

Impact of Covid-19 on Education

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Abstract

The purpose of this study is to understand the impact of Covid-19 on Education. The education system was highly effected due to Covid-19 all around the world. In this paper we have discussed about the following:-PUBLIC FINANCING OF EDUCATION IN OECD COUNTRIES INTERNATIONAL STUDENT MOBILITY THE LOSS OF INSTRUCTIONAL TIME DELIVERED IN A SCHOOL SETTING MEASURES TO CONTINUE STUDENTS' LEARNING DURING SCHOOL CLOSURE TEACHERS' PREPAREDNESS TO SUPPORT DIGITAL LEARNING WHEN AND HOW TO REOPEN SCHOOLS CLASS SIZE, A CRITICAL PARAMETER FOR THE REOPENING OF SCHOOLS VOCATIONAL EDUCATION DURING THE COVID-19 LOCKDOWN.

INTRODUCTION

As the world becomes increasingly interconnected, so do the risks we face. The COVID-19 pandemic has not stopped at national borders. It has affected people regardless of nationality, level of education, income or gender. But the same has not been true for its consequences, which have hit the most vulnerable hardest.

Education is no exception. Students from privileged backgrounds, supported by their parents and eager and able to learn, could find their way past closed school doors to alternative learning opportunities. Those from disadvantaged backgrounds often remained shutting out when their schools shut down.

This crisis has exposed the many inadequacies and inequities in our education systems – from access to the broadband and computers needed for online education, and the supportive environments needed to focus on learning, up to the misalignment between resources and needs.

The lockdowns in response to COVID-19 have interrupted conventional schooling with nationwide school closures in most OECD and partner countries, the majority lasting at least 10 weeks. While the educational community have made concerted efforts to maintain learning continuity during this period, children and students have had to rely more on their own resources to continue learning remotely through the Internet, television or radio. Teachers also had to adapt to new pedagogical concepts and modes of delivery of teaching, for which they may not have been trained. In particular, learners in the most marginalised groups, who don't have access to digital learning resources or lack the resilience and engagement to learn on their own, are at risk of falling behind.

Handshake and Woodsman have used historical growth regressions to estimate the long-run economic impact of this loss of the equivalent to one-third of a year of schooling for the current student cohort. Because learning loss will lead to skill loss, and the skills people have relate to their productivity, gross domestic product (GDP) could be 1.5% lower on average for the remainder of the century. The present value of the total cost would amount to 69% of current GDP for the typical

Country. These estimates assume that only the cohort currently in school are affected by the closures and that all subsequent cohorts resume normal schooling. If schools are slow to return to prior levels of performance, the growth losses will be proportionately higher. Of course, slower growth from the loss of skills in today's students will only be seen in the long term. However, when considered over this term, the impact becomes significant. In other words, countries will continue to face reduced economic well-being, even if their schools immediately return to pre-pandemic levels of performance. For example, for the United States, if the student cohorts in school during the 2020 closures record a corona-induced loss of skills of one-tenth of a standard deviation and if all cohorts thereafter return to previous levels, the 1.5% loss of future GDP would be equivalent to a total economic loss of USD 15.3 trillion (Hanushek E and Woessman L, forthcoming[1]).

The COVID-19 pandemic has also had a severe impact on higher education as universities closed their premises and countries shut their borders in response to lockdown measures. Although higher education institutions were quick to replace face-to-face lectures with online learning, these closures affected learning and examinations as well as the safety and legal status of international students in their host country. Perhaps most importantly, the crisis raises questions about the value offered by a university education which includes networking and social opportunities as well as educational content. To remain

relevant, universities will need to reinvent their learning environments so that digitalisation expands and complements student-teacher and other relationships.

Reopening schools and universities will bring unquestionable benefits to students and the wider economy. In addition, reopening schools will bring economic benefits to families by enabling some parents to return to work. Those benefits, however, must be carefully weighed against the health risks and the requirement to mitigate the toll of the pandemic. The need for such trade-offs calls for sustained and effective coordination between education and public health authorities at different levels of government, enhanced by local participation and autonomy, tailoring responses to the local context. Several steps can be taken to manage the risks and trade-offs, including physical distancing measures, establishing hygiene protocols, revising personnel and attendance policies, and investing in staff training on appropriate measures to cope with the virus.

However, the challenges do not end with the immediate crisis. In particular, spending on education may be compromised in the coming years. As public funds are directed to health and social welfare, long-term public spending on education is at risk despite short-term stimulus packages in some countries. Private funding will also become scarce as the economy weakens and unemployment rises. At tertiary level, the decline in the international student mobility following travel restrictions is already reducing the funds available in countries where foreign students pay higher fees. More widely, the lockdown has exacerbated inequality among workers. While teleworking is often an option for the most qualified, it is seldom possible for those with lower levels of education, many of whom have been on the front lines in the response to the pandemic, providing essential services to society.

