Education in times of crisis: Effective approaches to distance learning

Sharing teachers' expertise and experiences

Lisa-Maria Müller and Gemma Goldenberg

CHARTERED COLLEGE OF TEACHING

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The Chartered College of Teaching is the professional body for teachers. We are working to celebrate, support and connect teachers to take pride in their profession and provide the best possible education for children and young people. We are dedicated to bridging the gap between practice and research and equipping teachers from the second they enter the classroom with the knowledge and confidence to make the best decisions for their pupils.

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Executive Summary

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Evidence-informed practice requires the combination of research evidence with teacher expertise whilst taking the local context into account (see Figure 1**). During the ongoing COVID-19 outbreak and resulting (partial) school closures, the main source of evidence to plan distance learning for teachers and policy makers was past research that was collected during planned distance learning and mainly in higher education settings (Müller and Goldenberg, 2021; EEF, 2021). It is paramount that this past research evidence is combined with insights from teachers who have been implementing distance learning during partial school closures to gain a full picture of what works in emergency remote teaching.**

Figure 1: Evidence-informed practice (Scutt, 2018)

This report therefore presents findings from a research project with nearly 400 teachers to complement existing research findings and capture teachers' views, experiences and innovations. Teachers completed an online survey and participated in online focus groups in spring 2021 to capture their experiences with distance learning and determine how far these experiences map onto existing research evidence on effective approaches to distance learning. Results are presented as general trends across phases but also take a closer look at phase-specific differences (i.e. primary vs. secondary school), practical subjects (i.e. the arts, PE) and students with special educational needs and disabilities (SEND), thereby providing important new insights that have largely been missing from existing research.

Approaches to distance learning

Results suggest that the most effective approach to distance learning may be phase-dependent with pre-made asynchronous and paper-based materials being more commonly used in primary settings, whilst live teaching was more popular in secondary school settings. Concerns about excessive screen time, limited digital literacy and the need for more adult supervision were all stated as reasons why paper-based and asynchronous methods may be particularly effective and important with younger students. The balance between live and asynchronous, on- and offline methods should thus be considered in policies around distance learning, making sure that live teaching is not automatically considered to be the most engaging or effective form of distance learning for all students.

Student progress during distance learning

Overall, roughly one third (38%) of respondents felt that their students had made about the same amount of progress during distance learning as they would have during face-to-face teaching and a small minority even felt that their students had made more progress. This is in line with past research findings which show that distance learning can be effective if students are engaged and can access their learning (Cavanaugh et al., 2004; EEF, 2020).

However, primary school teachers appeared more concerned about their students' progress than secondary school teachers. Only about one third (37%) of primary school teachers stated that their students had made at least around the same progress in distance learning as they would have in face-to-face teaching, as opposed to over half (51%) of respondents from secondary schools. This suggests that younger students may have been less able to access distance learning than their older peers. This implies a more heterogenous picture concerning student progress and provides important data to counter some of the prevalent negative discourse. While some students will have been able to access and benefit from distance learning, others will have been negatively affected by (partial) school closures. Recovery will thus require personalised approaches which consider students' personal circumstances during lockdown. Time for teachers to determine where students are in their learning, combined with high-quality teaching for all that takes into account their starting point may thus be a more appropriate way forward than rushing into 'catch-up' (Moss et al., 2020).

Barriers to effective distance learning

In addition to the necessary access to devices that was discussed in length throughout this crisis (Müller and Goldenberg, 2020; Dhawan, 2020) and which has been the focus of many government policies, students', teachers' and parents' digital literacy skills are essential prerequisites for effective distance learning. It is thus paramount that all stakeholders receive adequate digital literacy training to ensure that they know how to plan and access online learning. The move to distance learning was also associated with an increase in workload for many teachers, which was partly due to teachers' needing to upskill themselves in little to no time, and partly due to parental and governmental expectations around live teaching and marking. In order to avoid an unnecessary increase in workload, it is important that advantages and disadvantages of live and asynchronous online teaching are weighed up and communicated clearly and that alternatives to written assessment are incorporated. High-quality, pre-made

asynchronous teaching materials also have an important role to play in alleviating teacher workload and should be made available more widely. It should also be considered how these materials can be rendered more appealing for secondary school teachers, who used them significantly less according to our data.

Feedback and assessment

Teachers used a wide range of feedback and assessment strategies that have previously been described as effective during distance learning. Two thirds of respondents stated that they provided feedback at least about as frequently in distance learning as they would have during face-to-face teaching. This opposes research suggesting that students may receive less feedback in an online learning environment as opposed to face-to-face teaching (Means et al., 2009). While teachers noted the lack of subtle feedback such as facial expressions and gestures, which was considered a major challenge, they made use of a range of more explicit feedback strategies. The most effective of these strategies according to teachers in this project were verbal feedback, low-stakes quizzes, feedback on classwork and questions/ discussions.

A focus on verbal feedback may be particularly beneficial for younger students, and comes with the added benefit of potentially decreasing teacher workload. This study showed that digital tools allow teachers to record verbal feedback for their students which they can then listen to in their own time and as often as they want, an added advantage of distance learning. Automated feedback was generally used less by respondents from primary schools. This indicates that younger students may rely more heavily on teachers interpreting and personalising feedback for them, which would suggest that teaching presence may be even more important in primary settings. This hypothesis is further supported by the finding that questioning and discussions – key strategies to develop teaching presence in distance learning (McAleavy and Gorgen, 2020) – were considered more effective by respondents from primary settings, although they were used less in this context.

While self- and peer assessment has been found to be an effective feedback strategy in distance learning, one third of respondents in this study considered it to be an ineffective method. One explanation for this finding could be that younger students require more teacher guidance during self- and peer-assessment, which may have been less available during distance learning.

Collaborative learning

Over half of respondents used collaborative learning during distance learning but most used it less frequently than they would have done during face-to-face teaching, which confirms that collaborative learning is likely more challenging to implement with school-aged children than adults in distance learning (Yates et al., 2020; Rannastu-Avalos and Siiman, 2020). Secondary school teachers used collaboration significantly more frequently than primary school teachers, which suggests that group and pair work may be particularly difficult to implement with younger students. Issues around safeguarding and limited access to technology were raised as major barriers to collaborative learning. Overall, pair work was considered to be most effective and more so than collaboration in bigger groups. Whilst oral group work was considered slightly more effective than written work, the latter did seem to benefit students who either had difficulties engaging with oral discussions due to SEND or who felt more confident writing than speaking. Respondents from primary school also rated written collaboration such as working on shared documents or presentations as less effective than respondents from secondary schools.

Instructional scaffolding

Instruction scaffolding was used extensively during distance learning. Nearly 90 per cent of respondents had used it and nearly half had used it more frequently than they would have during face-to-face teaching. Instructional videos were considered the most effective strategy and teachers combined self-made and existing videos, with primary school teachers showing a strong preference for pre-made resources. Overall,

respondents noted that the recording and use of instructional videos had improved their practice of instructional scaffolding more generally and many will continue to use recorded resources for students to access for additional support. Overall, teachers mainly provided procedural and conceptual scaffolding (Jumaat and Tasir, 2014) to support students in their understanding of key concepts and help them understand the digital technology that was available to them. Findings from this section lend further support to the finding that instructional scaffolding in online learning environments does not necessarily have to take place 'live' but that recorded video resources can provide equally if not more effective support (Müller and Goldenberg, 2021).

Metacognitive scaffolding

Compared with instructional scaffolding, metacognitive scaffolding was used substantially less. Just over half of respondents reported using metacognitive scaffolding during distance learning. This is in line with previous studies on distance learning in England (Lucas et al., 2020) and noteworthy considering the high effectiveness assigned to metacognitive strategies in distance learning (EEF, 2020; Doo et al., 2020; Kim and Lim, 2019). Given their relatively low use yet high effectiveness in distance learning, it seems advisable that materials for asynchronous distance learning as well as teacher CPD focus more explicitly on metacognitive strategies.

Those teachers who did use metacognitive strategies in our study (just over half), considered 'supporting students in planning and managing tasks' and 'reviewing and evaluating their learning' to be the two most effective strategies, followed by prompts that helped students to reflect on their learning. Teachers commonly used weekly schedules and task lists to help guide students through their independent learning tasks. Self-assessed quizzes and written learning objectives together with exemplars were used to help students review and evaluate their learning independently. Virtual posters or questions on powerpoint presentations were used to support students' reflection processes but some teachers also highlighted the lack of prompts that they would usually have available in their classrooms. Additional strategies discussed by teachers involved the explicit teaching of writing and editing processes and note-taking.

Supporting student wellbeing

Past research has highlighted the negative impact the COVID-19 outbreak and resulting school closures has had on some student groups and teachers (Müller and Goldenberg, 2020; ImpactEd, 2021; Guessoum et al., 2020). Focusing on wellbeing as part of distance learning provision is thus essential if effective learning is to take place (CESE, 2020) and teachers have employed a range of strategies to support students' socio-emotional development during distance learning. The most effective strategies to support student wellbeing included regular phone calls or messages to students and providing space for them to interact with peers. This confirms the crucial role of social contact in distance learning settings to counter the well-documented risk of students feeling isolated (Mbukusa et al., 2017; Croft et al., 2010; Doyle and Hernandez-Cruz, 2019). Online spaces where students could interact with their peers were considered significantly more effective by participants from primary schools, which indicates that older students may have other channels such as mobile phones or social media to interact with their peers whilst younger students rely more heavily on the social contacts that are facilitated by schools.

Teachers also found regular, extended breaks between lessons, including screen-free days to counter the potential negative impact of extensive screen time, to be effective in supporting students' wellbeing. This further supports previous research findings highlighting the need for regular screen breaks during distance learning (Mheidly et al., 2020).

Encouraging students to spend time outdoors and to get physically active were also considered to be important strategies, which further supports findings around the importance of physical activity and time outdoors for mental health (Bratman et al.,

2015; Wells and Evans, 2003; Roberts et al., 2019). It is also possible that 'green time' (outdoor time in nature) acted as a buffer against too much screen time (Oswald et al., 2020), helping students to find a healthier balance. However, these strategies appeared to rely more heavily on adult support for younger students. It may thus be particularly important to ensure time for physical exercise is included in planning online learning as not all younger students will have the necessary adult support available to exercise outdoors outside of regular lesson times. Maintaining the positives of school life such as assemblies and celebrations was stressed as integral to student wellbeing by many participants in this study and was also important to encourage student engagement.

Supporting student motivation and engagement

Motivation and engagement are key for learning, yet over half of respondents felt that their students were less engaged during distance learning than during face-to-face teaching. They found that regular feedback, supporting a sense of competence and self-efficacy, as well as granting students flexibility and autonomy over their learning were key strategies in supporting students' engagement with distance learning. This is in line with past research findings that highlight the link between performance beliefs, motivation and performance (Bandura, 1993; Wigfield et al., 2014) and emphasise the importance of agency for motivation (Yates et al., 2020).

It was noted that turned off cameras and distractions from the internet that students had at their fingertips presented challenges to engagement. While privacy and safeguarding concerns, 'Zoom fatigue', anxiety or stress have been raised as valid reasons for students to keep their cameras turned off (Moses, 2020), data from this study indicates that teaching to 'a screen full of black squares' is likely to negatively impact student engagement and learning. Teachers rely on subtle feedback from students such as facial expressions or gestures which indicate if students are following their lessons or might require additional support, none of which is possible without seeing students. Policies for camera use should thus weigh up the challenges and benefits of having cameras turned off and possibly consider the use of background filters if safeguarding and privacy are a concern. Where students are simply anxious to speak in front of a whole classroom, it might be beneficial to spend some time on formulating clear expectations about students' reaction to peer contributions or to offer them alternative ways to contribute.

Supporting students with SEND during distance learning

While some students with learning difficulty and/or disability struggled with the move to distance learning, others benefitted from the opportunity to organise their own learning and to study in a more conducive learning environment. This is in line with past research findings showing that distance learning can be a viable alternative for some students with SEND but also comes with inherent and sometimes additional challenges for them (Asbury et al., 2020; Toseeb et al., 2020).

Even though each SEND is different and students' needs are individual, some overarching benefits of distance learning included the opportunity to access content repeatedly, the availability of spellcheck and accessibility software/technology (i.e. connecting hearing devices to laptops, captions, screen readers), a more conducive learning environment and the possibility to self-pace their learning.

In contrast, challenges included less contact with teachers, more distractions from the online learning environment, more information to process, a stronger reliance on the written word – even though this benefitted those with hearing impairments, and poor audio or video quality. While an individualised approach that considers students' needs rather than merely their diagnosis is necessary, the data does seem to suggest that students with attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) benefit particularly from clear routines, timetables and instructions, and students with dyslexia could be supported with dual coding and software that allows them to listen to rather than read feedback and texts. Students with visual or hearing impairments can be supported by making use of available accessibility software such as captions, magnifiers, screen readers or adapting font sizes. For students with

developmental language disorder (DLD), regular speech and language support and small-group interventions as well as recorded content can be beneficial. The sample size for teachers who experienced working with students with Down's syndrome is too small to draw any meaningful conclusions but parental support appears to play a particularly important role.

Experiences, challenges and tips when teaching online and in person simultaneously

Teaching online and face-to-face simultaneously was one of the major challenges cited by participants in this study and their experiences are largely in line with previous research on blended learning (Weitze et al., 2013; Huang et al., 2017). Teachers highlighted the need for additional technology such as tracking cameras and microphones as necessary prerequisites for blended learning, which in most cases were not available to them. This led to low engagement from students online as they could not follow the action, and teachers had to split their attention between students in class and at home. Unless all classrooms are equipped with additional microphones and cameras that would enable all students to engage in the learning process, blended learning appears to combine the worst of both worlds and students may be better served by a combination of asynchronous and small-group instruction.

The future of teaching

Finally, teachers were asked how their recent experiences with distance learning had impacted their views of the future of teaching and which aspects of distance learning they would like to take forward. The opportunity for students to access content repeatedly, increased flexibility for students and teachers and fewer behaviour issues and distractions were raised as the main benefits of distance learning. For primary school teachers, ease of communication with parents was raised as an additional benefit. This likely refers to the easier scheduling of 1:1 conversations but also parental evenings which, according to many teachers, benefitted from a move online as it limited travel time and allowed parents to simply log on for their slot instead of spending a whole evening in school, which in turn improved attendance. Participants largely agreed on the benefit of recorded lessons, which most wanted to hold on to as a way of supporting students during independent learning, helping with differentiation, and when they are unable to attend school. The ability to call on additional remote staff for more specialist teaching was raised as a major advantage for settings that otherwise would not have access to such human resources. The majority of respondents also felt that distance learning has had a positive impact on those students who found more independent approaches to learning more motivating. Many want to continue to develop their students' independent learning skills going forward. Despite major challenges for teachers and students, this period of distance learning has thus also brought some positive change and innovation into classrooms, which are likely to benefit students, teachers and parents for years to come.

Introduction

Distance learning during the COVID-19 pandemic has created multiple challenges and opportunities for both students and teachers. While some students enjoyed the distance learning experience and developed their independent learning skills, others had limited access to online learning, struggled to self-organise their learning and missed the direct contact with teachers and peers. Teachers had to upskill themselves in little to no time and without much support in many cases, which led to a substantial increase in workload but also allowed them to explore innovative pedagogical approaches and tools, some of which have come to stay.

It is highly likely that in many cases, remote and online teaching will continue in some form, as part of schools' and universities' educational offer. For this reason, it is important that we continue to analyse, question and explore the most effective ways that distance learning can be implemented and the ways in which it can support students. The past 18 months have provided the opportunity for an unexpected, worldwide educational experiment, from which we must reap and share the learning that has taken place.

Our previous report 'Effective Approaches to Distance Learning' (Müller and Goldenberg, 2021) collated research from around the world, reviewing the existing literature regarding best practice in distance education and outlining three key pedagogical features of effective distance learning, namely: scaffolding and metacognition, collaborative learning and assessment and feedback. We also made evidence-based recommendations for supporting students' wellbeing and engagement during distance learning.

However, within the report we acknowledged that the research base available for us to draw on consisted mainly of research from higher education settings, and there was a lack of research conducted with younger students, and students with SEND.

Furthermore, previous distance learning research was not conducted during a pandemic. The numerous practical implementation issues and obstacles when unexpectedly teaching remotely during a pandemic mean that conditions do not

match the situations under which distance learning would usually occur. These factors limit the extent to which existing research findings may be applicable to the emergency remote teaching that took place during school closures in 2020 and 2021.

It is therefore essential to speak directly to teachers who have experienced educating their students remotely during this pandemic, and to glean from their insights and reflections what has worked well, what has not been effective and how this maps against the best practice recommendations from existing research.

In order to complement our previous report, we conducted our own research project, speaking directly to teachers and school leaders about their experiences of distance learning, and capturing their innovations and reflections.

Thus, the aims of this report were to:

- consider the extent to which teacher viewpoints on effective remote learning concur with existing research literature
- analyse phase-specific differences regarding effective approaches to distance learning
- capture, celebrate and disseminate teachers' distance learning innovations, tips and practical strategies
- amplify teacher voice and provide new perspectives by speaking to teachers from around the world and across all age phases, as well as gathering the experiences of teachers working in SEND, alternative and primary settings, and teachers of practical subjects such as PE, dance, music and art, for whom there has been little existing research to draw on
- share teachers' views on which aspects of distance learning they would like to maintain going forward, and how the experience of distance learning may have changed their views and ideas about the future of education
- create research-informed guidelines for future emergency remote teaching.

The report was designed so that each section can be read separately, allowing readers to dive in and out of the sections that are most relevant to them at any given time.

01

Methodology

We created an online survey to gather teachers' views and experiences. All survey respondents were given the option to register their interest in participating in follow-up online focus groups. Our report is based on findings from the survey and focus groups.

Survey

Prior to designing the survey, we conducted an online focus group with members of the Chartered College of Teaching. In this group we explored the aspects of distance learning they thought were most important to discuss and how best to recruit a diverse range of participants.

Based on the focus group responses and findings from our previous distance learning report, we created a survey using an online survey tool, which consisted of 104 questions. The questions were piped, meaning that respondents answered only the sections that applied to their context/experience. Informed consent was a prerequisite to accessing the survey. If participants did not consent to the processing of their data, they were not able to participate. A copy of the questions is available on request.

A link to the survey was shared in newsletters with members of the Chartered College of Teaching, on social media and via partner organisations to attract teachers beyond the Chartered College membership. Responses were collected in April and May 2021.

After removal of incomplete and disqualified responses, the final dataset consists of responses from 387 participants. The majority of participants were UK based (81%), female (68%), classroom teachers (45%), middle (25%) and senior (17%) leaders as well as headteachers (14%) with more than 10 years of teaching experience who were aged between 35 and 54 (70%) and worked in primary (32%) and secondary (50%) education. Thirty-six per cent of participants worked in schools where more than 20 per cent of students were eligible for Pupil Premium funding whilst 20 per cent of participants worked in schools with less than one percent of students eligible for such funding. Forty-two per cent of participants worked in schools where the percentage of pupils who speak a language other than the majority language at home exceeded the UK average of 20 per cent (DfE, 2021a), and one quarter of participants worked in schools where more than half of students spoke a language other than

the majority language at home. In contrast, one quarter of participants worked in schools where less than five per cent of students speak a language other than the majority language at home. Detailed participant information is available in appendix A.

Focus groups

Ninety-six survey respondents registered their interest in taking part in the focus groups. In addition, 106 individuals signed up for focus groups via a separate online form that was shared on social media as well as in Chartered College of Teaching member newsletters and via partner organisations. From these, 52 participants took part in the final focus groups. Detailed participant characteristics are available in appendix B. Nine groups were formed, consisting of:

- teachers based outside the UK
- two focus group with primary school practitioners
- secondary school class teachers and middle leaders
- secondary school senior leaders and headteachers
- music and arts teachers
- drama teachers
- PE and dance teachers
- SENCOS, teachers and leaders from special schools and alternative provision.

Each online focus group lasted for one hour. Facilitators were trained employees of the Chartered College of Teaching who used a scripted set of questions that were sent to participants in advance. A full set of the questions can be found in appendix C.

Focus group sessions were recorded, anonymised and transcribed, then uploaded to MAXQDA. Themes were identified inductively and transcripts were then coded according to those themes.

Limitations

Self-selection instead of probability sampling was used for the survey and the focus groups, although the final focus group participants were selected to represent a wide range of experiences and settings. Moreover, the survey and invitation to join focus groups was mainly distributed through the Chartered College of Teaching and whilst participation was not limited to Chartered College members, they are likely to be over-represented. This also means that the sample is not necessarily representative of the whole teaching population. It should also be noted that the data on student progress that is presented here is based on teachers' perceptions rather than student self-report or a direct assessment of their progress and perceptions of learning during lockdown. Results from studies collecting such data should be used to complement the data presented here to gain a more conclusive picture. Most respondents who were based outside of the UK work in British or international schools, so while their lived experiences of lockdowns and support from the national government of the country they live in will differ, their views are possibly not representative of teachers working in state schools in those countries. Furthermore, only single coding was used for the qualitative data analysis due to constraints on time. Focus groups were conducted online due to the COVID-19-related social distancing rules, which enables a better geographical spread but can potentially influence group dynamics. Splitting the sample into primary and secondary to determine phase-specific differences reduced the sample size for each phase substantially. Follow-up studies with more participants should further investigate any trends presented here.

02

Approaches to distance learning

Data collection for this report took place in the spring term 2021 with participants reflecting on their experiences of distance learning across all periods of (partial) school closures during the year of March 2020 to March 2021.

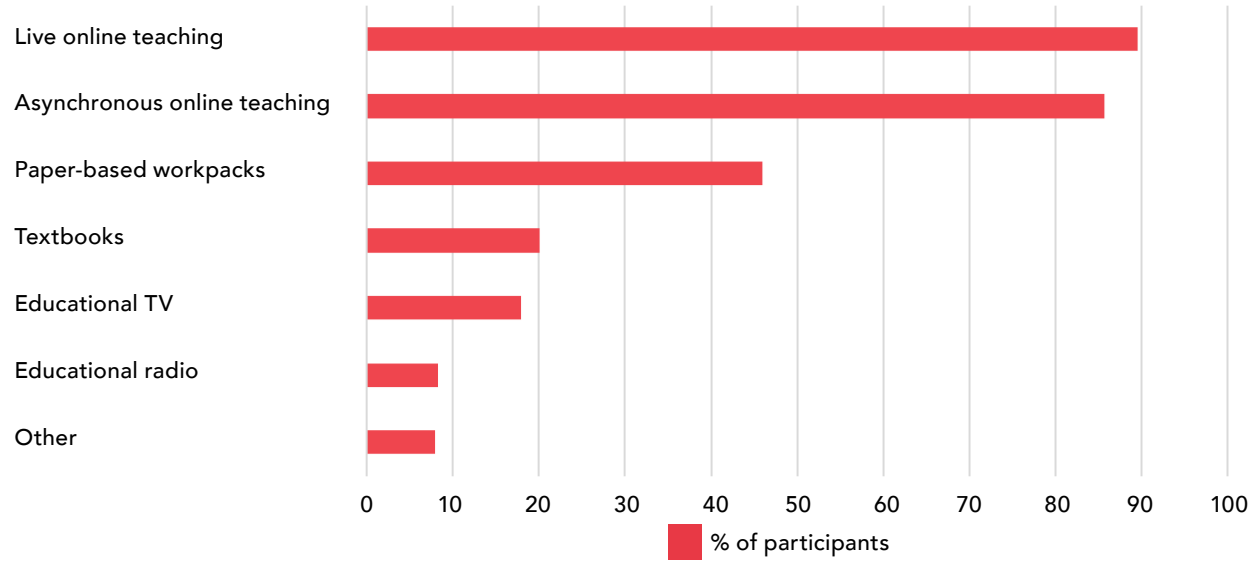

Figure 2: Approaches to distance learning across phases (n[1] =363[2])

[1] i.e. number of respondents answering this question

[2] Phase comparisons focus on primary vs. secondary data only as these were the biggest groups of respondents and thus allowed for the most meaningful analyses. Aggregated data, on the other hand, encompasses a broader range of participants, including those who work in early years, infant, junior and middle schools, FE and HE (ITT lecturers). T-tests with a confidence interval of 95% were used to calculate if differences between two groups were statistically significant. Results are described as statistically significant if $p < 0.05$. Phase-specific differences are only reported when results were statistically significant.

During this period, only two per cent of respondents did not implement any distance learning as their schools stayed open for all students (i.e. early years settings and special schools). Of the remaining 98 per cent who did implement some remote learning, the vast majority combined live and asynchronous online teaching. Live teaching was implemented by nearly 90 per cent of respondents whilst 86 per cent used recorded materials and lessons to support their students' learning. Paper-based work packs were used by 46 per cent of survey respondents and 20 per cent used textbooks. Educational television and radio were less common in our sample and were only employed by 18 and eight percent of participants respectively. Other approaches included online books and quizzes; external live lectures; online resources shared via learning platforms and websites; doorstep and telephone teaching; 1:1 support (via WhatsApp or phone); physical tasks (e.g. gardening, cooking, yoga); external tutoring; free online digital learning games (e.g. Duolingo); PowerPoints with voice over; emails to students with worksheets to be completed, scanned and returned; and SEND-specific support.

Overall, only 35 per cent of respondents to this question used pre-made asynchronous materials that were provided by their government or private companies (e.g. Oak National Academy, White Rose Maths etc.) as part of their distance learning. The majority of these (72%) used the materials provided by Oak National Academy and over 90 per cent found these materials to be effective in supporting their students' learning.

Phase-specific differences

Some interesting phase-specific differences emerged from the dataset. Respondents working in primary schools reported using slightly less live online teaching than colleagues from secondary schools (77% vs. 94%) but used more asynchronous online learning (92% vs. 82%). There were statistically significant differences between phases in the use of paper-based work packs, which were used by 67 per cent of primary but only 38 per cent of secondary school teachers in our sample. For all other resources, differences were marginal.

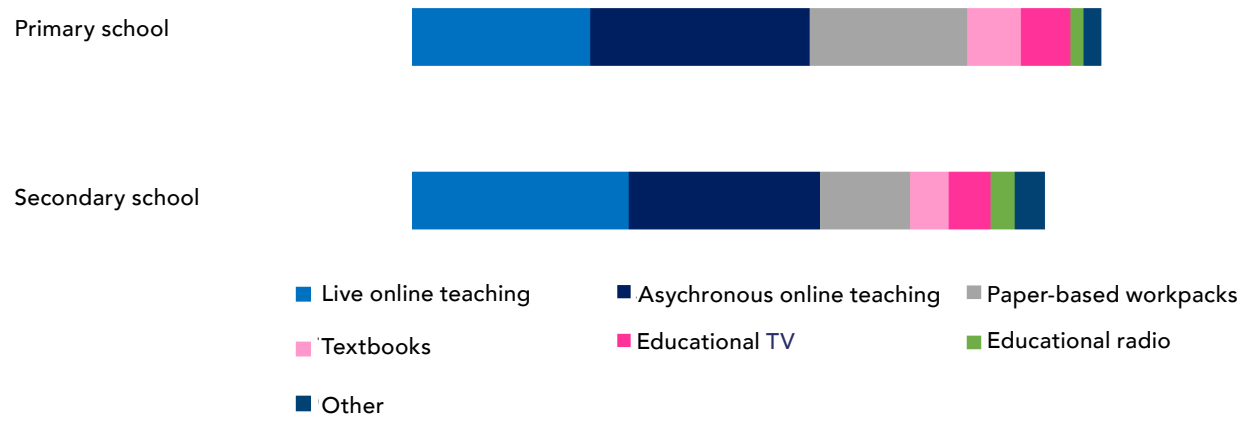

Figure 3: Phase-specific differences in approaches to distance learning (n=128)

There were also statistically significant differences between primary and secondary schools regarding their use of pre-made online materials. While 70 per cent of respondents from primary schools had used these resources, only 23 per cent of respondents from secondary schools had used them.

There were also significant differences between phases regarding the use of different asynchronous learning materials. Of those who did use pre-made materials, respondents from primary schools used Oak National Academy and White Rose Maths roughly equally (80% vs. 83% reported using it) whilst secondary school teachers used Oak National Academy significantly more (95% vs.16%).

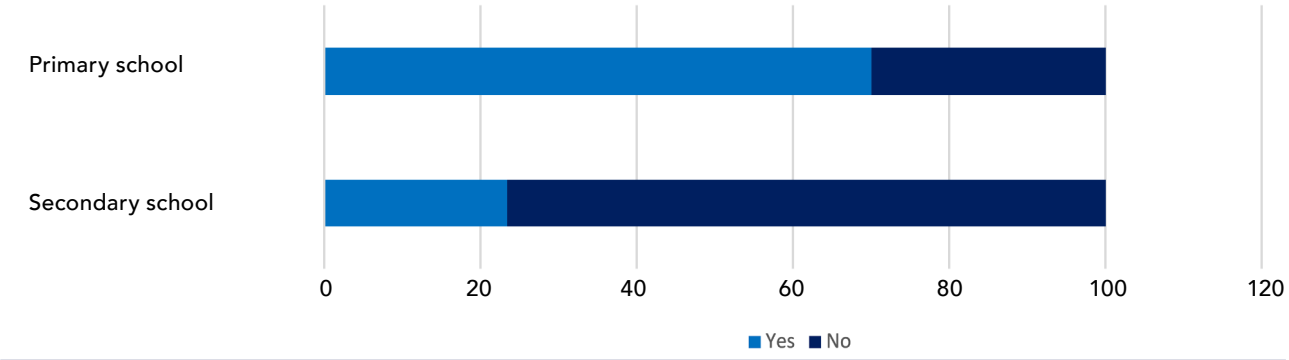

Figure 4: Use of pre-made asynchronous teaching materials (n=125), split by phase

This indicates that the most appropriate approach to, and materials for, distance learning are likely to be phase dependent to some extent. For younger students, paper-based work packs and asynchronous teaching may sometimes be more appropriate as they can be arranged around available adult support, and non-digital approaches take into account concerns about excessive screen time for younger students.

Advantages and disadvantages of live and pre-recorded lessons

The table below summarises some of the comments made by teachers in our survey and focus groups, regarding the pros and cons of live versus recorded lessons. A mixture of both formats allows for both sets of 'pros' to be utilised and cons to be avoided.

Live lessons		Pre-recorded lessons	
Pros	**Cons**	**Pros**	**Cons**
Able to vary pace and content 'in the moment' to match student needs. Able to question students, pick up misconceptions more quickly and tailor pedagogy accordingly. Maintains a sense of class community and opportunity for social interaction. Can be beneficial for motivation and engagement.	Relies on teachers and students having adequate internet connectivity, devices and quiet spaces. Lack of flexibility regarding when lessons are accessed. Relies on teacher confidence and willingness to present 'live', often in front of parents as well as students. Costly in terms of teacher time during the school day. Too much screen time if there are too many live lessons in one day.	May reduce workload by allowing multiple teachers to use the same recordings. Flexibility regarding when lessons are accessed by students. Students are able to pause lessons and rewatch sections for clarity. Ability for teachers to re-record lessons in order to make improvements or correct errors. Recorded lessons can be used at a later date e.g. for revision, supply cover or to support less experienced teachers.	May be less engaging for students due to a lack of social interaction and instant feedback. May be difficult to monitor who has accessed the lesson materials. Harder to pick up on students who are struggling or have misunderstood concepts. Cannot visually check in on students wellbeing – e.g. picking up on body language.

Table 1: Advantages and disadvantages of live vs. recorded lessons

Advantages and disadvantages of teacher-made and commercially-made videos

Teacher responses also suggest that the benefits of pre-made instructional videos and demonstrations such as those made by Oak National Academy, which reduce teacher workload and provide quality-assured content, need to be balanced with the benefits of

home-made materials which can offer more specific and individualised support. The table below summarises some of the pros and cons raised by teachers in focus groups and as part of our survey.

Teacher-made instructional videos and demonstration		Commercially made instructional videos and demonstration	
Pros	**Cons**	**Pros**	**Cons**
Students enjoy seeing their teacher on screen - maintains sense of class community. Able to vary structure, pace and content to suit student needs. Able to maintain consistency using the same vocabulary, strategies and approaches used during in-class teaching.	Relies on teachers digital literacy and access to necessary technology. Teachers may not have access to the required resources at home e.g. equipment for a science demonstration, maths resources, etc. Quality of videos can be poor due to technology, lighting, etc. Quality of content may vary between and within schools. Teachers may not be comfortable to record themselves.	Reduces teacher workload. Consistency in approach across/within schools. Supportive for less experienced teachers. Often quality assured/ created by experts. Often made with professional sets, lighting, etc.	May become too repetitive leading to lack of student engagement. Unable to vary structure, pace and content to suit student needs.

Table 2: Advantages and disadvantages of teacher-made and commercially available instructional videos

03

Student progress during distance learning

Much has been said in the media about 'lost learning' and the need for students to 'catch up'. We were interested in teachers' views about their students' progress during distance learning and asked them about how this compares with progress in the face-to-face classroom.

Overall, 38 per cent of 255 respondents said that their students made 'about the same' amount of progress during distance learning that they would have made during face-to-face teaching, whilst 42 per cent felt that their students made less progress and nine per cent stated that their students had made much less progress. However, seven per cent of respondents also felt that students had made more progress in distance learning, with two per cent saying that they had made 'much more' progress. This suggests that not all students will have been negatively affected by distance learning and that a small minority may have even benefitted from the set-up. Rather than being rushed into a blanket approach to 'catch up', schools need time to determine which of their students need the most support.

Phase-specific differences

There was a significant difference between primary and secondary teachers in terms of how many respondents felt that their students had made 'much less progress'. This figure was over 16 percent for primary and only five per cent for secondary teachers. This suggests that the progress of primary students was likely to be more negatively impacted by distance learning.

Over 42 per cent of secondary teachers felt that their students had made about the same amount of progress during distance learning as they would have done in school, whilst almost nine per cent felt their students had made more progress online. These figures for primary school teachers were 27 per cent and eight per cent respectively.

While these figures paint a relatively positive picture of distance learning, particularly for secondary school students whereby over half of teachers think their students made the same or more progress than they would have done otherwise, these figures only asked teachers about progress overall and did not take into account the performance of individuals or groups. Nor did we ask about performance in particular areas. For example, some students may have made progress in their academic skills but not their social development.

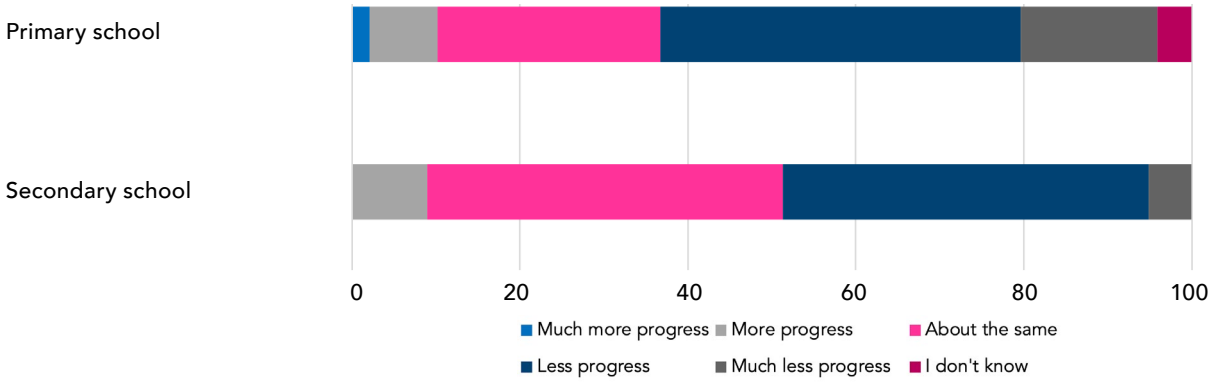

Figure 5: Estimated progress, split by phase (n=125)

"Our attainment data shows that our students have not experienced any 'lost learning' from an academic perspective. However, the loss of social aspects of learning and development have been huge."

Primary school teacher, UK

Furthermore, teachers may feel that good progress was made regarding curriculum coverage, but it may be unclear at this stage, how much of that coverage has been retained by students and the extent to which they will be able to use and apply it in the future. The format of some online lessons may have allowed teachers to cover extensive content. However, it may have affected the extent to which information has been understood and remembered, as the incorporation of more (inter)active learning in the online environment (e.g. oral or written discussions) has previously been linked with better learning outcomes (Wilson et al., 2007).

"We covered a lot of material during the lockdown period but I suspect the lack of classroom activities and face-to-face discussions meant that some students absorbed the material less well."

