Education in times of crisis: The potential implications of school closures for teachers and students

A review of research evidence on school closures and international approaches to education during the COVID-19 pandemic

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CHARTERED COLLEGE OF TEACHING

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Executive Summary

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In response to COVID-19, 186 countries have closed their schools to the general school population (although some remain open to vulnerable children and children of key workers) as part of social distancing measures. Such widespread school closures are unprecedented and this report considers the impact that both the school closures and the wider crisis may have on students' academic achievement and socio-emotional development, as well as their impact on teachers. Recommendations for planning school reopenings are made, and approaches taken in other countries across the world are summarised.

Context and limitations

This report reviews and summarises both local and international research from a range of fields and disciplines including education, psychology, psychiatry and paediatrics, as well as guidance from UNESCO, WHO, Public Health England and a range of national governments. It draws on research from previous pandemics and other natural disasters as well as other types of school closures, including summer breaks and snow days. In doing so, it seeks to bring together a range of evidence to support policy makers, school leaders and educators in understanding the impact of school closures, and supporting students and teachers during these closures and once schools re-open.

Of course, applying existing research evidence to the COVID-19 pandemic is problematic. Each situation in which school closures take place is unique and research findings may not be generalisable from one context to another.

Due to current time constraints, this report is not a systematic review or a meta-analysis (though reviews of this kind will be extremely valuable, and are being carried out by research organisations elsewhere). It should instead be considered as a starting point from which discussions about school reopenings in the UK and elsewhere could develop.

The report focuses specifically on the school sector, rather than on further or higher education. The information cited is up to date at the time of publication, but information is constantly changing and new research and guidance is frequently becoming available. Therefore, this report will be updated and adapted in response to emerging findings. At this stage, the views and experiences of school leaders and educators have not been included. These views will form important contributions to the report and our understanding of the impact of school closures; they are currently being collated and an updated version will be published incorporating comments and feedback from the education community.

Key findings

The impact of school closures on learning

- Research evidence on 'summer learning loss' suggests that children from lower income families are usually more adversely affected by school closures during the summer holidays, and that they tend to proportionally affect older children's academic progress more than that of younger children.

- However, in the context of COVID-19-related school closures, both the 'summer learning loss' effect and the learning that is missed during school closures need to be taken into account, which may affect younger children more.

- Families from higher socio-economic backgrounds tend to spend more on their children's online learning in the current context and are more likely to assist children's learning during school closures, as well as having better access to online learning.

- School closures can have an exacerbating effect on students with mental health issues.

- Distance learning can be effective if the teaching methods used are of high quality. This includes incorporating features such as clear explanations, scaffolding and feedback. However, potential differences between distance learning and emergency remote teaching need to be considered.

- Evidence on distance learning during COVID-19 suggests that many students aged between 10 and 19 appear to cope well, but some spend less time on school work than they would normally and some students struggle both academically and emotionally. Students' capacity to study independently, access to online learning and feeling socially connected all contribute to a more positive distance learning experience.

The impact of the wider crisis on pupils' wellbeing and learning

- Cognition, learning and behaviour can all be affected by grief and by exposure to stressful and traumatic circumstances.

- Research evidence is mixed on the long-term effects of disasters. While some studies found that children were not affected two to four years later, others suggest that there are long lasting effects on socio-emotional and academic development.

- The effect of disasters on academic performance may vary according to students' age and the subjects being studied, but more studies are needed to strengthen these findings.

- Socio-emotional interventions delivered by school staff can be effective, and schools can also play a key role in supporting children who have experienced bereavement or trauma.

- A common reaction to trauma is emotional and social isolation. Other symptoms can include re-experiencing, avoidance and hyperarousal.

The effect on teachers

- Teachers are subject to the challenges faced by the general population during lockdown, including in many cases managing work and family/caring responsibilities simultaneously, but are also subject to additional pressures because of their professional role in supporting children.

- Teachers often do not have adequate training and guidance in order to support and respond to student's socio-emotional needs following traumatic events.

- School staff can experience secondary traumatic stress from working with traumatised individuals and this can affect their own mental health. Peer and professional support can help teachers to cope in such circumstances.

School closures and approaches to reopening during the COVID-19 outbreak

- The effectiveness of school closures as a measure to stem outbreaks depends on the length of the closure, when the closure and reopening take place, how transmissible the disease is and to what degree it affects children. They appear to be most effective when combined with other social distancing measures.

- Although COVID-19 appears to generally affect children's health less than adults and they may be less likely to contract the virus, less is known about children's role in community spread. Recent data suggests that children might be as infectious as adults. The potential risks to students and teachers therefore need to be taken into account when planning school reopenings, including age-related differences in children's ability to understand and comply with social distancing measures.

- Countries are varying in their approaches to school reopenings, but staggered returns tend to be favoured so as to limit the number of students on campus at any given time. Some of the most affected countries in Europe (e.g. Italy and Spain) have decided not to reopen schools for the general population before September.

Introduction

School closures are included as a possible measure of social distancing in the pandemic influenza response plans of many countries (see Homeland Security Council, 2006; New Zealand Ministry of Health, 2017; Public Health England, 2014), and have been implemented widely in response to past pandemics (Bin Nafisah et al., 2018; Cauchemaz et al., 2009; Cheatley et al., 2020; Cowling et al., 2008; Cowling et al., 2020; Halloran et al., 2008; Jackson et al., 2014a, 2014b; Kelso et al., 2012; Markel et al., 2007; Rashid et al., 2015). As of Friday 1 May 2020, over 1.2 billion learners worldwide have been affected by school closures due to COVID-19, which corresponds to 73.8 per cent of enrolled learners. And 186 countries have implemented country-wide school closures (UNESCO, 2020a) as part of their social distancing measures in an attempt to slow the spread of the virus. In some countries, schools are closed to all students, whereas in others there are partial school closures; in these cases, care continues to be provided for children of key workers and vulnerable children, and is considered a less disruptive approach than full school closures where all children have to stay at home (Viner et al., 2020).

In this context of widespread school closures, it is important to consider their potential negative consequences, not least so that these can be addressed or minimised where possible. While school closures can have a mitigating effect on the spread of epidemics, they inevitably come at an economic, academic and social cost (Cauchemaz, 2009; Viner et al., 2020).

For example, the economic cost of epidemic-related school closures of 12-13 weeks has been estimated to amount to 0.2-1 per cent of the UK's GDP (Sadique et al., 2008) as a result of absenteeism of the workforce in general and healthcare workers in particular; the latter is because healthcare workers might not be able to attend their workplace at a time when they are most needed because of caring responsibilities (The Lancet Editorial, 2020; World Bank, 2020). It needs to be noted, however, that student and school staff absenteeism is likely to generally increase during epidemics, even if schools stay open, either due to illness or because of staff or parents taking precautionary measures (Viner et al., 2020). This example illustrates the complexity of decision-making processes in the context of a pandemic and highlights the importance of considering the best available evidence from a range of disciplines, so that unintended consequences can be considered and ideally avoided.

This report aims to shed more light on the potential impact of school closures and the wider crisis on students' academic outcomes and socio-emotional development, as well as teachers' mental health and wellbeing. It does so by looking at evidence from past epidemics and disasters, including those that led to school closures and those

that did not, as it seems important to also consider the potential impact that the stress of a crisis such as the current pandemic can have on students and their teachers.

It is important to note that this is not a systematic review, but rather an overview of the evidence that was conducted as rapidly as necessary in the current circumstances and as thoroughly as possible given the time constraints. It is, therefore, perfectly possible that we have missed studies that might merit from being included in order to provide a broader overview of the evidence around school closures. Furthermore, whilst we have made some suggestions as to how some of the findings could be applied when schools reopen, we would like to invite practitioners to add their ideas and suggestions, as well as scrutinise the ideas in reference to their practical application in a real-life school context.

Rather than presenting this report as a final version, we consider it to be a first step; a stepping stone that should bring together teachers, researchers and other stakeholders in the field to discuss the best available evidence and how it can inform current decision-making. We hope that this report is of interest to you and look forward to receiving your comments and feedback.

An updated, amended and extended version of this report will be published as more information becomes available. We hope that by taking this approach, everyone who wishes to comment will have enough time to do so and we will have sufficient time to update the report to inform decision-making as schools reopen.

01

The impact of school closures on learning

We know that when students miss school, it has a negative impact on their academic achievement because they miss out on important learning and fall behind (Balfanz and Byrnes, 2012; Sims, 2020), which is why attendance is so closely monitored in schools across the country.

But what if, rather than one student missing school whilst their classmates are still attending, all schools are closed and everybody stays at home? How do national or regional school closures affect students' academic development?

This section provides an overview of the impact of planned school closures, such as school holidays, as well as unplanned school closures as a result of extreme weather or other natural disasters.

Evidence from school closures during holidays

Each year across the UK and in many other countries, there is an extended period of planned school closure during the summer holiday. This provides us with some information on how breaks in learning can affect academic attainment, which may be useful in predicting some of the effects of the current school closures. Commonly called 'summer learning loss', there is widespread acknowledgement among the teaching profession that students' learning can stall or regress over the summer holiday. A report published by the DfE (2011) states that students in Key Stages 2 and 3 make the most progress in maths, reading and writing during the summer term, and the least in the autumn. It suggests that: 'Summer-autumn progress may be affected by the intervening summer break, requiring pupils to retain their learning from the previous academic year over several weeks away from school…. Pupils are also more likely to fall backwards, or regress, to a lower sub-level between the summer and autumn terms.' (DfE, 2011, p. 9)

In addition to remembering learning from previous terms, returning to school after the summer break often involves a transition to a new teacher, classroom and/or set of classmates. Time is required to reestablish relationships, rules and routines, and this

time can impact curriculum coverage. This may also be the case when schools reopen following the current crisis.

Research on which subjects are affected most has provided mixed results. One US study found that for students in grades 2 and 3 (Years 3 and 4), spelling regressed but maths did not. For children in grades 4 and 5 (Years 5 and 6), the opposite was true (Allinder et al., 1992). A meta-analysis of summer learning loss research (Cooper et al., 1996) found that the summer break is most detrimental for mathematical computation and spelling. Income-based gaps in reading attainment grow larger over the summer, with lower income students falling behind in attainment on reading recognition tests, whilst children from wealthier families made progress. This is supported by studies on younger children which found that kindergarteners from socially advantaged families learn more over the summer (Burkam et al., 2004). Research from Sweden, however, found that pupils from disadvantaged backgrounds did not lose relatively more learning during the summer (Lindahl, 2001). However, this could be because social backgrounds in Sweden are more homogenous than in other parts of the world.

Research from the UK (Shinwell and Defeyter, 2017) which focused on three schools in areas of low socio-economic status, found that spelling scores deteriorated over the summer holiday. This was a small but significant decline. However, after being back at school for seven weeks, students were able to exceed their pre-summer spelling scores. Unlike in the American study, word reading scores were not affected by time away from school over the summer break. It should be noted, however, that the summer holiday in the UK is typically six or seven weeks long, whereas in America it is roughly 12 weeks.

Recent research on American students (Kuhfeld, 2018) suggests that the proportional effect of summer learning loss tends to increase with pupils' age. During the summer holiday following 3rd grade (Year 4), it found that students lose an average of 27 per cent of their school year gains in maths and 20 per cent in reading. This increases to 50 per cent loss in maths and 36 per cent in reading for the summer following 7th grade (Year 8). Reading is thought to be affected less than maths because this is something students can more easily continue with independently during time away from school.