Throughout this crisis, education systems are increasingly looking towards international policy experiences, data and analyses as they develop their policy responses. The OECD's publication *Education at a Glance* contributes to these efforts by developing and analysing quantitative, internationally comparable indicators that are particularly relevant to the understanding of the environment in which the sanitary crisis has unfolded. While the indicators in the publication *Education at a Glance* date from before the crisis, this brochure puts these indicators into the context of the pandemic. It provides insights into its economic consequences for education, but also the dynamics of reconciling public health with maintaining educational provision. The policy responses presented in this brochure cover key measures announced or introduced before the end of June 2020.

IMPACT OF THE CRISIS ON EDUCATION

The spread of COVID-19 has sent shockwaves across the globe. The public health crisis, unprecedented in our lifetimes, has caused severe human suffering and loss of life. The exponential rise in infected patients and the dramatic consequences of serious cases of the disease have overwhelmed hospitals and health professionals and put significant strain on the health sector. As governments grappled with the spread of the disease by closing down entire economic sectors and imposing widespread restrictions on mobility, the sanitary crisis evolved into a major economic crisis which is expected to burden societies for years to come. According to the OECD's latest Economic Outlook, even the most optimistic scenarios predict a brutal recession. Even if a second wave of infections is avoided, global economic activity is expected to fall by 6% in 2020, with average unemployment in OECD countries climbing to 9.2%, from 5.4% in 2019. In the event of a second large-scale outbreak triggering a return to lockdown, the situation would be worse (OECD, 2020[2]).

All this has implications for education, which depends on tax money but which is also the key to tomorrow's tax income. Decisions concerning budget allocations to various sectors (including education, healthcare, social security and defence) depend on countries' priorities and the prevalence of private provision of these services. Education is an area in which all governments intervene to fund, direct or regulate the provision of services. As there is no guarantee that markets will provide equitable access to educational opportunities, government funding of educational services is needed to ensure that education is not beyond the reach of some members of society. In 2017, total public expenditure on primary to tertiary education as a percentage of total government expenditure was 11% on average across OECD countries. However, this share varies across OECD and partner countries, ranging from around 7% in Greece to around 17% in Chile (Figure 1).

However, government funding on education often fluctuates in response to external shocks, as governments reprioritise investments. The slowdown of economic growth associated with the spread of the virus may affect the availability of public funding for education in OECD and partner countries, as tax income declines and emergency funds are funnelled into supporting increasing healthcare and welfare costs.

Economic crises have put pressure on public budgets in the past. In some countries, this has led to reductions in public funding for education. While cross-country comparisons do not show a strong relationship between spending on education and educational outcomes across OECD countries, due to significant differences in the productivity of education systems, reducing spending without improving

productivity is likely to negatively affect the quality of education. It may take a few years to see the effect of a crisis on education funding. In the aftermath of the last financial crisis, despite severe budget cuts in all OECD countries, the majority continued to increase public spending on education between 2008 and 2009, with the first signs of a slowdown only appeared in 2010 as austerity measures imposed cuts on education budgets in about one-third of OECD countries (OECD, 2013[4]).

However, the current crisis may affect education budgets more quickly as public revenues decline sharply and governments review the prioritisation of education in national budgets (IIEPUNESCO, 2020[5]). Forecasts predict that the pandemic will lead to slower growth in government spending in the coming year, and that if the share of government spending devoted to education were to remain unchanged, education spending would continue to grow but at significantly lower rates than before the pandemic (Al-Samarrai, Gangwar and Gala, 2020[6]).

In the short term some countries have implemented immediate financial measures to support students and education systems in coping with the disruptions and economic impact of school and university closures. Examples include:

- The Higher Education Relief Package, launched in April 2020 by the Australian government, which provided funding to Australians who have been displaced as a result of the COVID-19 crisis and who were looking to improve their skills or retrain. This package reduced the cost of taking short online courses, provided exemptions from loan fees for domestic students for a period of six months starting in May and guaranteed funding for domestic students, even if enrolments dropped. (Australian Government, 2020[7]) .
- The launch of the Canada Emergency Student Benefit announced in April 2020 which seeks to provide financial support to post-secondary students and recent high school graduates who are unable to find work due to COVID-19 over the summer months. The Canada Student Service Grant will also provide financial support to students who do national service and serve their communities during the pandemic crisis. The government has also announced plans to double student grants and broaden the eligibility for financial assistance (Trudeau, 2020[8]), as well as additional support in the form of scholarship funding extensions for students and postdoctoral researchers affected by the COVID-19 pandemic (Ministry of Education, 2020[9]).
- Distance learning support measures announced by the Italian government in March 2020 to equip schools with digital platforms and tools for distance learning, lend digital devices to less well-off students, and train school staff in methodologies and techniques for distance learning (Republic of Italy, 2020[10]). In May 2020 Italy announced new measures which seek to provide extra funding to cover

costs arising from responses to the pandemic crisis at the school and university level (Republic of Italy, 2020[11]). This extra funding will cover the costs associated with special services, safety equipment and cleaning material needed in schools and universities for the next academic year, among other things. Additional financial resources were approved to recruit new teachers for primary to secondary level for the next school year. Emergency financial grants to cover partial or total course-related costs were announced for less well-off tertiary students.