Secondary school teacher, UK

From our focus groups and answers to open-ended survey questions, it is clear that there were vast differences in the progress of students, depending on their levels of engagement with the distance learning on offer. While some students made accelerated progress, others did not progress in their learning at all. This illustrates the importance of considering not only quantitative data which looks at broad averages, but also teachers' rich experiences and comments which are so often missed in news headlines but are important to consider when making decisions around education recovery.

"A small percentage with all access and support from parents thrived. Those who are quiet pupils in a class with behaviour problems benefitted. The progress of those who did not engage for whatever reason has declined."

Secondary school teacher, UK

As highlighted repeatedly in our own and others' previous publications, there remains concern over the progress of students from disadvantaged backgrounds and the potential widening of the attainment gap.

Summary of students' progress during distance learning

Results reveal a mixed picture regarding students' progress during distance learning and emphasise the importance of taking a personalised approach to recovery teaching that takes students' experiences during distance learning into account. It will be important to consider how engaged students were during distance learning, how much adult support they had available and to what extent they were able to access distance learning. Our data suggests that primary school students may have been more negatively affected by distance learning than secondary school students, which is likely due to the fact that they require more adult supervision and support, making it more difficult for them to engage independently with distance learning. However, it should also be noted that a substantial number of respondents in both primary and secondary schools indicated that their students had made about the same amount of progress as they would have in face-to-face settings. Although these numbers cannot replace a direct assessment of student progress, they do indicate that students' progress may have not been as negatively affected across the board as is sometimes assumed. Finally, it is crucial to consider those students who have benefitted from distance learning and have made more progress than they would have done during distance learning, and to ensure that lessons from distance learning continue to be harnessed as face-to-face teaching resumes.

04

Barriers to effective distance learning and potential solutions

When implementing distance learning, it is crucial that potential barriers are addressed and challenges considered. Ideally, these barriers should be addressed prior to the start of distance learning to enable its effective implementation. Of course, particularly in an emergency situation such as the ongoing COVID-19 crisis, new and unexpected challenges may arise as a result of a situation that is constantly evolving and these will need to be addressed as they emerge. Furthermore, it may be necessary to put distance learning in place before all barriers are overcome, as was the case during the current COVID-19 outbreak, to ensure educational continuity. But it is important for teachers, school leaders and policy makers to be aware of potential challenges and barriers and how these can impact the effectiveness of teaching and learning in remote settings.

Summary of past research evidence

In our previous literature review, we summarised a number of challenges that affect teachers and students. For teachers, these include a lack of access to the necessary technology needed for distance learning, a lack of training in digital pedagogy, increased workload due to the need to master new technologies, increased mental load when managing hybrid learning environments, the loss of subtle feedback such as facial expressions and managing students' engagement. Access to technology and the development of digital literacy can be equally challenging for students, and represents a barrier to effective distance learning. Furthermore, online collaboration can be challenging due to lags in voice and video transmission, and the need for more independent and self-regulated learning can benefit some but hinder other students.

Teachers' experiences with distance learning

In our survey, teachers were asked to select no more than ten main challenges from a list of 21 that they have faced during distance learning. The list was developed based on challenges described in past research literature as well as a survey conducted with teachers in May 2020 in which this topic was explored.

The main challenges selected by the 323 teachers who answered this question, fall into four overarching categories: technological difficulties, increased workload for teachers, lack of social interaction and too much screen time. We will discuss the technological issues and

increased workload in this section and delve deeper into issues around social interaction and screen time in section nine, which focuses specifically on wellbeing.

Technological difficulties and how to address them

Seventy-six per cent of teachers reported technological difficulties (such as internet instability or the inability to access content) as a major challenge. Sixty two per cent of teachers reported student access to technology as an issue and roughly half were challenged by a lack of technological skills in teachers (47%) and students (54%).

There were some phase-specific differences regarding access to and use of technology in distance learning. A slightly bigger proportion of secondary school teachers in our survey indicated a lack of technological skills in teachers (56% vs. 38%) and students (61% vs. 34%) as a major challenge of distance learning. Technological difficulties such as unstable internet connections were also considered slightly more pertinent in secondary than primary schools (77% vs. 62%). These differences could be due to the fact that primary school teachers used more asynchronous and non-digital approaches in distance learning, which may have meant that technological challenges were less disruptive in this setting. This would also suggest that a mix of synchronous and asynchronous distance learning may be more robust than a purely online approach.

Digital access was also a major concern for focus group participants, with issues around bandwidth and internet access topping the list of barriers, followed by access to digital devices. In some regions, e.g. China, limited access to online resources and certain online programmes due to access restrictions and the need for VPNs was also highlighted.

"We don't have access to Google. Well, I do because I have the VPN, but the people don't have VPNs so this takes Google and a lot of the technology out of the equation. So it was difficult for us to send work a lot of the time. I had to download the work onto the chat form to access as PDF."

All-through teacher, China

Focus group participants emphasised that many families, particularly those from lower socio-economic backgrounds, had to share a limited number of devices, making it difficult for children to access live online teaching. Where possible, schools lent out devices to ensure that all students could access remote teaching but this came with the added risk of losing or damaging devices with unclear policies around insurance in such cases. Devices provided by national governments also played an important role in ensuring educational continuity but were not necessarily accessible for all and took some time to arrive in many cases.

"We're in the lowest ten per cent national deprivation and we have single parents, we have families with multiple children in households so the suggestion that every child can be on a digital device at the same time is just not appropriate and it was really difficult."

Primary school teacher, UK

Issues around bandwidth were further discussed during focus groups. These affected students as well as teachers and mainly occurred due to multiple family members trying to access digital content at the same time, or limited internet connection in the regions where students and teachers lived.

"[T]here are 22 schools in our trust and it's [...] a vastly rural community [...] - the Internet was an issue. We still don't get great broadband. Many of our families, you know, are farmers and farmers' children."

Primary school practitioner, UK

"I'm potentially more remote than maybe some of my students, so lots of difficulty occasionally which prompted me to make sure that I had planned everything really well in advance and had all the resources ready and shared just in case."

Arts teacher, UK

Technological difficulties can also hinder students from responding to tasks and sharing final products with their teachers, affecting their motivation and the accuracy of assessments.

"But the challenges of that were those students who found it either difficult to access those kinds of things, you know, even filming on your phone has limitations, and particularly not being able to upload it. So they might have done a really great piece of work and you know they want to share it. But they couldn't get it on the system, it just wasn't working on the school system, so that made it impossible for that to happen."

Drama teacher, UK

In addition to limited access to the internet and digital devices, teachers', students' and parents' limited digital literacy was mentioned repeatedly during focus groups as a barrier to effective distance learning. Focus group participants commented on the lack of support and available training opportunities to develop their own digital skills and the substantial variation in colleagues' digital literacy skills.

"I just lacked the technical skill at the start to set up breakout rooms and to know how to monitor them. And we weren't told how to do it for months and months and months. And so, that was an issue."

Drama teacher, UK

Furthermore, students' lack of digital skills was discussed repeatedly. In many cases, participants commented on the fact that students' digital knowledge is often limited to the app-based use of mobile phones and can extend to coding but sometimes lacks basic understanding of word processing programmes or productive internet searches.

"[O]ne thing we discovered in the very early days of online learning is that I think we made a lot of assumptions about the kind of skills that pupils had with technology. I mean, we talk a lot about digital natives, but actually when we think about a lot of what children do [...] it's very app based and so when we were asking them to use things like Office and so on, they actually really struggled with that and it made us realise that actually the ICT curriculum has veered very much towards things like coding and so on, which is great, but then the kind of basics of using Office software, or using a computer, saving a document things like that have kind of been lost so that's something we're kind of trying to go back to now next year, but that's something that became quite apparent to us anyway."

Primary school practitioner, UK

Finally, parents' limited digital literacy skills were also discussed during focus groups. This was particularly problematic for practitioners working with younger students as they relied on parents to log children in to video conferencing software or to access learning material online.

These findings highlight that challenges around technology reach beyond the availability of digital devices and a stable internet connection but require teachers and students to develop the necessary digital literacy skills to use technology effectively for teaching and learning.

Suggestions for how to overcome technological barriers to distance learning

Policies to provide digital devices to students

In many countries, governments put policies in place that enabled students to access digital devices. This is an essential step in addressing the digital divide and enabling all students to access online learning. When schools have to bridge the gap by lending out their own material, clear policies need to be in place with regards to damage or loss of such devices, and money should be made available to replace any lost or damaged items.

"School was quite good and before [...] the government gave the green light that they could [...] purchase laptops for them, they loaned them out."

Secondary school practitioner, UK

Providing/improving internet access

It is important for governments, school leaders and teachers to consider the availability of broadband in their local areas and across the country, and education policies should be formulated with this information in mind. Where internet access is patchy, alternatives to online teaching should be considered. One focus group participant described how they took matters into their own hands and provided a local community – in this case a traveller community – with a router to allow children to access online learning. While schools cannot be expected to provide such a service at their own expense and in their own time, the provision of additional routers to connect rural communities as part of a national emergency education policy should be considered in addition to the provision of devices.

"We put a router down on the site and said, 'We don't care if it's just our children using it or other children using it. We want these children in lessons.'

Primary school practitioner, UK

Mixing live and recorded lessons

To address issues with access to devices and bandwidth, some schools started to mix recorded and live lessons, so that students were more flexible in accessing their learning content. While live lessons provide teachers with the opportunity to check in on students and guide them in their learning, and they can be more engaging for students, they require all students to be online at the same time. In households where devices are shared or bandwidth is low, this can be challenging. Recorded lessons, on the other hand, can be accessed whenever it best suits students, when they have the necessary devices, support, space and bandwidth available.

"[W]e did one live lesson a day and then it would be short teacher videos with clear explanations and guiding children through the lesson so that they could watch. But, you know what, it suited them because again, times of the day, access to technology, level of support in the home was very different and so I would agree that, you know, that was definitely a positive."

Primary school practitioner, UK

Clearly communicate benefits and drawbacks of live lessons and manage expectations

It seems important to note that the benefits and limitations of live lessons should clearly be evaluated and communicated to all stakeholders. Focus group participants reported that many parents were pressuring schools to offer continuous live lessons, often with the main purpose to alleviate stress from parents who had to work from home. Combined with stringent governmental guidelines about the amount of lessons to be taught, these expectations put a lot of pressure on schools to deliver. During focus group discussions, this seemed to be a particularly pertinent issue in the private sector. In order to avoid unnecessary conflict and stress and to ensure that students are taught in the most effective way that best supports their development, risks and benefits of live lessons should be clearly identified and communicated.

Alternatives to digital learning

Where digital access was an issue, teachers often created paper-based work packs and dropped them off to their students. Non-digital approaches to remote teaching are an essential part of distance learning and should be considered as part of education planning, particularly in areas where digital access is an issue, and as a complementary approach to avoid excessive screen-time. Furthermore, alternatives to screen-based, live learning could also address issues around weak broadband signals and limited availability of digital devices

"[...] the headteacher and the deputy head and other members of the SLT were driving around [removed for anonymisation] in their cars, dropping off printed-out packs of pen and paper-based material because families in high-rise flats on [removed for anonymisation] had one mobile phone for six people in the family."

Primary school practitioner, UK

Training for teachers, students and parents in basic digital literacy skills

In addition to ensuring that students and teachers have access to digital devices and the internet, emergency remote teaching policies should further ensure that digital literacy training is freely available for teachers, parents and students. This should cover basic skills such as accessing and using video conferencing software, creating and saving documents, creating and uploading videos to online learning platforms as well as accessing and responding to teacher feedback. Focus group discussions showed that teachers often took it upon themselves during the ongoing COVID-19 crisis to train parents in these skills, adding an additional burden to their workload. Furthermore, training for teachers in digital pedagogies and the use of digital devices for teaching was not consistently available but is paramount for effective remote teaching and should thus form a central part of education policies in emergency contexts. From a student's perspective, it is important to consider that despite the fact that students are 'digital natives' in that they are born with digital technologies surrounding them, they may lack basic digital literacy skills that need to be pre-taught before they can effectively engage in distance learning. It should therefore be considered how systematic training in these skills could best be made available to all stakeholders in education to support effective distance learning.

"[W]hat was an issue for us was the lack of parental ability to engage with the technology, so we ran workshops, literally at people 's homes in the doorway to guide them"

Primary school practitioner, UK

Increased workload for teachers

Before implementing distance learning, it is crucial that workload implications are carefully considered. Over half (56%) of respondents to our survey reported that their workload had increased as a result of having to plan online lessons with no substantial differences between primary and secondary school teachers (62% vs. 60%). This is despite the fact that the UK government had already made a suite of online learning materials (Oak National Academy) available at the time. From focus group discussions it appears that the increase in workload was largely linked to the need to acquire and implement a new way of teaching, the necessity to plan non-digital alternatives to live lessons to pre-empt problems with technology, and new forms of feedback (which are discussed separately).

"My staff's workload increased with remote learning because they were having to learn as well as do all the normal things of planning, assessing, be back [in school] and actually just learn almost how to teach again in a completely different way."

Primary school leader, UK

While marking and assessment often tend to be associated with high levels of workload, distance learning appears to add some additional challenges. Some teachers found it more time consuming to track completed work and chase work that was missing in an online setting. Many also commented that it was much lengthier to provide students with typed, written feedback during distance learning, compared with verbal comments that could be made throughout the lesson in a face-to-face classroom.

During focus group discussions, some teachers, particularly those working in the private sector, also highlighted that parental and school expectations around the amount of feedback that students should receive added to their workload.

"[F]eedback in our environment became sort of a point of contention with the parents in the sense that if you're a primary teacher you were teaching trying to mark one piece of work in detail per child per day. But parents then raised that this wasn't enough, and staff were asked to mark a maths or writing and reading piece every day times 24 or 28 in one day, which became time consuming. It became beneficial for the students but it did take up a lot more time and it caused the moment of friction between sort of the staff body in the parent body and and it was the way we sort of tried to find a way between. It was setting the expectation that it didn't have to be written."

Primary school teacher, Vietnam

However, it should also be noted that some teachers reported on the positive workload implications of distance learning, which echoes results from our first report in this series. Thirty eight per cent of participants reported on the ease of sharing preparation and content with colleagues and 26 per cent respectively found that reduced admin and meetings and a better work/life balance was an advantage. Collaboration across the profession and a reduction of administrative tasks could hence counteract the increase in workload due to digital content creation.

How to address this issue

Given the relatively low uptake but positive feedback of pre-made online resources (see above) in secondary schools, it is possible that not all teachers were aware of the large number of resources that were available online, or that they did not consider them to be suitable for their classes. It should hence be considered how such resources can best support students across all phases and subjects and how best to promote them to decrease teacher workload.

Creating opportunities for teachers to share resources in their schools and beyond, training staff in digital pedagogies and ensuring that staff and students are equipped with the necessary devices and access to the internet (all discussed above), as well as keeping meetings and administrative tasks to a necessary minimum, are all likely to further decrease stress and workload.

Additional strategies to reduce workload included:

- verbal feedback
- dictation software for written feedback
- comment banks
- whole-group feedback at the start of lessons
- using narrated powerpoint/video highlighting common problems
- self-/peer-marking (mark schemes, answer sheets)
- low-stakes quizzes to assess learning
- peer feedback
- automated feedback.

Schools may want to consider how some of these strategies can be maintained during face-to-face teaching and learning, so that excess teacher workload can be managed.

Summary of barriers to distance learning

Teachers faced a range of barriers to the implementation of effective distance learning, and results in this section showed that they went to great lengths to ensure educational continuity. The most significant barrier related to a lack of access to technology and limited digital literacy in students, teachers and parents. If distance learning is to be implemented effectively, governments and schools need to ensure the necessary access to distance learning technology, including devices and broadband. Furthermore, training for teachers, students and parents needs to be prioritised to ensure that digital learning can be delivered and accessed effectively. Additionally, a combination of live and pre-recorded lessons as well as a strong offline offer are important strategies to limit screen time and mitigate any access issues. The use of pre-recorded material in combination with live lessons also has the additional benefit of decreasing teacher workload – the second major challenge associated with distance learning. Pre-recorded material can be shared among teachers and allows students to access material whenever works best for them, which can also support revision.

05

Feedback and assessment

Summary of past research evidence

Our previous report advised that teachers plan and discuss how and when assessment and feedback would take place during sequences of distance learning. This was recommended on the basis of existing research which suggests that feedback is important for both motivation and understanding during online learning (Anderson, 2004) and that questioning, assessing and advising allow for teaching presence to be developed and maintained (McAleavy and Gorgen, 2020).

We also recommended that teachers use a range of formative assessment strategies during distance learning, whilst also considering how feedback could be provided to students without placing unnecessary workload burden on staff. Formative online self-assessment, for example, has been found to be highly effective (Wang et al., 2006), as have multiple choice assessments which give automated, instant feedback (Buchanen, 2000).

Teachers' experiences with distance learning

We asked teachers how frequently they gave feedback during distance learning, the challenges they faced, some of the strategies they used and how effective they thought they were.

How frequently feedback was given during distance learning

Feedback appears to have been used widely during distance learning. Ninety-eight per cent of respondents reported that they provided feedback to students during distance learning.

Regarding how frequently feedback was given during distance learning compared with face-to-face teaching, results were mixed and broadly split evenly across all options. One third of respondents felt that they gave feedback about as frequently as they did during face-to-face teaching whilst 38 per cent felt that they gave feedback more frequently during distance learning, and 30 per cent of teachers felt that they gave feedback less frequently in a distance learning situation than they would usually in class.

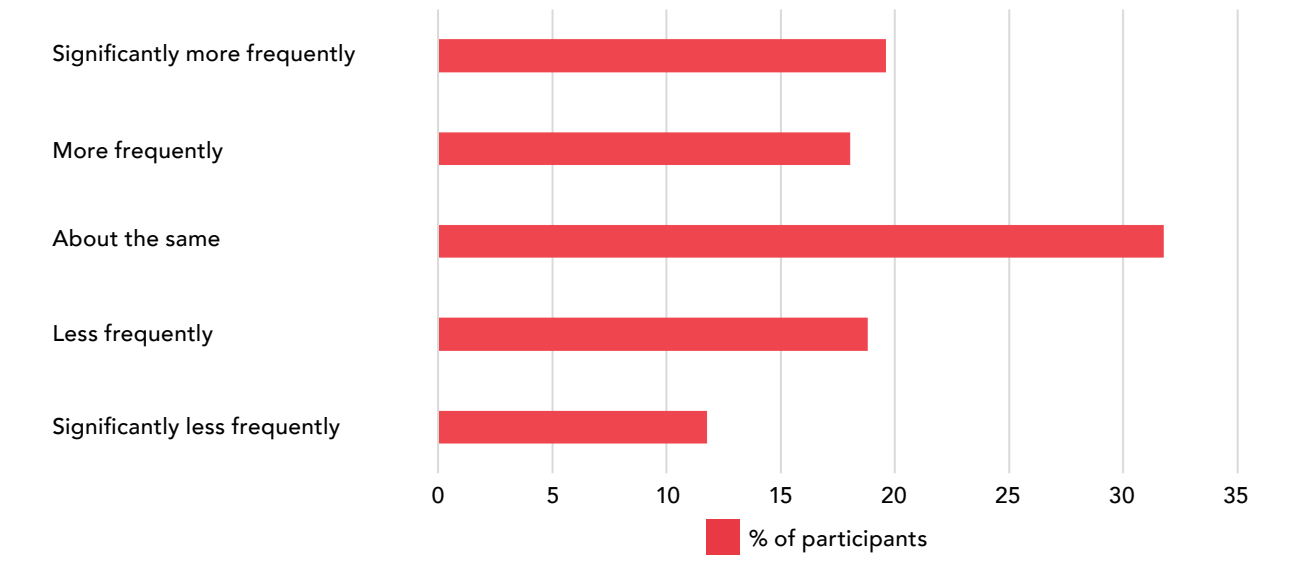

Figure 6: Use of feedback in distance learning compared to face-to-face teaching (n=255)

Secondary school teachers were significantly more likely to indicate that they gave feedback more frequently during distance learning than respondents from primary schools (50% vs. 26.5%).

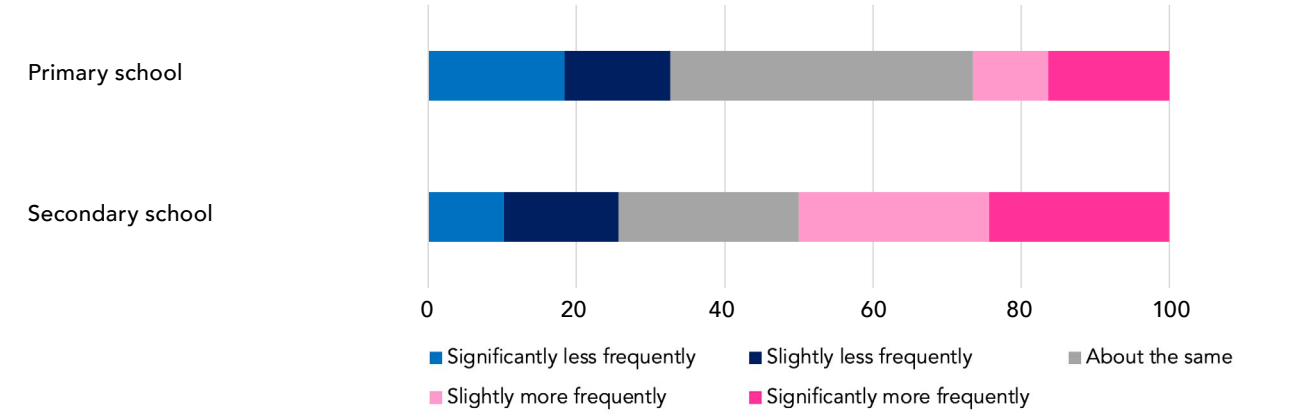

Figure 7: How frequently feedback was provided, split by phase (n=125)

Focus group discussions revealed a similar picture but also suggested that responding teachers may have varying interpretations of feedback and some may only account for more formal feedback in their responses, which may explain the varied picture.

"I kind of think that [it has] more to do with the perception of staff and maybe not giving themselves credit for how often we give feedback on a day to day basis 'cause what I felt about feedback, a lot of the feedback I gave during the the closure, was it was done as part of a conversation which I suppose took the form of email communication mainly or conversations via teams on the little kind of chat walls."

Secondary school teacher, UK

Challenges of feedback and assessment during distance learning

The reason why some participants indicated that they provided feedback less frequently during distance learning than they had during face-to-face teaching may be due to a number of challenges associated with providing feedback during distance learning. These include workload, the loss of subtle feedback (i.e. facial expressions and gestures) that allows teachers to assess where students are in their learning, and a lack of engagement with feedback from students and parents. When planning distance learning it is therefore advisable to address

these barriers prior to the start of remote teaching and to remain aware of them as they may arise in the course of distance learning.

Lack of engagement with feedback from students and parents
Teachers commented that during distance learning it sometimes felt harder to find the time for students to respond to feedback, and that it was often unclear whether pupils had read their feedback and whether it had any impact.

Younger students struggled to read written feedback without adult support, and in some cases parents did not understand the comments or feedback either.

Some teachers were concerned about how 'public' feedback could be, and that it was more challenging to give 1:1 feedback quietly and effectively.

"All the other students potentially listen to the feedback given to other students"

Primary school teacher, no location provided

In some cases, students did not submit any work, struggled to upload their work, or uploaded poor quality photos of work which made it difficult for teachers to assess learning. If students handed work in across a wide time frame rather than when it was supposed to be submitted, teachers struggled to manage their time for marking and tracking submissions and to maintain their own work/life balance. Many of these issues would not exist in a face-to-face classroom but presented significant challenges for feedback and assessment.

"Children submitted work at a variety of times so feedback became stretched over a long period of time – into following days etc."

Primary school teacher, UK

Not knowing where students are in their learning
Many teachers commented that it was much harder online to get a sense of who had 'got' the learning and who needed further support. Teachers often walk around their classrooms whilst students are working to check for any misconceptions and provide further feedback where it is needed. In an online environment this is more difficult to implement.

Where students did not have the technology available to receive live feedback online, some schools tried to find other solutions, however, these posed their own challenges:

"As there was a severe lack of technology, feedback was given on physical packs of work that were handed in. Packs were handed in, then quarantined, then by the end of the week a sheet was emailed out providing feedback on work they no longer had in front of them and most likely couldn't remember. It felt laborious and ineffective."

Primary school teacher, UK

Feedback and assessment strategies during distance learning
We asked teachers to select the feedback and assessment strategies they had used during distance learning from a list of ten strategies that was developed based on prior research, and to rate these according to their effectiveness[3]. Despite numerous challenges to incorporating feedback in distance learning, most teachers employed a wide range of strategies to provide feedback and assess their students' progress. Most strategies were being used by 70 per cent of responding teachers or more.

The chart on the next page shows the percentage of teachers who used each feedback and assessment strategy during distance learning, ordered by perceived effectiveness. The three strategies that were considered most effective by teachers were verbal feedback, low-stakes quizzes and comments on classwork, which were also the most frequently employed strategies, together with questions and discussions. Interestingly, comments on portfolios were considered to be quite effective by those who used them but were employed by just over half of responding teachers.

[3] Teachers were asked to rate each strategy on a 5-point Likert scale from 'very effective' to 'very ineffective', or to select 'I didn't use this strategy'. Strategies were ordered from highest to lowest effectiveness ratings.

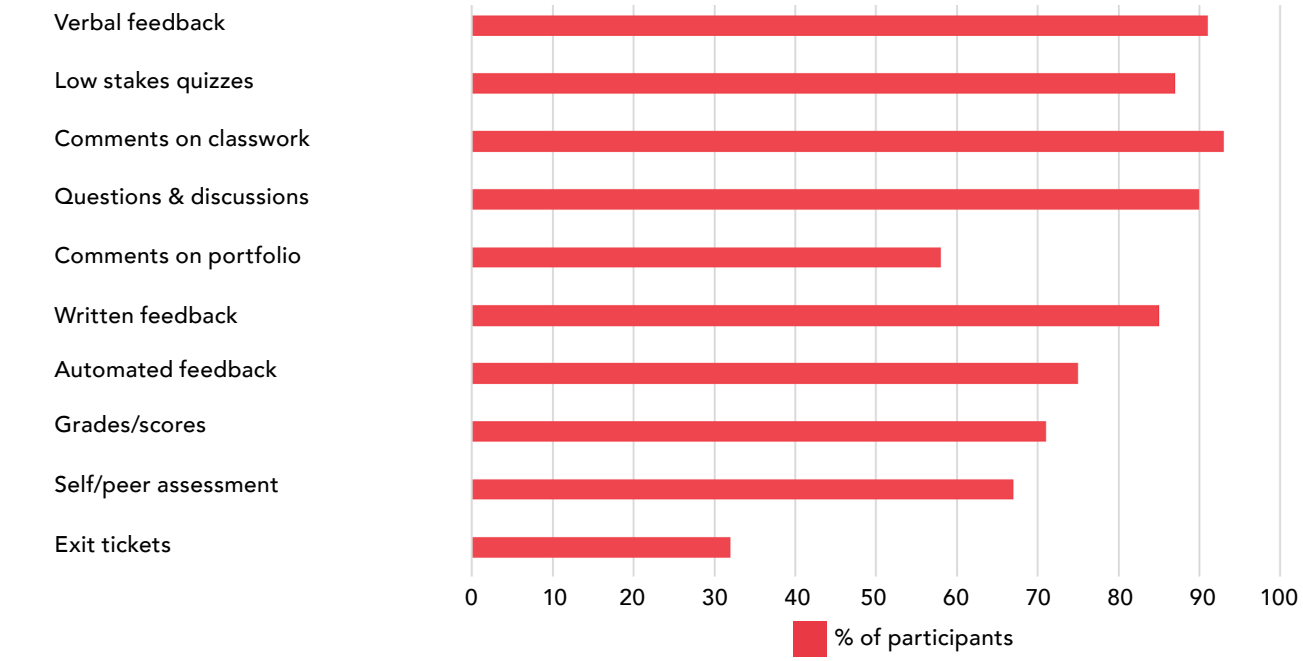

Figure 8: Use and perceived effectiveness of feedback and assessment strategies ordered from most to least effective (n=255)

Many teachers' responses also showed that they developed more effective strategies for feedback over time, having trialled and improved various strategies to see what worked best:

"At the beginning most of the feedback was comments on students' work, but this took a lot of time and was rarely viewed by students or responded to. Later I shared examples of work with students to allow them to view different students' work in lesson time. Rubrics were a good way to provide feedback quickly. Verbal feedback for exam style questions during a lesson was also effective."

Secondary school teacher, UK

Verbal feedback

Verbal feedback was considered the most effective feedback strategy during distance learning by respondents to our survey and was exceeded in frequency of use only by comments on classwork. Ninety one per cent of respondents used verbal feedback as part of their assessment strategy and 92 per cent of those who employed this strategy found it to be effective. Focus group respondents also highlighted verbal feedback as one of the most effective feedback strategies in the context of distance learning, which also had the added value of decreasing workload and being more appropriate for younger students and others who might have difficulties processing lengthy written feedback, such as students with SEND or those with limited proficiency in the school language.

"[W]e use a lot of voice feedback as well, which is obviously really beneficial for the younger children who can't access the written content."

Primary school practitioner, UK

Some teachers noted that verbal feedback allowed them to go into more depth than written feedback and that it had the added value of students being able to hear their teachers' voices, thereby providing additional connection at a time when many felt disconnected from their teachers.

"[F]eedback that worked well, I think [was] verbal audio feedback, recording feedback and adding that to documents was really powerful. Staff liked it because frankly it enables you to sort of elaborate in a bit of depth, especially for Sixth Form work. You can really, you know, sort of dig deeper than you might want to do or be able to do with written comments."

Secondary school leader, UK

Some teachers also noted the added benefit of verbal feedback apps that allowed them to see which students actually engaged with their feedback.

"We also found the good thing about the Mote app was that it tells you which students have listened back to the feedback and which haven't and we found that on average between 30 to 45% of students were actually listening repeatedly to that verbal feed. But then 50 plus percent would never listen to it ever so that then sort of became a conversation back towards the parents."

Primary school teacher, Vietnam

Phase-specific differences
There were no significant differences between respondents from primary and secondary schools regarding the perceived effectiveness of verbal feedback, which was perceived as the most effective strategy by both groups. Ninety five per cent of primary and 89 per cent of secondary school practitioners who had used verbal feedback perceived this strategy as either effective or very effective. However, significantly more primary school practitioners indicated that they had not used this strategy during distance learning (16% vs. 3%).

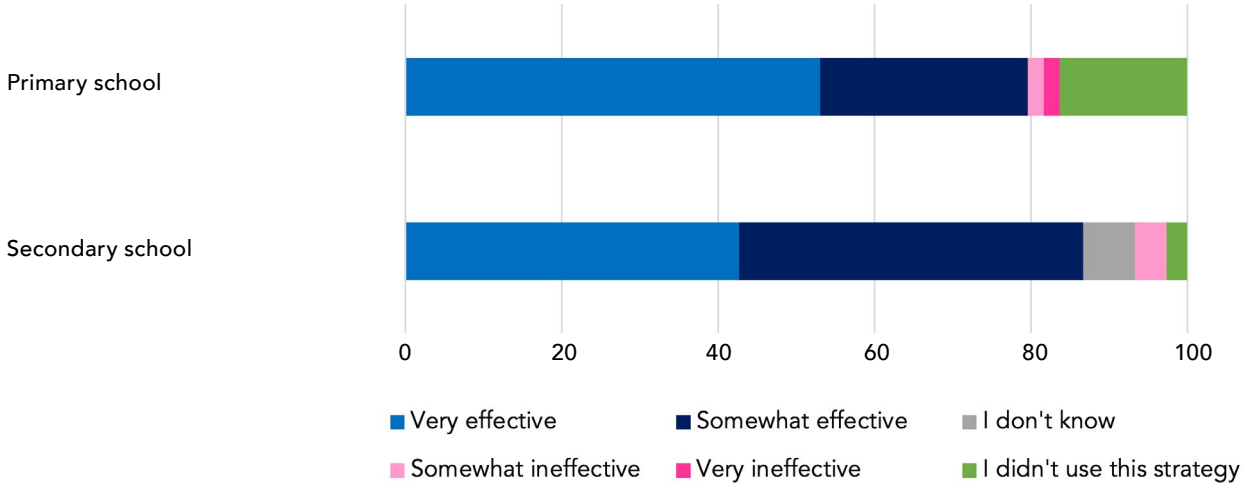

Figure 9: Perceived effectiveness of verbal feedback, split by phase

Low stakes quizzes and polls
Low-stakes quizzes were used by 88 per cent of respondents, 84 per cent of whom thought that these were either 'very' or 'somewhat' effective, making them the second most effective feedback strategy during distance learning according to survey respondents.

Focus group participants further confirmed this finding and many suggested that they were planning on continuing to use this strategy once all students were back in school. Some also commented that distance learning made them reconsider the use of quizzes as printed forms which were much more time-consuming to hand out, collect back in and mark than online quizzes. They also suggested that the immediate feedback students received from online quizzes increased motivation.

Phase-specific differences
There were no significant differences between phases regarding the perceived effectiveness of low-stakes quizzes or polls. However, respondents from primary schools used them significantly less often than respondents from secondary schools (76% vs. 95%).

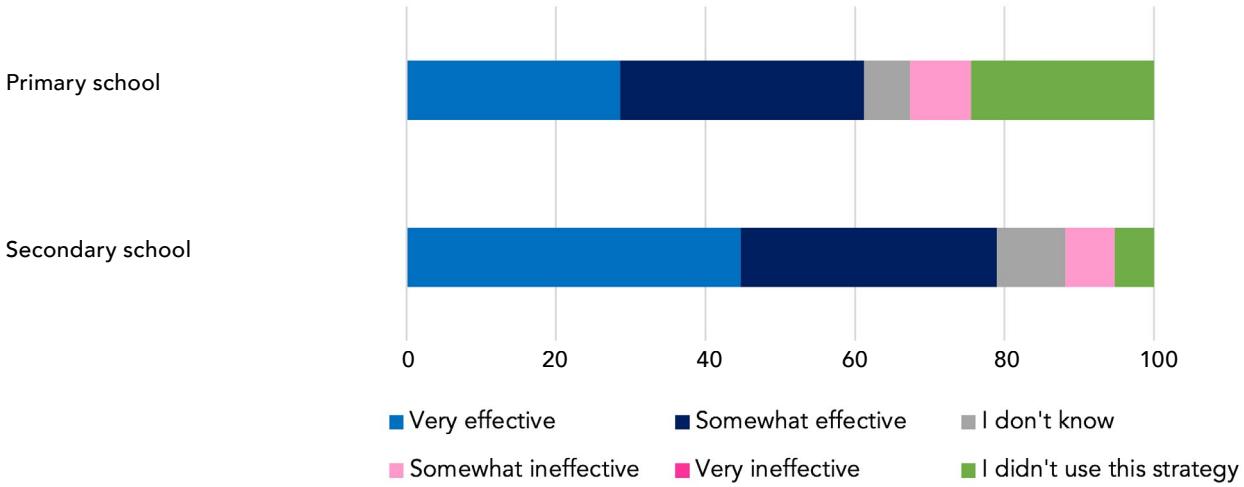

Figure 10: Perceived effectiveness of low-stakes quizzes, split by phase

Comments on classwork

The most frequently employed strategy by teachers in this study was the use of comments on classwork (used by 93% of respondents), which was considered effective by 86 per cent of teachers who used them. There were no significant differences between phases in terms of use or perceived effectiveness of this strategy.

Focus group participants also employed a range of strategies to comment on students' work during live lessons. These included Padlet and jamboards, the chat function of video conferencing software and whole-class feedback.

For whole-class feedback, participants reported the use of pre-recorded videos and digital whiteboards to comment on students' work and outline examples of what went well and how to improve work, but also for students to feed back to teachers as a whole class. However, participants also lamented the loss of immediate, more subtle feedback and acknowledged technological challenges that hindered teachers from using the full repertoire of feedback strategies.

"[W]e use that whiteboard dot FI [...] that was incredibly popular, you know, so teachers [can] gather whole class feedback, but it's [just like] using whiteboards in a lesson. And then just kind of headlines of, you know, what went well, even better if and feedback [for the] next lesson. That kind of thing. But it's heavily reliant on the technology and as the previous contributor said, you know, not having that kind of immediacy of questioning or looking at kids' books or feeding back in the heat of the moment felt, I think, a bit like a hindrance for a lot of our staff and frustrating. "

Secondary school leader, UK

Questions and discussions

Ninety per cent of survey respondents used questions and discussions as a feedback strategy, and 78 per cent of those who used this approach considered it to be effective.