Furthermore, it is important to recognise that it is not just the effects of summer learning loss that may affect students' learning in the current context when compared with a normal school year. While schools are closed, students are not just losing a proportion of their previous learning, but are also potentially missing learning that they would have normally undertaken. A recently published brief (Kuhfeld and Tarasawa, 2020) used research on the summer learning loss and student learning gains across typical school years with a nationally representative sample of students in grades 3-8 (equivalent to Years 4-9 in the English system) to estimate learning losses as a result of COVID-19-related school closures. Their projections of a COVID-19 slide scenario, where students missed the learning gains they would normally have during school closures and also showed patterns that are typical of learning loss during summer holidays, suggest that students might return to schools in September with about 70 per cent of the learning gains in reading of a typical school year and even smaller learning gains (less than 50 per cent) in mathematics. Their projections further suggest that some grades might be nearly a full year behind the learning progress we would usually expect them to make in mathematics in one school year. Given the relatively more rapid learning gains in younger students, the missed learning for younger pupils may be particularly important.

The reasons for individual differences in summer learning loss are less well documented. It is possible that higher income families are more likely to access libraries, museums and other learning opportunities throughout the school holiday. A situation such as a pandemic whereby these facilities are closed to everyone may even out some of these between-family differences. However, more affluent families might still be able to spend more on children's private tuition and online learning programmes, as outlined below. Kuhfeld and Tarasawa (2020) also suggest that families from higher socio-economic backgrounds are more likely to have access to the necessary resources for distance learning and more flexible work arrangements that might help them to overcome some of the challenges that are present in the current

crisis. Families from lower socio-economic backgrounds on the other hand, are more likely to be hit harder by the economic impacts and face food and financial insecurity.

The brief review above suggests that school closures during the summer holidays, when all children are at home for an extended period of time, can have a negative impact on some students' academic outcomes. However, school closures in the context of COVID-19 were unplanned and occurred at very short notice. While schools are closed, some formal learning continues on and offline, albeit in alternative forms. These are important differences that might impact the ultimate effect of school closures on students' learning in the current situation.

Evidence from unplanned school closures

While we do not have any evidence on academic outcomes from the ongoing crisis, we can refer to modelling studies and evidence from other contexts in which unplanned school closures occurred, to try and estimate the potential impact of the current situation on students' academic development.

A modelling study by Aroob Iqbal et al. (2020) shows three possible scenarios for students' learning as a result of school closures around the world. In the first scenario, average levels of learning would decrease across the distribution as children are out of school. According to the authors, this scenario is very likely, despite countries' efforts to mitigate the effects of school closures through distance learning. We talk more about distance learning in the context of COVID-19 in the next section.

The second scenario sees the most disadvantaged particularly affected, while students from a higher socio-economic background continue to learn and might even exceed previous levels of learning due to access to private tutors, digital access, personalised learning programmes, etc.

This corresponds to findings from a recent report by the Sutton Trust (Cullinane and Montacute, 2020) on learning in the current pandemic which found that pupils from independent schools are twice as likely than their state school peers to take part in daily online lessons. The report also presents the following:

- children from more deprived schools are less likely to complete the work set by their teachers, more likely to do work of a lower quality than their usual standard and less likely to have access to devices to help them access learning from home

- less than half of parents without higher education qualifications feel confident in supporting their children's learning, while more than three quarters of parents with a postgraduate degree and 60 per cent of those with an undergraduate degree felt comfortable doing so. The report also highlights important financial differences

- while most families had spent less than £50 on their children's online learning when the survey was conducted, twice as many children from middle class homes (19 per cent) than working class homes (8 per cent) had more than £100 spent on them. In families where parents earned more than £100k, one third of families had spent more than £100

- while two thirds of children who previously received private tuition no longer continue to do so, the remaining one third of children still have access to private tuition during this crisis.

Taken together, these results suggest that children from higher socio-economic backgrounds are more likely to receive guidance and financial support from their parents and carers during the current lockdown and that a minority continues to have access to private tuition, which is likely to exacerbate the achievement gap between children from more and less deprived backgrounds.

<50% of parents without HE qualifications feel confident in supporting children's learning

1/3 of families earning >£100k have spent more than £100 on distance learning

Students from independent schools are twice as likely to attend daily online lessons

The final scenario in Aroob Iqbal et al.'s (2020) study models the number of school dropouts as a result of school closures and also suggests a particularly strong negative effect on students from lower socio-economic backgrounds. The authors argue that earlier crises such as the 1997-98 Asian financial crisis and the 1916 polio pandemic led to stark increases in school dropouts, especially among children with lower socio-economic status who might be forced to take up jobs to support their families due to economic hardship. Of course, the possible number of dropouts may vary depending on what age groups schooling is compulsory for in different countries. An economic crisis can also lead to permanent school closures, particularly in the private sector where low-fee private schools operate on tight margins. In the state sector, schools might also be closed or merged due to austerity measures, and teachers furloughed as a result of economic hardship. Permanent school closures can lead to higher drop-out rates as students might not have the means to travel to schools that are further away.

Several empirical studies provide support for these models. For example, a study on the effects of school closures due to the 1916 Polio epidemic in the US found that children aged 14-17 who had been affected by school closures, had lower educational outcomes than their slightly older peers who had not been affected by school closures (Myers and Thomasson, 2017). Although this study is of interest as it investigated the impact of unplanned school closures on academic outcomes, it needs to be borne in mind that they occured in very different circumstances and as such, the results might not be directly transferable to the current situation. Most importantly, children in this context would not have had access to online learning, which might mitigate some negative impacts of school closures, although possibly for some students more so than others.

Connolly's (2013) study of the impact of the 2010/11 earthquakes in New Zealand indicated lower educational outcomes on the National Certificate of Educational Achievement (NCEA) in 2010, but not in 2011, when the overall NCEA results from the Canterbury region – which includes all Christchurch secondary schools that were affected by closures due to the earthquake – actually performed higher than the New Zealand average. It is important to note that in 2011 an 'earthquake impaired derived grade process' was introduced to allow schools to apply for special dispensation on behalf of students to take into account the educational disruption in NCEA grading. It is not clear how many schools applied for this (Beaglehole et al., 2016) but this might at least partially explain the higher results in that year. However, John Hattie (2020) has argued that the higher performance was instead because of teachers focusing on what pupils needed to learn. Interestingly, only the highest-performing schools in the region had recovered their pre-earthquake performance by 2012, when the 'earthquake impaired derived grading process' was no longer available and schools were relatively back to normal, while more deprived schools had not (Connolly, 2013), which may indicate that school closures had a stronger impact on students from more socially deprived schools, is in line with the second scenario in Aroob Iqbal et al. (2020) and findings from the Sutton Trust (Cullinane and Montacute, 2020).

Interestingly, Beaglehole et al.'s study (2016) did not find any negative effects of

these earthquake-related school closures on adolescents' academic failure or disengagement. Academic disengagement was defined as students leaving school prior to the age of 17 and academic failure as leaving school without a qualification. They did not find a negative effect of school closures due to the earthquakes on either of these outcomes when measured on a group level.

An important aspect in the context of these studies is that while some school buildings were indeed closed following the seismic events, those who were unable to return to their school buildings were subsequently (after a period of closure) either temporarily merged with other schools, where the school days were shortened to accommodate the larger number of students, or temporary accommodation was built on school sites (Connolly, 2013), which differs from contexts where schools were closed without an offer of alternative access to education.

Marcotte and Hemelt (2007) also observed that unscheduled school closures in Maryland over a period of seven years, in this case due to snow storms, had a negative effect on students' performance in reading and maths, with a particularly negative effect on younger students and for schools with more students from more deprived backgrounds – however, the latter only for their reading scores. This stands in striking contrast to Goodman (2015) whose study of school level data in Massachusetts spanning the years 2003-2010 found that weather-related school closures did not negatively affect students' test scores, with the exception of schools with a higher proportion of students from a deprived background, who appear to have been marginally affected. Student absence rates that were driven by bad weather (i.e. when students stayed away due to bad weather even though the school was open) did however have a negative effect on maths scores. This suggests that some students missing school while teaching continues for others can have an adverse effect on those missing school, while school closures for all students were not found to have a negative effect on student outcomes in this particular study.

One possible explanation for the difference between the Maryland and Massachuesetts study might be that the average number of days on which schools were closed was lower in the Massachusetts study (two days) than it was in the Maryland study (five days), where the number of school closures also showed substantial variation (between 0-15 days of school closure in some regions). This hypothesis would be further supported by the finding that students in Marcotte and Hemelt's (2007) study performed above their school average in years with relatively few unscheduled closures, but below it in years with many unscheduled closures.

Overall, these studies suggest that unscheduled school closures can have a negative effect on students' academic outcomes, particularly on students from lower socio-economic backgrounds, but that this is not always the case. Factors such as the length of school closures and whether alternative educational provision is available appear to play a role in minimising the impact on student outcomes. Measures such as amended grading systems are a potential approach to taking mitigating circumstances into account.

The effectiveness of distance learning

Many countries across the world try to address the loss of learning resulting from unplanned school closures by introducing distance education. While debate persists around the exact definition of distance learning, definitions usually include some form of instruction between two parties (a student and a teacher) that is held at a different time and/or place and uses varying instructional materials (Moore et al., 2010). These days, distance learning often includes the use of technology.

Whilst distance learning has been found to be effective in many circumstances (Allen et al., 2004, EEF, 2020) it may also widen the gap between those students who can readily access online content from home and those who do not have the necessary devices or an internet connection (Cullinane and Montacute, 2020). This potentially leads to a widening of the socio-economic gap we already observe in education (Moreno and Gorzatar, 2020). Apart from individual differences, schools also differ widely in their preparedness for digital learning, as an analysis of the PISA 2018 data

shows. Over half of surveyed headteachers indicated that their students did not have access to an effective online learning platform, which shows that the world is far from prepared for online learning on a large scale (Moreno and Gorzatar, 2020).

According to a report by the Education Endowment Foundation (2020), teaching quality is more important than the methods used for delivery. Therefore, if effective elements such as clear explanations, scaffolding and feedback are present, pupils should learn just as effectively through remote teaching as they do during face-to-face instruction. Peer interaction in distance learning – for example, utilising peer marking, live discussions of lesson content, and sharing models of good work – was found to be effective in motivating pupils and improving outcomes. Strategies that support students to work independently, such as checklists, daily plans and reflecting on their work, were also recommended.

The report encouraged teachers to use their professional judgement to decide which approach to distance learning best suits their content and pupils. This is because different approaches – e.g. the use of online games, self-quizzing and computer assisted instruction – have been found to be more or less effective depending on the task and content they are used for.

Parental engagement was beyond the scope of the EEF report but is likely to be a factor in the effectiveness of distance learning, particularly for younger children who may not be able to access learning activities independently.

Remote teaching and learning during COVID-19

In the context of COVID-19 and the closure of education facilities, a distinction between online learning and emergency remote teaching has been suggested (Hodges et al., 2020). The authors argue that well-planned online courses differ substantially from courses and materials that are currently offered in response to school and university closures. While the article mainly focuses on universities, it opens up an interesting debate for online learning in the context of COVID-19 more widely. Hodges and colleagues argue that although online learning can be as effective as face-to-face instruction, it requires careful instructional design and planning, which in turn affect the quality of learning. The rapid move to online learning in the current circumstances did not allow for the level of planning that would usually be required to achieve the best possible outcomes. The authors provide an estimate of six to nine months of preparation time before a high-quality online course can be delivered, which differs vastly from the timeline in which current online delivery was developed.

They thus propose the term 'emergency remote teaching' (ERT) to describe the temporary shift to online delivery that is currently taking place in education systems across the globe. The focus here lies on 'temporary', as instruction is expected to return to pre-crisis-modes once schools reopen, although the experience should be evaluated (in terms of preparedness and issues rather than necessarily the learning outcomes) and lessons should be learned. They also stress that this abrupt shift to online learning occurred in the context of a major crisis and both teachers and students might have been and continue to be preoccupied by other worries. This difference between well-planned online or distance learning and current ERT, needs to be borne in mind when formulating expectations for planning and delivery as well as during future evaluations.

