic has given schools and school systems the opportunity to rethink the way teachers work together, who can support them, and how these new structures and systems can best foster student learning and development. A glimpse of what is possible for teaching and learning is illustrated in the case of Mesa Public Schools. In addition to this school system, The Next Education Workforce initiative continues to thrive. Currently, we have 10 school systems that are designing and implementing team-based staffing models. Approximately 60 more systems—both in the United States and internationally—have joined a learning cohort to begin exploring and planning for implementation of team-based staffing models in the Fall of 2023. These school systems are recognizing that this leapfrog moment cannot go to waste. It is imperative that we continue to look at new ways of teaching and learning by building the systems, structures, and cultures necessary for our students and educators to thrive in a post-pandemic world.

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