Focus group discussions showed that this approach was often combined with the use of a digital tool that allowed students to share their views in writing, see what others said and discuss.

"[S]o we used things like jamboards for when we were asking our students to give examples of how things are linked. So what's nice about that is everybody can write on that, so everyone sees each others' answers and then you can start unpicking that and have discussions around that."

Secondary school teacher, UK

Phase-specific differences
Significantly fewer respondents from primary schools used questioning and discussions during distance learning (78% vs. 95%) but those who did use it considered it to be more effective than their colleagues in secondary schools. Indeed, not a single respondent from primary schools who used this approach considered questioning and discussions to be *ineffective,* as opposed to 22 per cent of respondents from secondary schools who used this approach.

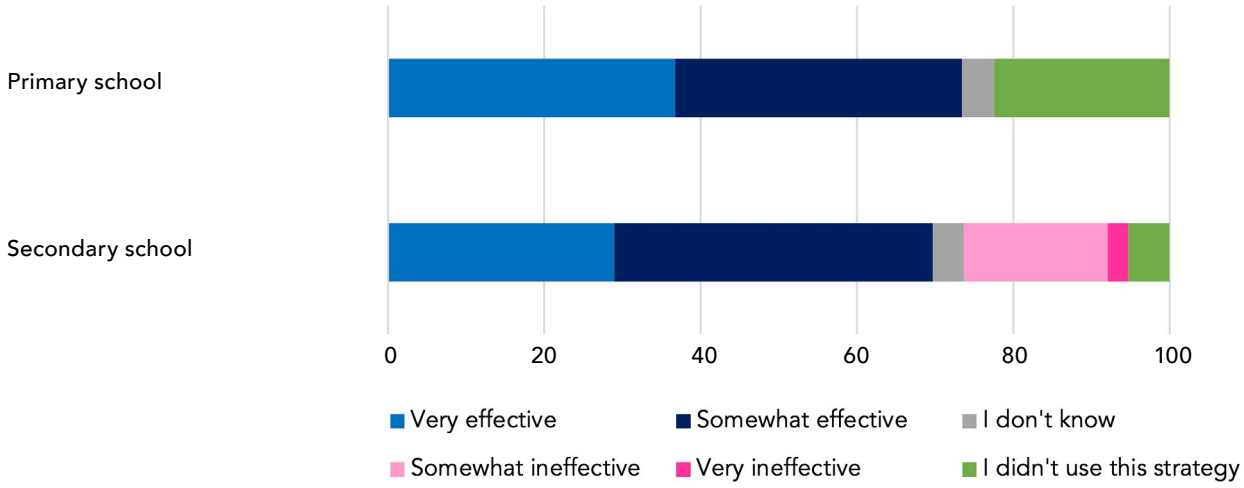

Figure 11: Perceived effectiveness of questions and discussions, split by phase

Comments on portfolio work
Interestingly, comments on portfolios were used less frequently than most of the other feedback strategies. Only exit tickets were used even less frequently. However, of those teachers who used this feedback strategy, 81 per cent thought it was effective. This suggests that this strategy could be used more widely in the context of distance learning. There were no significant differences between phases regarding the use or perceived effectiveness of this strategy.

An example from a UK-based arts teacher illustrates how portfolios or sketchbox could be used in the context of distance learning.

"[W]e also enabled them to produce digital sketchbooks, so we would photograph all their work and create their online sketchbooks, which again are more of a continuous flow. I have work and an ability to monitor what they were doing and to, you know, keep them going in the right direction."

Arts teacher, UK

Written comments on students' work
Eighty-six per cent of teachers provided written comments on students' work and of these 78 per cent considered this to be effective.

Focus group participants reported using digital tools such as Tapestry or Canvas where students could upload their work, sometimes as photos of non-digital work, and they could add their comments. The use of photos of non-digital work was particularly common in primary settings where students were less familiar or at ease with the use of computers. For older students, the use of Google Classroom and similar learning platforms was also common as students could work directly within the online learning environment.

"[W]e used a tapestry so the children [could] upload pictures and we would comment back and we did comment back on every single piece of work."

Primary school practitioner, UK

Phases-specific difference regarding written feedback

There were significant differences between phases at both extreme points of effectiveness ratings. Significantly more secondary school teachers who had used written feedback rated it as 'very effective' whilst significantly more primary school teachers rated it as 'very ineffective'. Indeed, not a single respondent from secondary schools rated written marking as 'very ineffective'. Unfortunately, our data does not allow us to investigate further if there were any differences between respondents teaching in different key stages (i.e. KS1 vs. KS2) but it is likely that written feedback is regarded as less effective for younger students.

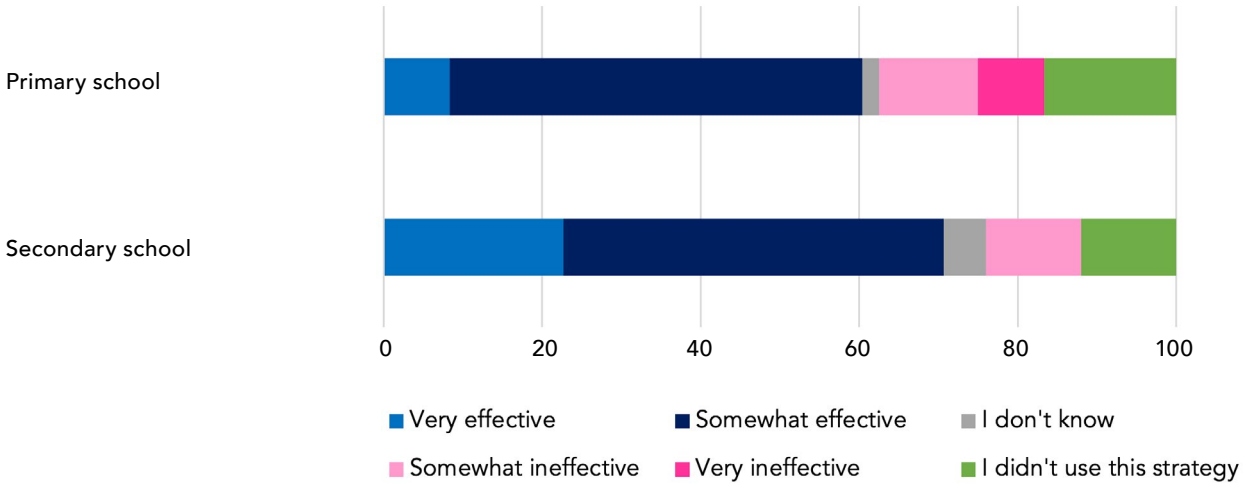

Figure 12: Perceived effectiveness of written feedback, split by phase

Automated feedback

One clear advantage of distance learning is the straightforward incorporation of automated feedback, which was used by 75 per cent of respondents and considered effective by 79 per cent of those who used it.

Some teachers found that utilising self-checking and mini autmated quizzes throughout lessons, and before moving onto the next task, helped misconceptions to be addressed as the lesson progressed. Automated marking online allowed for this to be conducted swiftly without the flow of the lesson being interrupted.

"A lot of people also set self marking questionnaires and forms more than they would normally in lessons because, again, it was allowing them to gain access to how deep the understanding was in an individual lesson."

SEND specialist teacher, UK

Some of the best examples of feedback and assessment during distance learning incorporated an effective loop between students and teachers. Teachers reported using insights from student feedback to inform lesson planning, giving students time to review and process feedback on previously submitted work at the start of lessons and combining automated feedback in each lesson with longer, written or recorded feedback on a weekly basis.

Automated forms were used to help students study and to assess their learning.

"I created a Google form whereby [...] if you ask like question one, if they get it right, then they jump to Section three. If they get it wrong, they move on to section two and they get asked more questions that are obviously then similar to that first question. So then, when you then look back, you know you can see clearly then, who are the students that are obviously answering those scaffolding questions to help them understand, or needing more questions to address the misconceptions that they've got."

Secondary school PE teacher, UK

Others commented that platforms such as Google Classroom allow for edits and improvements to be tracked. This can aid students in the drafting, feedback and improvement process.

Phase-specific differences
There were significant differences between phases regarding the use but not the perceived effectiveness of automated feedback. Significantly fewer respondents from primary school used automated feedback (57% vs. 84%) but of those who did use it, 85 per cent thought it was effective.

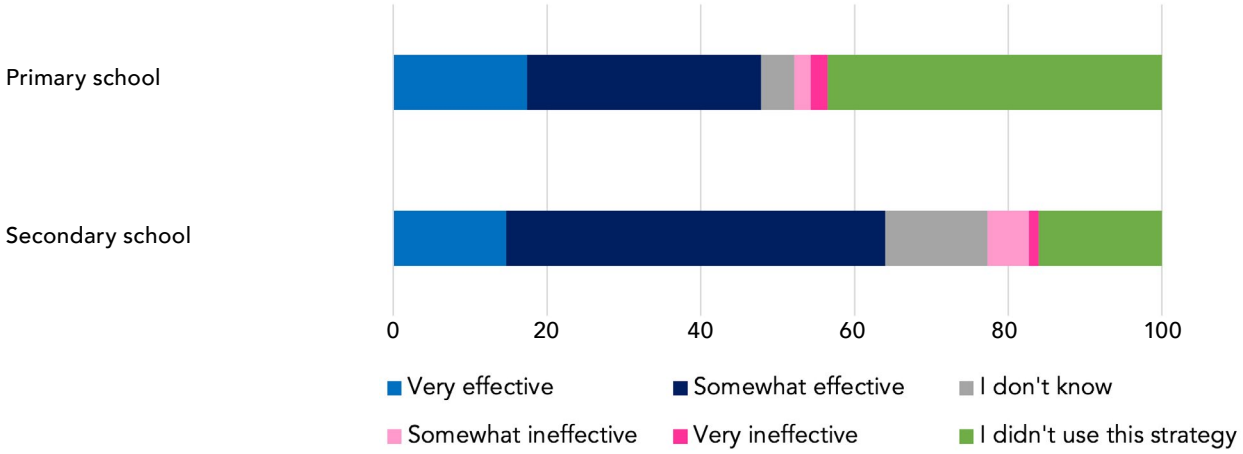

Figure 13: Perceived effectiveness of automated feedback, split by phase

Grades/scores
Giving students grades or scores on their work was considered to be a relatively less effective strategy during distance learning by participants in this study. Only 74 per cent of teachers used this strategy and of these, 71 per cent found it to be effective. During focus group discussions, some participants revealed that they had limited or stopped more formal assessment during distance learning, leaving it to the time when all students returned to school.

"In terms of the feedback, regarding assessment criteria and maybe more profound feedback regarding extended pieces of work, we didn't do any assessments during the lockdown. We felt that that would, that could be done, as part of the rebalancing of the curriculum later on."

SEND specialist teacher, UK

In some cases, the move away from tracking progress and attainment more formally was explained with the need to focus on students' wellbeing.

"[T]he assessment and tracking and progress, I actually think we had to take a back seat on that because it became a priority of making sure that wellbeing of trainees was our priority."

ITT lecturer, UK

It should be borne in mind here that data from this study stems from distance learning during a global pandemic, when a particular focus on wellbeing may be necessary. This data should thus not be used to draw conclusions about the effectiveness of, or need for formal assessments in non-emergency distance learning.

Phase-specific differences regarding grades/scores
There were significant differences between respondents from primary and secondary schools regarding the use of grades or scores but not their perceived effectiveness during distance learning. While 63 per cent of respondents from primary schools indicated that they had not used this strategy, only 11 per cent of respondents from secondary schools had not. However, roughly 70 per cent of respondents who did use grades or scores thought they were effective.

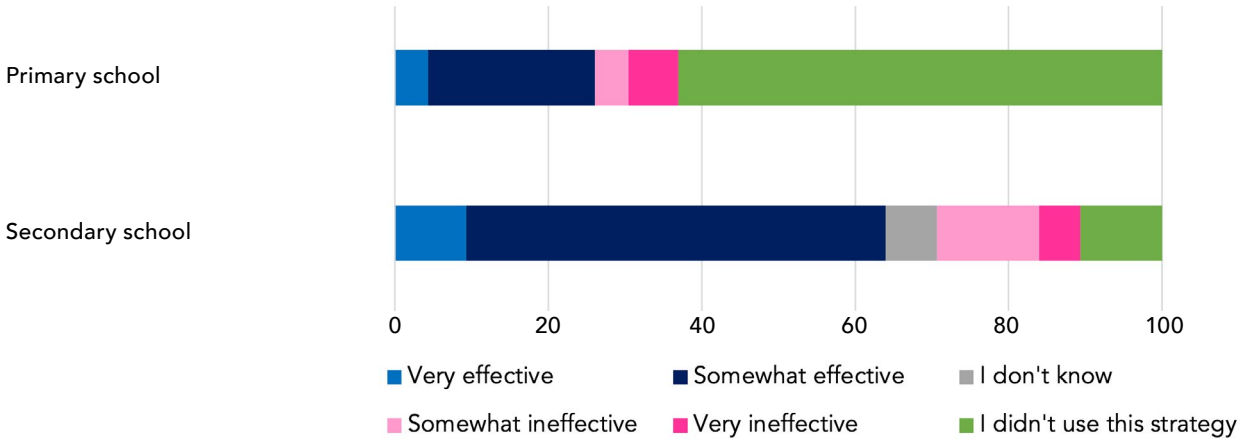

Figure 14: Perceived effectiveness of grades/scores, split by phase

Self- and peer-assessment

Existing research evidence suggests that self- and peer-assessment have a positive impact on distance learning and are important pedagogical strategies to incorporate (Wang et al., 2006; Buchanan, 2000). In our study, 69 per cent of teachers used self- and peer-assessment. And whilst over 68 per cent teachers felt that these strategies were 'very' or 'somewhat' effective, the remaining 32 per cent were unsure or felt that they were ineffective strategies.

Focus group discussions revealed some great examples of self and peer assessment in a distance learning environment, which suggests that some teachers may need additional training and support to develop and implement such strategies.

"[T]he teachers would upload [videos] themselves before, students would watch the video and would then practice the skill and then they would share their videos all through Google Classroom. They would share that video with a group of peers who would then give them feedback and then the next process, which the pupils would take the feedback and improve that way. So it can be done but I think you need to be creative in how you do it."

Secondary school PE teacher, UK

One of the reasons why more metacognitive activities such as self- and peer-assessment may not have been as effective during distance learning is that they required more nuanced and responsive teacher input which was problematic to implement during school closures.

<u>Phase-specific differences</u>

There were significant differences in the use but not the perceived effectiveness of self- and peer-assessment. Primary school participants reported using self- and peer-assessment significantly less than secondary school participants (53% vs. 72%).

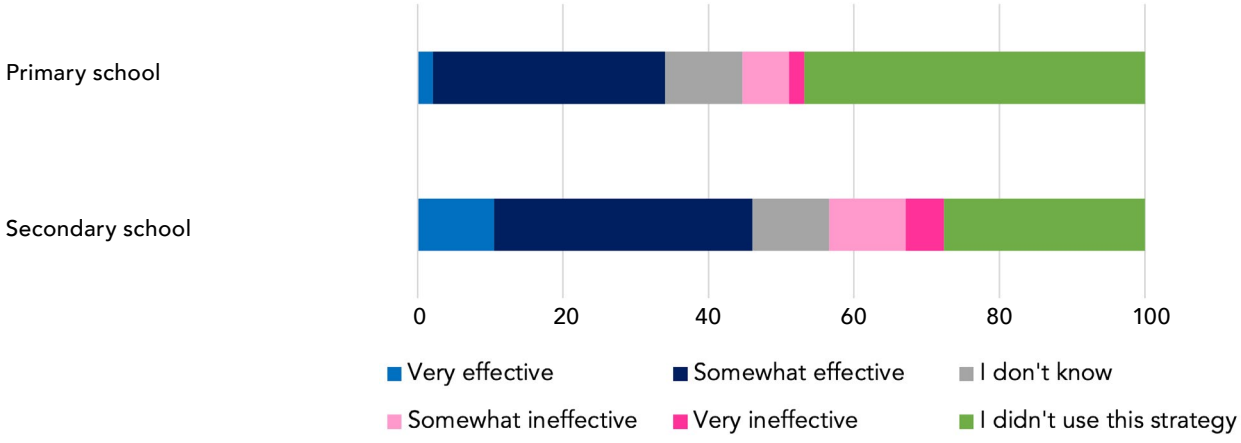

Figure 15: Perceived effectiveness of self- and peer-assessment, split by phase

Exit tickets
This strategy was used least by participants across phases and was also perceived as least effective. There were no significant differences between groups.

Teacher innovations and practical tips

During focus group discussions, teachers shared a range of additional assessment and feedback strategies that they had used and found effective during distance learning. These included:

- timed tests during which students had to have their cameras on so teachers could ensure that they were not cheating
- drop-in sessions where students could log on to speak to their teachers and receive feedback
- videos of students completing practical tasks (e.g. PE, dance, drama) on which they received peer or teacher feedback
- live feedback using digital tools (e.g. during composition in music)
- ipsative assessment.

Specific websites, apps and software used for assessment and feedback

Many teachers commented that they used the chat function in video-conferencing softwares for written feedback during live lessons and the One Note Class Notebook and Assignments features in Microsoft Teams were also used. Other teachers sent written feedback via email to students.

Specific apps mentioned were FrogLearn - whose feedback function makes feedback visible to both parents and students, and Mote which allows for voice commenting in Google Classroom. Using this chrome extension, teachers can record verbal feedback and leave it instead of a written comment anywhere on a google document, or in the private messages section on Google Classroom.

Nearpod was cited as a popular platform for live assessment for learning. Nearpod allows for formative assessments to be added to slides and interactive questions to be added to videos to check for understanding.

Seesaw was mentioned by multiple teachers as a platform through which they could assess and give feedback, including for younger students. Seesaw allows students to create a digital portfolio of their learning, through which teachers can connect with them by leaving both typed and verbal comments. Family members can also access this via an app. Similar platforms cited by teachers included Showbie, Firefly, PurpleMash and Schoolology.

Many teachers reported that setting up live online meetings with small groups of students who were struggling was an effective way of providing feedback and offering specific support. Some also set up 1:1 meetings.

The comment bank feature on Google Classroom was also noted as a helpful time saver. Here, teachers are able to save comments to reuse later on. Comments in the bank can also be edited.

MSforms was noted as having a very useful automated feedback function, whilst subject specific websites such as MyMaths and DrFrostmaths were also used to set tasks which would include automated scores and feedback.

Offline solutions

Where students did not have access to online learning, some schools set up a front door 'drop box' where school work and books could be exchanged between home and school. This enabled teachers to send home written feedback and comments as well as view home learning for assessment purposes. Some noted that this also had an added benefit to work as a safeguarding measure.

"We organised a drop in so you could drop your work up to school and it was for, from our point of view, an opportunity to make sure no one had a black eye and you know, everyone looked like they were smiling. But it was also the children really benefited from seeing their teachers say "I saw that great piece of writing you did and "I was really impressed with you. That's coming along really nicely", so keeping that going was tricky, but I think we benefited from that."

Primary school leader, UK

One teacher noted that the use of rubrics aligned to GCSE mark schemes was helpful for students to have a clear understanding of their strengths and next steps. These rubrics could be shared both online and offline.

Text messaging to mobile phones was also utilised by some teachers in order to send feedback to students.

Summary of feedback and assessment during distance learning

Despite potential challenges associated with providing feedback in a distance learning setting, which include increased workload and difficulty receiving and providing subtle feedback, our data suggests that teachers were effectively employing many of the feedback strategies that existing research found to be most effective in distance learning settings. Most of these strategies were found to also be effective when teaching school-aged children. Overall, teachers rated verbal feedback, quizzes, questions and discussions and comments on classwork as the most effective strategies. But it is important to consider phase-specific differences. For example, whilst verbal feedback was considered the most effective feedback strategy across phases and was rated as more effective than written feedback in primary school settings, it was used less frequently in primary settings than in secondary schools, as was the case with questioning and discussion. This is possibly due to the difficulty of engaging younger children in such activities, particularly if live teaching is not being utilised. Providing primary school practitioners with support and concrete examples of how to incorporate verbal feedback, questioning and discussion into distance learning in an age-appropriate way for younger students may increase the uptake of this feedback strategy. The same is likely to be the case for quizzes, which were used less often by respondents from primary schools but perceived as equally effective across settings. The fact that written marking was perceived as less effective by respondents from primary schools indicates that younger students may find it difficult to independently engage with this type of feedback, which is why verbal feedback may be more effective in this context. Given the parental expectations around written feedback that were reported by participants in this study, it seems important to clearly communicate the benefits of verbal feedback to parents. Finally, automated feedback was perceived to be more effective by secondary school participants and can be an important part of decreasing workload, but participants from primary schools found it to be relatively less effective, so the appropriate form of automated feedback needs to be considered for younger students.

06

Collaborative learning

Summary of past research evidence

Research discussed in our last report shows that collaboration and opportunities for peer interactions have been found to improve learning outcomes and provide motivation in a distance learning environment (EEF, 2020), perhaps owing to a sense of connectedness or relatedness to others, which is thought to be a key component of intrinsic motivation (Deci and Ryan, 2012).

Online collaboration has been shown to have a significant positive effect on learning for both primary and secondary aged students (Chen et al., 2018). Student-student interactions have been found to be highly effective in improving student outcomes (Bernard et al., 2019), with peer-assessment and evaluation being particularly impactful when peer-markers have been trained (Cui and Zheng, 2018).

However, more recent research conducted during the pandemic in New Zealand (Yates et al., 2020) and Estonia (Rannastu-Avalos and Siimas, 2020) outlined key challenges with live online collaboration, including students feeling uncomfortable on video calls, teachers dominating online discussions, students not switching on their cameras and teachers struggling to establish social presence.

Teachers' experiences during distance learning

We surveyed teachers about how much opportunity they gave for collaboration during distance learning, how effective they thought it was, the challenges they faced and some of the strategies they used.

How frequently collaborative learning was used during distance learning

Over half of respondents (57%) used collaborative learning during distance learning but respondents from secondary schools were significantly more likely to report using collaborative learning during distance provision (64% vs. 46%). Overall, 67 per cent of teachers used such strategies less frequently in distance learning than they would have done during face-to-face teaching. Just under 20 per cent of participants used collaborative learning about as often in distance learning as they would have in face-to-face teaching. Interestingly, 15 per cent of respondents used collaborative learning more frequently in distance learning with a small minority (4%) using it significantly more frequently.

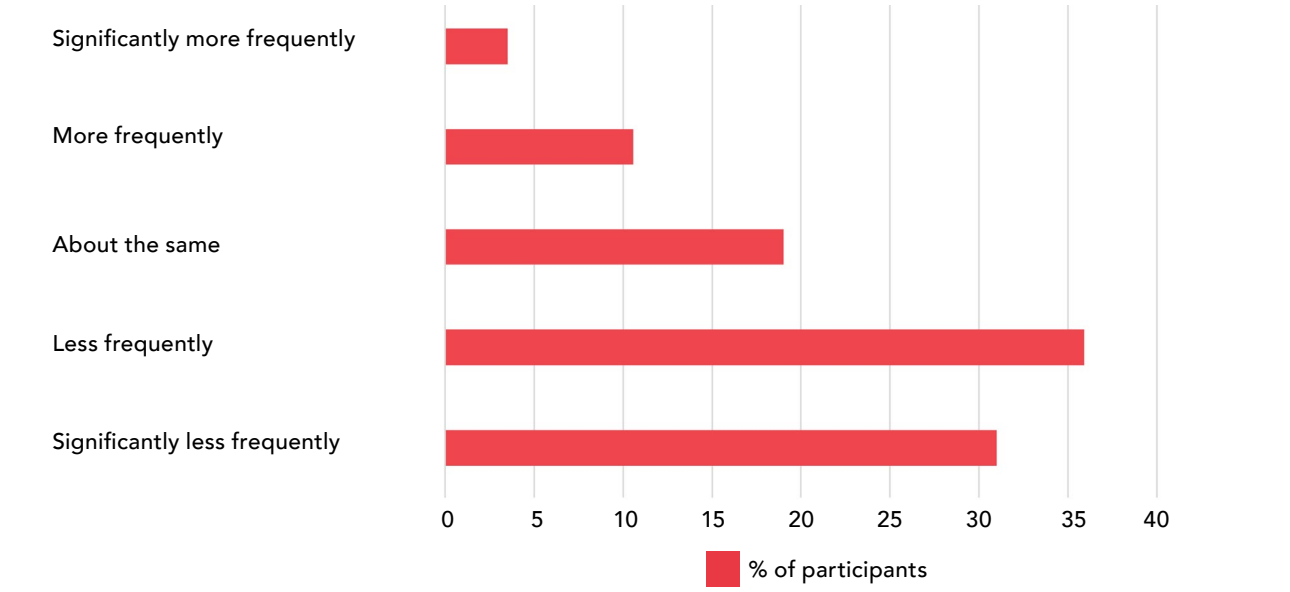

Figure 16: Use of collaborative learning in distance learning compared to face-to-face teaching (n=253)

A similar picture emerged when looking at data from primary and secondary schools separately. The vast majority of both primary and secondary practitioners used collaborative learning less in distance learning than they would have done in face-to-face teaching.

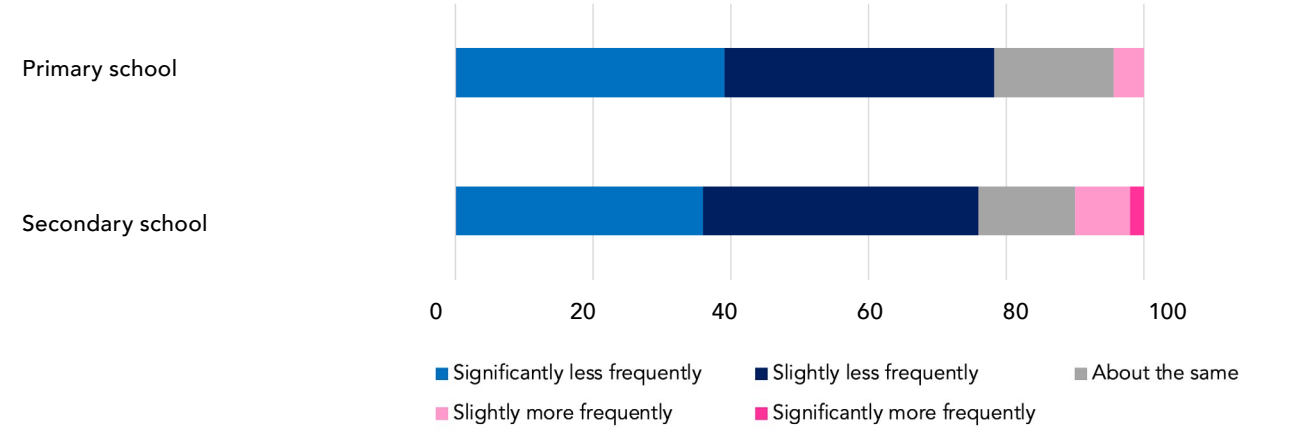

Figure 17: Use of collaborative learning, split by phase

Challenges of online collaboration

The fact that nearly 70 per cent of respondents used collaborative learning less frequently during distance learning than they would have in face-to-face teaching is likely due to a number of challenges associated with group and pair work in remote teaching that have been raised by survey respondents and focus group participants and which are discussed below.

Although more than half of teachers offered collaboration opportunities, not all felt that they had been able to do so. Many teachers expressed challenges faced in enabling online collaboration, such as not being able to monitor multiple breakout rooms at the same time, which could lead to safeguarding issues. This led to some schools forbidding the use of breakout rooms completely.

Teachers also expressed that many students did not engage well in group work if the teacher was not online to supervise and that they did not stay on task when left in breakout rooms

without an adult. This was problematic for some teachers who were assigned to teach live classes online or with key worker children in school whilst their other students were carrying out group tasks independently.

In some cases, the nature of collaborative tasks meant that it was necessary for a teacher to be present to guide and mediate, otherwise the exercise could be unproductive, frustrating or even detrimental to student wellbeing:

"In rehearsal group work in break out rooms, some wouldn't put cameras or mics on. Really challenging for the teacher and those who wanted to work in this way. Hard for the teacher to navigate popping into break out rooms - this was not swift. As soon as the teacher left, cameras and mics would go off again. Added to this, the students didn't need additional conflict in their lives. Some conflict in a rehearsal process is healthy and can be a powerful learning tool. But without a teacher physically there and able to mediate, observe, respond, this had the potential to cause unnecessary upset, when the students already had a lot of vulnerability in their lives."

Drama teacher, UK

In some cases, working on live, collaborative documents presented challenges relating to student ownership and conflict, as one student could edit or delete another student's work. Other teachers commented that some of their students with SEND found it difficult to contribute to group tasks and to work effectively with a partner without adult support being physically present.

Many found that not all students had the internet access and resources required to collaborate online, whilst others were not willing to turn their cameras and/or microphones on. Some students were in noisy environments where it was difficult for them to hear and contribute verbally. In addition, many collaborative activities were live, and organising access in families where multiple members needed to use the same device at the same time was problematic. While some schools overcame this by ensuring that different year groups did not have live lessons at the same time, in larger schools or families where siblings attended different schools, this was not logistically possible.

Furthermore, technical difficulties, as well as lack of engagement and motivation could be especially disruptive to learning in cases where students were working together and relying on one another.

"One child with connectivity issues would let the other down. People dropping out of a call, then unable to get back to their partner, mostly tech issues to do with internet connectivity and lag."

Primary school teacher, Japan

"Often only one student contributed while others sat back and watched/didn't contribute."

Secondary school teacher, UK

Another key challenge was being able to use the technology required for online collaboration. Not all students and teachers had these skills and not all schools provided training and support. Whilst many governments invested money in producing pre-made online lessons or other teaching support, there was less focus or funding regarding training for distance learning.

Many teachers found collaborative activities very time consuming to set up, more so than they would have done in a face-to-face environment, and collaborative work was found to be particularly challenging with younger children.

These examples demonstrate how it is not always feasible to implement the strategies recommended by existing research on effective distance learning. However, many teachers did manage to incorporate collaborative learning strategies, which are shared in the next section.

Collaborative learning strategies during distance learning

Those teachers who did use collaborative learning strategies during distance learning employed a number of different strategies, which are listed in the graph below. Overall, oral group discussions and group work were the most widely used strategies, whilst written group

discussions and project work were used relatively less frequently. The reported effectiveness of the strategies used was broadly similar across the board, with around 70 to 75 per cent of teachers reporting that the strategies were effective, five to ten per cent being unsure and 16 to 20 per cent finding them ineffective. There were no significant differences between respondents teaching in different phases relating to collaborative learning.

In some cases, teachers were initially reluctant to incorporate collaborative learning but later found it to be easier and more impactful than expected. However, some did not use any collaborative learning throughout the whole period of distance learning.

"Thinking about how effective it would be, and what it would look like online stopped me from doing it for a while. However once I did [it], I saw how easy and effective it was."

FE lecturer, UK

"I have to say that we didn't use collaborative learning at all with our kids."

Secondary school practitioner, UK

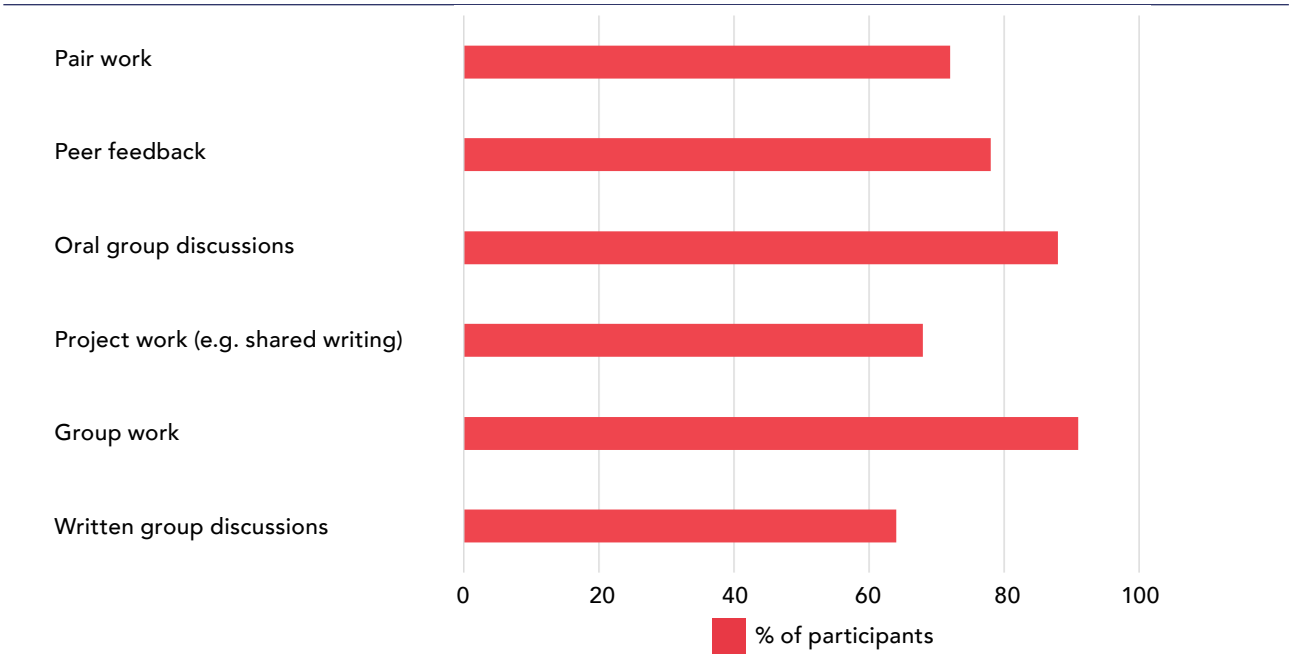

Figure 18: Use and perceived effectiveness of collaborative learning strategies ordered from most to least effective (n=141)

Some teachers also commented on the big variation in terms of collaborative learning provision that they observed in their schools, which could often be explained by a difference in teachers' digital literacy skills, which further emphasises the need to provide training in the use of digital collaborative learning tools, so that all teachers can feel confident in employing them. This is equally important for students. One school described how after the first lockdown, they ensured that all students were trained in how to use collaborative technology before any further school closures, so they could all use it effectively.

Pair work

Seventy-two per cent of teachers used paired work during distance learning and of these, 76 per cent considered it to be an effective collaborative activity with some suggesting that it was significantly more effective than group or whole-class work, which was partly due to the fact that conversational turns are easier to manage in pairs than in groups.

For paired and group work, teachers tended to use breakout groups but also reported on challenges around safeguarding and keeping students on task.

"I used breakout rooms, which I think worked really well for my quite engaged group. I had a group of Year 8 who were very engaged."

Secondary school teacher, UK

For some schools that were teaching in a hybrid model, paired work was put in place by matching up one child who was in school with another child who was at home via a laptop.

" I watched the lesson with Year 6, doing reading partners and it was two children connected over a laptop. So, one child is in school, one ws at home, but it was always supervised by the teacher, and I think that was the tricky thing."

Primary school teacher, UK

Peer feedback
Seventy-eight per cent of teachers used peer feedback as part of their collaborative learning strategies of which 75 per cent found it effective. It is possible that this number is slightly higher here than in the feedback section as respondents were asked specifically about just peer- and not self-assessment in this question.

Peer feedback was commonly used in conjunction with shared documents, so that students could comment on each other's work, or using the chat function in Google Classroom, Teams or other video conferencing software. Padlet was also commonly used to share thoughts and comment on each other's ideas.

In subjects such as art, music and drama, students were asked to upload musical compositions, performances or artwork, and peers critiqued and gave feedback.

Oral group discussions
Eighty-eight per cent of teachers used oral group discussions, which was considered to be effective by 75 per cent of those who employed it.

Breakout groups were again used most frequently to enable oral group discussions but some teachers also took a whole-class approach where students first presented a piece of work and then discussed it with their teacher and peers.

Some teachers organised regular live circle time sessions where students could engage in group discussions.

Project work
Project work was used relatively less frequently by only 68 per cent of respondents but was considered effective by 75 per cent of those who used it.

Schools using a project-based learning approach found that this could be transferred to the distance learning context. In some cases, students were able to work independently in groups and take on the role of facilitator for online discussions rather than the teacher having to lead.

Group work
Over 90 per cent of teachers reported that they had used group work during distance learning and 73 per cent of them thought that it was an effective strategy to support student learning.

Similarly to pair work, breakout rooms were usually used for group work but these also came with the challenge that teachers were not always able to monitor them all at the same time and sometimes students could feel shy to talk to each other.