On Monday 27 April, a research team at the University of Vienna published preliminary results (Schober et al., 2020) of a study on learning during the COVID-19 crisis. Although results are not final and the survey remains open until Monday 11 May[1], they do provide some compelling insights. Schools in Austria have been closed since Wednesday 18 March (BMBWF, 2020b) and the preliminary analysis takes data until Monday 20 April into account, which allows us to gain a perspective on roughly one month of distance learning in the context of the current crisis. It needs to be borne in mind, however, that the sample was self-selecting and students without

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[1] German speakers can access the full survey here: https://lernencovid19.univie.ac.at/.

internet access at home may not have been able to complete the online survey, which is why results are likely to provide a more positive picture of the situation.

This preliminary analysis is based on over 8,000 school students between the ages of 10 and 19 who responded to an online survey. This preliminary analysis is based on a sub-sample of roughly one third of the total number of respondents.

On average, respondents spend five hours a day on school-related activities, roughly half spend 3.5 to six hours a day on school work but one quarter indicated that they spend 3.5 hours or less on learning. One per cent of students replied that they spent less than one-hour per day on school work. Sixteen per cent of respondents said that they did not have access to a laptop or computer for online learning, whilst 21 per cent do not receive any support from parents or carers. Seventy per cent of students agree that they create a plan of tasks they need to complete but only 38 per cent follow a strict daily schedule.

Learners find independent learning and the fact that they cannot ask any follow-up questions difficult and struggle with organising their own learning. However, they also note that their IT skills have improved, which can be considered crucial in today's society.

The preliminary results show that successful distance learning depends on students' ability to access online learning, which in turn is related to receiving clear instructions from teachers and technological aspects, such as the compatibility of students' laptops and software with software their teachers use.

Two thirds of students feel happy and 80 per cent continue to have a positive outlook on life despite the difficult situation. Those students tend to indicate that they (continue to) feel connected to people who are dear to them. However, six per cent of students said that their levels of wellbeing had deteriorated since the start of the crisis and those tend to be students who feel socially isolated and struggle with school work. Although this is likely to be a conservative estimate due to the nature of the sample and the survey, it would still correspond to roughly 45,000 students in Austria if the number is extrapolated to the whole population.

This study indicates that distance learning can be effective in the current situation and that most students appear to cope well. However, some students complete less school work now than they would if they were in school. Students' success with home learning depends on their ability to access online learning, to study independently and the support they receive from home. Finally, there seems to be a small yet significant group of students who cope less well with the current situation and those tend to be students who struggle with school work and feel less connected to people who are close to them. It will be important to provide additional support for these students when they return to school.

02

The wider impact of the crisis on students' wellbeing and learning

While school closures per se are an important factor to consider in the current context, it is also important to remember that we are living through extremely stressful times, which might have a considerably negative impact on adults' and children's mental health and wellbeing (WHO, 2020). The context of the pandemic and the related economic and social consequences that children and adolescents are exposed to may also influence their academic progress and development. Some have to spend additional time with abusive relatives, and many others might experience the consequences of financial hardship as a result of the current crises. Many children and their families may be grieving after a bereavement in their family or community. Even if none of these situations apply, it needs to be considered that the current context is not ordinary and can cause additional stress in children.

The WHO have acknowledged the impact COVID-19 could have on children's mental health, identifying that they are likely to experience worry, anxiety and fear, and in response may make increased demands on their parents or caregivers, who may be under undue pressure themselves (WHO, 2020). Whilst the guidance from WHO is for parents to provide love and attention, help their children express themselves and manage their own stressors so as to be a model for their children, not all families are in a position to offer this support and attention. Some parents may be isolating from their children due to illness or being a key worker, others may have their own mental health problems, be dealing with bereavement or be the victims or perpetrators of abuse. There have been rises in domestic violence in the UK during lockdown, with various domestic abuse helplines and websites reporting rises in phone calls and web traffic of 16.6-120 per cent (Grierson, 2020).

School closures specifically can also have an exacerbating effect on students with mental health issues as a recent report (YoungMinds, 2020) showed. This survey of 2,111 participants with a history of mental illness in the UK who were aged up to 25 years, found that 83 per cent of respondents felt that school closures had made their mental illness worse. Twenty-six per cent said that they were now unable to access necessary support. Many researchers, including those from the University of Oxford,

are currently collecting data about parents' and children's mental health during lockdown. This information will help track patterns and changes throughout the crisis, with the hope of identifying support which can protect mental health.

The experience of lockdown and being at home may be a stressful situation for some children, and returning to school may also cause stress. Stress affects both learning and behaviour in adults as well as children. The prefrontal cortex, the most developed part of the brain which is responsible for higher-order thinking and decision-making, is the brain region most affected by stress. Stress related impairments to the prefrontal cortex could display as difficulties with impulse control, impaired memory retrieval (Vogel and Schwabe, 2016), and difficulties with executive skills such as planning, problem solving and monitoring errors (Gibbs et al., 2019).

Clearly, then, crises such as COVID-19 can impact on pupil mental health, and as well as being a concern in its own right, this can in turn have a knock on effect on academic achievement. It therefore seems important to consider what we can learn from previous public health emergencies and (natural) disasters about the impact they have had on children's academic achievement, wellbeing and socio-emotional development, even if they did not necessarily lead to school closures.

Natural disasters such as earthquakes, hurricanes or bushfires are inherently disruptive to learning as school buildings might get damaged, students might have to relocate to other school districts, aspects of students' education might be missed and they may lose loved ones and witness devastating scenes. Research in this field hence provides useful insight into the effects major disruptive events can have on young people and their education. The evidence in the previous section that suggests that school closures can negatively affect learning at least in part of the student population is mirrored by studies on children's academic performance following natural disasters more widely (e.g. Gibbs et al., 2019; McFarlane and Van Hooff 2009; Pérez-Pereira et al., 2012).

The effect of natural disasters on academic attainment

Pérez-Pereira et al. (2012) studied the influence of a major oil spill off the Spanish coast on local communities. Large parts of the population were involved in the fishing industry, so their livelihoods were directly affected by this spill. The authors found that the effects on children and adolescents were generally limited. Preschool children were hardly negatively affected at all, and primary school children's behaviour in school but not their academic outcomes were negatively affected, while the converse was observed for adolescents. However, there were important differences within the adolescent group. Children from higher socioeconomic status (SES) and those whose parents were generally not involved in the fishing industry, were less negatively affected than their peers from lower SES, and whose parents worked in the fishing industry. This suggests that disruptive events might affect older children more intensely as they are more conscious of what is going on around them. However, other research on stress suggests that early exposure is particularly damaging as it can directly affect brain areas that are in development at the time of stress exposure (Lupien et al., 2009).

Gibbs et al. (2019) found that bushfires had negative effects on reading and numeracy, but not writing, spelling and grammar, in primary-school-aged children. Similar subject-differentiated results were also observed by Broberg et al. (2015) in their study of self-reported academic performance of adolescents following a major fire in a nightclub in Sweden. They found students reported a negative influence on schoolwork in mathematics, grammar and physics but a positive influence on religion, psychology and the arts. Broberg et al. (2005) argue that these differences could be explained by different levels of concentration that are required for these subjects, and changed priorities or interests in students following the incident. Alternatively, these subjects might also lend themselves more readily to exploring students' emotions and reactions to traumatic events and thus encourage their participation.

Although further work is undoubtedly needed to better understand subject-specific

impacts of traumatic events, these findings suggest that students' academic performance might be affected differently in different subjects, and that some subjects might lend themselves better to supporting students in processing recent events than others. We also need to consider that some students might have missed important aspects of their learning before a transition to their next step in education (e.g. some Year 6 students might have missed their sex and relationship education before transitioning to secondary school). It will be important that educational institutions at transition points clearly communicate any content that has not been covered as a result of the current crisis.

While most studies focus on relatively short time periods after the occurrence of such disasters, some studies also show long-term negative impacts on the academic development of children who were affected by natural disasters (e.g. Gibbs et al., 2019; McFarlane and Van Hooff, 2009). McFarlane and Van Hooff's 20-year follow-up study showed that children who were affected by major bushfires in their childhood were less likely than non-affected peers to extend their education. Smilde-van den Doel et al (2006) studied the effects of a major factory explosion on primary-school children in a Dutch community up to three years after the incident and found that it affected children's socio-emotional (but not their academic) development negatively for two to three years afterwards. Gibbs et al.'s (2019) study, which looked at academic outcomes in children two to four years after a major bushfire broke out in their community, showed negative effects on some but not all academic outcomes. This shows that major disasters can have a long-term effect on children, whether it is social or academic, and that it might be necessary to provide long-term support for communities that have been hit by disasters. Future work will need to disentangle why long-term effects were found in some but not other contexts so that appropriate support strategies can be developed and put in place.

It is important to note that not all studies find a negative impact of traumatic events on pupils' academic outcomes. For example, the study mentioned above investigating the influence of a major explosion in a Dutch firework factory in 2000, which caused tremendous damage in the neighbourhood and affected 800 primary school students, did not find any evidence that this event affected the primary school children in their study negatively in terms of their academic development (Smilde-van den Doel et al., 2006). The authors found that children performed as well or even better than their peers (classmates, controls and a national reference sample) over a period of up to three years after the incident. Shortly after the incident, children affected by the explosion even had better results than non-affected children. While the study did not find any effects on students' academic development, more behavioural problems were reported for affected children by parents, teachers and doctors.

An important point to consider in the context of this study is that children in the most affected schools, i.e. the ones in the direct neighbourhood of the affected area, received additional support in the form of small group activities and projective work such as artwork, play and storytelling. Moreover, special care teachers spent additional time on individual teaching which might have mitigated any negative effect on students' academic outcomes. The authors note, however, that no specific evaluation of these programmes took place so it is difficult to draw any ultimate conclusions about their effectiveness. While this particular intervention was not evaluated, evidence from other programmes does suggest that they can be an effective way to support children after traumatic incidents.

Grief, trauma and post-traumatic stress disorder

Given the scale of the COVID-19 pandemic, many children will be grieving the loss of a loved one, and school communities may also have been directly affected by bereavement.

During the COVID-19 pandemic, some children will also have witnessed or experienced the incidents that led to a significant rise of 49 per cent in calls and contacts to the domestic abuse helpline Refuge in the UK since the start of the lockdown (Home Affairs Committee, 2020). Responses to trauma can vary according to the age of the child and when the trauma was experienced – either in early childhood

or later on in life (Jones and Cureton, 2014). Some children respond to trauma by *re-experiencing*. This may involve re-enacting themes or events through play or drawing, having nightmares or showing distress when faced with reminders of the traumatic event (Scheeringa et al., 2003). Another symptom is avoidance. Children may avoid eye contact or contact with objects. *Avoidance* may manifest itself as refusal to participate in activities, to eat, or to socialise, particularly when situations, people or objects act as reminders of the traumatic event. Children may withdraw from a caregiver or teacher. Young children may also regress in developmental areas such as toilet training or speech (Cummings et al., 2017). *Hyperarousal* is a stress response whereby the body is in a state of high alert. Following trauma, the body continues to act as if it is under threat even if the stressful event is over. Hyperarousal can look like an inability to concentrate on a task, difficulty sleeping, irritability, anxiety and aggressive or destructive behaviour. People who are hyper-aroused are often easily startled and display exaggerated responses (Scheeringa et al., 2003). Some children may also become more clingy as a result of trauma, becoming more demanding of an adult's attention.