- Support packages for tertiary students announced by the New Zealand government in April 2020 to help students continue their studies after the crisis. Measures include increasing the amount of student loans and providing additional support to students to cover extra courserelated costs (Ministry of Education, 2020[12]).

- England's (United Kingdom) financial support for schools launched in April 2020, which provides additional funding to schools to support them with costs associated with the coronavirus. The additional costs covered by the fund include utilities and resources needed to keep the school open during holidays for priority groups of children, support for free school meals for eligible children not attending school, as well as additional cleaning costs, where schools have suspected or confirmed cases of the virus (Department for Education, 2020[13]).

- The announcement of the CARES Act Higher Education Emergency Relief Fund by the education authorities in the United States which provides funding to institutions to provide emergency financial aid grants to students whose lives have been disrupted (U.S. Department of Education, 2020[14]). The CARES Act Elementary and Secondary School Emergency Relief Fund aims to provide financial support to school districts affected by the disruption and closure of schools from COVID-19 (New Jersey Department of Education, 2020[15])

INTERNATIONAL STUDENT MOBILITY

One of the aspects of tertiary education which Education at a Glance tracks each year is international student flows. This is an area where future editions of this publication may reveal a sharp reversal of trends in the year that COVID-19 struck. The global spread of the COVID-19 pandemic severely affected higher education as universities closed their premises and countries shut their borders in response to lockdown measures. The crisis has affected the continuity of learning and the delivery of course material,

the safety and legal status of international students in their host countries, and students' perception of the value of their degree.

International students were particularly badly hit at the start of the lockdown as they have had to sort out the implications of university closures on their status on campus and within their host country. Students had to decide whether to return home with limited information about when they might return, or remain in their host country with restricted employment and education opportunities, all while sorting out their visa status. Some countries, such as Canada or the United Kingdom, have offered leniency around visa rules, or allowed students to remain on campus (Immigration, Refugees and Citizenship Canada, 2020[16]; UKCISA, 2020[17]) but this has not been the case everywhere.

To ensure the continuity of education despite the lockdown, higher education institutions have sought to use technology and offer online classes and learning experiences as a substitute for in-class time. However, many universities struggled and lacked the experience and time they needed to conceive new ways to deliver instruction and assignments. Examinations were also affected, causing disruption to students' learning trajectories and progression. Although many higher education institutions offered online courses before the pandemic, few students considered it as the sole alternative to physical in-person learning. For example, in the United States, only 13% of first-cycle tertiary students were exclusively enrolled in distance education courses in 2017 (NCES, 2019[18]). With the reopening of institutions for the coming academic year severely compromised and travel likely to remain restricted even after the confinement period, international students are being forced to deal with the reality of online learning.

Beyond the transactional learning experience, these students are also losing out on other benefits of international mobility such as international exposure, access to a foreign job market and networking. A survey of EU students studying in the United Kingdom found that the main reasons for choosing to study abroad were to broaden their horizons or experience other cultures, improve their labour-market prospects and improve their competence in English (West, 2000[19]). Similarly, the opportunity to live abroad, learn or improve a foreign language and meet new people, were among the three top reasons cited by students participating in the EU-ERASMUS programme (European Commission, 2014[20]).

A decrease in the share of international students may, in turn, have severe repercussions on the funding model of some higher education institutions where international students pay higher tuition fees than domestic ones. Countries such as Australia, Canada, the United Kingdom and the United States that rely heavily on international students paying differentiated fees will suffer the greatest losses. For instance, at the bachelor's or equivalent level, public institutions in Australia, Canada and the United States charged

foreign students over USD 13 900 more per year than national students on average in 2017/18. Given the large share of international students in these countries, international student inflows provide an important source of revenue for tertiary institutions. In Australia, the estimated revenue from foreign students' tuition fees exceeds one-quarter of the total expenditure on tertiary educational institutions (OECD, 2017[21]).

Perhaps most importantly, the crisis has exposed the value proposition of universities. Students are unlikely to commit large amounts of time and money to consume online content. Students go to universities to meet great people, have inspiring conversations with faculty, collaborate with researchers in the laboratory and experience the social life on campus. To remain relevant, universities will need to reinvent learning environments so that digitalisation expands and complements, but does not replace, student teacher and student-student relationships. Students are already demanding a partial refund of their tuition fees and many institutions have made pro-rata refunds on room and board, or have offered fee deferrals. With the enrolment of international students for the next academic year severely compromised, this will cut into universities' bottom line, affecting not only their core education services, but also the financial support they provide domestic students, as well as research and development activities.