I got the students to record or I went and told the teams to record it. They were meant to do presentations to each other about something they had researched but listening afterwards to the recordings was really painful because they were just there in silence for minutes until one of them said. Oh, I think it's your go and then they did their little bit and then there was just silence again and I really didn't want to talk to each other."

Secondary school teacher, UK

Some schools addressed this issue by having one adult available per breakout group, so that they could later follow up on any issues they spotted during the discussions.

Some teachers set paired or group assignments such as researching something together or completing a group essay or group presentation. One example was to give small groups of students specific sections of the course and asking them to prepare materials for peers in order to help them learn that part of the unit.

"I teach language and literature. So what I have done this year is whenever there was a presentation, I divided them into groups and they were supposed to use only Google Slides to, you know, come together and make the presentation. [...] for any kind of work that I had taken up, poetry or novel, I basically gave it to the students. I divided the chapters like maybe one group will be reading from one to five and I had given them a proper worksheet. They had to basically find those pointers like maybe theme character development, art movement and they had to discuss that and that discussion was done in class and those slides were available for the entire class to look at."

Secondary school teacher, India

Written group discussions/work

The strategy that was used least by respondents to our surveys were written group discussions which were used by 64 per cent of respondents and of these, 72 per cent found them to be effective. There were no significant differences between respondents from primary and secondary schools but it seems noteworthy that not a single respondent from primary schools considered this to be a 'very effective' strategy. This may have to do with the fact that younger students in primary schools are only starting to develop their literacy skills. They may also feel less confident using keyboards to type responses. Some teachers used the chat function to encourage discussions between students.

"[W]en you post work on Google Classroom, there's that aspect of reply to all and you can share a message with all and, you know, you get your children, saying oh, I love this piece of work or that was really great or I got 16 out of out of 20 on that little quiz that you gave us and and they would cheer each other on."

Primary school teacher, UK

Working on shared documents was another popular strategy that was employed by teachers who participated in this project, and some used live lessons to engage in shared writing or reading activities. They would use online documents or presentations and ask students to create a shared presentation or piece of writing. Students could then use the comment function or a separate discussion forum to exchange ideas.

"[T]hey could contribute and work on the same Google docs, so Google slides or whatever like that, and actually they really enjoyed it and because they were in smaller groups and smaller settings they did talk."

SEND specialist teacher, UK

Written collaboration was also beneficial for those students who did not feel comfortable using their cameras or contributing verbally. Some teachers found that they would collaborate via the chat function, or using separate private channels such as phoning or text messaging peers from their class.

Summary of collaborative learning during distance learning

Collaboration during distance learning is associated with a number of potential challenges, which need to be addressed in order to ensure its effective implementation. These include potential issues around safeguarding, questions around student ownership when working on shared documents, and digital access and literacy. Online collaboration can also be particularly challenging with younger students. However, results presented in this section clearly show that teachers have implemented a range of effective collaborative strategies during distance learning, across a range of ages. Teachers have used breakout rooms, shared documents and presentations, padlets and chat functions among other tools to facilitate collaboration.

Similarly to feedback during distance learning, overall, written forms of collaboration were found to be less effective than verbal strategies but in particular for younger students. This may have to do with their level of literacy skills and possibly with their typing speed. For older students on the other hand, the distance learning environment does provide opportunities to collaborate on shared documents and presentations without the need to share the same physical space, which can be helpful when collaborating on homework assignments. Overall, there were no substantial differences in effectiveness ratings across the different strategies discussed, but pair work was tendentially considered slightly more effective than group work. Given that supervision of group work during distance learning has been highlighted as a challenge, teachers may want to opt for smaller groups where the potential for disruption is more limited.

07

Instructional scaffolding

Summary of past research evidence

Our report on effective distance learning (Müller and Goldenberg, 2020) recommended the use of both instructional and metacognitive scaffolding during distance learning.

Instructional scaffolding may involve the use of instructional videos, demonstrations, rubrics and worked examples, whereas metacognitive scaffolding focuses specifically on developing students' learning habits, thinking skills and self-regulation – such as the use of timetables, reflection prompts and resources which help students plan and monitor their own learning.

Multiple studies have shown that both types of scaffolding are effective in supporting learning (EEF, 2020; Delen at al., 2014; Osman, 2020; Verschaffel et al., 2019). Research from higher education also suggests that scaffolding has a significant effect on online learning outcomes in (Doo et al., 2020) and may be particularly effective for pupils from low income families (EEF, 2020).

Teachers' strategies and experiences during distance learning

We asked teachers about how frequently they used instructional scaffolding during distance learning, strategies they used and how effective they thought these were, the challenges they faced and some of the practical tips and strategies they could share.

How frequently instructional scaffolding was used during distance learning

Nearly 90 per cent of respondents had used instructional scaffolding as part of their distance learning provision. It is noteworthy that nearly half of respondents (49%) used instructional scaffolding more during distance learning than they would have done during face-to-face teaching, whilst just over one third (37%) used it about as often as they would have done during face-to-face teaching. Only a minority of 13 per cent of respondents used instructional scaffolding less in distance learning. For primary and secondary practitioners alike, the percentage of those who used instructional scaffolding more during distance learning increased to 54 per cent.

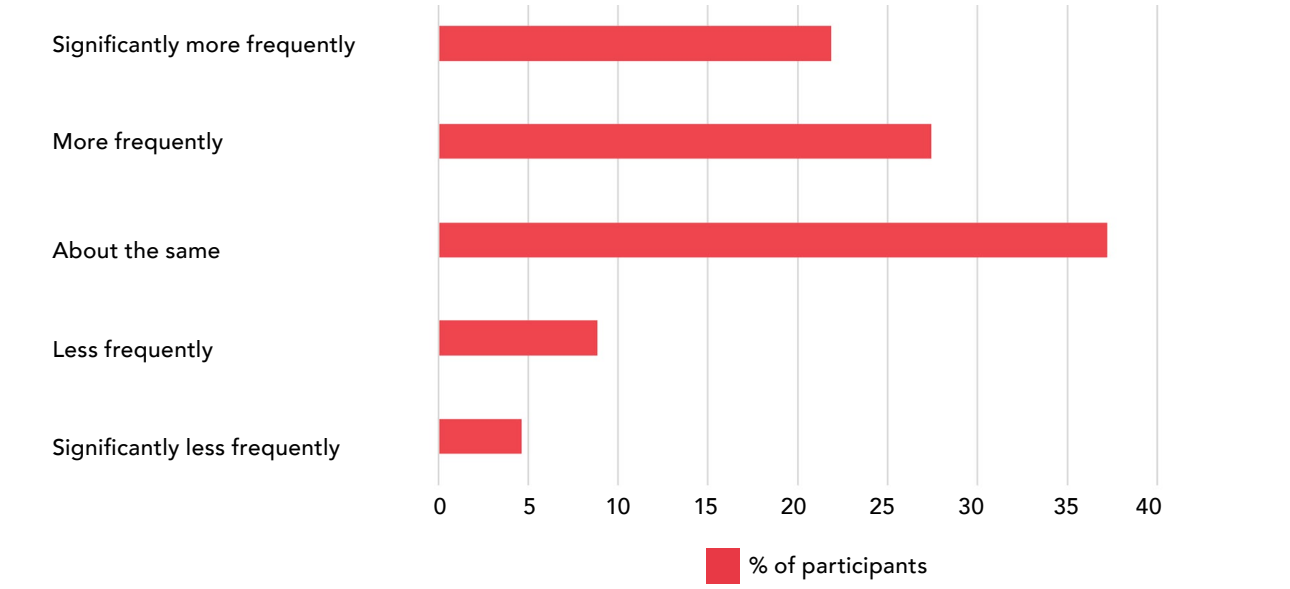

Figure 19: Use of instructional scaffolding in distance learning vs. face-to-face teaching (n=215)

Challenges of using instructional scaffolding during distance learning
Despite the fact that nearly 90 per cent of respondents used instructional scaffolding during distance learning, it should be noted that the use of instructional scaffolding faces a number of potential challenges, which have been raised by survey respondents and focus group participants. These mainly reiterate challenges that were already discussed in previous sections and relate to workload, a lack of feedback on students' understanding and access to materials, and technological difficulties.

Workload
Workload was mentioned frequently and many of the points raised mirror the workload implications raised in the feedback and assessment section above. Lack of technical training, technological challenges and the inability to support and scaffold face-to-face 'in the moment' created additional workload pressures.

Instructional videos were mentioned as being particularly time consuming to prepare and record.

"It took so long to set up! It often could take double the time to plan and resource this than a lesson would take to teach."

Primary school teacher, UK

Lack of feedback regarding students' understanding and use of materials
Teachers expressed the difficulty in gauging student understanding during distance learning. This made it difficult to tackle misconceptions early on and to know how much scaffolding to provide.

Many teachers were also unsure as to whether students had accessed the scaffolds provided and the extent to which they had been used. Without student feedback on whether scaffolds had been helpful, teachers were unsure whether they were effective or needed adapting.

Teachers also discussed the difficulty in scaffolding for individual students' needs:

"Children learn at a different pace and some need more instruction and smaller steps than others. Also thinking about children's ability to process information during a pandemic when their routines have changed suddenly all needed to be taken into consideration."

Primary school teacher, UK

Technological difficulties
Other challenges cited by teachers included students viewing video demonstrations on a small screen size, e.g. on a mobile phone, which made it difficult for them to see details. Low bandwidth also made it difficult for students to access scaffolding videos.

An interesting point raised by one participant focused on the relationship between scaffolds, modelling and students' independent learning skills. They argued that their students returned to school with reduced skills in independent learning due to having all of their online learning broken down for them so clearly into steps during distance learning.

Instructional scaffolding strategies during distance learning
Instructional scaffolding was used widely among the teachers we surveyed. All strategies listed in our survey were used by at least 86 per cent of respondents with instructional videos, used by 94 per cent of respondents, being the most popular. Differences in perceived effectiveness were marginal with the most effective strategy, instructional videos, being considered effective by 88 per cent of respondents and the least effective strategy, supportive prompts, being considered effective by 79 per cent of respondents. Only one to three per cent reported that instructional scaffolding did not have an effect.

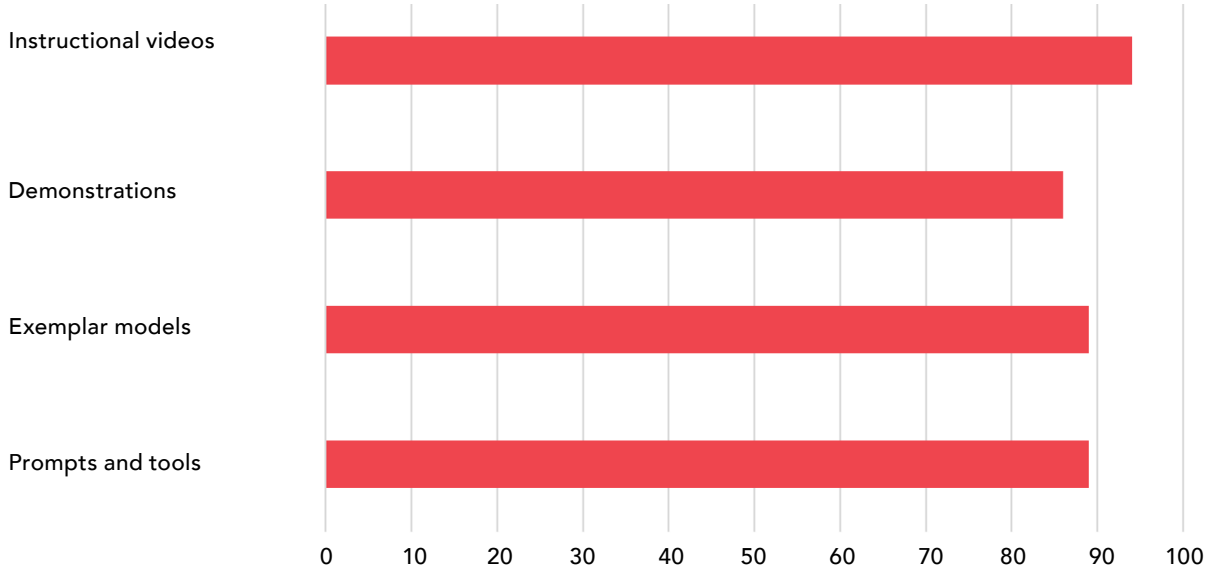

Figure 20: Use and perceived effectiveness of instructional scaffolding strategies ordered from most to least effective (n=214)

Instructional videos
Ninety-four per cent of respondents used instructional videos during distance learning, 88 per cent of whom considered these to be effective.

Some focus group participants further confirmed that their use of instructional scaffolding and in particular instructional videos had increased substantially during distance learning.

"[O]ne element of scaffolding that increased for us was modelling and the use of videos to do modelling."

Primary school practitioner, UK

The importance of using readily available resources, such as those created by Oak National Academy in the UK, was also emphasised by some focus group participants.

"I think a lot of our teachers produce content through a whiteboard talking over a video, but also we use a lot of content that was out there and actually our provision would have been a lot worse without things like the Oak Academy and the White Rose maths videos."

Primary school leader, UK

Demonstrations
Demonstrations were used by 86 per cent of respondents, with 81 per cent considering them to be effective.

While the majority of teachers reported using video demonstrations, some also mentioned using audio recordings for this purpose, or written step-by-step instructions. Video demonstrations, either live or pre-recorded, sometimes also included the use of narrated slideshows, screen recording or the use of a visualiser.

Phase-specific differences
Primary school practitioners were significantly more likely to use demonstrations than their colleagues working in secondary schools (91% vs. 75%) but those who did use them considered them roughly equally effective.

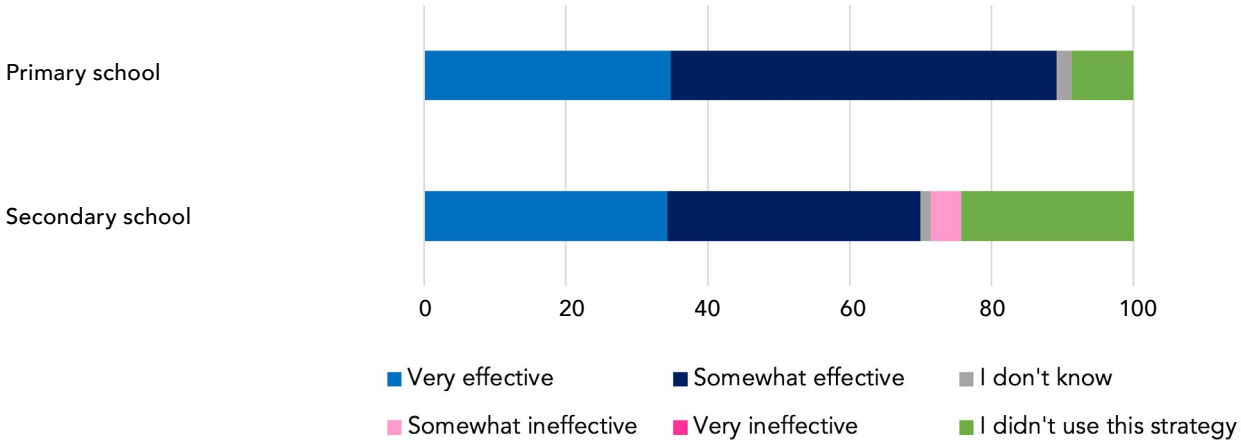

Figure 21: Perceived effectiveness of demonstrations, split by phase

Exemplar models of work
Eighty-nine per cent of respondents used exemplar models as a way to scaffold their students' learning during distance learning, which 80 per cent found effective.

Survey respondents provided a few examples of how they had used models of work in their teaching. These included the use of model paragraphs as part of writing activities, self- and peer-assessment using a model answer, videos to model different skills or uploading worked examples to the chat and online learning platforms. Many respondents used tools such as Loom or EdPuzzle to verbally annotate modelled answers which they then incorporated into their online learning platforms.

Prompts and tools
Prompts and tools such as word banks or planning sheets were used by 89 per cent of respondents and considered effective by 79 per cent of them.

Word banks and writing frames were used extensively by survey respondents. How-to guides that allowed students to work independently were another strategy that survey respondents put in place to support students' learning.

General reflections on instructional scaffolding during distance learning
During focus group discussions, teachers detailed that the experience of distance learning had made them reflect more carefully on the importance of clear instruction and carefully sequenced scaffolds, and that improved scaffolding had been beneficial for their students.

"I learnt a lot more about how to scaffold effectively myself, and they are better at theory, and the work they're doing now they're back in the room, is so much more sophisticated than any year group I've ever had. Because I really did set those, you know, scaffold those projects and scaffold the theoretical models."

Drama teacher, UK

These views were echoed in some of our survey responses:

"I missed having a visualiser to respond live to things, but it was good to plan and think in advance about how to model or explain each part of an explanation."

Secondary school teacher, UK

Multiple teachers discussed how teaching online had made them much more careful about the instructional vocabulary they used, and that they had become more precise in their wording when teaching online. Not being physically in the room with most students, and able to 'look over their shoulder' and check that they had 'got it', meant that teachers had to be more careful with their instruction to begin with, to ensure that everyone could access the task.

Teacher innovations and practical tips for instructional scaffolding during distance learning

Using a visualiser or online whiteboard/notepad

Many teachers reported using a visualiser to model and demonstrate different aspects of the curriculum, such as modelled writing, for example. This happened in both live, and pre-recorded contexts.

Other teachers used an online whiteboard or notepad, for example to show the steps in a mathematical calculation.

While it was noted that electronic whiteboards tend to have less space than real ones, they were still found to be useful for many teachers.

Making the most of being able to pause

One cited advantage of using pre-recorded videos for instructional scaffolding is the ability for students to pause an instructional video or demonstration in order to work at their own pace and to follow along step-by-step.

Some teachers created step-by-step videos of a process or technique and instructed their students to pause at certain points and complete each step themselves, then watch the next stage of the video to self-check whether they had done it correctly. If not, they were able to pause the video to correct their work or have another go.

Opportunities such as this led some teachers to comment that instructional scaffolding was actually easier to implement in the distance learning context than in the face-to-face classroom.

Individualised scaffolding/support

Most instructional videos and demonstrations were used as a whole class tool, although some teachers reported using them as an intervention for specific groups of students. For example, if some students had misunderstood a task or submitted work which did not meet the learning objectives, the teacher would record a new video specifically for those students, addressing any misconceptions, providing general feedback points and scaffolding the task so that they could have another go.

One teacher gave an example of how a task could be scaffolded to support individual needs by removing less relevant aspects of the task in order to free up cognitive resources for the most important learning.

While individualised support has workload implications, during distance learning it may enable students to access learning who would otherwise have not been able to engage.

Teacher-made or commercially-made resources for instructional scaffolding?

Some felt that resources such as the Oak National Academy lessons gave very clear models for instruction and scaffolding for less experienced teachers and had helped develop their pedagogy.

Others felt that students valued teacher-made resources more than commercial ones and tended to provide scaffolding via instructional videos and demonstrations which they had made themselves.

"We quickly learned that students valued our home-made resources more than freely available videos"

Secondary school teacher, UK

However, it was noted by some teachers that such explicit instruction and scaffolding could actually be detrimental:

"(I provided) written frameworks showing how the example phrases and sentences worked and then allowing the students to create their own using word banks and other tools. However, this stifled the student's creativity and independence of thought."

Middle school teacher, Japan

"We found that structure/routine was really useful, but content could not be too uniform, or the routine became drudgery."

Secondary school leader, UK

Thus, in taking forward some of the instructional scaffolding strategies which have been learnt from the experience of distance learning, teachers may want to consider the balance to be struck between explicit and precise instruction, and flexibility for students to think openly and creatively. It is likely that each approach will suit different learning tasks.

Summary of instructional scaffolding during distance learning

Instructional scaffolding was used extensively during distance learning, utilised by almost 90 per cent of respondents, almost half of whom felt that they used it even more in the distance context than during face-to-face teaching. Despite challenges, including the workload involved in creating scaffolds such as instructional videos, overall instructional scaffolding was considered an effective strategy to support students, with only one to three per cent of teachers reporting that it did not have an effect. Both teacher-made and commercially-made (such as Oak National Academy) resources were used for instructional scaffolding, and there were advantages and disadvantages to both. While teacher-made resources allowed for greater personalisation and familiarity, commercial resources reduced workload, ensured consistency and were supportive for less experienced teachers. Many teachers felt that the distance learning experience had improved their use of instructional vocabulary and use of carefully sequenced scaffolds.

08

Metacognitive scaffolding

Summary of past research evidence

One major challenge of distance learning is the higher levels of independent learning required from students in such settings, which can be especially challenging for younger students and those with SEND. Strong independent learning, self-regulation, metacognitive and time management skills are likely to help students cope better during distance learning (Müller and Goldenberg, 2020b; Dhawan, 2020). Metacognition and self-regulation have also been linked to academic achievement, and the importance of developing these skills from an early age has been stressed repeatedly in the research literature (Whitebread et al., 2005; Whitebread et al., 2015; de Boer et al., 2018). Following recent experiences with distance learning, some teachers have reflected on whether there should be an increased focus on these skills in the future (Müller and Goldenberg, 2020b). Metacognitive and independent learning skills take time and effort to develop. They do not constitute a 'quick fix' for current issues in distance learning but teachers can include reflective questions and scaffolds that help students to make the learning process more explicit. Furthermore, supporting students to develop study and time management skills may help them to overcome some of the challenges related to independent learning associated with distance learning.

Teachers' experiences and strategies during distance learning

While some students thrived in the distance learning environment and benefitted from the opportunity to organise their learning more independently, it should be acknowledged that for many students independent learning was a struggle.

"[T]hose students that are able to successfully self-regulate found their experience rewarding but certainly I think allowed them to kind of direct their learning time as successfully, if not even more successfully, than in the building. The problem we had was obviously those students who didn't necessarily have those self-regulation skills."

Secondary school leader, UK

Participants mentioned that some students found it difficult to take coherent notes during their lessons, particularly when their exercise books were not available. This lack of structure then exacerbated differences between students.

Metacognitive scaffolding can make learning processes more explicit for students, support them to organise their learning, and form an important part of teaching in general, and in distance learning in particular. We asked teachers about how frequently they used

metacognitive scaffolding during distance learning, which strategies they utilised and how effective these were, and what challenges they faced in implementing metacognitive scaffolds.

How frequently metacognitive scaffolding was used
Compared with instructional scaffolding, fewer teachers used metacognitive scaffolding but there were no significant differences between primary school and secondary school practitioners. Just over half of respondents reported using metacognitive scaffolding during distance learning. Responses were relatively evenly split between those who used more, less and about the same amount of metacognitive scaffolding than they would have done during face-to-face teaching.

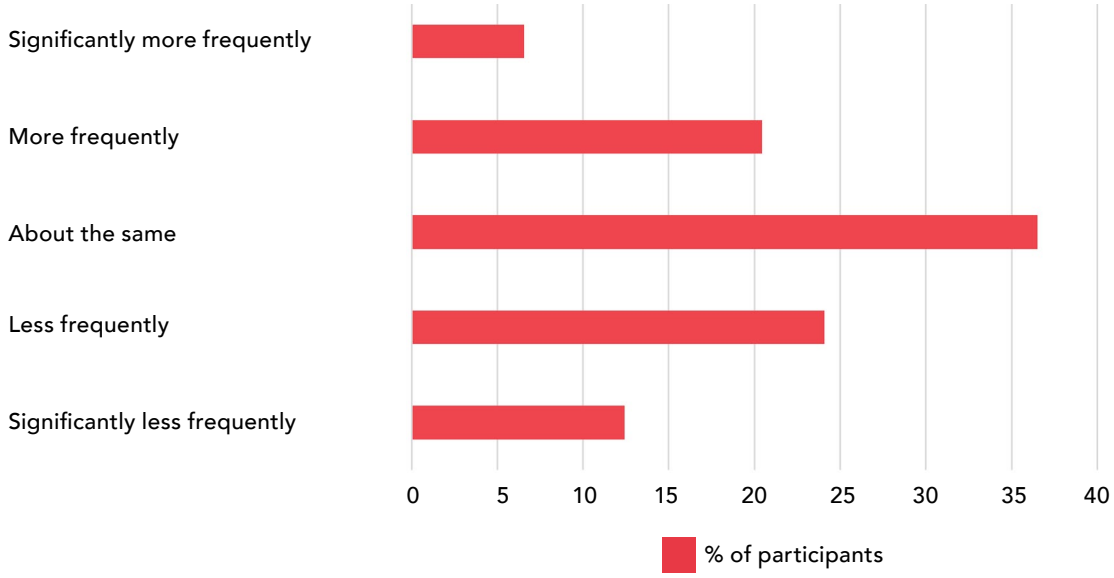

Figure 22: Use of metacognitive scaffolding in distance learning compared with face-to-face teaching (n=138)

Challenges of using metacognitive scaffolding during distance learning
Focus group discussions revealed that during the first period of school closures in particular, many teachers felt too overwhelmed to incorporate metacognitive strategies, even if it was something that they focused on a lot in their everyday practice.

"[A]ll of the kind of metacognitive work that we've been working on as a school, kind of went out of the window, particularly with the little ones."

Primary school leader, UK

These findings concur with existing research conducted earlier on in the pandemic (Lucas et al., 2020) which found that very few teachers in England were teaching metacognitive strategies in May 2020, when distance learning was in place for the vast majority of students.

Some teachers in focus groups expressed feeling that these types of metacognitive tasks were not practically possible to implement without the prompts, resources and adult guidance that are provided in a face-to-face classroom environment, and that without the classroom dynamic, it was problematic to effectively implement metacognitive scaffolding.

"It was tricky sometimes because in the classroom we usually have lots of aids all around and they had to go and just find them or we use a lot of moving and mingling activities so in virtual lessons you cannot do that, which maybe was not that comfortable for these students who had to be there for an hour and a half or two hours sitting and that made it a bit a tough for them, whereas in the classroom moving around makes them feel more active and you know that that needs the children need to move around."

Secondary school teacher, Argentina

These views were echoed in some of our survey responses, which highlighted the importance of the school ethos and physical environment when trying to teach metacognition.

Some teachers felt that although scaffolding was put in place, it was not effective in supporting learning. Often this was cited as being down to a lack of engagement from students or an inability to access and use the resources independently.

This was particularly the case with metacognitive scaffolding which may be more abstract and complex for students (and their parents) to use and understand without having the teacher physically present.

"The children that most needed this support were usually the ones not able to access the resources independently. [It was] difficult to know how much effort a child has put into editing, as the output is harder to measure (when teaching online)."

Primary school, Japan

"Students have to be in the right "place" to do metacognition - they were often reluctant to work on their own - seemed very under confident."

Secondary school leader, UK

Metacognitive scaffolding strategies during distance learning
Many teachers used a range of different metacognitive strategies to support student learning. The most frequently employed strategy was 'helping students review and evaluate their own learning', which was used by 93 per cent of respondents who had used metacognitive scaffolding strategies in distance learning. Peer or adult coaching focusing on learning strategies was the least commonly used metacognitive strategy (53%). There were no significant differences between primary and secondary school practitioners regarding the use or perceived effectiveness of these strategies.

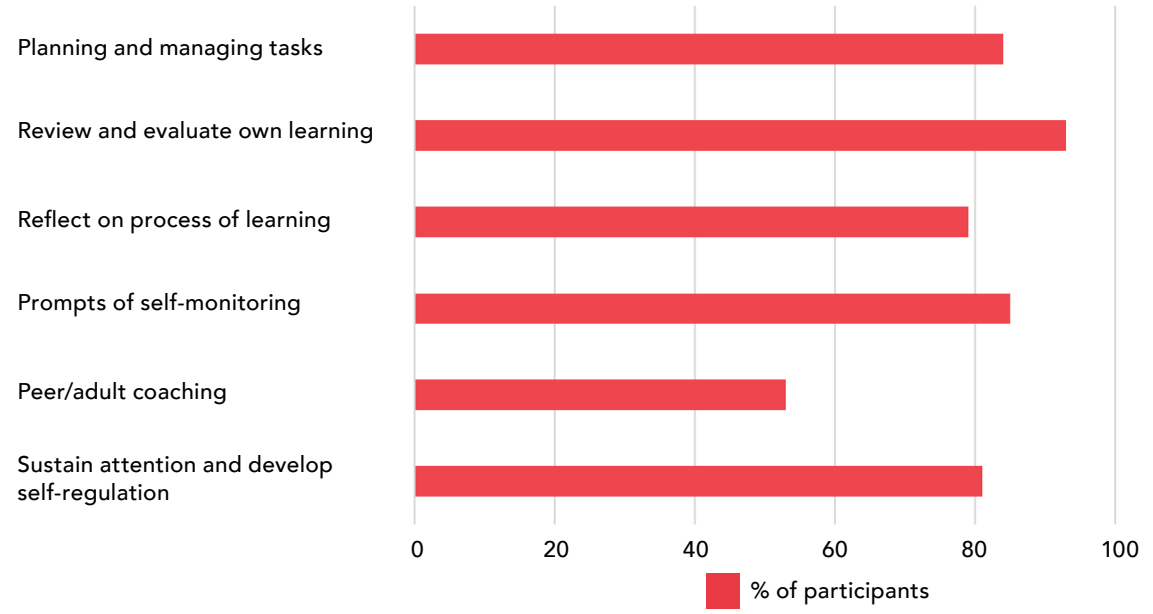

Figure 23: Use and perceived effectiveness of metacognitive strategies ordered from most to least effective (n=138)

Planning and managing tasks
Eighty-four per cent of respondents used strategies to support students to plan and manage tasks, which 38 percent considered to be a 'very effective' strategy and 44 percent evaluated as effective. Only 12 per cent of respondents said that this strategy was 'somewhat ineffective'.

Weekly schedules and tasks lists were the most popular strategies discussed by focus group participants. Weekly schedules were a popular way to help students to organise their learning over a longer period of time, while tasks lists helped them to manage expectations across shorter time frames. Students' accomplishments would then be checked at regular intervals (e.g. at the start of each live lesson, the start of the day) and students encouraged to think about the evidence they had to show for completing a task. They then submitted their evidence and received feedback. These task lists also helped teachers to monitor their students' engagement and allowed them to nudge those students who were not completing enough work.

"[E]ach of our classes had their own class page on our website and everybody had a timetable for the week. And it was broken down usually into four sections. And then the work was related to each of those so that they could see quite clearly what they were supposed to be doing over the course of a week. [...] I think it gave them that structure to follow if they needed to and then the flexibility to think 'Okay, the resources are there, if I want to change the timetable, I can do that."

SEND specialist teacher, UK

"[T]he children would be [...] on their own timetable. And so it [work] needed to be completed by the end of the day [or] by tomorrow [...] but it was up to them to then manage that time effectively and then it was the form teachers' time in the morning [or] in the afternoon. 'How you're getting on', just to double check and make sure that the children were aware of that expectation and that they weren't getting snowed under."

Primary school teacher, France

Reviewing and evaluating own learning
Ninety-three per cent of respondents used strategies to help students review and evaluate their own learning, which nearly half of respondents found effective and 35 per cent considered to be 'very effective'. Focus group discussions revealed that participants used self-assessed quizzes and forms with automated feedback to help students review and evaluate their learning.

"In terms of metacognition and checklists, they did a lot lot of quizzes, a lot of Google forms and things where children could self check their learning and monitor."

SEND specialist teacher, UK

Another popular strategy was to provide students with learning objectives in writing, sometimes in combination with exemplars, so they could refer back to these during independent study.

Reflecting on the process of learning
Nearly 80 per cent of respondents used strategies to help students reflect on their learning process and about one third found them to be 'very effective' whilst another third found them to be effective. Twelve per cent of respondents thought this strategy was 'somewhat ineffective'.

During focus group discussions, participants discussed the use of reflective prompts in the form of posters or as part of powerpoint presentations but some also noted that they were missing their classroom displays which would usually contain some reflective questions for students.

"We were very, very focused on ensuring that the metacognitive aspect of learning was really emphasised for all students because we felt that it was a key way of giving them [...] these kind of self-directed [skills], developing the independent learning, particularly for the younger ones. So we spent a lot of tutor time working on those, keeping that up-to-date, getting the students to reflect week by week on what they learned, what they hadn't learned."

Secondary school teacher, UK

The particular focus on metacognitive skills in the context of distance learning was highlighted by a few focus group participants, with some suggesting that self-monitoring and reflection was given as much space as assessment of academic skills.

Another popular approach was to embed metacognitive scaffolding in learning activities. Teachers shared examples of how they incorporated this in their daily lessons:

"Providing regular time during lessons for children to reflect and feedback and respond to how they are learning, what the barriers might be and how we can support ourselves individually and collectively to remove these. We always talked about how we learn every lesson until it became part of a regular conversation. It wasn't separate to the learning, it was part of the learning."

Primary school teacher, UK

"Asking 'thinking' questions. Pointing out common misconceptions in the lessons. Sharing how we learn and why we do things e.g. low-stake testing, repeated practice."

Middle school leader, UK

Prompts for self monitoring
Eighty-five per cent of respondents used prompts for self-monitoring, which nearly 60 percent considered to be effective, 23 per cent considered 'very effective' and 13 per cent considered 'somewhat ineffective'.

Rubrics and models were a popular way to enable students to monitor their own learning.

"[W]e enabled the students to take a little bit more ownership in terms of their own self assessment as well, which [...] was an opportunity to give them more responsibility, to give them that space to become more independent thinkers and to evaluate their own progress against our criteria."

Arts teacher, UK

Peer/adult coaching
Only 53 per cent of respondents used peer or teacher coaching as an approach to develop students' independent learning skills. Of this sample, 50 per cent considered this strategy to be effective and 24 per cent considered it to be 'very effective', but six per cent considered this strategy to be 'very ineffective'.

Peer or adult coaching was not mentioned a lot during focus group discussions but one teacher mentioned having set up small study groups for their older students (upper secondary), so they could reflect together on their learning and learn from each other.

Sustaining attention and developing self regulation
Eighty-one per cent of respondents used strategies to help students sustain concentration and develop their self-regulation skills. Forty-one per cent of respondents found these strategies to be effective and one third considered them to be 'very effective' but slightly over 15 per cent also found them to be 'ineffective'.

It becomes clear from open responses to our survey that time management was an issue for many students and explicit teaching of planning and study skills was extremely important in the context of distance learning. Respondents described focusing on planning skills more widely and exam preparation skills for students in exam years. These strategies were either taught in small groups or individually, so teachers could focus on students' individual learning needs.

"Advice for students individually and in groups on how to self-study and how to organise themselves and their time. Time-planning and motivation was a big issue."

FE lecturer, UK

Others focussed specifically on providing students with strategies to manage situations where they may feel stuck during independent learning tasks.

Some teachers also encouraged students to keep journals to keep track of their metacognitive thinking and approaches.

Teacher innovations and practical tips for metacognitive scaffolding during distance learning

The use of metacognitive prompts such as reflective questions and structure sheets, as well as regular opportunities for students to review and evaluate their learning were the strategies

mentioned most often by the teachers we surveyed. Other suggestions included:

- peer-editing prompt cards
- teaching the self-editing process explicitly
- teaching how to take notes while watching a video, then peer-reviewing each other's notes
- checklists of processes to complete projects.

Thinking in advance about the metacognitive strategies and competencies students will need

In many cases where metacognitive scaffolding was used successfully during distance learning, teachers mentioned continuing with a framework or approach which was already in place prior to the pandemic, for example a set of school competencies.

Having an established approach to metacognition and a shared understanding and vocabulary around learning skills and competencies may support students in future learning transitions and challenges.

Even where a whole school approach is not in place prior to distance learning, thinking about the metacognitive strategies and attributes students need for distance learning at the start of the process may help these to be embedded more effectively throughout, and lead to a more purposeful approach. One teacher reflected that their approach to such skills was reactive, taking place "not in a very organised way. If and when the opportunity arose".

For some, this lack of pre-planning had workload implications as they were having to try and stay one step ahead, creating an approach as they went along.

Summary of metacognitive scaffolding during distance learning

Metacognitive scaffolding was used less widely than instructional scaffolding. Just one third of total respondents used metacognitive scaffolding. Reasons for not implementing metacognitive scaffolds included feeling overwhelmed by other priorities, finding it difficult to implement without concrete resources and adult support and feeling that students were not accessing and using the scaffolds provided. However, where such scaffolds were put in place, they were usually felt to be effective. The most commonly used metacognitive scaffolds were those designed to help students evaluate and reflect on their work. Scaffolds which supported students to plan and manage their learning tasks, such as weekly schedules and task lists, were rated as the most effective. Given that existing research suggests that metacognitive scaffolding is an effective way of supporting students' learning during distance learning, schools may have benefitted from further support and guidance regarding how best to implement this. Whilst in the UK, Oak National Academy resources provided support for curriculum coverage and instruction, there was no such equivalent resource to support metacognition and ensure that students were aware of effective learning strategies and the importance of factors such as self-regulation, time management and self-checking. This may be an important area of future work that would support both distance and face-to-face teaching.