Post traumatic stress disorder (PTSD) is an anxiety disorder caused by direct or indirect exposure to stressful or frightening events. What differentiates PTSD from a normal reaction to trauma is its intensity and duration. Symptoms may vary with the age of the child, but those lasting over a month after the trauma, including recurrent distressing thoughts, flashbacks and sleep disturbances, should be referred to a mental health professional (Grosse, 2001). Not everyone who experiences trauma will develop PTSD, and children can be supported to manage trauma (Grosse, 2001). During a traumatic experience, a structure and sense of control, and accurate information about what has happened and what will happen next are important in helping children control their thoughts and feelings. Promoting predictability and consistency is helpful (Minahan, 2019). Debriefing is also critical, and this should be child-centered and non-judgemental. All expressions about the trauma are acceptable and should be validated by the listening adult, without probing for further details which may cause distress (Grosse, 2001; Kataoka et al., 2012).

A number of studies have suggested there may be a link between PTSD, including following natural disasters, and lower academic performance. For example, Shannon et al. (1994) who found the 9-19 year olds reporting symptoms of PTSD in their study to have lower self-reported academic performance three months after a hurricane than those not reporting PTSD symptoms. Gibbs et al. (2019) argue that traumatic experiences can disrupt neuro-maturational processes, affecting the development of working memory and other cognitive processes that are central to academic development, citing evidence from the impact of PTSD on children's academic development (Teresaka et al., 2015).

What can teachers do to support children experiencing grief, stress and trauma?

Strong support networks, which allow children to talk about their experiences, are one of the most important factors in mitigating the effects of childhood bereavement, and schools can be particularly well-suited to provide such support. This is because teachers usually know and understand students and their needs very well and schools are where students spend most of their time (McLaughlin et al., 2019). However, recent research shows that teachers feel unprepared to support students with their grief and that only a minority has received any bereavement training even though many felt that training would have made it easier to manage past situations of bereavement (Child Bereavement UK, 2018).

If teachers are to support children through their bereavement, adequate support and training should be made available to them, as well as caution being taken around the impact this could have on their own workload or mental health. The limit to the scope of schools and teachers' roles and responsibilities also needs to be recognised; teachers cannot be expected to take on the role of specialist bereavement professionals. However, schools can put some strategies in place to support grieving students. These include staying in touch with bereaved students and their parents, for example through scheduled phone calls, trying to maintain a routine, encouraging

students to communicate openly, listening to their worries and fears, reassuring them if possible and talking to them about professional help that is available in school and the wider community (Duncan, 2020; Winston's Wish, 2020). The further reading section at the end of this report includes a range of links to resources produced by specialist charities and organisations working in this area.

A qualitative study (Cummings et al., 2017) interviewed service providers who work with children and families following trauma about the knowledge and skills early childhood education teachers need to support children who have experienced traumatic events. From questionnaires and interviews, the report identified key strategies that teachers can use to create emotionally supportive environments for young children in particular. These include:

- **Being attuned:** Understanding and anticipating the needs of children and their families, and being able to respond sensitively. Being attuned involves being open and curious about how a child may be feeling, and showing them that you understand and can relate to that feeling.

- **Conveying positive regard:** Trauma or stress may lead to disruptive or uncooperative behaviour, but including the student as part of the class community, rather than isolating them as the 'bad child' is key. Starting afresh after a challenging day, welcoming the child warmly, and finding and communicating the child's strengths are recommended.

- **Collaborating with families and other professionals:** Building a positive and respectful relationship with parents and being aware of the experiences and mindset their child is bringing to the classroom.

- **Supporting positive social-emotional and communicative responses:** Promoting self-regulation through music, play, art and stories. Encouraging students to express their feelings and learn what helps them to relax.

- **Rethinking reactions to behaviour:** Remain calm and be aware of why children might be behaving the way that they are. Avoid making children feel ashamed of their emotional reactions and instead allow time for them to practise adaptive behaviours.

The report also highlighted that teachers may need to be aware of aspects of the classroom environment that can trigger trauma responses. Children who have been exposed to domestic violence or abuse may be triggered by loud voices, physical touch or fighting between classmates. Darkness and loud noises can also be sensory triggers. Seasonal changes and events can also trigger memories of traumatic events. It may be that the start of Spring time, or Easter next year, triggers a trauma response for some children as this was the time they experienced their schools closing, or lost a loved one. For this reason, anniversary events need to be carefully managed. The study also identified that although there are some common behavioural patterns that appear in children exposed to trauma, behaviour and emotions manifest differently according to the context and the type of trauma experienced, as well as the individual characteristics of the child.

As a common reaction to trauma is emotional and social isolation, helping children reestablish social relationships and make connections with others supports their wellbeing by promoting stability and recovery (Kataoka et al., 2012). Promoting interaction between students in the form of supportive partner work, team projects and class discussions may be especially important after long periods of social distancing.

A two-year research project looking at the impact of Hurricane Katrina on teaching and learning (Alvarez, 2010) found that allowing students to discuss and write about their experiences and stresses was an important part of returning to school. This was not just done when schools first re-opened; students continued needing to revisit and reflect on their experiences over time. Free writing and oral storytelling were used as tools. Building a positive learning environment required finding reasons for celebration

and positive incentives for learning. In this context, students had faced extreme trauma and to accommodate changes in their behaviour, once academic lessons resumed, lessons were kept to small increments with lots of repetitive practice and rehearsal. Teachers described these changes in adolescents' behaviour as including difficulty in acquiring information and maintaining in-depth study, passivity, numbness to learning, being more prone to arguments and needing more affirmation.

School-based trauma interventions such as the Cognitive Behavioural Intervention for Trauma in Schools (CBITS) (Jaycox et al., 2018) have been found to be effective in reducing symptoms of PTSD and depression and improving academic outcomes in a range of contexts (Kataoka et al., 2003; Stein et al., 2003; Jaycox et al., 2010; Kataoka et al., 2011). However, they are designed to be delivered by medical health professionals, who might not be available to administer the intervention in all schools following a national crisis like the current pandemic. A pilot study of its adaption for delivery by teachers in schools (Jaycox et al., 2009) has shown promising results but further research is needed to corroborate these initial findings.

What is the evidence on effective socio-emotional interventions?

Upon reopening, schools may choose to support pupils' increased social and emotional needs by spending more time teaching content which explicitly relates to personal, social and emotional development. There are numerous schemes and programmes which address these areas of learning – these can be taught as whole-class or small group/individual interventions. A meta-analysis of 213 school-based interventions (Durlak et al., 2011) found that in general, social and emotional learning (SEL) programmes are effective – participants demonstrate significantly improved social and emotional skills, attitudes, behaviours and academic performance when compared with a control group. Whilst only a small number of studies contained follow-up information, those that did showed that effects were still statistically significant six months after the intervention. Well-implemented SEL programmes were found to be effective whether they were taught by external specialists or in-school staff, suggesting that they can be incorporated into the curriculum, and were effective at all age levels and in both urban and rural schools. However, there is a lack of research on which specific aspects of SEL programmes are most effective; this is because the majority of programmes combine a wide range of strategies and content, making it difficult to extrapolate the individual effects of each.

Guidance from the Education Endowment Foundation (Poortvliet et al., 2019) recommends that SEL skills in primary schools are taught explicitly both in dedicated time and throughout everyday teaching. This involves expanding children's emotional vocabulary, supporting them to develop self-awareness and self-regulation, and teaching relationship skills and problem-solving strategies. The report suggests:

- modelling the social and emotional behaviours that children should learn in addition to adopting an evidence-based programme which is regularly reviewed and adapted

- establishing school-wide expectations and routines which support social and emotional development and ensure behaviour policies are aligned with these

- engaging with parents to reinforce skills in the home environment.

This guidance was produced on the basis of surveys with 436 primary schools in England, an advisory panel, and an evidence review of international research.

Other research suggests that social and emotional learning is best taught not as discrete lessons or units, but through being embedded throughout the school day, as part of a whole school culture. The research team at the Harvard Graduate School of Education suggest 'SEL should exist everywhere at school, across the building – with every adult in the building on board. Educators should teach SEL through strategies, routines, and structures, as opposed to just through lessons and curricula' (Shafer, 2016, p. 1).

03

The effect on teachers

While there is a lot of research on the effects of disasters and related stress and trauma on children's academic and socio-emotional development, we know less about teachers' mental health in the context of crises. Teachers are, of course, subject to the challenges and pressures faced by the general population during lockdown. As well as the impact on wellbeing of requirements around social distancing, these in many cases include managing work and caring/family responsibilities simultaneously, as well as potentially being subject to illness, bereavement and grief. The WHO (2020) have highlighted the potential impact of the pandemic on mental health, and a position paper in *Lancet Psychiatry* (Holmes et al., 2020) has suggested there is an urgent need for a thorough and coordinated programme of research into mental health implications of the COVID-19 pandemic on the general population. However, teachers are also subject to additional pressures because of their professional role in supporting children. They are often the first to respond to students' socio-emotional needs in such situations and are regularly involved in delivering interventions in these contexts, often without adequate support or training (Child Bereavement UK, 2018; Pfefferbaum et al., 2004; Wolmer et al., 2011; Zhang et al., 2016).

Secondary traumatic stress

Hearing about somebody else's traumatic experiences and helping or wanting to help them can result in secondary traumatic stress (STS) (Figley, 1995a), which is also sometimes referred to as *compassion fatigue* or *vicarious traumatisation*. Although it has been debated how far these and other related concepts overlap (Figley, 1995b; Meadors et al., 2009), there is a general recognition that working with traumatised individuals can have a negative impact on the mental health and wellbeing of professionals (Bride, 2004; The National Child Traumatic Stress Network n.d.).

Symptoms associated with STS include feelings of anxiety, isolation, physical pain and sleep problems (Figley, 1995a, 1995b; Osofsky et al., 2008) and the Administration for Children and Families (ACF, n.d.) describe the following cognitive, emotional, behavioural and physical symptoms of compassion fatigue/STS:

Cognitive	Emotional
Lowered concentration	Guilt
Apathy	Anger
Rigid thinking	Numbness
Perfectionism	Sadness
Preoccupation with trauma	Helplessness

Behavioural	Physical
Withdrawal	Increased heart rate
Sleep disturbance	Difficulty breathing
Appetite change	Muscle and joint pain
Hyper-vigilance	Impaired immune system
Elevated startle response	Increased severity of medical concerns

Table 1: Symptoms of secondary traumatic stress

The Secondary Traumatic Stress Scale (Bride et al., 2004) conceptualises STS as symptoms of *intrusion* (e.g. intrusive thoughts about clients, sense of reliving clients' trauma), *avoidance* (e.g. avoidance of clients/other people) and *arousal* (e.g. difficulty sleeping, irritability) and STS has been found to correlate with burnout[2] (Greinacher et al., 2017). Its prevalence has been estimated between six and 26 per cent among therapists and up to 50 per cent among child welfare workers (NCTCN, n.d.; Bride, 2007), which is higher than the reported prevalence of four to 13 per cent in first responders (Greinacher et al., 2017), to name just a few professions that can be affected by STS.

Risk and protective factors for STS

A recent meta-analysis of risk factors for STS showed that caseload volume, frequency and ratio, as well as a personal history of trauma, were associated with higher levels of STS. Work support and social support, on the other hand, were associated with lower levels of STS (Hensel et al., 2015). This is further supported by Setti et al. (2016) who, in their study of rescue workers, found affective commitment to the workplace to be a resource against negative psychological effects, and highlight the importance of strong social support from colleagues. Another meta-analysis found an effect of gender on STS, with women being more affected than men (Baum et al., 2014). Age also appears to play a role, with older individuals having been found to be more affected (Greinacher et al., 2017). Further risk factors include tobacco and alcohol use as well as emotional exhaustion (Greinacher et al., 2017).