The financial losses are not limited to higher education institutions. Countries have traditionally relied on international student mobility to facilitate the immigration of foreign talent and contribute to both knowledge production and innovation nationally. Indeed, international student mobility is particularly high for doctoral programmes, where one in five students comes from abroad on average across OECD countries (Figure 2). Some countries, such as Australia, New Zealand and the United Kingdom, have also reduced barriers to the migration of highly qualified students, facilitating their entry into the labour market after graduation (OECD, 2017[22]; OECD, 2016[23]). A decline in international student mobility in these countries risks affecting productivity in advanced sectors related to innovation and research in the coming years.

Higher education has often been considered a refuge in periods of low employment, enabling adults to develop their skills. In contrast to previous economic downturns, the lockdown measures of this current crisis have affected the delivery of learning and the experience of studying abroad in ways that have no precedent. It has also raised awareness of the vulnerability of international students in times of crisis. All of this is likely to influence students' perception of the value they will get from studying abroad in relation to the price they are willing to pay. Faced with these challenges, higher education institutions will need to develop a new value proposition that reassesses the quality of learning and delivery mechanisms

in the classroom, and that addresses the needs of an international student population that may be less willing to cross borders for the sole purpose of study.

COVID 19 AND EDUCATIONAL INSTITUTION

In their first attempts to contain the spread of the virus, many countries imposed a lockdown and schools and/or universities have closed for several months across all OECD and partner countries.

Out of the 38 OECD countries and 8 partner countries covered by Education at a Glance 2020, the People's Republic of China was the first to close schools in response to the COVID-19 pandemic. School closures were imposed on 16 February 2020 in some parts of China, where the scheduled spring semester starts earlier, and extended nationwide about a week later. Other countries also began to close schools (closing school premises, without necessarily completely ceasing teaching and learning) as the pandemic expanded. Preliminary information from various sources (see below) provides a snapshot of responses during this ongoing and evolving global pandemic.

By the end of March, school closures had been implemented to some extent in all 46 countries covered by Education at a Glance, but to different degrees: 41 countries closed schools across the country while 5 (Australia, Iceland, the Russian Federation, Sweden and the United States) closed them at a subnational or local level (Figure 3). However, not all countries hit by the pandemic closed all of their schools. For example, primary schools in Iceland remained open if class sizes were below 20 students. In Sweden, most primary and lower secondary schools remained open, while upper secondary schools switched to mainly distance learning from mid-March (UNESCO, 2020[24]).

It is difficult to estimate accurately the number of instruction weeks affected in all countries, as in some countries individual schools or local authorities have autonomy over the organisation of the school year and the reopening of schools. However, by the end of June 2020, some degree of school closure was effective for at least 7 weeks in 2 countries (4%), 8-12 weeks in 6 countries (13%), 12-16 weeks in 24 countries (52%), 16-18 weeks in 13 countries (28%) and more than 18 weeks in China (UNESCO, 2020[24]).

The actual impact may have been less severe as some of these periods included scheduled school breaks. In many European and Southern Hemisphere countries, Easter holidays scheduled in mid-April and/or spring vacations between April and early May mitigated the impact of school closure by up

to two weeks. In Japan for example, there is a two-week spring vacation in late March (see Figure X3.D1.2 in Annex 3 of Education at a Glance for more information) (UNESCO, 2020[24]; European Commission/EACEA/Eurydice, 2019[25]).

Moreover, some countries have reorganised their school years to minimise the loss of instruction time. For example, in some jurisdictions in Australia and Chile the winter school holidays were brought forward; in Korea the school year started in April (about one month later than the typical start) by shortening the summer vacation, and in Lithuania compulsory school holidays were introduced in the last two weeks of March (OECD, 2020[26]).

Measures to continue students' learning during school closure

Countries used a variety of resources to support students' learning while they were unable to come to school, including instructional packages (textbooks, worksheets and printouts), radio education, educational television and online instructional resources. Countries usually used several tools in order to reach the largest proportion of students possible. In the OECD and partner countries, online platforms were the most popular tool used during school closures (Schleicher and Reimers, 2020[27]).

Online platforms were used in nearly all OECD and partner countries. Online learning tools ranged from educational content which students could explore at their own discretion and formalised learning programmes conducted at their own pace, to real-time lessons led by their teachers using virtual meeting platforms. For example, Estonia collaborated with private services to provide a wealth of educational content free to students during school closure. In France, already-existing distance learning programme "Ma classe à la maison" (My classes at home) became available for all students in primary and secondary schools (Ministère de l'Éducation Nationale et de la Jeunesse, 2020[28]). In Greece, teachers conducted virtual real-time classes in conjunction with other online learning tools (Ministry of Education and Religious Affairs, 2020[29]; Schleicher and Reimers, 2020[27]).