09

Supporting student wellbeing and socioemotional development

Summary of past research evidence

As detailed in our previous report there are a multitude of factors which threatened student wellbeing during the COVID-19 crisis. A longitudinal study in the UK, based on over 60,000 pupils (ImpactEd, 2021) found that the mental wellbeing of some groups were more negatively affected than others. Those from disadvantaged backgrounds, students with existing mental health problems, students in KS4, and girls were most at risk (ImpactEd 2021, Guessoum et al, 2020), whereas for other students, average levels of wellbeing were relatively stable during the first period of lockdown in 2020 (ImpactEd, 2021).

Our report shared recommendations from Mheidly et al (2020) who explored potential impacts of increased exposure to digital devices and the effect on stress and anxiety. These recommendations included providing screen breaks between lessons, using breathing exercises and meditations and providing students with opportunities to share feelings and struggles.

Teachers' experiences during distance learning

We asked teachers about the challenges distance learning presented for student and staff wellbeing, which strategies they used to support student wellbeing and how effective they thought these were.

Challenges to student and staff wellbeing during distance learning

Lack of social interaction

A lack of social interaction for teachers (54%) and students (76%) was highlighted as a major challenge in our survey. The loss of a staffroom culture was lamented during focus groups and the need for teachers to exchange with others and collaborate was stressed repeatedly.

Teachers of music and drama emphasised the importance of group dynamics and physically sharing the same space for effective teaching in these subjects.

"[T]here is no solution to the ensemble problem. You know you need to be in a room. You need to be able to breathe with the other musicians."

Music teacher, UK

For some students with SEND, the lack of direct interaction was particularly challenging, although others benefited from the calmer work environment at home without peer interactions.

"[F]or our learners the main thing that they - in most cases, found most challenging was missing their peers and being in the same group as their peers."

Teacher in a SEND specialist school, UK

Focus groups discussions clearly highlighted the importance of peer collaboration for teachers and the need to create space for teachers to exchange ideas and experiences, which many thought was facilitated by distance learning. However, 56 per cent of teachers reported that increased workload was a challenge in distance learning and the lack of opportunities to informally exchange ideas and suggestions with others can exacerbate feelings of isolation and increase workload as teachers cannot share experiences and ideas they have trialled in their online classrooms. This further confirms findings from our previous report (Müller and Goldenberg, 2020) in which we explored teachers' experiences with distance learning and in which a loss of staffroom culture was highlighted.

However, not all students struggled with the lack of social interaction and some even benefitted from reduced contact. Participants in our focus groups with specialist SEND teachers highlighted that particularly students with Autism Spectrum Disorder (ASD) and those who suffered from sensory overload in schools, benefited from the quiet and structured home environment but found the return to face-to-face teaching challenging.

"[..] the only group that really came out of this quite happy were some of our autistic students who absolutely adored not having to be anywhere near anyone else and working in that setting and, in some ways that's made it more difficult for their transition back into school, so the autistic students have definitely suffered the most coming back in because they were so comfortable in so many ways at home."

SEND specialist teacher, UK

Too much screen time

As mentioned above, too much screen time was a major concern for teachers in our study. Around three quarters of participants reported too much screen time for teachers (69%) and students (76%) as a major challenge of distance learning. A related challenge that emerged during focus group discussions was the lack of physical activity as a result of school closures and the inability to access leisure activities because of lockdowns. It was felt that lengthy periods of sitting in front of computer screens was inappropriate for students' academic, physical and social development. A more detailed analysis of early years and primary versus secondary school practitioners reveals that 66 per cent of responding early years and primary school practitioners and 82 per cent of responding secondary school practitioners thought that too much screen time for students was a major challenge of distance learning.

"[W]e did not want three and four year olds on computers three hours a day. It's just not appropriate for their cognitive development, their physical development, their social skills. So, particularly our foundation stage and key stage one we had to think really carefully and make really tough decisions."

Primary practitioner, UK

Concerns about too much screen time for teachers were also emphasised during focus group discussions when particularly those teachers who reported having to teach their full timetable in live online sessions struggled with the fact that they were spending too much time in front of screens. This was exacerbated by the fact that many leisure activities were also transferred online, providing little break from screens between the workday and after work or school activities.

"[T]he screen time was a big thing, not just for students but for myself as well. I feel I had quite a heavy timetable when actually we were teaching them almost all of our lessons online and it was really tough."

Secondary practitioner, UK

This is particularly noteworthy in the context of policies around the minimum amount of live lessons (DfE, 2021b) that were put in place during the second major lockdown in the UK at the

start of 2021. Our survey was carried out shortly after all teachers and students returned to school and thus captures teachers' opinions about practices that were put in place as a result of mandatory regulations around live lessons. While these policies took student age into consideration and mandated fewer live lessons for younger students, results from our survey indicate that the mandated three to five hours of live lessons were perceived to be too much by most teachers across all ages. Careful consideration should thus be given to policies that mandate a minimum amount of live lessons in the context of distance learning.

A small minority of teachers reported that they had not used any strategies to support student wellbeing during distance learning.

Some commented that using time for non-academic purposes was not always seen as valid and purposeful, and that there was pressure to focus on academic content.

"The external pressure that students need to 'catch up etc' on learning negates the idea that they need to be mentally healthy and sustained."

Primary school leader, Europe[4]

Given the vital impact of wellbeing support, as detailed above and in our previous reports (Müller and Goldenberg, 2021) this indicates the need for all teachers to be supported in developing strategies for wellbeing and understanding their relevance and importance.

Further challenges reported by teachers included:

- struggling to have a 'sense' of how students were coping and feeling without being able to physically see them (this was a particular concern for students who may be at risk of violence or neglect at home)
- reaching students and families who didn't engage
- a lack of regular, meaningful contact with students
- accessing support from external agencies and specialists
- counterbalancing the 'media hype' and negativity, and the workload implications of supporting large numbers of students.

"We had to do everything – wellbeing, home calls, prepare lessons – we were social workers as well as teachers and were doing several roles - many outside of our remit. Being compared to what other schools were doing was unfair as every school situation is different and it is important for this message to be made from government – teachers and schools know their communities – no box fits every school and its needs."

Junior school leader, UK

Many teachers commented that their most vulnerable students were the least likely to access and engage with the wellbeing support that was on offer.

Strategies to support student wellbeing during distance learning

Focus group discussions and survey responses suggested that student wellbeing was of prime concern for teachers and that many schools had worked hard to provide social and emotional support for their pupils, using a myriad of strategies and approaches:

"[Wellbeing] was more important than ever and was central to our planning for remote learning. This incorporated the wellbeing of staff, parents and all pupils. We introduced wellbeing groups for staff, had more regular meetings and support networks for those that needed it. We communicated more regularly with parents. For children we put in place tutor groups, 'chatty' times, clubs, a weekly wellbeing session and made sure to mix up their regular class times with fun activities or themes. We also held virtual whole school events, taking children off their regular timetable for a day e.g. Poetry Day, Safer internet day, Book day, etc."

Primary school leader, UK

[4] No further information provided

"We always had wellbeing Wednesday. A day a week dedicated to promoting mental and physical health, with talking activities, art, P.E. and opportunities to get outside. Giving children enough time between morning learning and afternoon so they could go to the park and get natural light and fresh air. The dark evenings in winter were not conducive for children to be out so being mindful that there should be gaps in online learning to create space for children to have family wellbeing time as well."

Primary school middle leader, UK

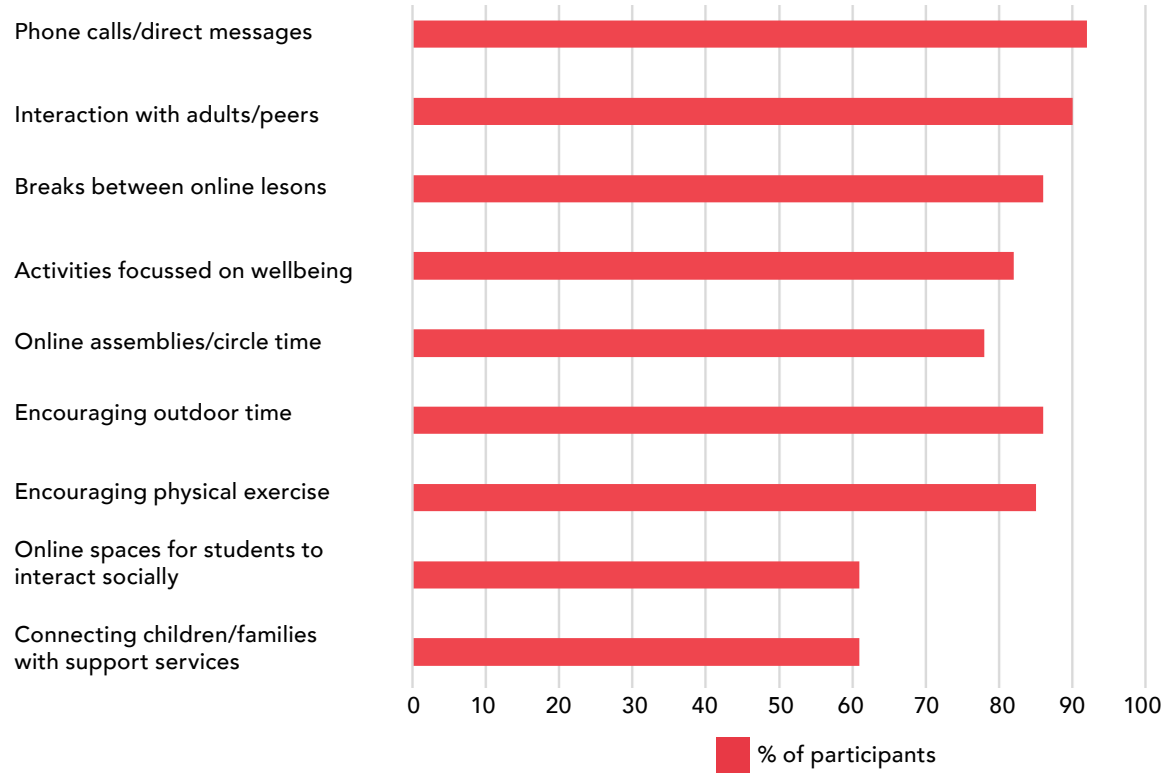

Figure 24: Use and perceived effectiveness of wellbeing strategies, ordered from most to least effective (n=187)

Phone calls/direct messages to students

Regular phone calls or messages to students was the most widely used and also most effective strategy according to respondents to this survey. Ninety-two per cent of respondents used this strategy as part of their distance learning provision and 94 per cent considered this strategy to be effective.

Some teachers reflected that the distance learning experience had made them realise how important teacher-student relationships are, and that maintaining these relationships was key in boosting wellbeing and engagement. One-to-one contact was frequently mentioned as a key strategy for this.

"Contact with individuals, either by phone or on screen, gave a huge lift to their spirits and motivation."

Primary school leader, UK

In some cases, teachers found that they got to know their students better as a result of distance learning, and that the strategies put in place would be beneficial to maintain in the longer term:

"As a tutor of sixth form aged students, I have got to know them far more via online methods in the past year. Using wellbeing surveys, then following up with emails, phone calls or video calls has opened my eyes with how we may need to adapt our tutoring/communication in the future as within a group pupils often keep quiet about things that bother them. But providing other modes of communication may be useful. I plan to continue to use this structure, but to then utilise pre-planned 1:1 meetings in person rather than via phone/online."

Sixth Form tutor, UK

Interaction with adults/peers
Ninety per cent of respondents provided students with regular opportunities to interact with adults or peers as part of their wellbeing strategy and of these, 87 per cent of respondents considered this to be an effective strategy.

In focus group discussions, the most commonly cited strategy was simply to provide students with some time to talk to each other. This could be time to share lunch virtually, giving students five minutes at the start of a lesson to catch up, scheduling weekly drop-in sessions for students to join on a voluntary basis either with a teacher present or without, and using breakout rooms to facilitate small-group discussions.

"Give children time to talk and to share. [...] It took me a while to relax and embrace this part - initially I was all about the learning and sticking to the plan, but once I realised how much they needed it, we developed a much stronger bond as a class."

Primary school middle leader, no location provided

Breaks between online lessons/reduction of screen time
Extended breaks between online lessons to support student wellbeing were provided by 86 per cent of participants and of these, 82 per cent thought that this was an effective strategy.

Some schools reduced the length of lessons to allow students and teachers longer breaks between live sessions. This also had the added benefit of allowing teachers to check on students prior to the start of the lessons to ensure that everyone was ready to learn. A reduction in lesson time of 10 minutes seemed to work best for focus group participants who trialled such an approach

"[E]veryone got their own personal plan, we spaced out lessons a bit more, so slimmed down the lessons from 50 to 40 minutes to give 10 minutes breathing space between lessons for pupils, but also that had the effect that it's good for teachers as well [...] it also meant that you could sort of specifically target one or 2 pupils and make sure they were online and had everything they were ready with before sort of everyone started or before everyone else came into the Google meet room."

Secondary school leader, UK

Some focus group participants introduced screen-free days for students and staff. In some cases, such screen-free days took place weekly whilst others organised them on a biweekly basis. These were usually supported by offline work packs with clear instructions that were sent to students' homes. Some schools used this day for a focus on physical activity, play and the development of life or socioemotional skills to encourage students to get up from their desks. This allowed both students and teachers to take breaks from live teaching and the screen and even improved engagement on the following day in some cases.

"We called it web free Wednesday and we had loads of stuff sent home for a number of Wednesdays in a row that either was directly curriculum related or was independent, research focused, but it got kids off machines. And meant actually, they were really glad and happy to see us back on a Thursday because actually they recognized the value in being a bit more directed when they weren't online with us."

Primary school leader, UK

Another approach was to reduce the amount of online content students were expected to access and work with. They achieved this by providing students with paper-based work packs and independent learning tasks where students would log on to receive instructions but then work on tasks independently.

Teachers talked about providing opportunities for cooking, arts and crafts and outdoor time as well as non-academic fun activities such as quizzes and games.

"Plan time for other activities away from the work. This was a non-negotiable with my yr12's. I wanted to see their break plan as much as their work plan."

Secondary school middle leader, Uzbekistan

Activities focussed on wellbeing
Activities focusing specifically on wellbeing, selfcare and socioemotional learning were incorporated into the distance learning offer by 82 per cent of respondents, and 77 per cent considered them to be effective. However, there were phase-specific differences in the use of wellbeing activities. They were significantly less commonly used in secondary schools than primary schools. Thirty per cent of respondents from secondary schools indicated that they did not incorporate specific wellbeing activities into their distance learning offer, as opposed to just four per cent of participants from primary schools. Eighty per cent of respondents from primary schools who did use wellbeing activities considered them to be effective, compared to 74 per cent of respondents from secondary schools. Examples of wellbeing activities included gratitude journals, meditation and mindfulness.

"[W]e ensured our daily time table had a least 40% non-screen time such as Yoga, Jo Wicks, Gardening, cooking."
Primary school senior leader, UK

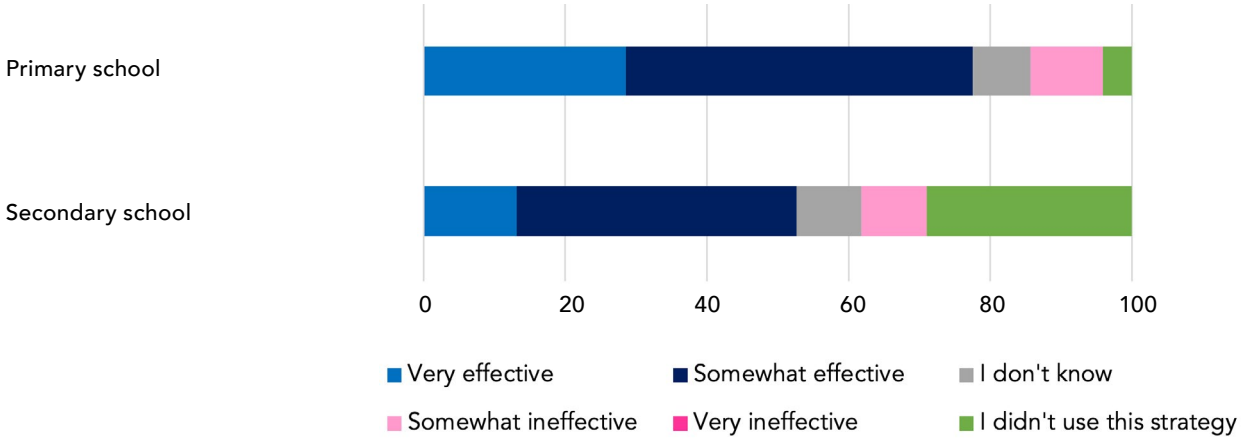

Figure 25: Use of specific wellbeing activities, split by phase

Online assemblies/circle time
This strategy was used by 78 per cent of respondents overall, and 76 per cent considered it to be an effective strategy to support student wellbeing. Fifteen per cent of respondents considered this strategy to be ineffective. Overall, participants from primary schools considered this strategy to be more effective, with significantly more respondents from primary schools considering this strategy to be 'very effective' (41% vs. 24%). This suggests that the maintenance of such a key component of primary school education (in the UK system) may be of particular importance for younger students. This would further be supported by the finding that assemblies were less commonly used in secondary schools during distance learning (84% indicated that they used this strategy as opposed to 76% of respondents from secondary schools).

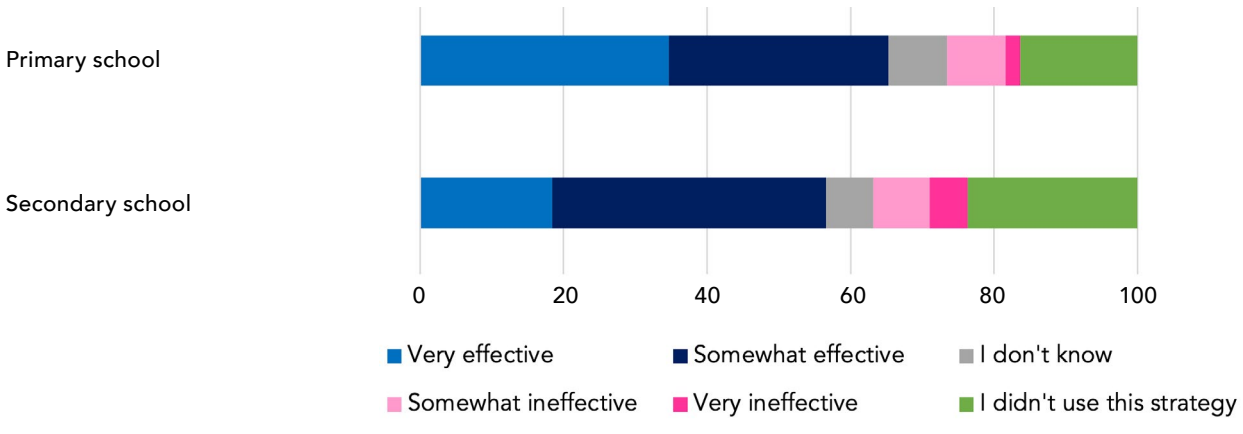

Figure 26: Perceived effectiveness of assemblies/circle time, split by phase

Encouraging outdoor time
Eighty-six per cent of respondents encouraged students to spend more time outdoors in an attempt to support their wellbeing. This strategy was considered effective by 69 per cent of respondents, but phase-specific differences were observed. Outdoor time was used significantly more frequently by respondents from primary schools (98% vs. 83%) and was considered more effective by primary school teachers than secondary school teachers. The fact that more primary school teachers encouraged students to spend time outdoors may also be a reflection of typical school timetables where younger students usually spend more time outdoors than older ones.

Seventeen per cent of secondary versus just two per cent of primary respondents indicated not having used this strategy during distance learning. Nearly twice as many respondents from primary schools also considered this strategy to be 'very effective' (29% vs. 15%). Fifteen per cent of respondents from primary schools but only three per cent of respondents from secondary schools thought that this strategy was 'somewhat ineffective'. This suggests that encouraging students to spend time outdoors is an effective strategy but may rely more heavily on adult support in primary schools than it does in secondary settings. In other words, in primary schools where caregivers can facilitate outdoor time, encouraging them to do so is likely an effective strategy to support student wellbeing. However, when such support is not available to students, other wellbeing strategies which require less adult supervision may be more beneficial.

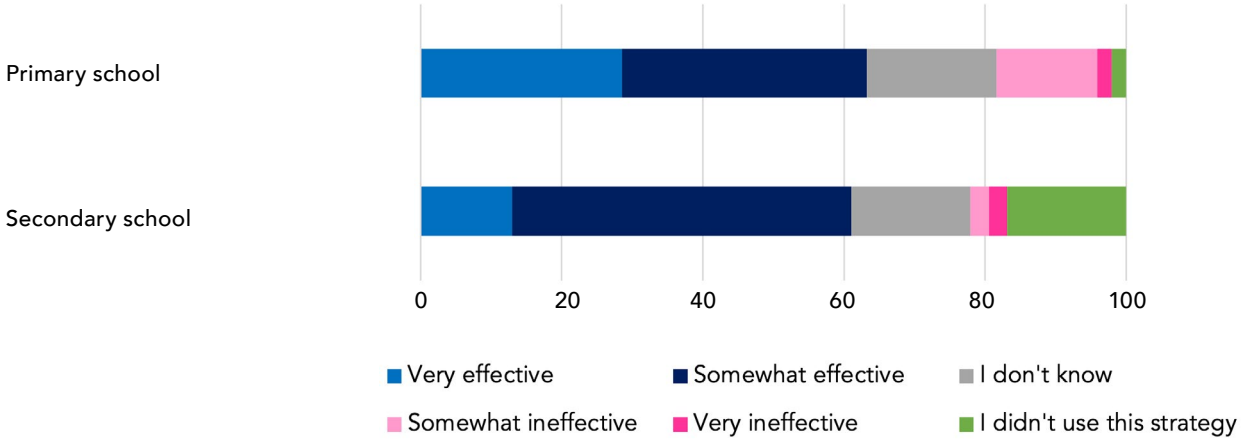

Figure 27: Perceived effectiveness of encouraging outdoor time, split by phase

Encouraging physical exercise
Another strategy that was commonly employed by teachers to support students' wellbeing was encouragement to get physically active. Eighty-five per cent of teachers reported using this strategy and 67 percent thought that this was an effective strategy to support students' wellbeing. When comparing responses from primary and secondary school teachers, it becomes clear that physical exercise was important across both settings but particularly in the primary phase. Practically no respondents from primary schools reported not having used this strategy (just 2%) whilst 24 per cent of respondents from secondary schools did not encourage students to get physically active during distance learning. Significantly more respondents from primary schools who had used this strategy considered it to be 'very effective' (31% vs. 19%) but twelve per cent also considered it to be somewhat ineffective, as opposed to just one per cent of respondents from secondary schools. In line with findings about outdoor time, these findings suggest that whilst outdoor time and exercise are potentially highly effective in the primary setting (and for students overall), it might be more difficult to implement with younger students when adult support is not available, affecting its effectiveness in such cases. Including physical exercise as part of scheduled lessons rather than encouraging students to engage in physical exercise independently may therefore be more effective.

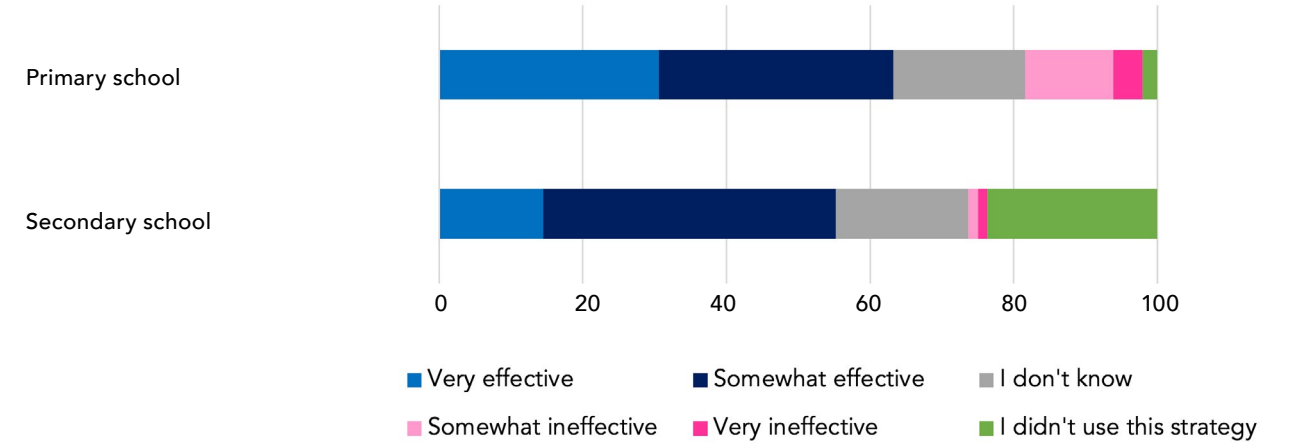

Figure 28: Perceived effectiveness of encouraging physical activity, split by phase

In an attempt to get students moving, many schools organised physical challenges. This was particularly relevant for students with SEND who, on average, already have worse physical health outcomes and are, on average, more likely to develop obesity than their peers (Ells et al., 2006; Huang et al., 2020; Shields et al., 2012).

"[S]omething we're really aware of is the kind of physical fitness of our students and young people, and the fact that for lots of our young people, the only real times they're active or or they exercise for any duration of time is usually in school. So when they're at home, that was a real worry for us. And again, I think we've seen challenges around sort of health and obesity levels spike and rise. I think recent research has sort of shown this. So we had challenges, we had kind of fitness events where young people were coming together. They were doing kind of yoga exercises. They were doing workouts. All of those kinds of things and they were really positive and I think that encouragement and connectivity worked really, really well."

SEND specialist teacher, UK

Furthermore, physical activity has important benefits for mental health and wellbeing, which is important to consider in the context of an ongoing health crisis that is likely to negatively affect the wellbeing of at least some parts of the population (Paredes et al., 2021) with some studies suggesting that parents and their children may have been particularly negatively affected (Patrick et al., 2020).

Physical challenges did not only occur outside lesson times but were often incorporated within lessons to improve motivation and engagement. Participants reported that particularly younger students seemed to benefit from simple tasks that required them to get up from the screen and move around the house.

"So if you were doing something that was a bit different, like I said, getting them to race around the house "Go and find me something that's purple," You know, those kinds of things just engaged them a little bit more and meant that they were willing, they were ready to tune in and they were willing to work with you. And it was worth spending that 5 minutes that 10 minutes doing that."

Primary school practitioner, UK

Online spaces for students to interact socially

Sixty-one per cent of teachers created online spaces where students could just interact socially with each other. Seventy-six per cent of teachers using this strategy considered it to be effective in supporting wellbeing. There were no substantial differences in the overall effectiveness rating across phases but significantly more participants from primary schools considered this strategy to be 'very effective' (42% vs. 18%) in supporting student wellbeing. This may be the case because younger students have fewer opportunities to interact with their classmates outside of school time via mobile phones or social media, which makes the social aspect of distance learning all the more important. The fact that nearly 40 per cent

of respondents from primary schools did not use this strategy despite its high effectiveness rating indicates that this strategy was maybe not used to its full potential during distance learning. Training in how best to set up and monitor such spaces may encourage more teachers to use this facility of online learning platforms.

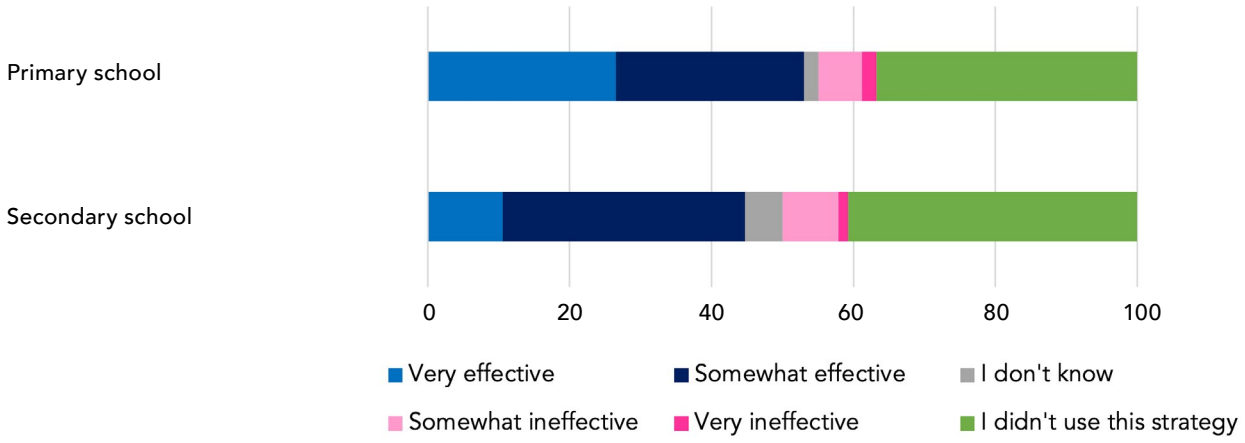

Figure 29: Perceived effectiveness of space for online interaction, split per phase

Focus group participants also discussed setting up common areas on Google Classroom or Microsoft Teams dedicated to social interactions. Issues around safeguarding and the need to supervise breakout rooms were also discussed. In some cases this issue was solved by asking additional members of staff to join the breakout sessions and in others teachers popped into the various chats on a regular basis to monitor behaviour.

"I was quite lucky my class were quite an easy class and I could trust them quite a lot, so we did a lot of breakout groups where they talked about their feelings, etc."

UK Primary practitioner, Spain

One teacher also mentioned that opening multiple Zoom meetings in different browser tabs allowed her to monitor all breakout rooms simultaneously. An alternative would be to open multiple browsers with the same meeting but different breakout rooms. This gives teachers the opportunity to oversee all breakout rooms and only requires activating the audio whenever they want to join a specific discussion.

Connecting children/families with support services

Overall, 61 per cent of participants connected students and their families with support services and 70 per cent thought that this was an effective strategy. There were no significant differences between responses from primary and secondary school but primary school teachers were more likely to refer/connect to wider services than secondary teachers. Forty-one per cent of respondents from secondary and 27 per cent of respondents from primary schools reported not having connected students or their families with support services. Primary teachers may have been more likely to engage in this strategy because they tend to have more direct contact with parents and the primary system is set up so that families tend to have one teacher and point of contact for their child, rather than multiple subject teachers as in secondary schools. This structure may mean that individual primary teachers know more information about families and their needs, whereas in a secondary school this work may be more likely to be carried out by a pastoral team. The relatively high proportion of teachers who did not connect families to support services may reflect the fact that certain services were closed or more difficult to reach during school closures. This also highlights how much of the important work of supporting students' mental health and wellbeing was shouldered by teachers and schools during distance learning.

Teacher innovations and practical tips for student wellbeing during distance learning

The need for flexibility and understanding

Some teachers commented that they relaxed more over time, accepting that emergency remote teaching would require flexibility. For some, this flexibility meant reducing lesson length, for others it meant no longer setting homework so that students had more time to look after their wellbeing and grapple with changes and challenges.

"We tailored the online learning to the individual based on their barriers – i.e. those who preferred work packs received them whilst others had 1:1 zoom lessons and others had group sessions, some learners used zoom with no cameras and just chat facilities – where possible we ensured no learners did not have the ability to access what they needed."

Alternative provision teacher, UK

Putting systems in place to ensure all students/families have been supported

"It's impossible to know who will handle the situation well, and who might struggle. Greater communication to see who has spoken to children or parents and what response there has been. A spreadsheet accessible to all teachers to input comments and read what others have done, to see if one should phone or not."

Secondary school teacher, UK

Some teachers mentioned using regular online surveys to gauge and monitor students' wellbeing and then following up on any concerns with individual phone calls, online meetings and messages. Support from the pastoral team, wider support services and effective communication systems to track who had been contacted were features of successful practice in this area.

Teachers raised several suggestions for support which would have helped them to monitor and maintain student wellbeing. These included:

- more pastoral support and staff assigned to home contact (e.g. visits and phone calls)
- more admin support, for example with investigating and supporting non attendance, poor engagement etc.
- better links and support from local agencies
- better technology and connectivity for both students and teachers
- specific mental health training and support
- less focus on 'lost learning' from the government, media and school leaders, allowing wellbeing to be more of a priority
- a more positive narrative about the work of teachers and schools during the pandemic.

Summary of student wellbeing during distance learning

The ongoing COVID-19 outbreak, resulting in partial school closures, lockdowns, limited access to outdoor spaces, increased screen time, stress, grief and trauma, has negatively affected the wellbeing of at least some students and teachers (Müller and Goldenberg, 2020; ImpactEd, 2021). Teachers have clearly realised the strain that the ongoing pandemic has put on students and their families and have put a range of strategies in place to support them. Regular phone calls or messages to students, as well as time to interact with peers and teachers, were considered particularly effective strategies. Providing students with some time to talk was considered particularly effective in supporting students' wellbeing by primary school teachers. It is likely that this is the case because students in primary schools have fewer opportunities to interact with their peers without adult support, whilst older students are more likely to have mobile phones available to them that allow them to call or chat with their friends. Extending breaks between live lessons and reducing screen time were also very effective in supporting students' wellbeing. So, whilst live teaching can be an effective strategy to support students' engagement, the drawback of too much screen time, especially for younger students, should be considered. The need to maintain a school community by continuing to run assemblies or circle time online was also stressed as important and effective by teachers in this study. Encouraging students to spend time outdoors and get physically active was found to be effective across all phases but implementation may rely heavily on adult support with younger students specifically. If teachers know that students do not have such support available, incorporation of wellbeing strategies within regular lesson time may be particularly important. Finally, connecting students with support services was more commonly used in primary school settings but considered relatively less effective overall. This is likely not due to the effectiveness of support services more generally but rather the difficulty of arranging support during a pandemic.

10

Supporting student motivation and engagement

Summary of past research evidence

Motivation is considered to be one of the most important aspects of learning in any environment (Miltiadou and Svenye, 2003) as motivational processes can affect both how well children use their existing skills and knowledge and how well they acquire new learning (Dweck, 1986). At all ages, self-efficacy has been found to be a strong predictor of effort, self-regulation and persistence (Wigfield et al., 2015). Individuals with higher levels of self-efficacy have been shown to work harder and persist for longer in the face of difficulties (Bandura, 1993). For this reason, our aforementioned report (Müller and Goldenberg, 2020), encouraged teachers to consider using scaffolds and consolidating prior knowledge during distance learning, enabling students to feel confident that they could complete the tasks set, as well as providing mastery experiences and building students' capacities for self regulation and metacognition. We also pointed out the importance of digital self-efficacy, and early identification and support for students who may feel less confident using technology.

Other factors which can positively influence motivation, according to existing research include students being mastery goal oriented (Dweck, 1986; Miltiadou and Svenye, 2003), having autonomy over their learning (Deci and Ryan, 2012; Grolnick and Ryan 1987) and having a positive relationship with the teacher (Montalvo and Mansfield, 2007). Prompt and helpful feedback has also been cited as an enabler for student engagement in distance education (Yates et al., 2014). Problem solving, self-reflection and self-assessment have all been shown to support online engagement during flipped learning (Wang, 2017).

However, research conducted during the pandemic suggests that student engagement and motivation were key challenges during distance learning (Yates, 2020; Zaccoletti et al., 2020). One study which surveyed almost 400 parents in Portugal suggests that student anxiety and social support from teachers were significant predictors of the decrease in academic motivation during distance learning (Camacho et al., 2021).

Teachers' experience with supporting student motivation and engagement during distance learning

Levels of student engagement during distance learning

Overall, students appear to have been less engaged in their learning in distance learning than they would have been during face-to-face teaching. Over half of respondents indicated that their students were less engaged during live online lessons than they would have been during face-to-face teaching but just under 30 per cent also stated that they did not notice a difference in their students' engagement. Just under five per cent of respondents stated that

their students were more engaged during live distance learning than face-to-face teaching. There were no significant differences in engagement levels between primary and secondary school students but not a single respondent from primary schools indicated that their students had been more engaged in live online teaching than face-to-face lessons.

When asked about students' motivation to complete independent learning tasks, a similar picture emerged. Over 60 per cent of respondents indicated that their students were less motivated to complete independent learning tasks (e.g. homework) during distance learning. However, just under 30 per cent stated that there was no difference in their students' motivation to complete independent learning tasks and a small minority (5%) stated that their students were more motivated to learn independently during distance learning.