Effects on volunteers and non-frontline staff

The negative effects of healthcare crises on frontline healthcare workers are well-documented, and these effects are likely to be exacerbated for staff who did not

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[2] see IQWiG, 2017 for a discussion on burnout.

receive any training in epidemic preparedness, or were offered limited psychological support. A study comparing the psychological effects of the COVID-19 outbreak in Singapore on medically trained and non-medically trained hospital personnel revealed that non-medical healthcare workers had higher levels of anxiety (Tan et al., 2020). These findings are in line with another recent study which showed that frontline nurses had significantly lower traumatisation scores than non-frontline nurses and the general population (Li et al., 2020). The authors argue that this difference might be due to non-frontline nurses and the general public having less access to first-hand medical information about the pandemic, less intensive training on the use of personal protective equipment and infection control measures, as well as limited access to psychological support. A review by Thormar et al. (2010) on the mental health impact of disasters on volunteers also shows that the impact is higher in volunteers than among professionals, which they attribute to heightened identification with victims and a lack of training. However, as Greinacher et al. (2017) point out, more research is needed to shed more light on the potential differences between volunteers and professionals.

These findings are interesting in the context of education because teachers are less likely than healthcare professionals to receive first-hand information about the current healthcare crisis or training in the use of personal protective equipment (PPE), which might have a negative effect on their mental health, as was the case for volunteers and non-medically trained professionals in the studies above.

The effect of traumatic situations on teachers

Although few studies have investigated the effect of traumatic events on teachers, the evidence indicates that such circumstances can also affect their mental health negatively.

Borntrager et al.'s (2012) study of 229 school staff members across six schools in the US revealed very high levels of STS in this sample, although their levels of job satisfaction approached the national average. Roughly 75 per cent of the sample reported experiencing symptoms of intrusion, avoidance and arousal *occasionally* or *more frequently*. In comparison, roughly 70 per cent of social workers in Bride's (2007) study indicated that they had experienced at least one symptom of STS in the week prior to the study. However, this prevalence of STS might be an artefact of this particular study or context-specific, as another study of a different school district found practically no evidence of STS in the surveyed teachers (Hydon, 2016). Further studies are therefore desperately needed to investigate the prevalence of and risk factors for STS in educators.

Even though the evidence base on STS is limited, there are other studies that have investigated PTSD, stress and teachers' levels of preparedness in the context of disasters.

Pfefferbaum et al.'s (2004a) case study of a private school in New York following the 9/11 terrorist attacks showed that teachers' coping strategies largely involved talking to other teachers or health professionals, but that they felt largely ill-equipped to support students through their experience of these traumatic events. Of the 32 teachers surveyed, 41 per cent reported that they found responding to their students' needs stressful, and 25 per cent found responding to parents' needs stressful and even though the study was carried out 9-12 months after the initial attacks, 38 per cent of teachers reported that they found it difficult to concentrate at work, 28 per cent found it difficult to finish their work, and 22 per cent found it difficult to enjoy themselves at home.

The case study shows that most teachers (93 per cent) addressed the crisis in their classrooms through discussions, and 13 per cent of these did so often. However, they felt largely unprepared to do so, and 91 per cent said that they would have required support to know what to tell students, 87 per cent felt that they needed advice on how to tell students, 81 per cent would have required support in answering students' questions and dealing with their emotions, and 78 per cent felt unprepared to identify students with emotional problems. Fifty-nine per cent reported feeling unprepared

to deal with students' behavioural problems, which corresponds to findings from a case study on post-Katrina classrooms (Alvarez, 2010) where teachers also reported a rise in difficult behaviour following the disaster. This corresponds to findings from Pfefferbaum et al. (2004b) who found over 20 per cent of teachers in their study to be overwhelmed by demands in school after a major incident in the city in which they were teaching. This illustrates the fact that teachers do indeed play an important role in addressing major events that are occuring outside the classroom, but that they can feel unprepared to do so without additional support.

Zhang and colleagues (2016) studied the prevalence and risk factors for PTSD in teachers following the Lushan earthquakes in China. They found prevalence of PTSD to be higher in teachers in their study (24.4 per cent) than in other studies on PTSD in earthquake survivors among the general population. A significant limitation of this study is that they did not include their own control group. But it does provide interesting insights into the stress experienced by teachers during disasters, which might be elevated due to the fact that in addition to processing their own stress, they are also supporting students through theirs, usually without specialised, trauma-related training.

Teachers in the UK have suddenly found themselves working in the context of a pandemic without the necessary training, adequate information or equipment, and some of them might have to cope with personal grief and/or additionally support students through their bereavement. Many educators have been teaching the children of key workers, teaching remotely and also caring for their own children, as well as working through the Easter holiday. Ensuring that teachers are supported to manage stress and avoid exhaustion is imperative for both teacher and pupil wellbeing. This is also important in light of emerging research which may indicate that 'stress contagion' can occur in the classroom, and that teacher burnout may be linked to higher levels of salivary cortisol (stress chemical) in children (Oberle and Schonert-Reichl, 2016); however, more research is needed to corroborate these findings.

04

Looking ahead – planning for school reopenings

Given the substantial potential impact of school closures on students' academic and social and emotional development as well as society more widely, it is not surprising that countries are keen to re-open schools as soon as it is safe to do so. It is worth, however, being clear about the role that school closures may play in mitigating the spread of COVID-19 and the many considerations that will need to be taken before considering reopening schools.

The importance of school closures in the context of epidemics

The rationale behind closing schools during epidemics is that they reduce social contacts on multiple levels. Firstly, they reduce social interactions in schools and secondly, when involving younger children, they limit contacts between parents/caregivers and their co-workers, as they need to stay at home and look after their children (Cauchemez et al., 2009; Viner et al., 2020).

Of course, the nature and timing of school closures can make a difference. Cauchemaz et al. (2009) outline two different types: school closure, where the school is closed and all students and staff are sent home, and class dismissal, where schools remain open with administrative staff but most children are sent home, with only vulnerable children and children of key workers remaining in school. They also note that school closure may be reactive (once teachers, students or both are already experiencing illness) or proactive (where closure or dismissal occurs *before* the transmission of disease within a school). It is further worth distinguishing between national or mass school closures and regional or local school closures that only affect schools in specific areas (Viner et al., 2020).

Evidence from past epidemic-related school closures and their effectiveness in the context of different epidemics can potentially provide some useful basis for considering the current situation. Most evidence on school closures during epidemics stems from influenza outbreaks (see Markel et al., 2007; Cowling et al., 2008; Jackson

et al., 2014a, 2014b). Although debate remains around the scale of the benefits that are to be expected, when and how school closure policies should be implemented (see Cauchemaz et al. (2009) for a discussion) and the effectiveness of mass school closures as opposed to regional school closures (Viner et al., 2020), recent evidence does suggest that school closures can be an effective control measure (Bin Nafisah et al., 2018; Cheatley et al., 2020; Jackson et al., 2014a, 2014b; Rashid et al., 2015).

Research suggests that school closures are more effective if they take place early during an outbreak (Halloran et al., 2008; Kelso et al., 2009), when the virus has low transmissibility, and if it particularly affects children (Jackson et al., 2014b). An important caveat is that social contacts also need to be reduced outside school and that transmissions can surge again once schools reopen (Viner et al., 2020). A modelling study by Lee et al. (2010) of an influenza pandemic, suggests that short-term school closures (i.e. two weeks or less) may have little effect, and can even have negative effects when students are sent back to school during the peak of an epidemic. Their model suggests, however, that school closures of four weeks or more can decrease the peak incidence of an illness, and even longer school closures of eight weeks or more (i.e. throughout most of the epidemic) can have a significant influence on serological attack rates[3]. This is further supported by studies suggesting that school closures need to be maintained throughout an epidemic in order to be effective (Rashid et al., 2015).

Evidence on COVID-19-related school closures

Data from a recent systematic review (Viner et al., 2020) has suggested that school closures alone might prevent two to four per cent of COVID-19 related deaths, which is less than other social distancing measures alone, potentially because this virus spreads differently from influenza and seems to affect more adults than children. However, the authors do caution that they were only able to include nine published and seven non-published studies in their review, and that apart from one modelling study, only one study was specifically designed to measure the effectiveness of school-related distancing measures, so the data available was of relatively low quality (Viner et al., 2020). The results therefore need to be interpreted with caution. Ferguson et al. (2020) recommend school closures as *one part* of population-wide social distancing measures, having found tentative evidence that such an approach (i.e. school closures and case isolation, banning of mass gatherings and widescale social distancing) has had an effect on reducing transmissions in some European countries. They argue that the effect of isolated interventions (e.g. just school closures) is difficult to estimate as most countries put a combination of measures in place at roughly the same time – making them difficult to disentangle in statistical models. A recent modelling study from China (Zhang et al., 2020) also shows that while school closures alone cannot interrupt transmission, they can reduce peak incidence by 40-50 per cent and delay the epidemic.

Zhang et al. (2020) suggest that children aged 0-14 themselves appear to be less susceptible to infection from COVID-19. However, Viner at al. (2020) note that we do not yet know enough about the transmissibility of the virus between children and from children to adults to draw any solid conclusions on children's role in transmission, and thus further studies are needed to shed more light on the effectiveness of school closures in the context of COVID-19. Some researchers have warned that children might play an important role in community transmission of COVID-19 (see Cai et al., 2020; Cruz and Zeichner, 2020; Dong et al., 2020; Drosten, 2020b) while others suggest that they are unlikely to play an important role in spreading the virus (NCIRS, 2020). Professor Drosten, Director at the Institute of Virology at the Charité in Berlin, expert in emerging viruses and scientific advisor on the COVID-19 outbreak, outlined in two recent podcasts (Drosten, 2020a, 2020b) that it is difficult to carry out traditional epidemiological studies that would trace how the virus spreads in contact situations (e.g. in schools and at home) due to the current lockdown. Therefore we do not know for sure how the virus would behave in educational settings. In the absence of such data, Drosten and colleagues (Jones et al., 2020) have taken an alternative

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[3] Attack rate refers to the percentage of the population that contracts the disease in an at risk population during a specified time interval (https://en.wikipedia.org/wiki/Attack_rate).

approach and have studied the viral load (i.e. the concentration of the virus) in different age groups, finding that children who have contracted the virus may be as infectious as adults. So while children appear to be less susceptible to infection from COVID-19 (Zhang et al., 2020), debate remains as to their role in community transmission.

More research is needed to better understand how COVID-19 spreads between children, from children to adults and vice versa, but the role that children play in transmitting the virus to their peers and teachers clearly needs to be taken into account when discussing when and how to reopen educational settings.

Potential risks to teachers' and students' health

Clearly, concerns for the health of members of the school community need to be paramount in any discussions around reopening schools. Not only does the potential risk to the adults working in schools and other education settings need to be considered, but the people with whom they live and those they care for need also to be taken into account.

Furthermore, although research does seem to indicate that children are generally less susceptible to infection from COVID-19 (Gudbjartsson et al., 2020; Zhang et al. 2020) and that their symptoms are generally less severe if they do contract it (Dong et al., 2020;), younger age, underlying pulmonary pathology and immunocompromising conditions have been associated with more severe outcomes in children (Ogimi et al., 2019). This indicates that sub-groups of children can indeed be severely affected by the virus, which needs to be taken into account when considering school reopenings.

Factors such as students' and teachers' ages, pre-existing health conditions as well as cohabitation with other vulnerable adults or children, will all need to be considered in discussions prior to a return back to school. In an attempt to take these issues into account, many countries are planning a staggered or limited return to schools. An overview of some of these approaches is provided later in this report.

Related to this, it is paramount that teachers' and students' safety is considered by ensuring that the necessary PPE equipment is available in all schools, and that realistic assessments as to the possibility of keeping safe distances between students, as well as between students and their teachers are carried out. The potential impact of school closures on students' learning, their socio-emotional development and health risks to both students and teachers need to be weighed up carefully to ensure the safety of everyone involved.