Another popular learning arrangement in many OECD countries were television broadcasts providing educational content to continue students' learning. In some countries, TV programmes mostly catered for younger children in primary schools (for example, in Greece, Korea and Portugal), who may have had difficulty using online learning platforms or conducting self-directed learning. TV broadcasts are also a way to reach students who do not have adequate resources for online instruction. Despite these advantages, broadcasts can be limited to covering only a few subjects due to the short amount of time devoted to these TV programmes. For example, two channels in Spain covered one of five subjects

(Spanish, mathematics, social science, natural sciences and arts and/or physical education) per day during a one-hour slot (Ministry of Education and Vocational Training, 2020[30]; Schleicher and Reimers, 2020[27]).

Other measures were also used to help students learn at home. For example in Luxembourg, the government set up a new support system for students and parents to support home schooling. In Mexico, a telephone line “Your Teacher Online” has been activated to offer mentoring to students (OECD, 2020[26]).

In the majority of the OECD and partner countries, these measures were conducted by the government with active involvement from individual schools. However, in Estonia, Finland, Japan and the Netherlands, individual schools had more autonomy in organising these alternative education arrangements (Schleicher and Reimers, 2020[27]).

Teachers’ preparedness to support digital learning

During the pandemic, remote learning became a lifeline for education but the opportunities that digital technologies offer go well beyond a stopgap solution during a crisis. Digital technology offers entirely new answers to the question of what people learn, how they learn, and where and when they learn. Technology can enable teachers and students to access specialised materials well beyond textbooks, in multiple formats and in ways that can bridge time and space. Working alongside teachers, intelligent digital learning systems don’t just teach students science, but can simultaneously observe how they study, the kind of tasks and thinking that interest them, and the kind of problems that they find boring or difficult. The systems can then adapt the learning experience to suit students’ personal learning styles with great granularity and precision. Similarly, virtual laboratories can give students the opportunity to design, conduct and learn from experiments, rather than just learning about them.

Moreover, technology does not just change methods of teaching and learning, it can also elevate the role of teachers from imparting received knowledge towards working as co-creators of knowledge, as coaches, as mentors and as evaluators.

That being said, the COVID-19 crisis struck at a point when most of the education systems covered by the OECD’s 2018 round of the Programme for International Student Assessment (PISA) were not ready for the world of digital learning opportunities. A quarter of school principals across the OECD said that shortages or inadequacy of digital technology was hindering learning quite a bit or a lot, a figure that ranged from 2% in Singapore to 30% in France and Italy (OECD, 2019[31]). Those figures may even

understate the problem, as not all principals will be aware of the opportunities for instruction that modern technology can provide.

Technology is also only as good as its use. According to OECD's Teaching and Learning International Survey (TALIS) in 2018 just 53% of teachers on average let their students frequently or always use information and communication technologies (ICT) for projects or classwork (Figure 4). However, in Denmark and New Zealand the share reaches 80% or more, and in Finland, Israel or Romania those numbers have more than doubled over the five years leading up to the survey.

According to TALIS, younger teachers use technology more frequently in the classroom, but so too do teachers for whom technology was included in their formal training. However, only 60% of teachers received professional development in ICT in the year preceding the survey, while 18% reported a high need for development in this area.

These figures highlight that teachers need to renew their skills regularly in order to be able to innovate their practices and adapt to the rapid transformations inherent in the 21st century. This is even more important in the current context, where the COVID-19 health crisis has pushed teachers to adapt very quickly, especially in countries where they do not necessarily have the pedagogical and technical skills to integrate digital tools into learning.

Data from TALIS provide insights into the frequency and intensity of teachers' continued professional development before the outbreak as well as their readiness to engage in distance learning. The data show that, on average, teachers attended about 4 different types of continuous professional development activities in the 12 months prior to the survey, and 82% of teachers report that the professional development activities they participated in had an impact on their teaching practices (OECD, 2019[32]).

While most teachers participate in professional development, the programmes they enrol in are not always the ones they find most valuable. According to teachers, the professional development programmes that have the most impact are those based on strong subject and curriculum content which involve collaborative approaches to instruction, as well as the incorporation of active learning (OECD, 2019[32]). However, teachers are more likely to participate in courses or seminars than more collaborative forms of professional development. On average across OECD countries, 76% of lower secondary teachers reporting attending courses or seminars in person, while only 44% of teachers participated in peer and/or self-observation and coaching as part of a formal school arrangement (Figure 5).