Challenges of maintaining student motivation and engagement during distance learning
Over half (55%) of survey respondents considered students' lack of engagement to be one of the major challenges of distance learning. This was further confirmed during focus group discussions.

Major challenges concerned the submission of work, turning on cameras and distractions, all of which are discussed in turn below before potential solutions are presented.

Submitting work
Some teachers felt that when students did not submit any work, it was hard to hold them to account for this, and that there were no real consequences.

Others did not receive any work from certain pupils, meaning that they were unable to assess their learning at all. Others found that whilst work from some subjects was completed, for other subjects very little was done, making assessment and feedback impossible for those subjects:

"[It was hard] getting a balanced curriculum. Many children chose to do the subjects they like and then ran out of time!"

Primary school senior leader, UK

Turning on cameras
Some participants struggled with student engagement as a whole whilst others reported difficulties, with some students refusing to turn on their cameras or not showing up to lessons. The issue around cameras was discussed a lot in focus groups. For safeguarding reasons, some schools had put policies in place that did not allow students to turn their cameras on, whilst other schools did the exact opposite for the same reason. In many cases, students preferred to have their cameras off despite school policies being in place to have them on, with peer pressure frequently guiding students' decisions. It was also mentioned that for some students the distance learning experience led to increased anxiety as the set-up meant that all eyes were on them when they contributed, whilst in class it was mainly their teacher looking at them. It is also important to note that a turned off camera should not automatically be interpreted as a lack of engagement. Teachers working with students with ASD mentioned that some of them preferred having the camera switched off and participate in the chat instead. It thus is important to consider the motives behind turned off cameras.

Focus group participants described the difficulties around teaching to a black screen and only having their students' screen names to go by without any indication of their levels of engagement or understanding. Furthermore, encouraging students to show up, turn on their cameras and engage required additional levels of involvement, taking time away from teaching and adding to teacher workload.

"[E]ncouraging children to being in class was one of the most difficult things to do because they usually turn on the the zoom, they click on the link, but they wouldn't put the camera so you never knew if they were on the other side."

Secondary school teacher, Argentina

Distractions
Students being connected but not actually engaging with lessons was another issue that was mentioned repeatedly during focus group discussions. Teachers reported that students would sometimes have additional windows open and be browsing content that was not related to their lesson, which was difficult to control from a distance. In many cases, participants

reported that the same students who were disengaged in face-to-face lessons were also disengaged during distance learning but some students were facing additional challenges such as sensory overload or additional distractions from the internet at their fingertips. For those who were already on the verge of disengagement during face-to-face teaching, digital learning may have accelerated their levels of disengagement.

We asked teachers about strategies they used to support student motivation during distance learning, how effective they thought these were and the challenges they faced. All strategies were used by over 60 per cent of respondents and there was a correlation between the most used and the most effective engagement strategies.

Strategies to support student engagement and motivation during distance learning
Teachers used a range of strategies to support students' engagement and motivation during distance learning. These are depicted in figure 30 below.

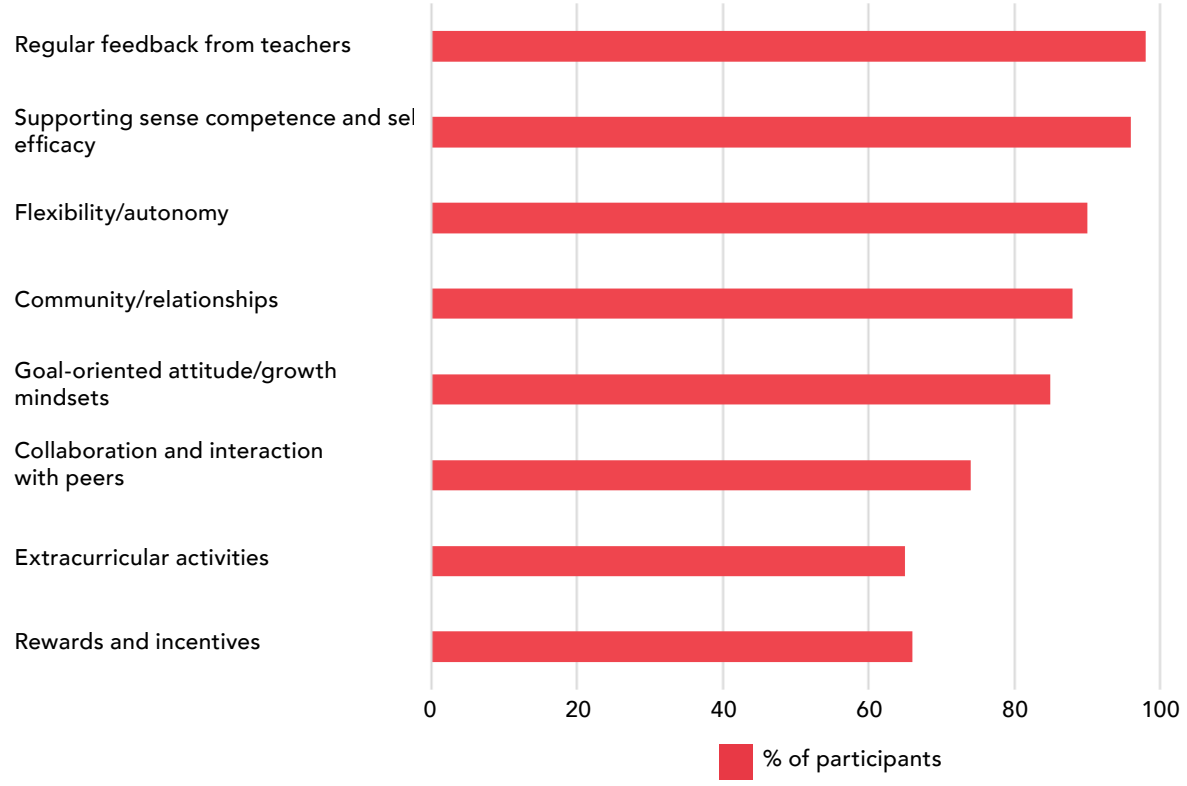

Figure 30: Use and perceived effectiveness of motivation and engagement strategies, ordered from most to least effective (n=204)

Regular feedback
Ninety-eight per cent of respondents said that they used regular feedback as a way to motivate their students during distance learning, which over half of respondents considered to be effective, and 35 per cent a 'very effective' strategy. The importance of feedback in students' academic development was already discussed in detail in section five but these findings highlight that it had the additional benefit of keeping students motivated.

Focus group participants further confirmed the importance of regular contact with students to ensure that they were on track with their work and doing well physically and emotionally. The importance of timely feedback was also highlighted as an important motivator.

"Rapid response to work, live feedback and having a pre-lesson chat seemed to build a greater sense of class morale."

Secondary school middle leader, UK

Supporting students to develop a sense of competence and self-efficacy
Ninety-six per cent of respondents stated that they actively supported students in developing a sense of competence and self-efficacy as a way to engage and motivate them. This strategy was considered 'very effective' by 35 per cent of teachers and 'very effective' by 43 per cent.

Offering a sense of flexibility and autonomy

"Choice is a powerful factor and trust is a key enabler."

Secondary school senior leader, UK

Flexibility was necessary in the recent context of distance learning because it allowed students to access at least some of their learning when they had a device and bandwidth available (see section on barriers to distance learning). But it also played an important role in motivating students. Ninety per cent of respondents said that they offered students some flexibility and autonomy over their learning as a way to motivate them, which 42 per cent considered to be effective and 28 per cent to be a 'very effective' strategy, whilst nine per cent felt that this was ineffective.

"(Give) choice of when to complete work. Often students lacked motivation due to external factors, however if they had a week or a few days to complete rather than always within the next hour, more work was submitted overall even (when compared to) face to face."

FE lecturer, UK

The importance of flexibility as an additional motivator was further highlighted during focus group discussions. The need to provide students with flexibility and choice around their learning was emphasised particularly by teachers working with students who have SEND.

"I think they needed that structure, but they also needed the flexibility to move off and do other things if they needed to do it, and then we also had an 'at home' hub where if the timetabled activities weren't suitable or if they weren't engaging with them, there were other fun things that they could do that would help with the learning and then they could feed that back and see what the kids are doing with those in school as well."

SEND specialist teacher, UK

<u>Phase-specific differences</u>
The only notable phase-specific difference regarding flexibility was that more teachers from secondary schools reported not using this strategy (16% vs. 4%). Given that it was rated as one of the most effective strategies to support student engagement, it may be important to share strategies with teachers across all phases on how best to support flexibility and autonomy in distance learning.

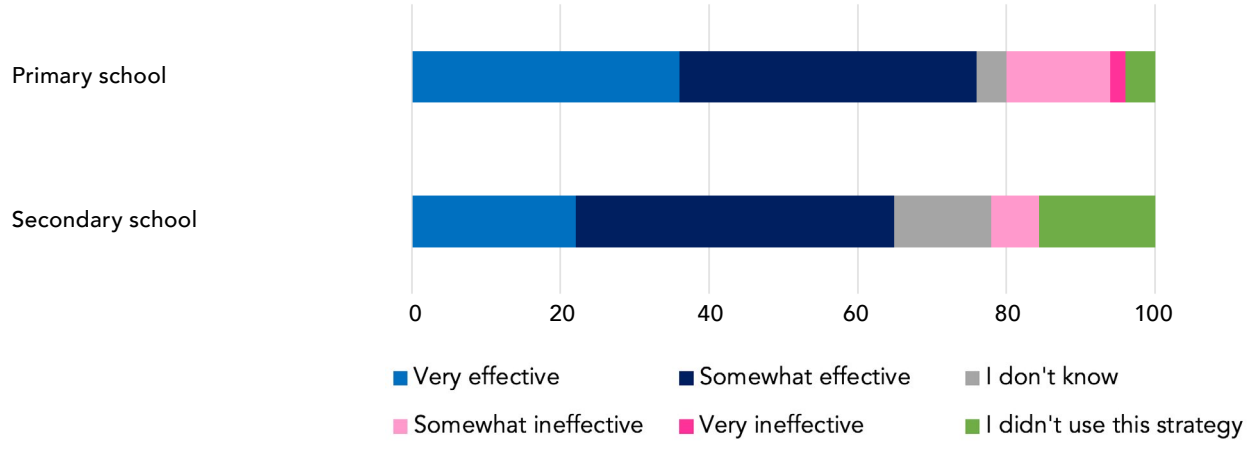

Figure 31: Use and perceived effectiveness of flexibility/autonomy, split by phase

Building and maintaining a sense of community
Building and maintaining a sense of community between teachers, students and their parents was used as a key motivationals strategy by 88 per cent of respondents, of whom about one third considered it to be 'very effective' and one third effective. The importance of regular contact with students and their families as a way to keep students engaged and motivated was also highlighted by focus group participants.

"We had a strong recognition of touching base with parents on a weekly basis from one member of the team - might not be the class teacher, but somebody would make a phone call."

Primary school leader, UK

"Building a sense of community is very important, my students used to tell me that they looked forward to our lessons as sometimes it was a place they could interact with me and the other students as if we were in the class."

FE lecturer, UK

The importance of parental engagement and its impact on student engagement was also highlighted throughout the survey and focus groups.

"The parent support is key! Where parents were not engaged the children were not. It was entirely dependent on the parents' engagement. We spent more time trying to encourage parents in order to engage the children."

Primary school leader, UK

Several teachers reflected that it would have been more effective to have a clear strategy for supporting parents from the very beginning, in terms of supporting their curriculum understanding, their approaches to learning, their expectations for engagement, and how best to support their children whilst also maintaining their own wellbeing.

While some felt that this strategic approach to supporting parents should have been organised at a school level, others felt that a national strategy focusing on how to support home learning effectively would have been beneficial.

To engage parents and families more actively in their children's learning, some schools actively involved parents and siblings in various activities such as virtual sports days or celebrations. Indeed, celebrations were a very important aspect of maintaining a school community. Many schools continued to celebrate birthdays or major holidays in their virtual settings to support engagement and wellbeing.

Phase-specific differences
Significantly more primary school teachers in our sample considered the maintenance of a feeling of community to be a 'very effective' strategy (52% vs. 33%) but a significant proportion also rated it as a 'somewhat ineffective' strategy (18% vs. 3%). This suggests that maintaining a sense of community has the potential of being a highly effective strategy to increase student engagement in primary school but it may rely heavily on parental support and children's ability to engage with the opportunities that are on offer.

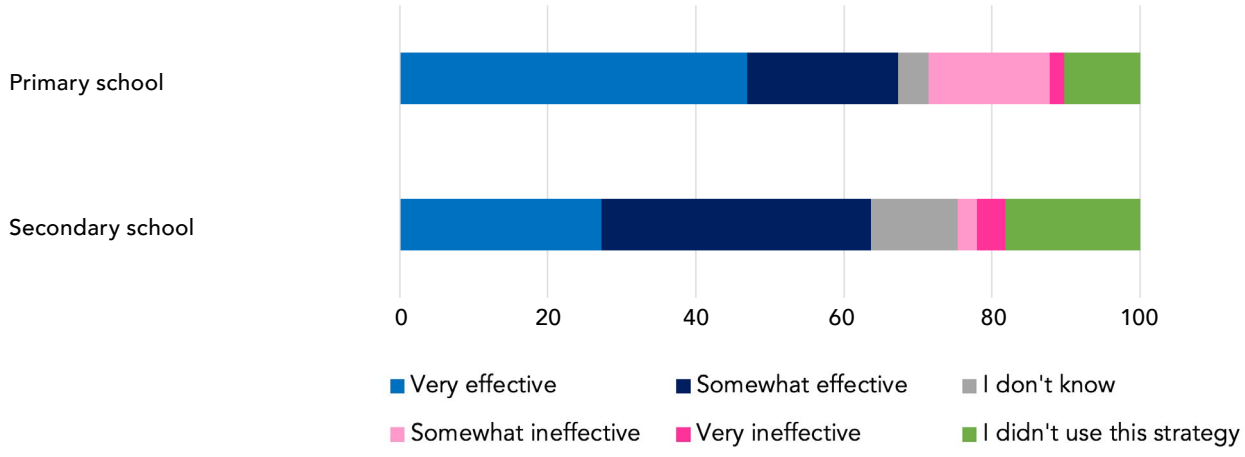

Figure 32: Use and perceived effectiveness of community maintenance, split by phase

Goal-oriented attitudes/growth mindset
Eighty-five per cent of teachers encouraged and supported students to develop goal-oriented attitudes and/or a growth mindset by focusing on the learning process and emphasising that errors are part of the learning process. Thirty-eight per cent of participants considered this strategy to be effective and 21 per cent thought it was 'very effective'.

Participants noted that it was equally important to highlight to parents that mistakes are part of the learning process and not a reason to be discouraged.

"Reinforcing (often to families who were nearby during lessons) that mistakes are part of learning and pupils do not need to get every question correct all the time."

Secondary school senior leader, UK

Responses to open-ended questions in the survey revealed the importance of believing in students and their capabilities and not to project teachers' or caregivers' own insecurities about an online learning environment onto students.

"You have to start by believing that students can do it. The weaknesses came from teachers who felt they were under the spotlight, that they were responsible for students working or that students simply weren't capable of rising to the challenge. Students proved them wrong and long may we remember it."

Secondary school senior leader, UK

Interaction and collaboration with peers
Seventy-four per cent of teachers provided students with opportunities to collaborate and interact with others. Collaboration was discussed in detail in section six, so here we focus on opportunities teachers provided for students to interact with each other socially. One third of teachers who created such opportunities thought they were effective and 22 per cent thought they were 'very effective' in motivating students. However, some teachers were more sceptical about the effectiveness of opportunities to collaborate and interact with peers. Over 20 per of teachers felt that this was ineffective, despite existing research evidence suggesting that connection with others is an important element of motivation.

Social time for students was one of the strategies that was discussed most in focus groups and it became clear that it was something that students actively asked for. As one teacher put it, they were in touch with each other via phones and social media but they missed physically seeing each other and having a casual chat with their classmates.

Teachers also shared how this social time had a positive impact on themselves as they missed the small conversations they would normally have with their students before or after lessons, in the corridors or on the playground.

"It was just a group with the teacher and it was kind of a chance to catch up with your friends and have a chat and maybe interact with each other, and that was really powerful. As the teacher it was definitely the best part of my day to see the children and be able to interact with them."

Primary school leader, UK

<u>Phase-specific differences</u>
Significantly more primary school teachers indicated not having provided opportunities for students to interact and collaborate with each other as a way to increase their engagement (39% vs. 18%) but significantly more primary school practitioners who did provide such opportunities considered this to be a 'very effective' strategy (50% vs. 18%). More secondary school teachers perceived this strategy to be somewhat ineffective but this difference was not statistically significant. This suggests again that implementation may have been an issue with younger students who are likely to require higher levels of support to access available opportunities, and that interaction with peers may be particularly important to keep students engaged at younger ages.

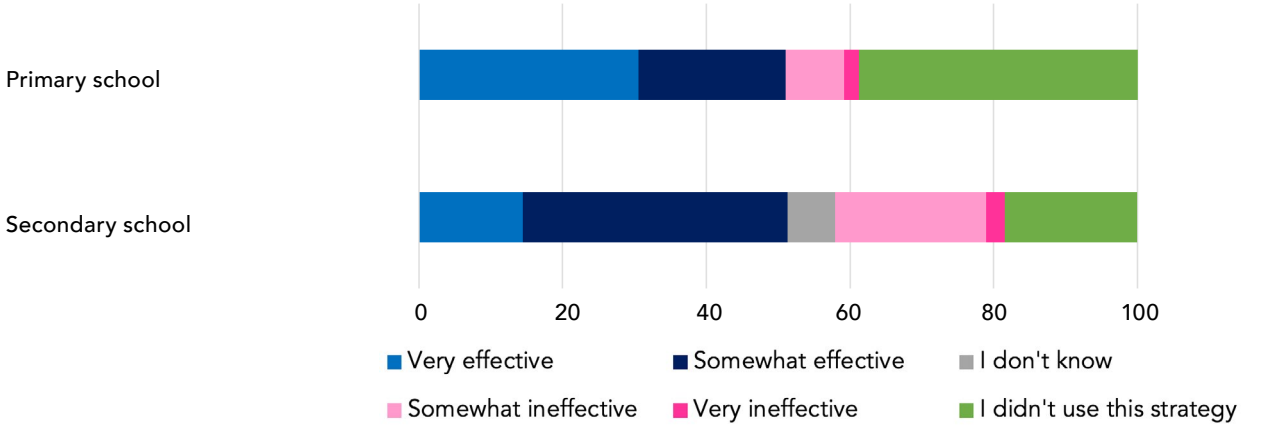

Figure 33: Use and perceived effectiveness of peer interaction/collaboration for engagement, split by phase

Extracurricular activities

Sixty-five per cent of teachers provided students with opportunities to engage in extracurricular activities as part of their distance learning offer and as a way to motivate them. Of these, 30 per cent thought this approach was effective and 14 per cent thought it was 'very effective', whilst 11 per cent thought it was ineffective. During focus group discussions, the need for physical activity was discussed in much detail and many teachers were concerned about the lack of exercise associated with distance learning. They therefore set up virtual sports days and encouraged students and their families to get involved in physical or dance challenges to encourage physical activity.

Research confirms the positive impact of extracurricular activities on students' academic and socioemotional development. A report by the Social Mobility Commission has shown that extracurricular activities result in a range of positive outcomes for young people including improved attendance, confidence and social skills (Donnelly et al., 2019). PISA data shows that countries whose schools offer a larger amount of creative extracurricular activities, also demonstrate greater equity in student performance, and students enrolled at schools providing such activities perform better in reading on average (OECD, 2020). Some research also suggests that extracurricular activities can have a positive impact on academic achievement (Carbonaro et al., 2019) and literacy development (Gordon et al., 2015). This suggests that the inclusion of extracurricular activities as part of distance learning can support students' wellbeing as well as their academic development.

Phase-specific differences

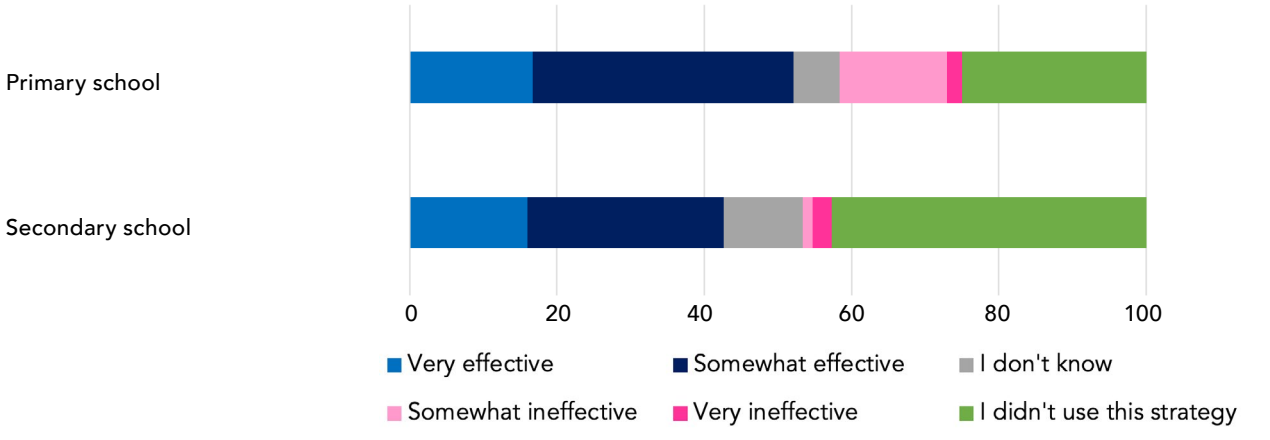

Figure 34: Use and perceived effectiveness of extracurricular activities, split by phase

Nearly half (43%) of respondents from secondary schools indicated that they did not provide opportunities for extracurricular activities as a strategy to increase student engagement, as opposed to one fourth of primary school participants – a statistically significant difference. Although more commonly employed in primary schools, the strategy was also considered somewhat less effective in this context with 19 per cent of respondents from primary schools indicating that they thought it was 'somewhat ineffective', as opposed to just two per cent of respondents from secondary schools.

Rewards, incentives and praise
Offering rewards and incentives to students as a way to motivate them was the least popular strategy among respondents to this survey, although still more than half (66%) of respondents used it. Of these, 26 per cent thought it was effective and 16 per cent thought it was 'very effective' but 16 per cent also thought that this strategy was ineffective in motivating students.

In focus group discussions, teachers mainly discussed rewards and incentives in the context of small games and competitions that they used to engage and motivate students. Some teachers had also found that reward systems, including sending postcards home, nominating a star of the week and using house points had worked well to maintain engagement.

Many teachers highlighted the importance of celebrating the positives for their learning community. This included the celebration of public holidays and birthdays but also the public celebration of children's individual achievements. Some teachers noted how they had set time aside outside lessons to come together as a group and celebrate students' successes, and how lovely it was to see students cheering each other on. Praise from teachers was also a powerful part of that process.

"Celebrate all children's learning. Set aside time outside of lesson learning to do that. I always did this on a Monday afternoon for showcasing their project work. Children's self-esteem was massively raised when praise is personal and celebrated in an online community. I felt incredibly emotional seeing other children clapping each other using zoom emojis to celebrate each other's efforts. It reminded me never to forget the power of praise and how sharing their work inspired others and made them value themselves and eachothers' efforts."

Primary school middle leader, UK

Teacher innovations and practical tips for supporting motivation and engagement during distance learning

Building on students' interests

In addition to the strategies discussed in the survey above, teachers also noted the importance of taking students' interests into account when planning their lessons, and the need to formulate clear goals to motivate students.

"Adapting learning each week based on pupils' interests. We explored bird watching as this became an interest for a few children and now that they are back at school they meet up in the park to enjoy this activity together. A child wrote a food blog so we all contributed to a class food critic activity linked to healthy eating. When it snowed we adjusted learning to celebrate the weather. We ate meals together online for Chinese New Year. We celebrated diversity very easily and inclusively online."

Primary school practitioner, UK

Having clear, whole-school policies about submitted work

During emergency remote teaching, it is important to balance expectations around students' academic achievement and their socioemotional development. In our previous report, we highlighted the potential negative impact of the ongoing COVID-19 crisis on children's mental health and wellbeing. Therefore, schools' policies around expectations in each subject may have to be revisited to account for this specific situation. Having said so, it is also important that all expectations are communicated clearly to students and parents and that they are coherent across the school and all subjects. Focus group participants made it clear that additional flexibility was required in many cases to ensure that students continued to engage, which should be considered when drawing up expectations around the quantity of work that is expected to be submitted.

Having clear policies around attendance and camera use

The issue of cameras during video conferencing is a difficult one to resolve but it becomes clear that comprehensible policies on a school or even at a national level are needed to ensure that expectations are clearly communicated. If school leaders and/or policy makers decide against the use of video during live teaching, they should be aware that this can hinder teachers to interact with their students and ensure that everyone is following the lesson. On the other hand, not using cameras may encourage those students who might feel anxious about the use of cameras to participate. In any case, it might be worth exploring why students feel uncomfortable using cameras and address issues openly in class.

Involving the pastoral team

During focus group discussions it also emerged that pastoral teams played an important role in monitoring and improving engagement. Having clear policies and procedures in place that describe the responsibilities and workflow between classroom teachers and the pastoral team might therefore be beneficial.

"A lot of the students that were not engaged were being picked up by their head of year or other people who were able to identify students who were consistently not engaging across multiple subjects and then speak to those students or their parents and investigate why and then bring those students."

Secondary school middle leader, UK

Summary of supporting student motivation and engagement during distance learning

Fifty-seven per cent of teachers in this study reported that their students were less motivated and engaged during distance learning, and less than five per cent felt their students were more so.

Common challenges cited by teachers included students not submitting any work, students refusing to turn cameras on, and students being distracted during learning time, for example, having other windows open on their devices during online lessons.

Teachers employed a range of strategies to support student motivation and engagement. The most commonly used were providing regular feedback, supporting students' sense of competence and self-efficacy and allowing students flexibility and autonomy. These were also rated as the most effective strategies by teachers. Other strategies teachers had used included maintaining a sense of class community, encouraging growth mindsets, giving opportunities to interact with peers and providing extracurricular activities. Teachers gave mixed responses regarding the use of rewards and praise, which was the least commonly used strategy in the survey, utilised by 66 per cent of teachers. Whilst celebrating success and giving praise were considered important for motivation, some teachers felt that more extrinsic rewards and incentives such as house points were effective (42%), whilst others disagreed (16%).

11

Supporting students with SEND during distance learning

Summary of past research evidence

As detailed in our previous report (Müller and Goldenberg, 2021) there is currently a lack of research evidence on effective distance learning for students with SEND.

However, existing research does indicate that distance learning can be a viable alternative for students with SEND and can possibly even meet some of their needs better than face-to-face teaching but it comes with a range of challenges, such as a stronger reliance on the written word, which can be a particular challenge for students with developmental language disorder (DLD), dyslexia, Down's syndrome and visual impairments; additional distraction, which can be particularly difficult for students with ADHD; the need to operate a keyboard or mouse, a potential difficulty for students with Down's syndrome and certain physical disabilities; or small and blurry videos and audio lags that make it challenging for students who are deaf or hard of hearing and rely on lip-reading to hear what is said. The report outlines a range of strategies that teachers and schools can adopt to support students with different SEND and it seems crucial that people designing and delivering online content familiarise themselves with the workings of assistive technology to ensure that learning content is indeed accessible to all students. Simple strategies such as making editable content instead of PDFs or scans available, providing descriptions of images on pages or providing audio instructions for students who may be struggling with the written word can be adopted relatively easily. It is crucial, however, that the learning objective of a lesson and concerns about potential barriers to achieving it should form the basis of planning for students with SEND. Additionally, while this report outlines some of the specific needs that children with various SEND may have in the online environment, the list is not exhaustive and each child will have individual needs and preferences that should be considered in planning. One illustrative example highlighted in this report is students with ASD in a study on online learning at university level. While some disliked collaborative learning, others thought it was beneficial. It is thus paramount not to jump to conclusions about children's needs based on their diagnoses.

Teachers' experiences of supporting students with SEND during distance learning

Sixty-nine per cent of the 186 teachers who responded to this survey question had taught students with SEND during distance learning. While reading through these results it is important to bear the relatively small sample size in mind. This is even more important in the context of some specific SEND where response rates were very low (i.e. Down's syndrome, DLD, students who are deaf or hard of hearing and students with visual impairments). Results should therefore not be interpreted as conclusions or recommendations but rather as indications of areas of interest that should be explored further in follow-up studies, ideally

focusing on one SEND at a time and including qualitative approaches so that the complexity and breadth of needs can be captured.

Our survey responses showed that teachers had provided distance learning for students with a wide range of special educational needs and disabilities:

SEND	% of teachers who had taught students with this SEND during distance learning[5]
Autism spectrum disorder (ASD)	68%
Dyslexia	61%
Attention deficit hyperactivity disorder (ADHD)	55%
Deaf or hard of hearing	14%
Developmental language disorder (DLD)	12%
Visual impairments	13%
Down's Syndrome	1%

Table 3: Percentage of respondents teaching children with SEND

Key challenges and benefits of distance learning for students with SEND
We asked teachers about the specific challenges and advantages of distance learning for students with specific SEND. These were selected from a list of possible options. A summary of the five most common choices and the percentage of teachers who selected each choice are summarised in the table below. The initial lists were developed on available research literature and insights from teachers working with students with SEND. Teachers also had an option to add any 'other' challenges.

"Some students - particularly those with SEND made more progress and were happier during the lockdown due to being in school with fewer other pupils."

Primary school senior leader, UK

SEND	Main advantages of distance learning	Challenges of distance learning	# teachers responding to Q
Autism spectrum disorder (ASD)	Less need to interact with others (62%) Opportunity to learn from home (51%) Opportunity to repeat content and over learn (49%) Opportunity to learn at a time that suits them best (49%) Higher levels of predictability in an online environment (43%)	Disruption of usual routines (56%) Fewer opportunities to interact with their teacher (54%) Difficulty concentrating in an online environment (51%) Stress due to the wider societal context of a pandemic (48%) Feeling overwhelmed by the number of options in an online environment (45%)	82

Table continued overleaf...

[5] These percentages are calculated based on the 69% of teachers who reported having taught students with SEND during distance learning

SEND	Main advantages of distance learning	Challenges of distance learning	# teachers responding to Q
Dyslexia	Opportunity to learn at their own pace (78%) Availability of spellcheck programmes (54%) Opportunity to select a more accessible font (45%) Availability of talking word processors to read back to students what they have written (33%) Availability of 'smart compose' e.g. autocomplete suggestions on how to complete sentences (16%)	Increased amount of information to process (56%) Stronger reliance on written language (53%) Need for higher levels of parental supervision (47%) Difficulty navigating websites and online platforms (43%) Engaging with written chats and forums (37%)	67
Attention deficit hyperactivity disorder (ADHD)	Reduced classroom distractions (69%) Opportunities for students to create a learning environment that suits their needs (52%) Constant availability of written instructions (48%) More flexibility within the learning day e.g. to take movement breaks and organise their own time (46%) Higher engagement via live chat/messaging (33%)	Difficulty with focus and managing distractions (71%) Difficulties with self organisation e..g logging into lives lessons, accessing resources (69%) Increased screen time (67%) Difficulties completing and submitting work on time (66%) Difficulties self regulating the amount of effort required for learning tasks (60%)	63
Deaf or hard of hearing	Ability to rewind and replay recorded footage/ instructions (75%) Availability of captions (50%) Opportunity to connect hearing devices to computers (31%) Availability of accessibility software (31%) Other advantages included the availability of written instructions, students being able to position themselves according to their needs and control noise levels and students being considered 'vulnerable' so were allowed in schools	Lag between audio and video (79%) Background noise during video calls (64%) Bad video quality making lip reading difficult (43%) Lack of captions during video calls (36%) Small videos making lip reading difficult (36%)	16

Table continued overleaf...

SEND	Main advantages of distance learning	Challenges of distance learning	# teachers responding to Q
Visual impairments	Availability of accessibility software (80%) Opportunity to edit documents according to student needs (80%)	Difficulty navigating websites and online platforms (79%) Cluttered web pages and worksheets (43%) Resources that were not editable (43%) Difficulty engaging with live written discussions online due to lag of screen readers (36%) Lack of image descriptions (7%)	15
Developmental language disorder (DLD)	Easy to include visuals to support learning (91%) Opportunity to learn at their own pace (82%) Availability of spellcheck programmes (36%) Availability of 'smart complete' e.g. autocomplete suggestions on how to complete sentences (18%) 'Other' advantages included flexibility to prioritise subjects and live speaking and listening sessions	Increased amount of information to process (90%) Need for higher levels of parental supervision (64%) Reading/comprehension difficulties (55%) Stronger reliance on written language (45%) Engaging with written chats and forums (45%) Difficulty troubleshooting (45%) Difficulty navigating websites and online platforms (45%)	11
Down's syndrome[6]	The only advantage selected by one respondent was the availability of accessibility software	The only disadvantages selected by one respondent selectively were the amount of information to process and an increased need for parental support	2

Table 4: Challenges and benefits of online learning for students with SEND

Supporting students with ASD during distance learning

When we asked teachers for their recommendations on supporting students with ASD. The most common response was the need for a clear routine and timetable, in order to provide predictability for students.

Again, in common with the previous findings, teachers cited a wide range of strategies, illustrating diverse approaches, but an overall lack of consistency in approach and priorities across the responses as a whole.

This may reflect the diverse needs of children with ASD, and its nature as a spectrum disorder. Some survey responses reflected this, commenting that one approach would not be effective for all children, and that individualised support was needed.

[6] The small sample size does not allow for any conclusions about the wider population of students with Down's Syndrome but responses were included here for the sake of completeness and to hopefully encourage follow-up research specifically focusing on students with this and other SENDs.

Some teacher-suggested strategies are listed below. Many of them outlined the importance of specialist support and 1:1 provision:

"We ran online sessions with our Pastoral lead and our Speech and Language specialist. This ensured this vital support did not stop and it meant pupils received live sessions where they could interact and learn."

Primary school senior leader, UK

Teacher-suggested strategies for supporting students with ASD

- Clear instructions, providing written versions as well as spoken ones
- The use of closed captions
- Supporting and guiding parents so that they can help their children
- Regular communication
- 1:1 and specialist support
- Individualised approaches, e.g. offering 'quiet rooms' – online spaces where children can work in smaller groups
- A gradual reintegration when returning to school.

"We found it useful to use breakout rooms where pupils were overwhelmed, and staff worked with that pupil alone."

Nursery and primary school leader, UK

One teacher expressed that it would be good to replicate these quiet areas when returning to the physical classroom. When asked what aspects of distance learning they would like to take forward when schools reopen to all students, their response was:

"More provision of quiet refuges and ability to create zones around school for reflection and recovery."

Secondary school leader, UK

While some teachers felt that it was most beneficial for students with ASD to be taught in school whilst schools were closed to most students, others felt that there were advantages to a distance learning approach, whereby the social pressures of learning could be removed.

"Most of our ASD pupils were taught in school and did not need to access online content. This I feel is BEST practise as it provides respite for parents, supports pupils' learning routines and allows them to have the environment to develop their social and communication skills."

Primary school middle leader, UK

"I think this (distance learning) should be used more, and that students respond better to recorded content and scaffolded progression routes, with specifically tailored content to best meet their needs. Sometimes forcing students to socialise is not academically helpful, I think the split between 'learning academically' and 'learning social skills' was really helpful. If they want to not speak while doing maths, that's fine. We can do speaking to adults later."

All-through school leader, UK

Supporting students with dyslexia during distance learning

Some teacher responses detailed support based around auditory learning which included audio books, dictation software and pupils as scribes.

Others had focused on how students with dyslexia could be supported visually:

"We were very reflective of content we shared. We thought of pupils' ability to process information so kept slide content minimal with one focus whether that be pictures or key words or a short sentence. Interspersed with videos."

Primary school middle leader, UK

Other suggested strategies covered a broad range of approaches, again with minimal overlap across responses, which could either indicate the need for personalised approaches or a lack of consensus about the best way to support students with dyslexia in a distance learning setting. Follow-up studies will have to shed further light on this question.

Teacher-suggested strategies for supporting students with dyslexia

- Dual coding
- Using voice notes
- Allowing longer deadlines for written work
- Simplifying presentation slides and visual materials
- Keeping written materials and instructions concise
- Providing resources in consistent and predictable formats and structures
- 1:1 and small group support, including from specialist staff
- Encouraging students to take screen shots rather than copying down information
- Coloured backgrounds and use of screen filters
- Dyslexia-friendly fonts and colours.