05

Planning for school reopenings on a national level

Azzi-Huk and Shmis (2020) argue that as with other epidemics, preparedness is also key in the current COVID-19 pandemic. They suggest that several scenarios assume that COVID-19 will spread in waves, which is why the process of addressing it needs to be cyclical. What is of most interest to this report is the 'recovery' phase once the emergency dissipates. They suggest that governments could adjust the academic calendar and prioritise students in grades with high-stakes exams as well as taking a blended approach to learning, where online learning continues alongside contact teaching to reduce the number of students in schools.

A recent report from The Sutton Trust (Cullinane and Montacute, 2020) recommends that disadvantaged pupils are given additional one-to-one or small group tuition online whilst schools are closed, and face-to-face once they reopen, in order to reduce the impact of school closures on their education. It also suggests that catch-up classes could be run for these pupils during the summer holiday, as they are the students most likely to have fallen behind. Which of these approaches might be practically feasible and would be most effective in the current context needs to be explored.

On 13 April the German Academy of Sciences Leopoldina (2020) published a report which provides helpful suggestions on how to overcome the crisis, restart the economy and reopen schools once infections stabilise, more infected people are identified, and protective measures (e.g. masks) are employed. The report stresses the importance of large-scale testing in the general population to increase our understanding of the virus and its transmissibility.

The report suggests that schools should reopen as soon as it is safe to do so, but that the risk for reinfections needs to be minimised before school reopenings can go ahead. It is important to bear in mind, however, that since the publication of this report, new data on the potential role of children in community transmission of the virus has emerged (Jones et al., 2020), which might impact how safe school reopenings are perceived to be. And other scientific advisors, in France and Spain for example, have cautioned against a reopening before September (Delfraissy et

al., 2020a; Lucas and Benito, 2020), noting concerns over the practicability of social distancing, particularly in younger year groups, as one of the reasons. However, they also recognise the wider economic and social impacts of school closures (Delfraissy et al., 2020a) which could be used to argue for an earlier return to schools, and have subsequently published guidance on the minimum hygiene requirements that would need to be met before school reopenings can be envisioned (Delfraissy et al., 2020b).

In order to mitigate risk for the spread of infection, the German Academy of Sciences Leopoldina suggests that the return to schools should be staggered according to age groups, and taking into account the specificities of each learning context. They suggest the following approach to a return to schools:

- In general, children at transition points in their education as well as younger students (starting from the last year in nursery, aged five to six years in Germany) should return to school first.

- According to this report, younger children require higher levels of personal care, support and guidance, so primary and lower secondary schools should re-open first. However, it is worth noting that others (Delfraissy et al., 2020a, 2020b) highlight the practical challenges around social distancing measures in younger year groups.

- As social distancing is more difficult to implement in nurseries, their re-opening should be restricted to smaller group sizes, with preference given to children who are in their final year of nursery, so they can be prepared for transition. A maximum of five children should be allowed in one room/group to facilitate the right level of social distancing. For even younger children, nurseries should continue their emergency provision until the summer holidays, as it is difficult to ensure the necessary level of social distancing in younger children.

- In primary schools, students in their final year should be the first to return to school so that they can be prepared for their transition to secondary school. Other year groups should follow gradually, which will allow for emergency provision to be rolled back.

- Students in upper secondary school year groups and universities tend to be more independent in their learning and have higher levels of digital literacy. Therefore, these students should return to schools and universities at a later point. The options for blended learning should also be explored in this context in order to minimise contact between students.

- Universities should continue to use online learning.

The report notes that restricted yet gradually expanding forms of teaching will need to be accepted during a transition period, and that general measures of hygiene and social distance need to be respected within schools to minimise the continuous high risk of infection.

According to the authors, the focus should be on core subjects that are to be taught in small groups of up to 15 students, if classrooms are big enough to accomodate a level of social distance among such a group. In addition to the core subjects in secondary schools, one additional hour per day should allow teachers to share new tasks students can work on independently at home. These additional contact hours do not have to be limited to core subjects. They suggest that groups should remain consistent and not mix with others during break times, which is why break times should be taken for each group in rotation. Each group should have regular and predictable school times to aid parents' schedules and create consistency for students.

A framework which was recently co-published by UNESCO, UNICEF, the World Bank and the World Food Programme (2020) provides further guidance on school reopenings and discusses the complexity of the decision-making process in the current context. Rather than including suggestions on specific approaches to school reopenings, they highlight that decisions about a return to schools should be guided

by the best interests of children and overall public health considerations, assess associated risks and benefits, and take into account context-specific evidence across sectors. The report further emphasises the importance of gathering national data on how schools, students and teachers are coping with closures and the pandemic more widely, to aid the decision-making process. They provide a list of questions that stakeholders can use to guide their decision-making process, which aim to assess how learning and wellbeing can best be supported in each context (e.g. early years versus secondary schools) whilst considering the risks and benefits of online learning versus face-to-face instruction. Examples include questions around the necessity of classroom instruction to achieve specific learning goals, the availability of high-quality remote learning or the sustainability of the current approach.

Guidelines for safety and hygiene in schools

Clearly, concerns for safety and hygiene will continue to be substantial once schools begin to reopen. UNICEF, WHO and IFRC (2020) have co-published the following key guidelines for safe school environments during the pandemic:

- Promote and demonstrate regular hand washing and positive hygiene behaviors and monitor their uptake.

  » Ensure adequate, clean and separate toilets for girls and boys.

  » Ensure soap and safe water is available at hand washing stations.

  » Encourage frequent and thorough washing (at least 20 seconds).

  » Place hand sanitizers in toilets, classrooms, halls, and near exits where possible.

- Clean and disinfect school buildings, classrooms and especially water and sanitation facilities at least once a day, particularly surfaces that are touched by many people (railings, lunch tables, sports equipment, door and window handles, toys, teaching and learning aids etc.).

  » Use sodium hypochlorite at 0.5 per cent (equivalent 5000ppm) for disinfecting surfaces and 70 per cent ethyl alcohol for disinfection of small items, and ensure appropriate equipment for cleaning staff.

- Increase airflow and ventilation where climate allows.

- Post signs encouraging good hand and respiratory hygiene practices.

- Ensure trash is removed daily and disposed of safely.

The Austrian Ministry of Education, Science and Research has also published detailed Hygiene Guidelines (BMBWF, 2020) for schools that will gradually reopen from the beginning of May, which echo many of the recommendations provided by the French Scientific Advisory Board (Delfraissy et al., 2020b). Their inclusion here should not be understood as an endorsement or recommendation, as each national context is unique and will require a distinctive approach. It is simply one example of detailed, practical hygiene guidelines for schools that were available to the authors at the time of writing and might be informative to anyone who is interested in the practical organisation of school reopenings on a school level. Below is a selection of these guidelines.

Travelling to school:

- Wearing of face masks (face masks have recently been made compulsory on public transport in Austria in an attempt to mitigate the spread of COVID-19).

- Keeping a minimum distance of one metre from other people.

Arriving at school:

- Avoid crowds at arrival by staggering arrivals where possible and signage on the floor to ensure safety distances are kept between students.

- Students should be told in advance where their lessons will take place to avoid unnecessary travel through the school building.

- Parents and carers are not allowed to enter the school building (meetings should take place virtually or on the phone).

- As soon as students or staff enter the school building, they need to wash their hands.

- Masks need to be worn upon arrival and around the school building but not inside classrooms if the necessary safety distance can be kept and not by younger children (more detailed guidelines and reflections are provided); Delfraissy et al. (2020b) consider it impossible for children in nurseries and preschools to wear masks and suggest there is a gradual increase in comprehension of the necessity of masks with age in primary school children. Delfraissy et al. highlight the importance of parental judgment and the Austrian Ministry of Education suggests that teachers' professional judgment should guide at which age in primary school the wearing of masks seems feasible and appropriate.

General hygiene recommendations (hand washing, no touching, safety distance, etc.) should be followed throughout the school day.

Inside the school building:

- Avoid crowds.

- Avoid changing classrooms/groups unless necessary for a specific subject (e.g. DT).

- During break times, half the year groups stay in their classrooms, the others go outside.

- A distance of at least 1m needs to be respected between desks (two possible layouts for classrooms with different sizes are provided on p. 10).

- Open windows after each lesson.

- Students should not share objects.

- Additional hand washing during any practical lessons.

- Headteachers need to decide the maximum number of teachers allowed inside their staff rooms (based on size).

- Video conferencing facilities should be used for staff meetings where possible.

- All rooms that were used by students and staff have to be cleaned thoroughly at least once a day.

- Windows should be opened for at least five minutes every hour.

- Sufficient soap and paper towels need to be provided.

- Hand sanitiser will be kept by teachers and should only be used when necessary.

- Surfaces that are used regularly, such as door knobs, should be disinfected several times a day.

- Further detailed information for canteens and national school leaving certificate examinations are provided.

The handbook also contains signs that schools should put up around the school building to remind students and members of staff of the hygiene regulations.

Exams and assessments

It is important that governments take decisions about exams and assessments that balance considerations for public health, students' wellbeing and fairness of assessments in the current circumstances. Countries have taken different approaches to high-stakes exams depending on factors such as testing traditions or internet access. According to data from UNESCO on Thursday 9 April 2020, 58 of 84 surveyed countries had postponed or rescheduled exams, 23 had introduced alternative methods such as online or home-based testing, 22 had maintained exams, while in 11 countries, exams were cancelled altogether (UNESCO, 2020b).

In many countries, national exams determine students' access to the next level of education, which is why a decision to cancel or postpone such exams cannot be taken lightly. Some countries have decided to go ahead with exams (albeit later) but with stricter social distancing and hygiene regulations and/or amended formats (e.g. Hong Kong Diploma of Secondary Education; Germany, Austria) to ensure fairness. Others have cancelled standardised exams and moved towards self- and formative assessments (e.g. Uganda, Norway, US, International Baccalaureate), whilst others are exploring online alternatives (e.g. Argentina, medical exams in the UK). The latter are easier to implement in national contexts, where classroom-based assessments are more common than high-stakes, standardised tests. But they also come with issues of limited internet access and potentially low reliability. The problem in upholding high-stakes exams, no matter in which form, is of course that students will have lost substantial amounts of learning in preparation for these exams, which should be taken into account when assessing them.

One area that poses considerable challenges across countries is that of vocational education. The practical exams that are common in the vocational sector can rarely be carried out online and often require materials and/or machines that students cannot access remotely. Where standardised tests determine students' access to university, tertiary education providers also need to revisit their admission processes if standardised test results are no longer available or postponed (UNESCO, 2020b; Liberman et al., 2020).

There is no approach to standardised testing that is inherently better than another, and each country will need to choose the option that works best in their context. However, there are a number of factors, outlined by Liberman et al. (2020), that governments can take into account when deciding on which approach to adopt.

- If exams are cancelled, how will decisions that usually require results from high-stakes exams be made?

- If exams move online, how can equal access and fair examination be assured?

- If exams are replaced by continuous assessments and teacher evaluations, governments need to ensure that teachers have access to the necessary professional development opportunities around effective and fair assessment, particularly if this form of assessment is not common in their national context and systematic processes are not yet in place.

Where teacher assessments are used to replace standardised assessments, issues around the reliability of such assessments should be considered (e.g. Johnson, 2013). Research has shown that teachers can be subject to unconscious bias and thus be unknowingly influenced by contextual factors such as students' socio-economic background, gender or behaviour (Johnson, 2013) and the use of assessment methods such as level descriptions, allow more room for subjective interpretation. Moderation could be envisioned as one approach to increasing reliability of teacher judgments,

and could additionally reduce stress levels in teachers who might not be used to providing assessments in the context of high-stakes exams.