ICT skills are particularly important given the radical shift towards online teaching during the COVID-19 lockdown in many OECD countries. Even before the crisis, teachers reported a strong need for training in the use of ICT for teaching, with 18% on average across OECD countries identifying this as a high

training need (OECD, 2019[32]). This is the second commonest training need teachers identified, just after teaching special needs students. However, not only are teachers reporting a need for ICT training, they are also not relying on distance learning for their own professional development. Data on professional development show that on average across OECD countries, 36% of lower secondary teachers reported participating in online courses or seminars, less than half the share participating in courses or seminars in person. Although this is the case in most countries, there are some exceptions such as Korea and Shanghai (People's Republic of China) where over 90% of teachers reported undertaking online professional development in the past year. This practice is also widespread in Australia, Chinese Taipei, England (United Kingdom), Israel, Mexico, the Russian Federation and the United States, where the share is over 50% (Figure 5).

When and how to reopen schools

A survey recently conducted by the OECD and Harvard University on the education conditions faced in countries and on the approaches adopted to sustain educational opportunity during the pandemic has found that the learning that has taken place during the period when schools were closed was at best only a small proportion of what students would have learned in school (Schleicher and Reimers, 2020[27]). The period of learning at home has made visible the many benefits that students gain from being able to learn in close contact with their teachers and peers, and with full access with the wide variety of educational, social and health-related services which schools offer. This public awareness of the importance of schools and of teachers could be strategically deployed to increase engagement and support from parents and communities for schools and for teachers. This will be particularly important in the current context as the health and economic costs of the pandemic risk reducing the funds available to education.

There are unquestionable benefits to reopening educational institutions in terms of supporting the development of knowledge and skills among students and increasing their economic contribution over the longer term. In fact, the learning loss which has already taken place, if left unremedied, is likely to exact an economic toll on societies in the form of reduced productivity and growth. Reopening schools will also bring economic benefits to families by enabling them to return to work, once public health authorities deem that this is feasible.

Those benefits, however, must be carefully weighed against the health risks and sanitary measures needed to minimise the health impact of the pandemic. Evidence from previous epidemics suggests that school closures can prevent up to 15% of infections (OECD, 2020[33]). While this impact is modest compared

with other public policy measures (for instance workplace social distancing can reduce transmission by up to 73%, case isolation by around 45% and household quarantine by around 40%), it is not negligible. In some countries there are also high levels of interaction between the youngest children and the older generations most at risk from the virus. The need to consider such trade-offs calls for sustained and effective co-ordination between education and public health authorities at different levels of government. Such collaboration should be enhanced through local participation and autonomy that enable responses to be tailored to the context. Many respondents to the OECD/Harvard study indicate that the plans are for schools to reopen progressively, beginning in areas with the lowest rates of transmission and lowest localised risk (Schleicher and Reimers, 2020[27]).

After mid-April, some OECD countries gradually started to reopen schools. By the end of May, more than two months after the school closures began in most OECD countries, schools were reopened (at least partially) in two-thirds of OECD countries (UNESCO, 2020[24]; Schleicher and Reimers, 2020[27]). Younger students were the first to return to school in Denmark (childcare and primary schools with additional measures such as reduced class sizes and physical distancing), France (primary schools in most regions with limitations on the number of children in a classroom), the Netherlands (primary schools) and Norway (kindergarten and grades 1 to 4 in primary schools with additional measures such as reduced class sizes and physical distancing). In contrast, schools reopened first for older students in Greece and Korea, especially for final year students who were sitting secondary school qualification examinations or entrance examinations for tertiary education. However, in Ireland, Italy, Lithuania, Portugal (except grades 11 and 12) and Spain (except for grades 10 and 12, where attendance will be voluntary) the plans were for primary and secondary schools to be closed until June (inclusive), that is to say the end of the school year 2019/20 (OECD, 2020[26]; Schleicher and Reimers, 2020[27]; UNESCO, 2020[24]).

Several steps can be taken to manage the risks and tradeoffs. First of all, it is important to develop clear protocols on physical distancing measures, including avoiding activities that require large gatherings, staggering the start and end of the school day, staggering meal times, moving classes to temporary spaces or outdoors, and having students attend in shifts to reduce class size. Equally important are protocols and practice on hygiene measures, including hand washing, respiratory etiquette, use of protective equipment, cleaning procedures for facilities and safe food preparation practices.

It is just as important to protect teachers, administrative staff and students who are at high risk due to age or underlying medical conditions, with plans to cover absent teachers and continue remote education to support students unable to attend school. Governments and teacher organisations may also need to revise

personnel and attendance policies to accommodate health-related absences and support remote and hybrid learning combining online and on-site teaching.