"Our children with Dyslexia coped extremely well and found they loved learning online as they would work at their own pace and prefer to type."

Primary school leader, UK

"Recording videos allows for pupils to work at their own pace. Or being available live in a drop in, alongside the work that was set seemed to work well. Recording voice feedback or instructions for specific pupils who have greater levels of dyslexia (reading and processing). Allow more time to complete work so they are not having to do more than other pupils."

Secondary school middle leader, UK

Some teachers felt that the technology used during distance learning removed some barriers for dyslexic students and that these should continue to be used in the face-to-face classroom. Specific uses of technology mentioned by teachers included:

- accessibility features on iPads
- word processing software which reads text back to students
- dictation software
- apps which allow web pages to be read aloud
- typing instead of handwriting
- use of spellcheckers
- videos with subtitles
- instructional videos available to pre-watch or re-watch later.

"Some of the dyslexic children progressed more in English and maths (during distance learning) as they had less low level noise distraction."

Primary school leader, UK

Supporting students with ADHD during distance learning
Our survey asked teachers about their recommendations for supporting students with ADHD during distance learning. The most commonly mentioned strategy was the use of timetables, and a clearly structured day. Several teachers commented that distance learning tasks for these students should be short and manageable, meaning that their timetable may differ from neurotypical peers.

"More specific timetable and pacing with max 10 min learning activity before change."

Primary school leader, UK

Other strategies suggested by teachers are listed below. However, there was a lack of commonality among these suggestions, indicating that there is not an agreed approach among teachers regarding how best to support these students. Many of the strategies discussed in our previous report (Müller and Goldenberg, 2021) such as sensory stimulation, movement breaks and constant availability of written instructions, were mentioned by very few or no teachers in their survey responses.

This may reflect a lack of training and dialogue in this area across the profession. This is unsurprising given the paucity of existing research. However, ADHD is one of the most commonly diagnosed neurodevelopmental disorders in children (Wilens and Spencer, 2010) and therefore it is imperative that we learn more about the implications of distance learning for students with ADHD, and that good practice is shared, if distance learning is to become a method through which they learn in the future.

Teacher-suggested strategies for supporting students with ADHD

- Clear boundaries and expectations
- Clear step by step instructions and success criteria
- Practical activities
- Regular check ins with staff
- Personalised learning, linked to student's interests
- Engage parents to support their child
- Provide opportunities for students with ADHD to attend school

Some teachers commented that when returning to the face-to-face classroom, they were keen to maintain some aspects of distance learning which had worked well (such as allowing students to take mini breaks between lessons), or to utilise some of the knowledge they had gained about their students' ADHD:

"I found that my ADHD students thrived in an environment where they had limited opportunities to 'act up' in front of their peers, and where they had the chance to behave as equals (without having to follow the rules - because there weren't any, really). However, they also struggled to manage distractions (particularly toys, phones etc in their study environment and background noise such as crying babies, vacuum cleaners and parents on mobiles). I'd like to try and organise my classroom to take advantage of that knowledge"

Primary school middle leader[7]

Supporting students who are deaf or hard of hearing during distance learning
When asked about recommendations for supporting students who are deaf or hard of hearing, respondents' suggestions were:

Teacher-suggested strategies for supporting students who are deaf or hard of hearing

- Invite students into school where possible

[7] No location details available

- Use the captions function e.g. on PowePoint or video conferencing software
- Provide small group or 1:1 video calls
- Repeat information
- Check in with students regularly
- Provide written information to accompany verbal instructions, where possible
- Carefully consider the organisation of group work
- Spend time finding out which software students already use and are familiar with

Supporting students with visual impairments during distance learning
Some teachers reported using existing accessibility features, available on particular devices or with certain software:

"Chromebook accessibility features are excellent. We ensured our child had a specific chromebook with specific accessibility features. C-learning gave me some free training."

Primary school leader[7]

Others found that it was most effective to adapt their own teaching materials and resources to meet the needs of visually impaired students:

"Adapted personalised school produced learning was faster and more appropriate than time spent searching nationally or commercially produced learning."

Primary school leader[7]

Teacher-suggested strategies for supporting students with visual impairments

- Adapt fonts and text sizes
- Check that students have the required technology at home
- Have magnifiers available on each page online
- Slow the pace of demonstrations
- Give all instructions verbally as well as written
- Allow more time to complete tasks than you would in a face-to-face classroom
- Consider the backgrounds used

Supporting students with Developmental Language Disorder during distance learning
Developmental language disorder (DLD) affects roughly seven and a half per cent of children in year one, an equivalent of two children per class of 30 (Norbury et al., 2016). Yet only twelve per cent of teachers indicated that they had supported students with DLD during distance learning. This suggests that many teachers may be unaware of students' DLD diagnoses or students in their class may be mis - or underdiagnosed, which would be in line with research findings in the field (Hendricks et al., 2019; Prelock et al., 2008). These findings thus further emphasise the need to raise teachers' awareness about DLD and how best to support students with this disorder, both in face-to-face and distance learning.

Teacher-suggested strategies for supporting students with DLD:

- Run regular, live speech and language sessions

- Work with parents to help them prioritise some learning activities rather than having to access all learning opportunities
- Small group interventions and 1:1 work, working towards specific targets
- Get specialist advice to plan learning carefully.

Some teachers wanted to maintain strategies from distance learning, when returning to the classroom, in order to support their students with DLD. These included:

- using recorded teacher explanations of how to complete homework tasks
- providing a balance of online, practical and paper based learning
- scaffolding oracy skills.

"Some children with speech and language challenges benefitted from being at home with parents, eating together, going for walks -and returned with improved speech."

Early Years leader, UK

Supporting students with Down's syndrome during distance learning
Only two respondents to our survey reported having had experienced teaching a student with Down's syndrome during distance learning, and only one of these teachers responded to the question about recommended strategies. Their response is below:

"We relied on parental support to ensure focus, and eventually invited the child into school as a vulnerable learner because he became distressed"

Nursery and primary school leader, UK

Given the wide range of symptoms associated with Down's Syndrome, it is important to emphasise the need for a personalised approach with each child, and further studies are urgently needed to investigate how students with Down's syndrome could best be supported.

Summary of supporting students with SEND during distance learning

While each individual special need included above brings its own unique challenges and benefits in a distance learning context, there are also some similarities that can be drawn across teachers' recommendations for children with SEND.

From the teacher responses above, we can conclude that some strategies, such as providing clear written as well as verbal instructions, making materials available for overlearning and checking in regularly with both students and parents, benefit children with a range of additional needs. Furthermore these same strategies are likely to also benefit neurotypical students, and to be applicable to face-to-face, as well as remote teaching. This means that all students stand to gain from teachers understanding best practice in distance learning for students with SEND.

However, the low numbers of teachers responding to these questions in the survey, and the lack of consistency across responses, suggests that this may be an area in which many teachers require additional training and support.

As we will detail further in our recommendations section below, working as a teaching profession towards a shared understanding of quality-first teaching for students with SEND will enable better provision for these students, both in school and online.

12

Experiences, challenges and tips when teaching online and in person simultaneously

One of the most challenging situations some teachers found themselves in during the pandemic was having to teach students both in the face-to-face classroom, and online at home, at the same time. This situation occurred in many countries once schools reopened to all students but some students still had to self-isolate due to a COVID-19 diagnosis or pre-existing medical conditions that did not allow them to attend. For example, in England, in October 2020, government ministers used emergency powers to impose a legal duty on schools to provide remote education. This meant that all school children attending state-funded schools had to be given immediate access to remote education if they needed to self-isolate, or if restrictions required pupils to stay at home (DfE, 2020).

As a result, in some schools, when 'bubbles' of children were self-isolating, but not unwell, they were asked to log into the live lessons happening in school and to participate as a distance learning student, alongside their peers in class.

This situation created a unique way of teaching which most teachers had never done before, and it is therefore important to capture the experience and what we might learn from it.

Many teachers that we surveyed described this situation as highly stressful and explained that they felt unable to meet the needs of both the students in class and those learning online.

"I found this to be extremely limited in terms of its effectiveness as the students in the class were envious of the students working from home and my ability to support both sets of students was severely impacted resulting in less than ideal lessons for all."

Secondary school teacher, UK

The key challenges cited were technology, engagement and logistics, which will be discussed in turn below before potential solutions will be presented.

Technological challenges

In addition to the technological challenges mentioned in the section above, there were further challenges specific to the hybrid teaching situation.

Teachers found that students learning online were not able to see and hear them well as they moved around the classroom. However, standing still at the front of the classroom made lessons less engaging for students who were present in class, and prevented teachers from being able to circulate and check work.

Some students had lag and connectivity issues which meant they fell out of sync with the students who were learning in the physical classroom.

In many cases, the online lessons were not linked to the in-class interactive whiteboard. This meant that students at home often could not see the board.

When supporting students at home with their technical issues, or setting up their own equipment to stream live lessons, teachers found it difficult to also manage the behaviour of students arriving in class.

Challenges around engagement

While focusing on the students who were in the class, teachers found that they sometimes forgot to check in and interact with online students.

Teachers described that it was challenging to maintain the interest and engagement of both groups of students – both online and in class.

Enabling online students to participate in class discussions was challenging as students often couldn't see and hear one another.

"I have been pulled in too many directions at once. I don't have set-up time, especially if I am moving from room to room between classes. If a kid in a classroom asks me something or is upset then that takes priority over someone sitting on their computer at home, and it shouldn't- it makes me feel like a failure. Balancing the attention for those online and those in the class is the worst aspect of this approach. I much prefer either all online or all in the class. This approach doesn't work."

ITT lecturer, UK

Logistical challenges

Students who logged in for online lessons were sometimes left waiting for the lesson to begin whilst the teacher dealt with incidents in class such as a first aid issue that had happened at playtime. On other occasions, teachers may have forgotten to set up the online class when they started their lesson.

Students working in class often completed work quicker than those at home who were having to type their answers out. This made it difficult to synchronise the lesson for both groups.

As it was sometimes noisy in the classroom, online students often found it difficult to hear what was being said in the lesson.

Online students often were not able to join in with the practical activities happening in the classroom. This meant teachers had to prepare different activities for them, creating additional workload.

Many teachers felt guilty that they were not giving equal attention or support to both their online students and those in the classroom.

"We did this in the Autumn term when pupils were self-isolating. Those at home were really just sat listening in as we didn't have the capabilities to see them, and to project the lesson. It was hard as a teacher juggling screens so those at home could see, and those in class - but not showing the window with the register in, or your email should you need to check something/open a link. Sometimes poor behaviour came when there were more at home than in school and those at home could see each other, so might shout out or mess around!"

Secondary school middle leader, UK

Potential solutions

One potential solution to this problem would be to divide workload among teaching teams so that one teacher leads all face-to-face lessons whilst the other provides online learning. However, in smaller schools or departments this may not be possible. Also, where younger

children are involved, or students with certain special educational needs, they may not respond well to learning with an adult who is not their usual teacher.

Another alternative is for students learning from home to access pre-recorded, rather than live lesson materials, and where possible to have their own live check-in with teachers and distance learning peers in order to provide opportunities for social interaction and collaboration.

Teachers who worked with teaching assistants found this support very valuable and asked the teaching assistants to ensure that online materials were ready for lessons and to check in with online students to ensure that they were logged in and engaging with the work. However, some teachers commented that not all teaching assistants were confident enough in their technology skills in order to provide this support.

Other strategies suggested by teachers include:

- using directed questioning to students at home to engage them
- alternating questions between those at home and those in class
- using lapel microphones and tracking cameras
- briefing students before lessons regarding expectations and how to support each other learning in this challenging situation
- getting students in class to use mini whiteboards, whilst students at home use the chat function and all show answers at the same time
- using google classroom for in-class and at-home students to collaborate together
- using online devices to pair students in-class with a peer who is at home, and work/communicate together
- getting in-class students to use earphones and a device to log into the lesson in the same way as students at home
- having activities prepared for students to work on independently if the teacher becomes preoccupied with something happening in class or online
- using printed booklets/textbooks so you always know what students are have in front of them regardless of whether they are at home or in class
- asking in-class students to photograph the whiteboard and send it to students at home.

Summary of blended teaching

According to teachers' responses, attempting to teach students both online and face-to-face at the same time appears to diminish the benefits of both teaching styles and therefore does not appear to be a beneficial strategy. This is especially the case when the appropriate technological support (e.g. additional cameras, multiple microphones etc.) is not available. While there are strategies which can support hybrid teaching, such as utilising additional support staff, pairing up students at home with those in class, and having all students working on individual devices whether they are at home or in school, multiple challenges associated with this approach led to many teachers describing it as stressful and problematic. However, as this is a new and unique situation, further research is needed to better understand how blended approaches can be implemented and improved with a range of students and settings.

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The future of teaching

In an emergency situation, distance learning is arguably the most effective way to ensure educational continuity when face-to-face teaching is not possible. And while distance learning can be associated with a myriad of challenges, it can also support effective teaching beyond emergency situations and benefit student groups who perform best in a self-paced learning environment.

Summary of past research evidence

Based on existing literature, we have identified a number of organisational and pedagogical benefits of distance learning in our last report. These include the possibility to branch out to a more diverse student and teaching body, flexibility in accessing online content and potentially reducing workload if content can be reused. Of course, in the context of COVID-19 and similar health or environmental emergencies when schools are closed to most students for face-to-face teaching, distance learning provides the inherent advantage of ensuring educational continuity, and can benefit students with certain SEND such as ASD as it allows for more individualised and self-paced learning – although the research evidence on this issue is mixed.

Teachers' views on the benefits of distance learning and what they want to take forward

Respondents were asked to select no more than 10 advantages of distance learning from a list of 16 options which was developed based on existing research literature and a focus group that was conducted prior to the start of this project.

The most commonly selected advantages were the opportunity to access content repeatedly, the development of students' independent learning skills, increased flexibility for students and teachers, fewer behaviour issues and distractions, and opportunities for students to spend time with their families. There were no significant differences between phases in response to this question.

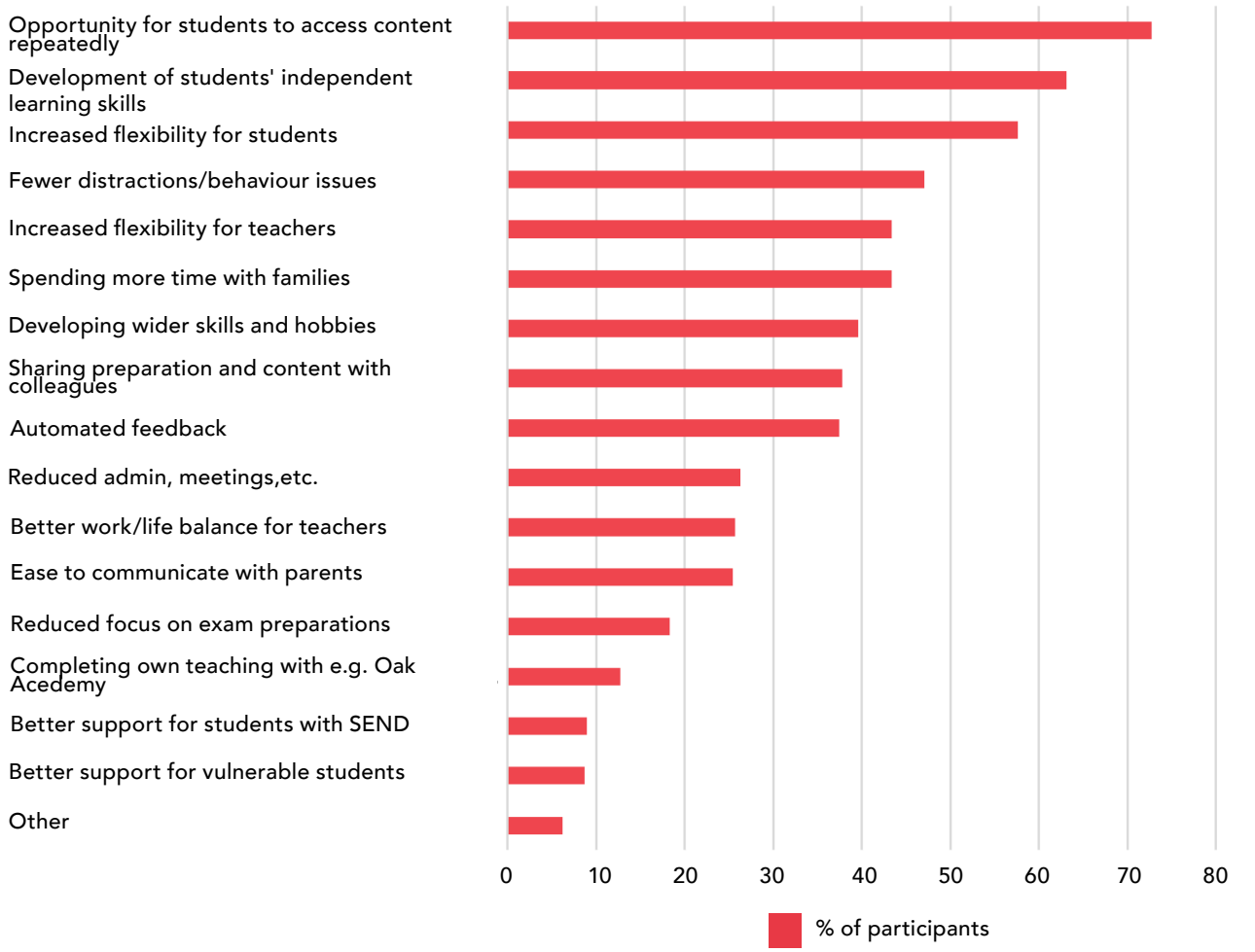

Figure 35: Perceived benefits of distance learning, ordered from most to least effective (n=323)

The only significant difference between primary and secondary school teachers was that significantly more primary school teachers selected 'ease of communication with parents' as one of the main benefits of distance learning (44% vs. 23%). Other notable but not statistically significant differences included:

	Primary school	Secondary school
Increased flexibility for teachers	32.00%	56.41%
Automated feedback for students	30.00%	47.44%
Sharing preparation/materials with colleagues	34.00%	50.00%
Opportunities for students to develop wider skills	50.00%	35.90%
Better work-life balance for teachers	16.00%	30.77%

Table 5: Differences in perceived benefits of distance learning

Accessing content flexibly and repeatedly

Seventy-three per cent of survey respondents considered the opportunity to access content repeatedly to be one of the major advantages of distance learning, which was further confirmed in focus group discussions and qualitative responses to the survey. Participants mentioned that it allowed their students to rewatch lessons, stopping as often as they needed to and even using them to revise content with parents, guardians or siblings.

"[A] number of our students took the opportunity to have the input during the face to face lesson online but because it was a recorded lesson, and probably similar to a lot of other people, we were able to then share the video of the lesson immediately afterwards and then the children could access it as and when they needed to, and we found that a number of our students were accessing it 2 or 3 times, the lesson record. [A]nd then they're also accessing it in the evening when their parents would then come home and their parents often sit in with them and just clarify understanding."

Teacher, Vietnam

For students with SEND, the opportunity to rewatch and repeat content was particularly beneficial according to participants in our focus groups.

"I think the idea of repetition was really, really powerful for a lot of our students, so the ability to kind of pause, rewind, see the same thing again and again and again worked particularly well."

SEND specialist teacher, UK

However, it was also discussed that whilst recordings were helpful in theory, in practice many students simply did not have the time to access them due to the amount of homework they were expected to complete as well as other commitments.

Having online resources available that students could access before, during and after lessons, was seen as a key strategy to maintain post-pandemic. Many felt that this allowed students to prepare and pre-learn material as well as revisit and consolidate things they were unsure about. One teacher described how they have started to investigate when students access such materials in order to understand more about student needs and preferences.

When asked about specific benefits of distance learning for their curriculum, survey respondents also cited the recording and sharing of videos and online resources. This was mentioned particularly often in the context of science where teachers could share recordings of experiments with their students, but also benefited MFL, where students could listen to recordings multiple times; maths, where students could watch modelled examples; or drama, where students could access theory or modelled examples of drama techniques. Other examples include access to video material in RE, geography and history, as well as the ease of inviting guest speakers and making recordings available to students.

Students' ages and independent learning skills may play a role in how beneficial they find recorded resources and how well they are able to use them as part of their individual study. For younger students, it may be particularly important to include explicit instructions on how to access and use videos, as was suggested by a primary school practitioner in our focus groups.

Encouraging independent learning skills

The need to balance live teaching and learning offline (see section on screen time) made it necessary for teachers to plan more independent learning tasks than may have been the case in face-to-face teaching. This meant that many students were involved in more independent learning tasks than they would have been during face-to-face teaching.

Sixty-three per cent of respondents to our survey felt that distance learning had a positive impact on students' independent learning skills, which was also emphasised during focus group discussions. However, the focus group discussions also revealed a clear divide between those students who were able to self-organise their learning and even benefitted from the possibility to self-pace their study, and others who found it a lot more challenging.

"[T]he ones who wanted to get on with their work had the ability to kind of do it at their own pace and I found you got more work out of them outside of the classroom than we ever do in the classroom."

Secondary school practitioner, UK

For some students with SEND, this period of distance learning in the home environment also provided them with the opportunity to develop crucial practical life skills in the context of their own home and increase their independence.

In both this report, and our previous survey of teachers conducted in 2020, results indicated that for some students, working more independently with greater autonomy was highly motivating, and that many students have improved their capacity to work in such a way.

"Self-development of some learners; increased learner autonomy, greater emphasis on project-based learning and development of problem-solving skills."

Secondary school, FE & PRU senior leader, UK

Many teachers want to continue building on these skills; encouraging students to take the lead in their own learning so that they are better prepared for life after school. As a result of distance learning, many students have become much more independent in accessing the resources and materials they need, managing their own time and using technology. Some schools have started to think about how these skills can be utilised and extended now that most students are back in school.

"We have implemented a new weekly timetable change. Once a week, school closes early, during this time the school is providing additional remote provision of 2.5hrs learning. This is over and above what we provide during school time. We are now also setting all homework remotely through videos and time tables and on electronic platforms."

Primary school leader, UK

Increased flexibility for students and teachers

A related benefit selected as one of the key advantages of distance learning by participants in the survey was the increased flexibility for students and teachers. Fifty-eight per cent of respondents selected the added flexibility of distance learning for students and 43 per cent cited the added flexibility for teachers as one of the main advantages of distance learning. As outlined above, distance learning allows students to access content repeatedly if they need or wish to do so and to schedule all asynchronous and independent learning according to their preferred time of the day or around other activities. This added flexibility is particularly relevant in the context of findings around adolescent circadian rhythms and the fact that school days rarely take these into account. Studies have shown the negative impact of sleep deprivation on student performance and the positive impact of delaying the start of the school day (Alfonsi et al., 2020). Although the importance of some structure was appreciated during focus groups, comments from a few participants also suggest that some students were completing their online tasks very late in the day, which further suggests that the added flexibility allowed them to arrange their learning around their sleep-and-wake cycles. Combining a later school start time with some elements of hybrid learning may thus allow teaching to respond better to adolescents' circadian rhythms, limiting daytime fatigue and increasing productivity and performance.

"I think school is quite set in a regiment, isn't it? We're all in that kind of idea of 'school starts at you know, 9:00 AM most of the time and then finishes at 3:00 PM', whereas there are some of our young people [for whom] maybe 2:00 PM is when they are really starting to come to life in the day, and their best phase of learning may well come at 6-7 o'clock in the evening. That remote and online offer allowed for those things to happen in terms of when a young person would access those things."

SEND specialist teacher, UK

Fewer behaviour issues and distractions from peers

While a lack of social interaction was highlighted as one of the main challenges of distance learning (see a detailed discussion in section four), fewer distractions from peers and related behaviour issues were also reported as one of the main advantages of distance learning by survey participants (47%).

Focus group participants further confirmed that reduced peer pressure actually improved the performance of those students who suffered from performance anxiety or felt uncomfortable speaking up in class and that some thrived during distance learning.

"So the students that don't immediately like performing really excelled in remote learning, really excelled on online stuff because they felt that they really had something to contribute, without the pressure of performing in front of their peers, they felt that they could go away and do work and present in smaller subgroups and and it didn't have that pressure. So certainly that's something we looked at on our return."

Drama teacher, UK

Opportunities for students to spend more time with their families and to develop new skills

Forty-three per cent of participants thought that school closures and distance learning provided students with the opportunity to spend more time with their families, and 40 per cent regarded the opportunity to develop students' wider skills and hobbies as one of the main advantages of distance learning.

The latter was particularly important in the context of students with SEND, who were able to develop important life skills that often would only be modelled in school whilst the home environment would provide them with the opportunity to develop these skills in an authentic environment.

While views ranged from a minority of survey respondents who expressed that they did not feel there were any benefits of distance learning that they would want to maintain going forward (***"nothing was as effective as it could be in the same room/environment"***), to those who felt that ***"all areas (of teaching and learning) have benefitted"***, the vast majority commented that some aspects of their teaching had benefited from distance learning and that this would influence their teaching practice in the future.

In addition to the benefits listed above, throughout our survey and focus groups, teachers also raised the following additional aspects of distance learning that they want to continue using going forward:

Maintaining the availability and use of supportive online resources, including specialist support and enrichment

For many teachers, the experience of distance learning has made them more aware of the vast range of online resources and materials which can be used to enhance their teaching. These included quizzing/graphing/mapping software, online textbooks, video resources, webinars and websites.

"Across the curriculum, greater access to a wider range of visual and auditory recordings have supported students' learning. Also, the ability to easily store learning materials, that students could revisit and access with ease, has helped with revision and supported the learning of key groups of students - specifically SEN. We had an 'Intra-web' that was set up in previous years, but this was not necessarily used by all students in the same way Microsoft Teams was."

Secondary school senior leader, UK

Many of these resources have also supported staff development:

These (digital learning resources) have also proven to be very effective in supporting non-specialist teachers teaching the content for the first time."

Secondary school middle leader, UK

It is hoped that the online resources created during the pandemic will continue to be freely available and that the banks of recorded demonstrations and instruction that teachers have created will be used in future, to support things such as homework, cover work for supply teachers, revision and support for students who cannot attend school in person.

During the pandemic, teachers also made good use of the availability of online input from subject specialists and experts. In one focus group discussion, teachers reflected on how distance learning approaches could be used to support schools who struggle to recruit teachers in specialist subjects, or who do not have the budget required to do so. For example, a group of sixth form colleges with low pupil numbers could share a specialist teacher who teaches remotely, or where recruitment for certain subject specialisms is challenging, schools could recruit teachers from other regions/countries who teach online. Some teachers had also made use of expert guest speakers during live lessons and would like to continue doing so going forward.

Online enrichment opportunities such as the livestreaming of theatre performances were also greatly appreciated. Not only did these solve the financial challenges of taking children to the theatre, and offer the unique opportunity of being able to pause and discuss aspects of the performance, they also reduced the travel time required to attend live theatre which made watching performances more viable.

"(One positive was having) access and opportunity to watch and critique professional theatre viewed online with students at each key stage. Especially KS3 - this is rarely a priority with such little curriculum time given to Drama."

Secondary school drama teacher, Malaysia

Online specialist support and enrichment make such experiences more accessible for all students, as well as helping schools manage logistical and financial challenges. Schools should consider how such opportunities can be maintained and strengthened, whilst the government should also support arts organisations to continue providing free or low-cost online access to performances and expertise.

Continuing to improve and develop modelling and instruction

Multiple comments indicated that teachers felt their modelling and instruction had improved, this was the most commonly mentioned aspect of teaching that teachers felt had benefited from distance learning:

In some cases, this was due to the availability of technology such as visualisers and video tutorials which made demonstrations easier online than in the face-to-face classroom.

"Using video tutorials for art meant that (a) we've focused on more technical skills this year, (b) children could access the link and practice wherever they wanted, and (c) EAL / ESL students have grown in confidence as they've been able to follow visual content rather than struggling with oral instructions."

Primary school middle leader, no location provided

Some science teachers also commented that demonstrating experiments and physics simulations was easier during distance learning, whilst others said that problem solving and calculations in maths were easier to model online using instructional videos and recorded demonstrations, which students could pause and rewind as needed.

"Use of simulation materials for specific parts of teaching electricity, because the ease of circuit construction reduced the cognitive load and students were able to think more about the physics involved, rather than the making of the circuit."

Secondary school middle leader, UK

Going forward, schools should consider how they can harness and continue with these improvements to modelling and instruction, and in which situations it may be beneficial to continue using recorded or simulated demonstrations and experiments.

Exploring new opportunities for differentiation

Many teachers felt that it was easier to differentiate distance learning, as students could be directed to online links and resources that matched their needs, as well as having the opportunity to work through materials at a pace that suited them.

Learning from home also allowed some students to differentiate their learning environments in order to suit their needs.

One teacher described how such aspects of distance learning were now being used in school to support students with dyslexia:

"We have actually allowed a couple of children to work in the next room using Google meet and classroom to access the work without the distractions. Also google classroom really helps with organisation and they can access the parts of the lesson at their own pace."

Primary school leader, UK

Going forward, many teachers expressed wanting to maintain these aspects of self-paced and differentiated learning for their students. It will be interesting to see, in the future, how school systems and structures could enable students to take a greater lead in determining the pace and depth of their learning.

Developing strategies to increase participation from less confident students

Again, in both our teacher survey from 2020 and in this report, teachers mentioned their less confident students who thrived during distance learning as, while they participated very little

in the face-to-face classroom, they were more likely to contribute to class discussions and to answer questions using online chat functions. The ability to comment and ask questions anonymously online further added to participation for some students.

In order to maintain this benefit, schools may want to consider a wider range of ways in which students can participate in face to face classrooms and whether some aspects of typed chat can be maintained.

Other ways in which schools are maintaining aspects of distance learning include:

- running online after school extra curricular activities
- distance learning options for school refusers and others who find the classroom environment challenging
- continuing to use platforms such as google classroom for feedback and homework
- staff meetings and parents evening online
- delivering specialist lessons/guest speaker information to all students at the same time online.

What teachers were most proud of during distance learning

Similarly to our previous survey (Müller and Goldenberg, 2020), teachers highlighted the pride they feel in the adaptability, creativity and flexibility of the profession. They commended on the sense of collegiately and determination to provide a quality education for their students.

"The way in which all staff embraced change and challenged themselves to use ICT, I never thought the success we have had would ever have been possible."

"How we developed new ways of doing things and learnt new skills."

"The creation and adaptation of so many resources."

"Willingness of staff to go the extra mile."

"Being optimistic and maintaining good rapport with each and every student"

"I showed up every day for my students, even during tough times for my own family."

"That we rose to the occasion every time something new was thrown at us.....usually at very short notice.....and despite the battering that the education profession got continually in the press."

"Taking a whole staff body on a journey of learning in a rapid, challenging but positive way so that our students continued to learn and have contact with us throughout lockdown 3."

"The loving space I created online for my children to connect, chat, laugh and share their feelings and emotions with each other."

"Seeing my children on their online graduation day and hearing all their stories of the fun they had during online learning. We made it fun for them even when we didn't know it."

"The way I have supported the students that I teach to develop their ideas and to build resilience. I am proud of the skills I have learned and now feel confident to apply to my teaching."

"Our school did a fabulous job of supporting our community."

"The parents getting involved and many children making excellent progress - more than we imagined!"

"I stayed calm and became better at reassuring."

"I learnt how to record tutorial videos and how to upload them. I survived the most stressful period of my life."

"My students showed growth in all areas!"

"The way in which our staff did everything they could to enable the link between home and school to be as good as it could be. This was reflected in feedback from parents."

"As a team, we kept a clear sense of perspective, continued to work towards our school aims, staying true to our core values."

"How incredibly hard our staff worked collaboratively to support our families. This has impacted on relationships and resulted in how the children have returned to school with enthusiasm."

"How I have managed to integrate what we learned about using ed tech into my normal practice."

"That teaching never stopped and the whole school came together to support each other."

"How well our staff have safeguarded learners and thought outside the box to educate on door steps, through VLEs on Zoom and in classrooms. A personalised package of learning for individuals."

Teachers' top tips for anyone embarking on the distance learning journey

We asked teachers what one piece of advice they would give to themselves one year ago when they first started to teach online. Answers largely covered the following areas: technology for teachers and students, teaching strategies and wellbeing, with a strong underlying message being 'You have got this!'

Technology

- Make sure you have all technological requirements (i.e. fast broadband, devices, etc) and get financial support where possible
- Take your time to find the platform that works best for you, your students and your school and learn how to use it
- Find out about students' access to technology and bandwidth
- Include explicit instructions on how to use technology for students and parents
- Get access to the necessary software from the start
- Seek out and engage with the available resources to develop your technological skills
- Have a plan for deploying technology to those without access
- Label work on platforms by topic, not date, to help students with revision
- Go online as soon as possible
- Get familiar with and use technology that will make your life easier (e.g. automated feedback).

Teaching strategies

- Keep it simple! Less is more!
- Find a balance between live and asynchronous teaching
- Break down learning into smaller chunks
- Use the resources that are out there
- Don't forget your work-life balance
- Include peer interaction for motivation and learning
- Take some risks and accept that making mistakes is part of the process
- Do not overwhelm students with too many resources at any given time
- Be creative and use a range of teaching strategies
- Students will make progress
- Use verbal feedback
- Good teaching is good teaching – whether is it online or offline
- Identify disengaged children and get them into schools to avoid them falling behind
- Go slow – do not try to cover too much material and keep the curriculum intent in mind
- Take time – a lot of things take longer online
- Trust students to do some work on their own.

Wellbeing

- Celebrate small victories
- Be kind to yourself and have realistic expectations
- Get appropriate office equipment (i.e. office chair, desk, graphic tablet)
- Stay in touch with your colleagues and engage in professional discussions
- Make sure students' workload is manageable and they get enough breaks
- Embrace the change
- Take regular screen breaks
- Have clear rules and expectations about live lessons, marking etc. and communicate them to all stakeholders from the start
- Work smarter, not harder
- Create a physical separation between your living space and your workspace
- Focus on wellbeing, socioemotional development and relationships
- Ask colleagues, SLT, parents etc. for help.

Evidence-informed guidelines for emergency remote teaching

Evidence-informed practice should be rooted in the best available research evidence combined with practitioner expertise, and should take the local context into account.

These guidelines combine what we know from past research about effective approaches to distance learning with insights from this research project involving the expert views of nearly 400 teachers on the most effective approaches to teaching school-aged children remotely during the COVID-19 pandemic.

Guidance for governments

- Promptly provide free access to straightforward tech guidance (such as online tutorials) for teachers and parents, showing them how to use the key platforms and software that will be implemented in distance learning
- Ensure that all pupils and teachers have access to the internet, and to the devices needed, at the first possible opportunity
- Provide off-line solutions such as educational television programming and paper-based learning at an early stage for students for whom online learning is not possible
- Do not necessarily encourage teachers to prioritise live teaching over pre-recorded content – individual contexts will vary and there are advantages and disadvantages of each method
- Support school leaders in implementing a flexible approach in order to meet the specific needs of their school community
- Provide materials to support teachers in managing workload, such as free online instructional videos and lesson materials for each subject – ensure that these are well promoted and that schools know what is available for use
- In addition to curricular materials, provide support and guidance for teachers to maintain a focus on learning processes and skills such as metacognitive scaffolding
- Promote a focus on student and staff wellbeing, signposting resources and providing funding and specific mental health training where necessary
- Ensure that curricular and metacognitive materials provided also include those designed to support students with SEND
- Avoid country-wide mandates and allow school leaders to judge what works best in their school context
- Commission research into areas for which there is a current lack of evidence such as best practice in distance learning for students with SEND and for children in the Early Years
- Ensure that teachers and schools are appreciated and supported by government and media narratives, in order to maintain morale, retention and recruitment.