It is worth noting that evidence suggests that student attainment is most negatively affected by student absence (for example because of illness) if students are tested shortly after their return to school, with delays to testing allowing them to catch up on what they have missed (Sims, 2020). Of course, the context here is very different, with all students away from school rather than one absent student missing learning while others continue, but this is still worth considering in the current crisis.

Planning for the mental health and wellbeing of students and staff

As discussed earlier in this report, one aspect which should not be underestimated is the impact of both school closures and the pandemic more widely on students' mental health and wellbeing. When returning to schools, business cannot resume as usual. Some students will be grieving, under stress from the financial impact this crisis has had on their families, or in some cases may have endured a prolonged exposure to abusive family members during social isolation. It seems reasonable to suggest that students will need to be monitored closely and mental health support should be increased when schools reopen. The same is true for teachers who might require additional support as a result of helping students through the challenges brought about by the pandemic, as well as managing their own stress.

Suggestions for schools, teachers and school leaders

- Consider that the youngest, most vulnerable and those at transition points in their education will require particular support.

- Be kind to yourselves. These are unprecedented times and schools, teachers and students will need time to settle into a new routine.

- Consider the long-term effects of this crisis on students and staff. Consider providing opportunities for staff members to share their worries and experiences with each other so they can support each other through this time.

- Think about changes which may need to be made to enable time for social and emotional learning and re-establishing social relationships.

- Consider the best way to respond to behavioural changes in children, which might arise as a result of stress, grief and trauma.

- Think about the support that can be offered to the children who have fallen furthest behind academically and when this support can best take place.

- Seek specific information and advice on how to support children who are bereaved or need other specific support; you may find the further reading below a helpful starting point.

06

A selection of reopening plans outlined by different countries

In this section we present a brief overview of some of the approaches different countries have outlined and have taken regarding school reopenings. While it is important to bear in mind that each national context is individual and any decisions regarding school reopenings need to take these specificities into account, they can still prove informative when considering various options regarding school reopenings. This is by no means a complete list of countries' approaches, but rather a selection based on where more detailed information was available, and the languages in which we could access the information. We are hoping to grow this section as more information becomes available from countries that reopen their schools. The case studies so far do not include examples from countries that have taken the decision to not close their schools (e.g. Sweden) as we thought that it would be most helpful to shed light on what countries have done following school closures. We do, however, want to acknowledge that this is an alternative approach that has been taken by some countries.

We aimed to consult official guidance and watch recordings of press conferences where possible. For those countries where we were not able to do so (mainly due to linguistic limitations), we had to rely on coverage via (English-speaking) news outlets, the reliability of which may vary. We therefore welcome any feedback and further insights on this and the approaches of other countries to school reopenings.

It also needs to be borne in mind that in this fast-paced time, information is continuously updated, so some of the information provided here might not be entirely up-to-date if governments have changed their approach or new information has become available in the meantime.

England

On Wednesday 29 April, Gavin Williamson, the Secretary of State for Education, was questioned by the Education Select Committee regarding plans for school reopenings in England (Education Select Committee, 2020) and outlined preliminary plans for

the reopening of schools, although he did not provide a date for when schools would reopen.

According to Williamson, the government is currently working on specific plans on how best to reopen schools, and listening to advice from a subgroup of the Scientific Advisory Group for Emergencies (SAGE) that was commissioned with finding the best available evidence on school reopenings, as well as Public Health England. He suggested that schools will reopen in stages, but did not provide any detail as to which students will return first; he suggested that schools will not remain open during the summer to make up for lost time or support the most vulnerable students. Williamson did, however, mention that the DfE is currently working with the Education Endowment Foundation to establish the exact impact of school closures on the attainment gap and what interventions would be most effective to support particularly vulnerable students throughout and after school closures. The importance of updating guidance around PPE, social distancing and other social distancing measures based on new data that becomes available was also discussed.

Information regarding school reopenings will be updated as it becomes available.

> **Key Information**
>
> Schools will reopen in stages but no further information available to date.

Austria

The Austrian Minister of Education, Heinz Fassmann, outlined Austria's plan for school reopenings on Friday 24 April 2020 in a press conference together with Prof Christiane Spiel, Professor of educational psychology at the University of Vienna.

Fassmann started the conference by outlining the difficult decision-making process in the current context due to conflicting evidence and advice from experts, as well as differing opinions of students and parents. He explained that schools will reopen gradually, starting with the oldest students on Monday 4 May; those who need to prepare for their final exams. This includes all students in their final years, students in sixth forms, colleges, those in vocational education and those doing apprenticeships.

If the number of cases and the transmission rate remain low, the second stage will start on Friday 15 May, when students from primary schools, lower secondary school year groups and special schools will return to school (i.e. all students aged 6-14). Fassmann justifies this decision by stating that the development of basic competences (i.e. numeracy and literacy) is paramount to further learning, and that distance learning is more difficult for the youngest students. Furthermore, students at transition points in their education need to be prepared for said transition and therefore need to return to school.

The third stage will start on Friday 29 May, when students in upper secondary year groups and vocational schools will return to school (i.e. students aged 15-19). Fassmann justifies the later return of older students by the fact that distance learning is working more smoothly for them, but that they should nevertheless have the opportunity to continue learning and process their experiences with their peers and teachers, which is why it was decided that they should return to school even if only for one month (schools break up at the end of June in Austria).

In order to ensure social distancing, students will return in shifts. Student groups (classes) should be split into two groups, either according to their last name so that siblings follow the same schedule, or according to another system. This would mean student groups of roughly 11 students, based on the average class size. In small schools with small classes, such a split is not necessary if classrooms are big enough to accommodate an appropriate level of social distancing.

The groups will continue to be taught in their classrooms, with Group A on Mondays, Tuesdays and Wednesdays, and Group B on Thursdays and Fridays. In the following

week, they will swap. After two weeks, both groups will have received the same amount of instruction and the system allows for timetables to remain in place. On the days where children are not taught in school, they should stay at home unless their parents are key workers, in which case care will continue to be provided for students in spaces such as school halls, for example. Such a system also means that fewer students will be taking public transport at the same time and they will not have to share desks in schools, thereby allowing for social distancing guidelines to be observed.

All subjects should continue to be taught apart from those that might be considered risky from an epidemiological point of view, such as PE (although PE outside is allowed, contact sports are not). As teaching time will be limited, curriculum requirements will be amended to reflect this change. The focus should be on core skills and content and consolidating knowledge.

Tests should not take place unless a decision between two final grades needs to be made, but final (i.e. school-leaving) exams are to be upheld. All students in primary schools will automatically move up to the next academic year in September 2020 (the Austrian school system allows for students to repeat years if their progress is considered not to be sufficient), unless their parents do not wish for them to do so. In all remaining year groups, students can also move up automatically with one negative grade (i.e. if they do not technically meet the academic requirements to move up to the next grade).

A summer school will be provided for vulnerable students who will have missed substantial amounts of their learning over this period of distance learning, although further details on the exact nature of these summer schools is not available at the time of writing.

Exceptions

If students do not feel psychologically prepared to come to schools or need to protect vulnerable family members, they are excused. The same applies for teachers who are considered part of the high-risk group or need to protect vulnerable family members. Those teachers then need to be available for online teaching.

As preschools are the responsibility of a different ministry, they were only mentioned briefly to say that they should welcome those children who needed to be in their care.

Key Information

- Schools will reopen in stages, starting with students in their final years on Monday 4 May, followed by students in primary and lower secondary schools on Friday 5 May, and finally all remaining students on Friday 29 May.

- Classes will be split in two and attend schools in shifts (Group A on Monday, Tuesday, Wednesday, Group B on Thursday, Friday in week A; in week B they swap).

- School leaving exams will be upheld albeit in an amended format.

- Masks need to be worn by students and teachers (see details above).

China

In China, the reopening of schools is based on how affected different regions are. For example, students in their final years of junior and senior high schools returned to school in China's Guizhou Province and Xinjiang Uygur Autonomous Region in mid-March. Schools in several provinces reopened on Monday 30 March, also starting with middle and high school students. In Shanghai, pupils in their final years of middle and high school returned to school and in Beijing those students taking university entrance exams in July have returned. In Wuhan, high schools are scheduled to open

on Wednesday 6 May.

Schools have enforced strict social distancing measures that include temperature taking, designated school buses, the wearing of masks, regular disinfection and a maximum of 30 students in one classroom.

A report published in TES (2020) about school closures in Denmark and China describes a couple of additional strategies that schools have put in place. For example, one school has put temperature checks in place at school entry, as well as bins to discard used masks and an isolation area should anyone be taken ill during the day.

> **Key Information**
>
> China is taking a staggered and regional approach to schools reopening, starting with students in their final years in middle and high school. Strict social distancing and hygiene measures are put in place in school.

Denmark

Denmark was the first European country to reopen primary schools, on Wednesday 15 April, after they had been closed since Thursday 12 March. All children up to the age of 11 returned to schools and nurseries across the country, but schools must respect a safety distance between desks. A couple of reports have emerged across the media that illustrate what a return to schools post COVID-19 can look like.

According to TES (2020), classes in Denmark have been split in two, are taught in rotas and teachers are not allowed to move between different classes (i.e. teach different year groups). Teachers and students have staggered lunch breaks to avoid too many people in the same places at the same time.

Teaching is also more teacher-centred than it was before, to ensure social distancing measures are adhered to. For example, carpet-time that is common in many primary settings is no longer possible and one school in the report has staggered arrival times. The frequency of handwashing has been increased and students have to bring in their own art supplies so they do not have to share with others.

One school also reports that they have moved some of their lessons outside to make better use of the space they have.

The report further notes that many primary and secondary schools in Denmark share sites, which means that currently, primary schools can make use of the additional space generated by secondary school students not being in schools.

Moreover, staff were brought into schools one day before they reopened so that they could be briefed on the new safety requirements.

> **Key Information**
>
> Children up to the age of 11 have returned to schools but classes are split in two and operate on rotas.

France

France will reopen schools progressively from Monday 11 May, according to announcements made by the Ministry of Education, Jean Michel Blanquer on Tuesday 21 April and the Prime Minister, Edouard Philippe on Tuesday 28 April. However, students will only return to their classrooms from 12 May 2020 as the first day will be reserved for the preparation of teachers (Morin, 2020)

According to Michel Blanquer's announcement, the first to return are students in their last year of preschool (grande section) as well as their first and last years of primary school. However, this recommendation is not binding and regions can take their own decisions regarding the students that should first return. They can also decide for sub-groups of children (e.g. most vulnerable students) to return earlier than their whole group (Morin, 2020). According to the plan outlined by Edouard Philippe, the week after that, middle schools in the least affected areas will return, starting with students in the first two years. At the end of May, the government will decide if students in their final two years of middle school and high school students can return to school. In any case, classes are not allowed to be bigger than 15 students at any given time.

Michel Blanquer specified in his statement that a focus should be on supporting students from disadvantaged backgrounds who will have missed out on online learning during school closures, rather than trying to teach everything that remains to be taught from a specific curriculum. The return to school will be voluntary and parents can choose for their children to stay at home. However, if they choose to do so, children will need to access distance education. Students in middle school will have to wear face masks but they will be prohibited for children in pre- and primary schools unless children develop symptoms throughout the day, in which case paediatric masks will be available in all schools. Teachers can wear masks if they cannot respect the social distancing rules.

Standardised exams (bac, brevet, etc) will be replaced by a continuous evaluation of students' performance throughout the year, with the exception of the French oral exam as part of the secondary school leaving exam, which will be maintained.

> **Key Information**
>
> Schools will reopen in stages, starting with pre- and primary schools, followed by middle school students in least affected areas, and decisions about high school students will be made at the end of May. Masks are obligatory for middle school students, but not for pre- and primary school students unless they present with symptoms during the day.