Investment in human capacity will be central to this. School leaders need to have the capacity and training to establish procedures for when students or staff become unwell, and to put in place partial or complete school closures where needed. They need to be able to conduct a risk assessment for teachers and other staff and take appropriate action to support them. Effective guidance and procedures are needed for monitoring student and staff health, maintaining regular contact with local health authorities, and updating emergency plans and contact lists. When students enter school premises, their temperature may need to be taken and infected students isolated and cared for by specialised medical staff, without stigmatising them. Teachers, too, may need to be tested before the school reopens and the health and sanitary managers of schools should take the temperature of teachers when they enter the premises.

Similarly, administrative and teaching staff needed training on how to cope with the virus, to recognise risks and to implement appropriate measures. This includes implementing physical distancing and hygiene practices, such as increasing both the intensity and frequency of cleaning and disinfection activities and improving waste management practices. Cleaning staff need to be trained in disinfection and be equipped with personal protection equipment as far as possible.

As schools reopen, there are two significant opportunities to seize, building on plans which many of the respondents to this survey indicate are already in the making. The first is to take stock of the lessons learned in this crisis as children return to school and to assess the learning loss. This exercise in student assessment should focus not just on the extent to which students gained the knowledge and skills intended in the curriculum, but also on what skills and competencies they demonstrated, or failed to demonstrate, during the period of remote learning. Effective learning out of school has clearly placed greater demands on students' autonomy, capacity for independent learning, executive functioning, self-monitoring and capacity to learn on line. These are all essential skills for the present and the future. It is likely that some students were more proficient in them than others and that, as a result, were able to learn more than their peers while not in school. The plans to return to school should therefore focus on more intentional efforts to cultivate these essential skills among all students.

The second, which is equally important, will be to build on the already on-going efforts to develop the infrastructure for online and remote learning, and to continue to develop the capacity of students and teachers to learn and teach in that way. This is essential first because there is a possibility that, until a vaccine is widely available, any return to school may have to be again interrupted as a result of future outbreaks, at least locally. But beyond COVID-19 pandemic, there are evident benefits to students in

expanding their learning time and opportunities beyond the school gate by being able to learn using a variety of distance learning approaches. Plans for school reopening could consider blended modalities to allow all students to access the curriculum.

Class size, a critical parameter for the reopening of school

Social distancing has proven to be one of the most effective measures to prevent the spread of the COVID-19. Within a school context, this means reducing contact between groups of children and maintaining a safe distance of 1-2 metres between pupils and staff. In some countries, the safety distance depends on the level of containment of the virus achieved. For example, schools in less-affected areas in Japan (Level 1) are required to maintain a distance of 1 metre while those in more affected ones (Levels 2 or 3) must maintain a distance of 1-2 metres (MEXT, 2020[34]). Guidance in many countries has been to reduce or halve the size of the classes in order to maintain the required distance between students. Some countries have specified the maximum number of students allowed in the classroom at any given time. For example, France and the United Kingdom have recommended a limit of 15 students in primary classes, provided the safety distances are maintained (Ministère de l'Éducation Nationale et de la Jeunesse, 2020[35]; Department for Education, 2020[36]).

Ensuring a minimum safety distance between pupils and staff will depend on many factors such as classroom size, room availability, and the number of students per class. Countries with smaller class sizes may find it easier to comply with new restrictions on social distancing provided they have the space to accommodate the number of students safely. Although France and the United Kingdom recommend the same limit on the number of children per primary class, public institutions in France have class sizes of 23 students on average, smaller than the United Kingdom where the average is 27 students per class. With more than 30 students per class in lower secondary level, countries such as Chile, Colombia and Japan may face more difficulties in reorganising classes into smaller groups of students to maintain a safe distance between desks (Figure 6).

While returning to school is compulsory in most OECD countries for students in the permitted age groups or specific levels of education (except for sick students or those with a vulnerable or sick family member), attendance is optional in Canada, the Czech Republic, France, and Spain, with remote and online learning for students who wish to stay at home. These hybrid measures aim to secure support for

the reopening of schools while optimising their capacity for social distancing (Schleicher and Reimers, 2020[27]).

To ensure all students have the opportunity to benefit from face-to-face teaching in a context of reduced class sizes, schools in about 60% of OECD member and partner countries are organising shifts to alternate students throughout the day when they cannot accommodate them all on site (Schleicher and Reimers, 2020[27]). Unless schools can establish effective forms of hybrid learning which combine on-site and online learning experiences, the consequence of such a measure will be reduced classroom instruction time than before school closures. Distance learning has therefore remained in place in most countries until the end of the academic year to continue to support students, including for those who have opted not to or cannot attend class for sanitary or personal health reasons.