Germany

Each region (Bundesland) can decide individually when students are returning to school. In Bavaria, for example, students in their final years returned to school on Monday 27 April. On Monday 11 May students who will pass their state exams in 2021 will return to school and the rest of students will return in this academic year, albeit only in a very limited form. Representatives of the regions have come to the agreement that all students should return to school before the summer for days or weeks at a time and have developed a number of strategies to support this process. These include exceptions for vulnerable teachers and students, a hygiene plan for each school, frequent aeration of rooms, and PE only in cases where social distancing can be assured. All state exams should be upheld and each region decides when to return to school and which subjects to prioritise (Tagesschau, 2020). These suggestions were forwarded to state ministers at a press conference on Thursday 30 April (BR24, 2020).

> **Key Information**
>
> Schools will reopen in stages, starting with students in their final years, but the ultimate decisions about when and how to reopen lie with the regions. More information to become available from Monday 4 May 2020.

Greece

Greece's Education Minister Niki Kerameos announced on Wednesday that schools will reopen gradually after almost 10 weeks of closure, starting with students in their final year of upper secondary school (Lyceum) on Monday 11 May and students in lower secondary school year groups and the remaining grades in upper secondary school on Monday 18 May. The school year will be extended until Friday 12 June, and the new school year will probably start earlier, on Tuesday 1 September. Primary and pre-schools might not reopen at all before the summer, although the possibility of reopening them on Monday 1 June is being considered. If they do reopen, the school year might be extended until Tuesday 30 June. Special schools will remain closed.

Classes will also be divided into two and taught in rotas (see Austrian example above). Where classes are smaller than 15 students, they will be able to operate daily. Hand sanitisers will be provided in schools, and schools will be cleaned twice a day. Different break times will operate and canteens will be closed. The use of masks will be optional.

Teachers and students who are considered to be part of or live with high-risk groups will not need to attend school. Lessons will be broadcast live for those students who are unable to attend.

A maximum of 15 students are allowed in the classroom and a distance of 1.5m between them needs to be respected at all times. Masks are not compulsory.

University entrance exams will start on Monday 15 June for Lyceum students and Tuesday 16 June for vocational students.

> **Key Information**
>
> Schools will reopen gradually from Monday 11 May, starting with students in their final years, followed by all remaining students in secondary schools. Classes will be split in two and teaching will operate on a rota. Masks are not compulsory.

New Zealand

According to information published on the website of the New Zealand Ministry of Education on Monday 27 April 2020, the country was Alert Level 3 which will last for two weeks from Tuesday 28 April. A review will take place on Monday 11 May.

At this level, all children and adolescents who can stay at home should do so and all children will have access to distance learning. Early learning services were opened on Tuesday 28 April and schools up to Year 10 on Wednesday 29 April, but only for those students who need to attend. The guidance further outlines that schools will have 'school bubbles' to ensure everybody's health and safety, which might affect the classrooms students are in and the teacher who is teaching them. Some classes, such as sports, technology or food technology may not be available.

Students in Years 11-13, as well as most university students, will continue to study remotely.

> **Key Information**
>
> • Students who can stay at home should do so.
>
> • Early learning services for those in need were opened on Tuesday 28 April, and schools up to Year 10 on Wednesday 29 April. The situation will be further evaluated on Monday 11 May.

The Netherlands

The Netherlands are preparing a gradual return to school from Monday 11 May, starting with children in primary schools (including primary special schools). Classes will be split in two so students will attend school for about 50 per cent of the time and engage in distance learning on the remaining days. The final decisions on how to arrange these measures lies with individual schools. Students in primary special schools may attend school every day and those students who usually attend after school care can continue to attend this. Parents are asked to take children to school by foot or by bike to avoid crowding of public transport.

Secondary school students will gradually return from Tuesday 2 June, but no detailed information about the staggered return is available. Students continue to be taught via distance learning. All national exams have been cancelled for this school year, with pupils able to gain their school leaving certificates based on school exams. Schools will be allowed to open to enable students to sit their final school exams if necessary.

Schools for secondary vocational education are closed and students are taught via distance learning.

> **Key Information**
>
> Students are returning gradually to school, starting with primary school students on Monday 11 May. Classes will be split in two and shift-teaching will be implemented.

Countries where schools are likely to remain closed until September

According to a Eurydice report dating from Thursday 2 April (European Commission, 2020), Malta has announced that schools will remain closed until the end of the school year. Italy has also announced that schools will not reopen before September, but final exams will be upheld in an amended format (Italian Ministry of Education, 2020), and the reopening of nurseries and pre-schools from June is currently being considered - albeit with much smaller groups of three to six children who would not be allowed to bring their own toys with them and with teachers wearing masks (Fregonara, 2020). In Spain, schools will remain closed until September, with some exceptions; from Monday 25 May, children up to the age of six whose parents are key workers and those at the end of an education cycle can go back to school on a voluntary basis (El Mundo, 2020.)

> **Summary of case studies**
>
> Although these case studies illustrate the wide range of different approaches that countries have taken to reopening schools, they also highlight some commonalities. Those countries that have chosen to reopen schools have opted for a staggered approach to reopening. However, countries differ regarding the groups of students they first admitted back into schools. While some countries have focused on students in their final years, others have opted for younger students, generally on the basis that they will have had more difficulty following online classes and that their care might be a bigger disruption for parents who are working. Countries have also taken vastly different decisions regarding final exams but where these were upheld, affected students tend to be the first ones to return to school (e.g. Austria or China). Many countries have opted for an approach where classes are split and taught following a rota to reduce the overall number of students in schools. This appears to be the least disruptive approach as timetables can be maintained. Some countries have opted for obligatory face masks to be worn on school premises (although not inside classrooms) while others have not, and some have highlighted important age differences that need to be taken into account. While older students might well be able to wear face masks, younger children might struggle to do so. One aspect that was not mentioned here is that of deaf children who might rely on lip-reading. If their teachers' mouths are covered by face masks, they would not be able to

do so. As more data on the role of children in community transmission of COVID-19 becomes available, the effectiveness of face masks in schools contexts will need to be reconsidered.

Another important aspect to note is that several countries have made allowances for students and teachers who belong to high-risk groups, live with a member of a high-risk group or simply cannot or do not want to return to school out of fear that they might get infected or due to other related mental health issues. It is crucial that the mental health and wellbeing of students and teachers is considered in any approach to school reopenings.

It is also paramount to note that two of the most affected countries in Europe - Italy and Spain - have chosen not to reopen schools for the general population before September (ECDC, 2020). Given that the UK also counts towards the most affected countries in Europe (ECDC, 2020), decisions about school reopenings need to be taken very carefully with the potential risks to students and teachers and the wider population taken into account.

The examples also highlight some practical considerations that need to be taken into account before schools can reopen, whenever that may be. How will students arrive at schools? How will their arrival be managed? Will canteens reopen? How will children be managed during break times? These and many other questions need to be considered carefully in preparation for schools to reopen.

Conclusion

This report clearly shows that school closures can be an effective part of a more comprehensive approach to pandemic control. However, they come at high academic and socio-emotional costs, particularly for the most vulnerable students. It is therefore understandable that countries aim to reopen schools as soon as it is safe to do so. However, it is clear that school reopenings should not be rushed, in order to avoid a second wave of infections, and that they need to be planned carefully. A staggered return to schools with priority given to younger students, those at transition points in their education, the most vulnerable and those approaching high-stakes exams, appears to be the approach favoured by most countries and the German Academy of Sciences Leopoldina.

While students' learning is undoubtedly important, their own and their teachers' physical and mental health needs to be taken into account when planning their return to schools. Schools cannot return to business as usual. It is important to remember that positive school environments can, over time, mitigate the negative impacts of natural disasters and pandemics (Barrett, Ausbrooks and Martinez-Cosio, 2012), but that students and school staff will need ongoing support and careful planning to successfully tackle the challenges that lie ahead.

Finally, and as the *Framework for Reopening Schools* (UNESCO et al., 2020) suggests, it is paramount to collect evidence on how students, parents and teachers are coping with the current situation, to inform plans about reopening. Such consultations should include stakeholders' views on the current situation, the practicalities around reopening schools, the feasibility of some suggestions such as the reduction of class sizes, which groups should be prioritised when schools reopen, the mental health of students and teachers and many other issues that were raised in this report. Teachers and headteachers are best placed to discuss with policy makers the space constraints in schools that might limit the possibility of smaller class sizes, potential safeguarding issues around reduced/staggered school days, or additional support staff who might be needed to safely manage staggered break times. As this report shows, the decision-making process around a return to school is highly complex and needs to take the best available evidence from a range of disciplines into account. But most importantly, it needs to weigh up the risks and benefits of school closures to ensure the health and wellbeing of all students and staff members.

Recommendations

- Consider how best to support children from more disadvantaged backgrounds, who may have fallen disproportionately further behind than their less disadvantaged peers. This support may involve ensuring they have the means to access online learning, supporting students in accessing equipment and materials needed for home learning, or providing additional individual or group tuition.

- Ensure that distance learning practices include features of effective teaching such as clear explanations, scaffolding and feedback, as well as opportunities for safe peer interaction where possible.

- Take opportunities to support and guide students in becoming more independent learners, such as providing checklists, plans and opportunities to reflect on their learning.

- Consider which subjects are likely to be affected most by a lack of face-to-face instruction and how this can be mitigated both during school closures and once schools reopen. Research suggests that particularly affected areas of study may be spelling, grammar, reading, maths and physics but other subjects such as arts, philosophy or psychology might provide students with opportunities to process past events and thus be particularly beneficial in the current context.

- Communicate with the future year groups and schools that students are transitioning to, in order to identify and fill any missed gaps in the curriculum which could leave students vulnerable. For example, ensure that students who may have missed their sex and relationships education in Year 6 receive this when they transition to secondary school.

- Support parents in monitoring and looking after their child/children's mental wellbeing. This includes directing parents toward expert advice and resources on recognising and responding to stress/trauma and building resilience.

- Increase opportunities in the curriculum, and in school routines and structures, to promote socio-emotional learning.

- Create emotionally supportive environments for returning pupils and staff by being attuned to their feelings, creating a positive, inclusive atmosphere and promoting self-regulation.

- Consider the training and guidance teachers and other school staff will need to best support students who have suffered bereavement, stress and/or trauma.

- Be aware of secondary trauma and ensure teachers and other school staff have access to support structures which enable them to look after their own mental health.

- Clearly, the health of both students and staff - including those in vulnerable groups - and of their family members need to be taken into account in any consideration of opening schools, as well as the role of school closures in controlling the spread of the virus. Different approaches are being taken to this internationally, with some of the most affected countries choosing to close schools until September because of ongoing concerns over health risks.

- Make sure to consider the practical implications of social distancing measures in schools and how these might differ and be adhered to by age group.

- Practitioners should be consulted to ensure that any approach to school reopenings takes the practicalities of schools into account.

Further Reading

The impact of absence, summer learning loss and school closures

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Online and distance learning

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Wellbeing and mental health guidance and research projects

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Holmes EA, O'Connor RC, Hugh Perry VV et al. (2020) Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. Lancet Psychiatry.

Supporting children with grief, stress and trauma

Child Bereavement UK Supporting bereaved children and young people.

Cruse Bereavement Care Get help – for schools.

Winston's Wish Supporting children through coronavirusSupporting children through coronavirus.

The National Child Traumatic Stress Network (NCTSN) (2008) Child trauma toolkit for educators. NCTSN

World Health Organization (WHO) Helping children cope with stress during the 2019-nCoV outbreak. WHO.

Other Chartered College of Teaching resources

Chartered College of Teaching (2020) TeachTogether – sign up today!

Chartered College of Teaching (2020) COVID-19 support: Supporting and connecting you and your colleagues.

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