Vocational education during the COVID-19 lockdown

While remote learning has offered some educational continuity when it comes to academic learning, vocational education and training (VET) has been particularly hard hit by the crisis. Compared to general programmes, VET programmes suffer a double disadvantage as social distancing requirements and the closure of enterprises have made practical and work based learning that are so crucial for the success of vocational education difficult or impossible. Yet, this sector plays a central role in ensuring the alignment between education and work, the successful transition of students into the labour market, and for employment and the economic recovery more generally. Not least, many of the professions that formed the backbone of economic and social life during the lockdown hinge on vocational qualifications.

Whether they are school-based or combined school- and work-based programmes, practical teaching forms an important part of the VET curricula. This involves hands-on experience in workshops, laboratories or in the workplace, specific equipment, and careful attention from teachers to ensure that tasks are correctly performed. In some countries, the work-based component can account for more than 60% of total learning time. VET programmes that rely most heavily on practical training, such as agriculture, health, engineering, construction and crafts, will struggle the most to adjust to remote learning. Even in cases where practical training can be simulated remotely, the learning experience is more limited.

Among VET qualifications, combined school- and work based programmes, where 25-90% of the curriculum is organised as work-based learning in enterprises, have been particularly affected as

businesses have closed or reduced their operations. For example, apprentices who were placed in companies and sectors such as catering or tourism that have come to a standstill as a result of border closures and the confinement of populations have largely stopped their work activities. With an economic crisis looming, it is still an open question whether companies will be able to take on apprentices as they struggle to recover from the economic setback. Overall, more than 44% of upper secondary VET students are enrolled in combined school- and work-based programmes in 12 out of the 35 OECD countries with available data. Of these countries, the proportion of students enrolled in these programmes exceeds 90% in Denmark, Germany, Hungary, Ireland, Latvia, the Netherlands and Switzerland (Figure 7).

Although VET programmes are generally attractive to employers and offer strong employment prospects to students, the pandemic has created considerable uncertainty over what will happen next. Some initiatives have already been announced. According to a joint OECD/Harvard survey carried out in May 2020, in 70% of countries for which data are available, plans to reopen schools generally include provisions and remedial measures for students in vocationally oriented programmes (Schleicher and Reimers, 2020[27]). The measures do not stop at the early reopening of schools for VET students; in many countries, there is a genuine understanding that apprenticeship streams should not be the first victims of the current situation, and many have already taken measures to support the continuation of VET. These include (OECD, 2020[37]):

- increasing the use of online and virtual platforms more appropriate to VET to ensure continuity of learning
- financing training breaks or extensions to avoid breaks in learning resulting in fees, repayments or other penalties for both learners and providers
- providing wage support for apprentice retention to allow apprentices to maintain contact with employers and if possible continue working through remote working or virtual meetings
- leveraging links between work-based and school based VET to provide alternative school-based VET in cases where upper secondary VET students are unable to secure an apprenticeship, including work-based components
- offering flexible skills assessment and awarding of qualifications as, in many sectors, particularly healthcare, a direct route to qualification may need to be established quickly in response to the COVID-19 crisis
- informing, engaging and communicating with learners, providers and social partners about new guidance on the delivery of assessment, or to ensure apprentices are informed of changes to regulations and practices

- investing in VET to mitigate future skills shortages and minimise the shock of the crisis.

CONCLUSION

As we enter the COVID-19 recovery phase, it will be critical to reflect on the role of educational systems – and particularly vocational education – in fostering resilient societies. The global health crisis and the lockdown that followed have brought to the fore professions that have often been taken for granted, renewing our awareness of their value to society. This has helped restore a sense of esteem for those workers who have worked relentlessly during this time to keep economies afloat.

The outlook is very uncertain. But, if anything, the pandemic has exposed our vulnerability to crises and revealed how precarious and interdependent the economies we have built can be. Disruptions on the scale we have just witnessed are not limited to pandemics, but may also result from natural, political, economic and environmental disorder. Our capacity to react effectively and efficiently in the future will hinge on governments' foresight, readiness and preparedness. Through their role in developing the competencies and skills needed for tomorrow's society, education systems will need to be at the heart of this planning. This includes rethinking how the economy should evolve to guard against adversity, and defining the skills, education and training required to support it. This also means working in close collaboration with other government sectors and the private sector to increase the attractiveness and labour-market prospects of certain professions, including those considered paramount for the common good.

Real change often takes place in deep crises, and this moment holds the possibility that we won't return to the status quo when things return to "normal". While this crisis has deeply disruptive implications, including for education, it does not have predetermined outcomes. It will be the nature of our collective and systemic responses to these disruptions that will determine how we are affected by them.

In this sense, the pandemic is also a call to renew the commitment to the Sustainable Development Goals. Ensuring that all young people have the opportunity to succeed at school and develop the knowledge, skills, attitudes and values that will allow them to contribute to society is at the heart of the global agenda and education's promise to our future society. The current crisis has tested our ability to deal with large-scale disruptions. It is now up to us to build as its legacy a more resilient society.

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