Guidance for school leaders and teachers

- Develop a school-wide approach to supporting staff and student wellbeing
- Provide opportunities for students to socialise and connect
- Maintain regular contact with students, using phone calls and direct messages as necessary
- Maintain events which foster a sense of belonging and community, such as online assemblies and circle time
- Make use of existing resources and explore ways of sharing materials within school to minimise excess workload
- Provide early support for parents and carers in how to access online learning platforms and in strategies to support their child

- Ensure that staff are trained and supported in the technologies they will be using – consider auditing existing technological skills
- Remember that asynchronous (pre-recorded) teaching may better support students who are sharing devices with others at home or are waiting for adult support and may not be able to 'log in' at a specific time
- Ensure that any hybrid teaching (simultaneously teaching a lesson to children both at home and in school) is properly resourced with adequate technology and enough staff to support both at-home and in-class students. Where this is not possible, consider alternative approaches
- Develop systems for tracking student engagement and attendance and provide early support where needed – consider how non-teaching staff can support with this to share workload
- Have clear and consistent expectations for students e.g. regarding use of cameras for live lessons, submitting work etc and agree on whole-school approaches if students do not participate
- Carefully plan regular feedback and assessment opportunities into learning sequences – utilise strategies such as automated quizzes, dictation software, recorded verbal feedback, self- and peer-assessment and comment banks to reduce excess workload
- Utilise strategies for instructional scaffolding such as instructional videos, demonstrations and exemplar models of work
- Consider how students with SEND can be supported, try to maintain as much of their 1:1 and small group work as possible
- Remember that students will not only need support with curriculum content but also with learning skills and processes – plan how strategies such as metacognitive scaffolding can support students in developing independent learning skills such as self-regulation, planning and time management
- Provide opportunities for students to collaborate
- Ensure that students have adequate screen breaks and are encouraged to spend time outdoors, and time doing physical exercise
- Do not necessarily prioritise live teaching over pre-recorded content – individual contexts will vary and there are advantages and disadvantages of each method. Consider the balance that works best for your students and their needs
- Make online learning resources available to students before and after lessons so that they can revisit content as needed
- Make expectations and approaches clear to parents, for example you may want to share with parents that verbal feedback will be used more commonly than written feedback if you feel that this better supports student learning and frees up teachers to provide other support
- Consider how student self-efficacy and autonomy can be fostered in order to support motivation and engagement
- Make use of online specialist support and enrichment.

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Appendix

Appendix A: Participant Information
Geographical location

The majority of participants (81%) were based in the UK with most participants (77%) being based in England, one per cent in Scotland and three per cent in Wales. No respondents were based in Northern Ireland. Sixteen per cent of respondents were based outside the UK. Of these, 52 per cent were based in the Asia Pacific region (China, Singapore, Malaysia, Japan, Singapore, India, Hong Kong and Uzbekistan), 21 per cent were based in Europe (Switzerland, Germany and Spain), 17 per cent were based in Latin America (Mexico and Ecuador), seven per cent were based in Africa (South Africa) and three per cent were based in the Middle East (no further information available).

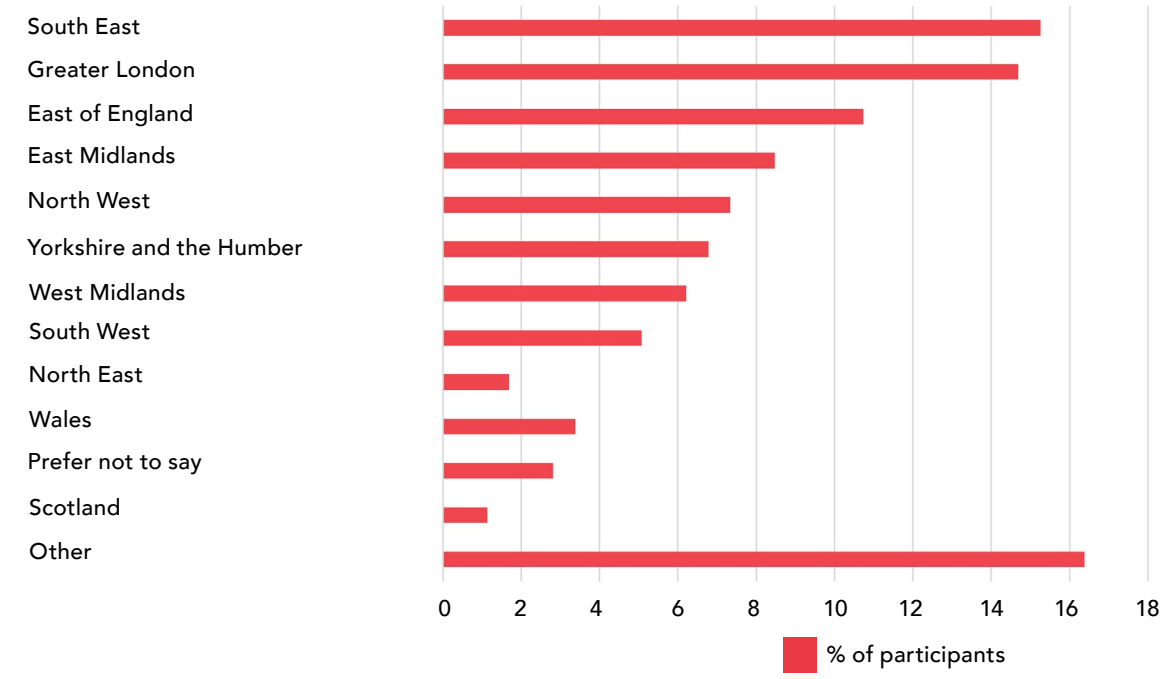

Figure 36: Regions participants were based in

Age
The majority of participants (70%) were between 35 and 54 years old. Twelve per cent were between 25 and 34 years old and 15 per cent between 55 and 64. Less than two percent were younger than 25 or older than 65. In comparison, the average age of teachers in the UK according to 2018 TALIS data was 39 years, lower than the OECD average of 44 years (OECD, 2019).

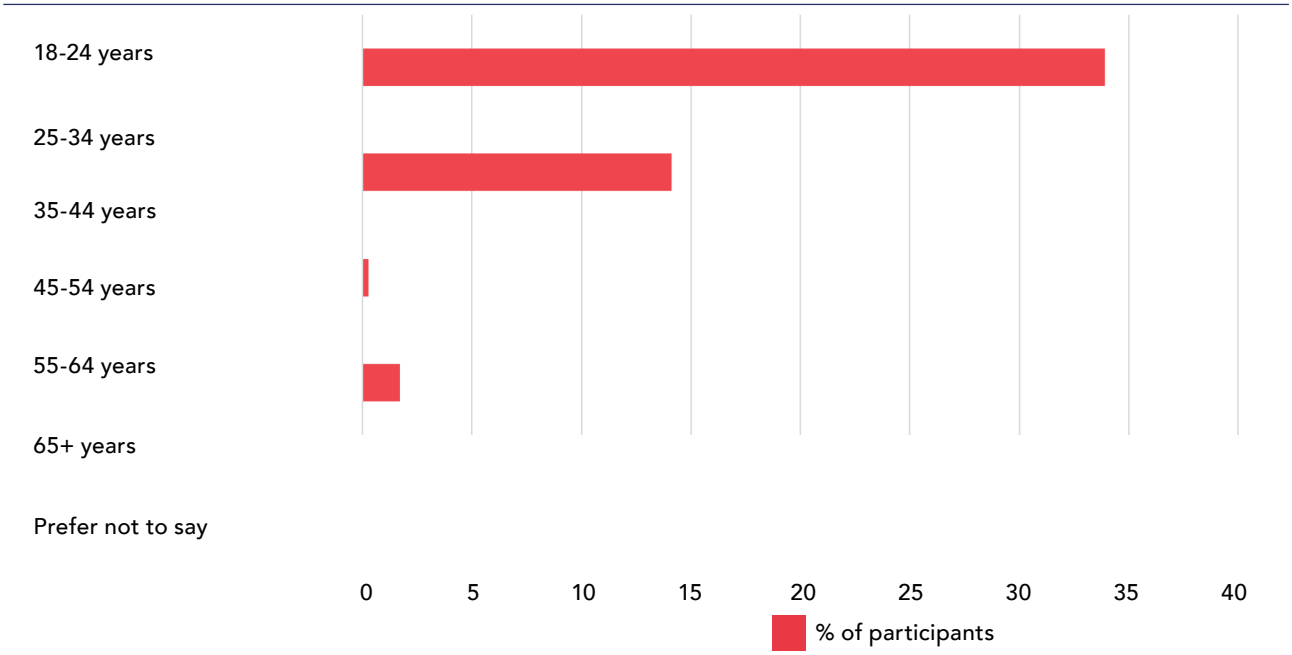

Figure 37: Respondents' age

Gender
Sixty-eight per cent of respondents identified as female, 28 per cent male and 0.6 per cent identified as 'other'. Three per cent of participants preferred not to indicate their gender. The higher percentage of female compared with male respondents corresponds to the female to male ratio in the UK teaching profession, where 76 per cent of teachers are women (DfE, 2021c).

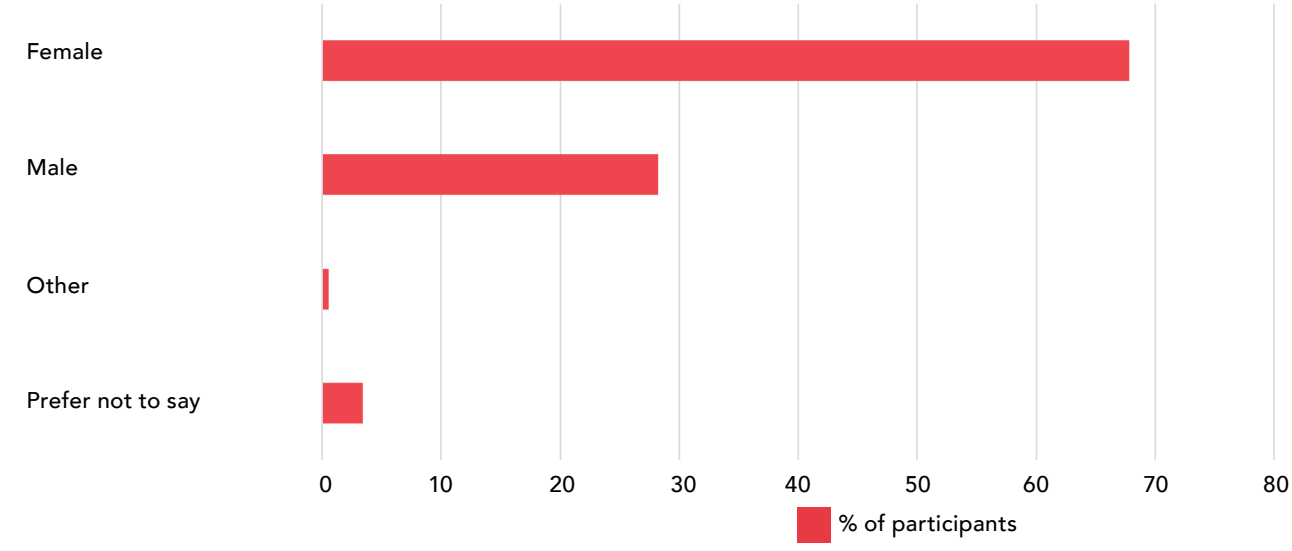

Figure 38: Respondents' gender

Phase
The majority of participants taught in primary (32%) and secondary (50%) education settings. Seven per cent of participants taught in early years settings, four per cent in all-through schools, 20 per cent in further and five per cent in higher education settings. Three per cent taught in SEND specialist settings, two per cent in alternative provision and another two per cent were independent consultants. Those who selected 'other' taught adults, worked in extra-curricular provision or had non-teaching roles. Participants were asked to tick all options that applied to them.

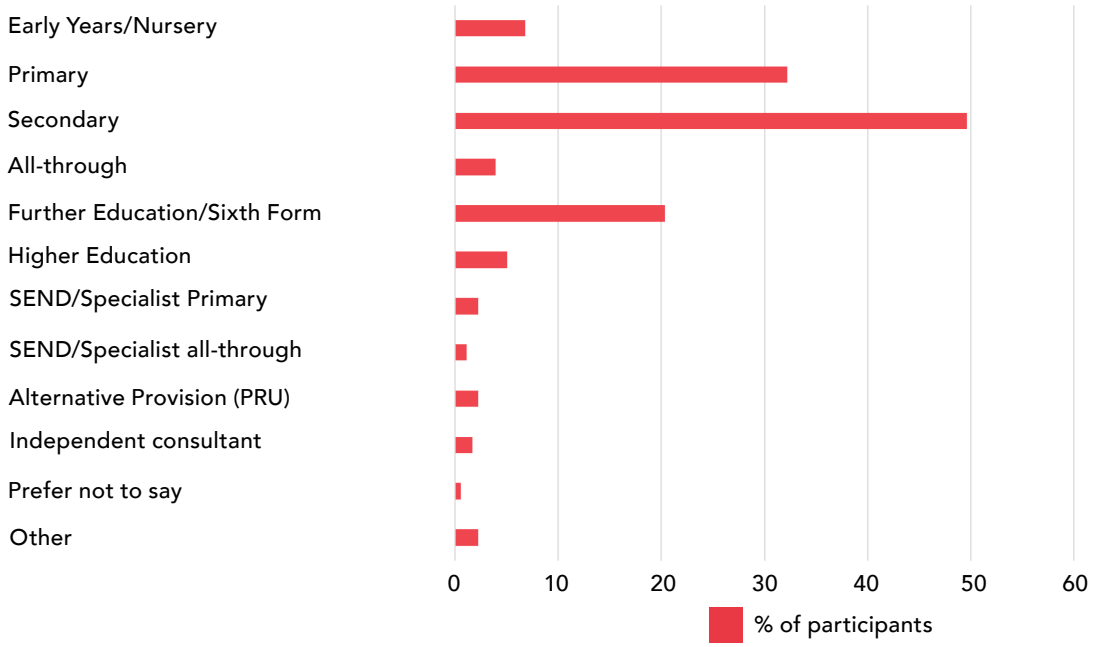

Figure 39: Phase participants work in

School types
The largest share of participants (40%) taught in state non-selective schools, followed by participants from independent schools (26%) and academies (19%). Eight per cent were based in British schools abroad and three per cent in other non-UK-based schools. Five per cent of participants taught in faith schools and two per cent in state selective schools. Three per cent of respondents were not school-based and those who did not fall into either of these categories taught in universities, FE colleges, non-British international schools and alternative provision.

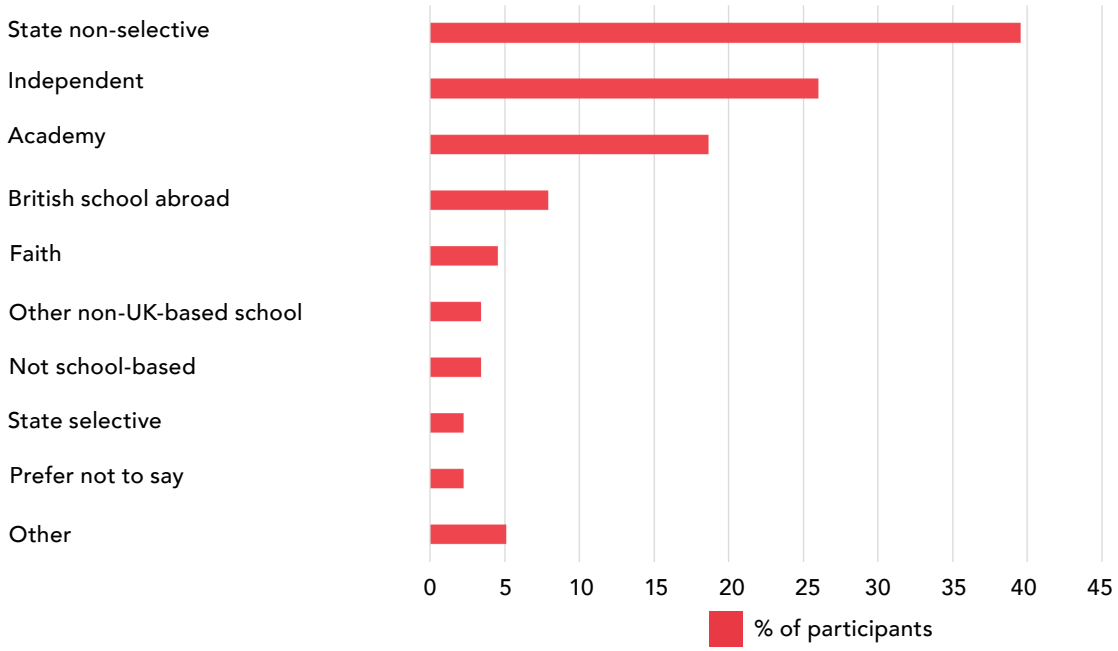

Figure 40: School type

Subjects taught
The majority of participants taught English (33%), science (32%) and maths (29%). 'Other' subjects included business studies, vocational qualifications, film and media studies, philosophy, psychology, textiles, criminology, health and social care, child development, life orientation, early years foundation stage (EYFS), theory of knowledge, statistics, language development skills, law, professional studies, teacher training, other first languages (Welsh, German, Chinese) and engagement and intervention.

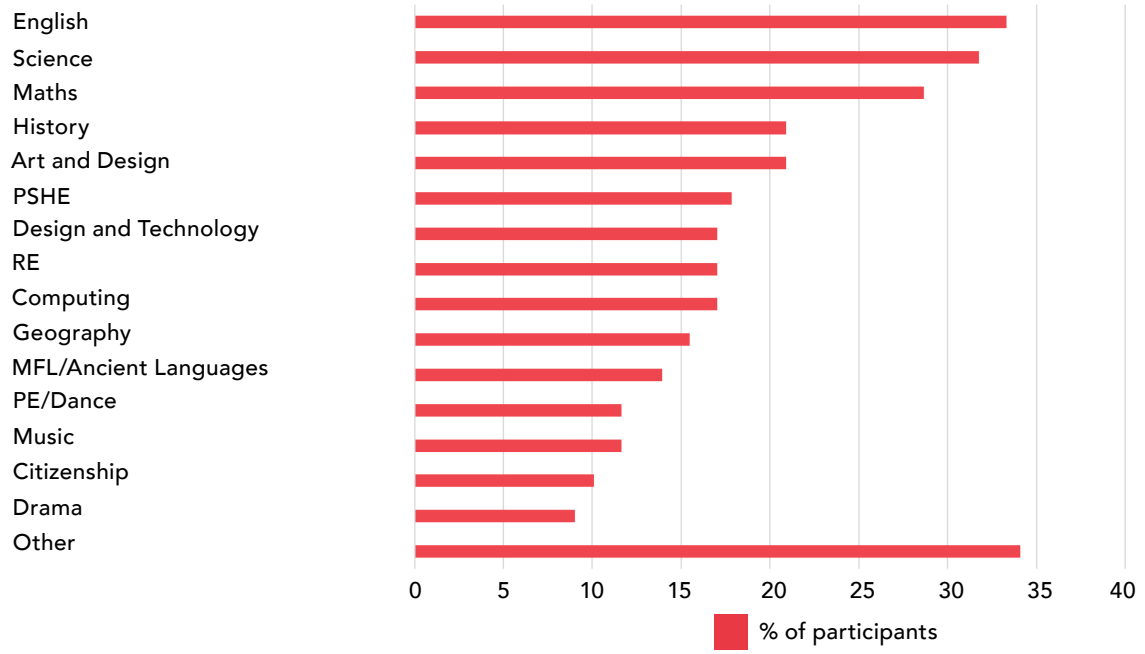

Figure 41: Subjects taught

Teaching experience
The vast majority of participants (81%) were experienced teachers with more than 10 years of teaching experience. Eight percent had been teaching less than five, and six per cent less than 10 years. Not even two percent of participants were newly qualified teachers and only three per cent were trainee teachers.

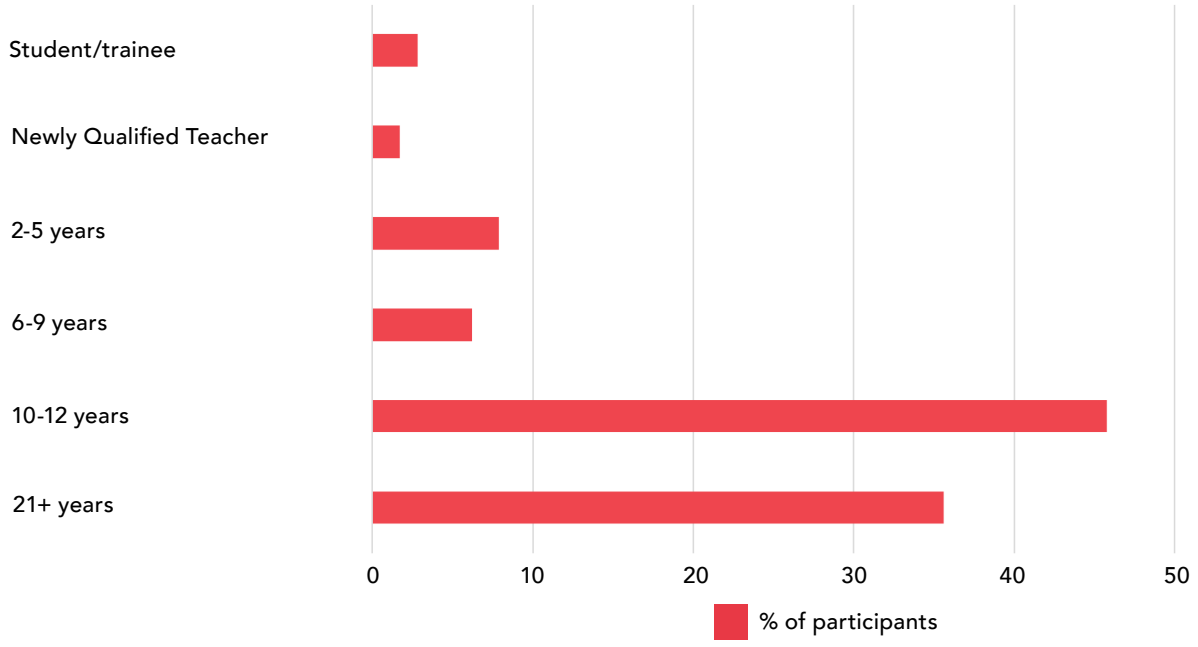

Figure 42: Teaching experience

Role

Nearly half of respondents (45%) were classroom practitioners, 25 per cent were middle leaders and 17 per cent were senior leaders. Fourteen per cent of senior leaders held some cross-school responsibility and 14 per cent of respondents were headteachers whilst three per cent were CEOs of Multi Academy Trusts (MATs). Under one per cent of respondents were Special Educational Needs Coordinators (SENCO) and four per cent were responsible for pastoral care in their schools. One per cent of respondents were teaching assistants. Other job roles (2%) included consultants and university lecturers. Respondents could tick multiple options that applied to their role within their school.

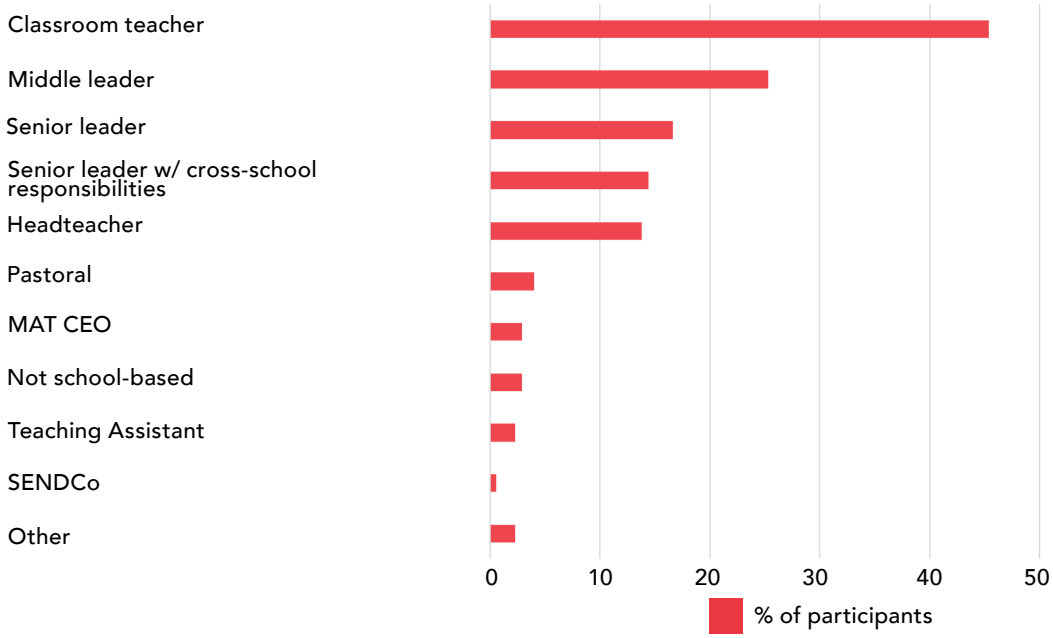

Figure 43: Role in school

Deprivation

Twenty per cent of respondents worked in schools where less than one per cent of students were eligible for pupil premium funding whilst 36 per cent worked in schools where more students were eligible for free school meals than the national average of 21 per cent (DfE, 2021a). Fourteen per cent of respondents did not know how many of their students were eligible for pupil premium or similar funding.

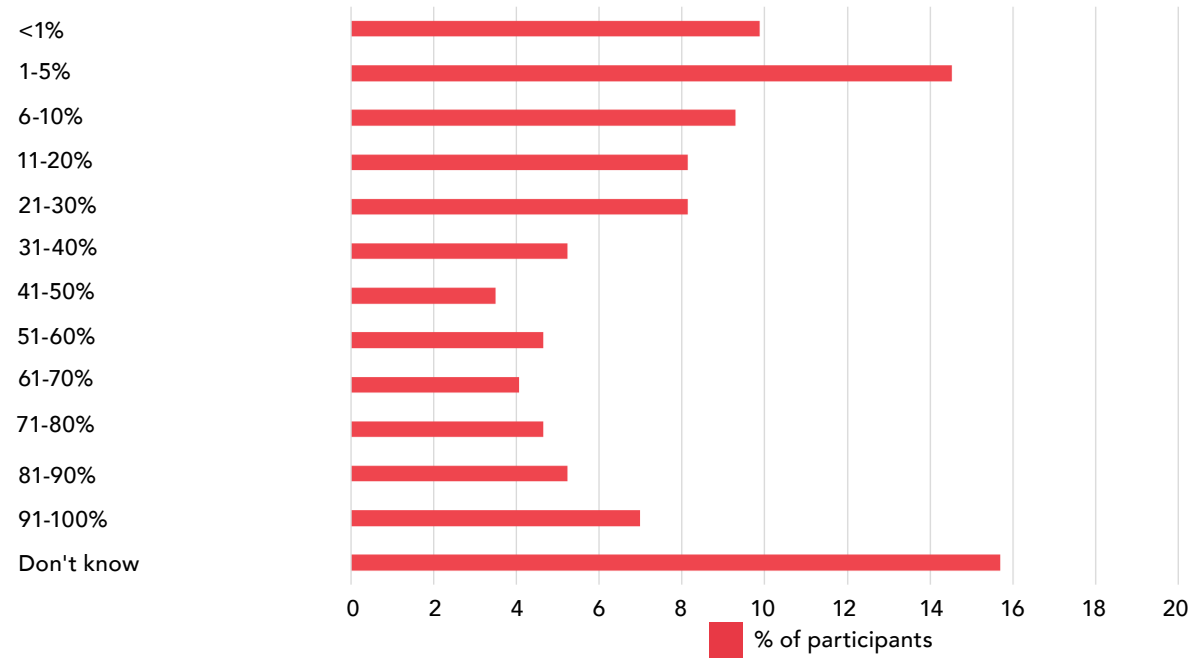

Figure 44: Level of deprivation

Pupil diversity
Ten per cent of participants worked in a school where less than one per cent of students speak a language other than the majority language at home. Forty-two per cent of participants worked in schools where the percentage of students who speak another language in school than they speak at home was above the UK average of 19.2 per cent (DfE, 2021a) and one fourth of participants worked in schools where more than half of students spoke a language other than the society language at home. Sixteen per cent of respondents did not know how many of their students spoke a language other than the majority language at home.

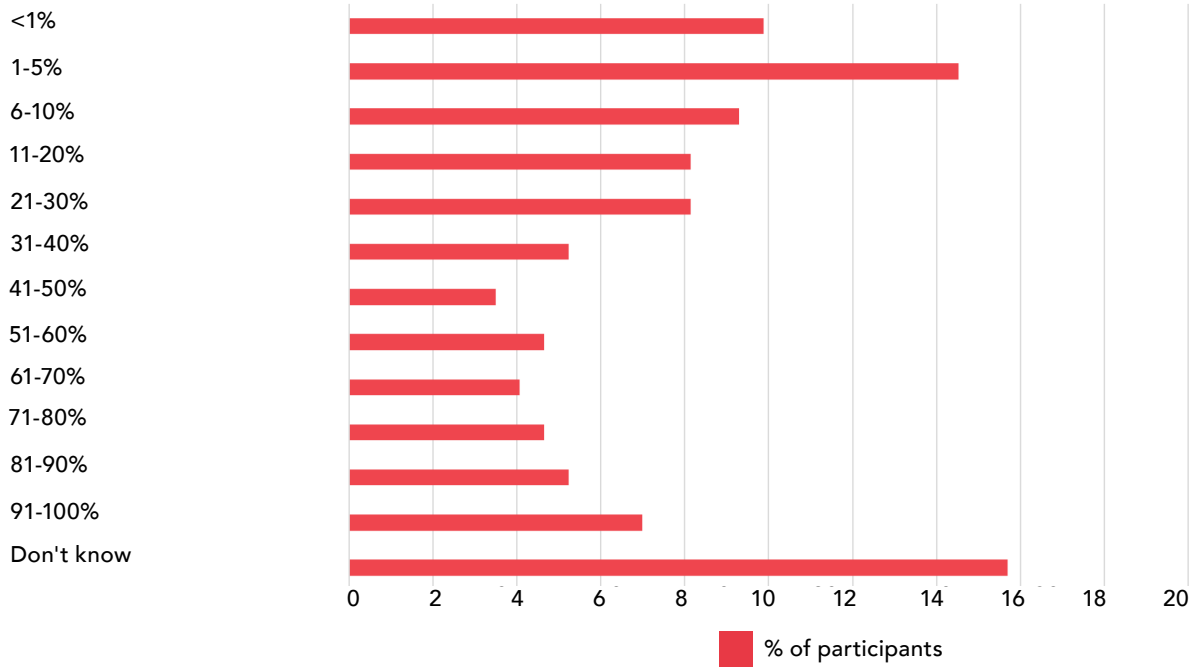

Figure 45: Pupil diversity

Appendix B: Focus group participant characteristics
These tables provide characteristics of focus group participants where these were available.

International

Participant	Region	Gender	Phase	Role	Diversity[1]	Deprivation[2]
DL001	Spain	Female	Primary	Teacher	91-100%	<1%
DL002	France	Male	Primary	Headteacher	61-70%	<1%
DL003	Nigeria	Female	All-through	Teacher	91-100%	N/A
DL004	India	Female	Secondary	Teacher	N/A	N/A
DL005	China	Male	Primary	Teacher	N/A	N/A
DL006	Netherlands	Female	Primary	Teacher	71-80%	<1%
DL007	Vietnam	Male	All-through	Teacher	71-80%	1-5%
DL008	Egypt	Female	Secondary	Teacher	N/A	N/A
DL009	Argentina	Female	Secondary	Teacher	N/A	N/A

[1] Percentage of students who speak a language other than the majority language at home
[2] Percentage who are eligible for pupil premium funding of students

Primary school 1

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL010	North West England	Female	Primary	Headteacher	1-5%	11-20%
DL011	West Midlands	Male	Primary	Teacher	11-20%	11-20%
DL012	East Midlands	Female	Primary	Headteacher	21-30%	41-50%
DL013	South East England	Female	Primary	Teacher	1-5%	51-60%
DL014	Greater London	Female	Primary	Middle leader	N/A	N/A
DL015	Greater London	Male	Primary	Middle leader	N/A	N/A

Primary school 2

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL016	East Midlands	Female	Primary	Senior leader	<1%	6-10%
DL017	South East England	Female	Primary	Headteacher	11-20%	41-50%
DL018	Greater London	Male	Primary	Headteacher	11-20%	<1%
DL019	South West England	Female	Primary	MAT leader	<1%	6-10%
DL020	Greater London	Female	Primary	Headteacher	61-70%	31-40%

SEND specialists

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL021	South East England	Female	Secondary	SENDCo	N/A	11-20%
DL022	East Midlands	Female	All-through	Middle leader	1-5%	31-40%
DL023	East Midlands	Male	Secondary	Senior leader	11-20%	31-40%
DL024	Greter London	Male	Secondary	Headteacher	1-5%	91-100%
DL025	East Midlands	Female	Alternative Provision	Teacher	6-10%	<1%

Secondary school practitioners/middle leaders

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL026	Greater London	Female	Secondary	Middle leader	1-5%	<1%
DL027	Greater London	Male	Secondary	Middle leader	N/A	N/A
DL028	East Midlands	Female	Secondary	Classroom practitioner	<1%	11-20%
DL029	South West England	Female	Secondary	Classroom practitioner	11-20%	<1%
DL030	West Midlands	Female	Secondary	Classroom practitioner	N/A	41-50%
DL031	East England	Female	Secondary	Middle leader	N/A	11-20%
DL032	N/A	Male	Secondary	Classroom practitioner	N/A	N/A
DL033	South West England	Female	Secondary	Middle leader	1-10%	11-20%

Secondary school senior leaders/headteachers

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL034	East England	Male	All-through	MAT CEO	11-20%	21-30%
DL035	South East England	Female	Secondary	Senior leader	31-40%	21-30%
DL036	East England	Female	Secondary	Headteacher	21-30%	11-20%
DL037	East Midlands	Male	Secondary	Senior leader	N/A	31-40%
DL038	Greater London	Female	Secondary	Headteacher	21-30%	11-20%
DL039	South East England	Male	Secondary	Senior leader	1-5%	<1%

PE and Dance

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL040	Greater London	Male	Secondary	Teacher	11-20%	41-50%
DL041	North East	Female	HE	Lecturer	N/A	N/A
DL042	Greater London	Female	HE	Lecturer	N/A	N/A
DL043	Greter London	Female	All-through	Teacher	N/A	<1%
DL044	Not school-based	Female	Not school-based	Consultant	N/A	N/A

Drama

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL045	Greater London	Male	Secondary	Teacher	51-60%	21-30%
DL046	North East England	Female	Secondary	Teacher	1-10%	1-10%
DL047	North East England	Female	All-through	Senior leader	N/A	N/A
DL048	East Midlands	Female	Further Education	Teacher	N/A	N/A
DL049	South West England	Female	Secondary	Teacher	<1%	110-20%

Music and Arts

Participant	Region	Gender	Phase	Role	Diversity	Deprivation
DL050	South East England	Female	Secondary	Teacher	N/A	N/A
DL051	Greater London	Male	Secondary	Teacher	51-60%	21-30%
DL052	North East	Female	Primary and Secondary	Consultant	N/A	N/A

Appendix C: Focus group questions

General benefits and challenges

1) In our survey, the most commonly cited benefit was the opportunity for students to access content repeatedly (73%) followed by the chance to develop independent learning skills (63%).

- How does this relate to your own experience with distance learning?
- Are there any of your students for whom distance learning seemed to actually work better than face to face learning?

2) In our survey, the most commonly cited challenges for students were access to technology/technological difficulties, lack of social interaction and too much screen time.

- How does this relate to your own experience during distance learning?
- Did any of your students struggle particularly with online learning? What strategies did you use to support them?

Specific teaching strategies

3) Our survey showed that around 40 per cent of teachers didn't utilise collaboration for their students during distance learning, with 65 per cent reporting they used collaborative learning less than they would during face to face teaching. Reasons cited for this included - not being able to monitor multiple break out groups, lack of technology for some children and students being unwilling to engage, switch on cameras etc.

- Which collaborative learning strategies did you find particularly effective?

4) Nearly 40 per cent of respondents to our survey said they provided students with feedback more frequently in distance learning than in face-to-face teaching.

- Which assessment and feedback strategies did you find particularly effective and why?

5) Our survey showed that instructional scaffolding like the use of instructional videos, demonstrations, prompts and exemplar models of work were used effectively by teachers, and were actually used more often than they would be in face to face teaching. However, metacognitive scaffolding such as timetables and checklists, resources that allow students to self monitor and check their own work and reflect on their learning, were not used so frequently.

- How did you use scaffolding and which strategies did you find particularly effective?

6) Around 40 per cent of the teachers we surveyed felt that their students were less engaged during distance learning and less motivated to complete school work. However, a small percentage of students (5%) appear to have been more motivated than in face to face lessons.

- Thinking about students who did engage well during this time, what helped them to do this? What strategies did you develop to help with motivation and engagement?

7) After discussing strategies that have been found to be effective in past distance learning contexts, let us discuss what you have developed to support students and colleagues during distance learning.

- Which other strategies did you find particularly effective to support students and teachers during this time?

Looking to the future

8) Earlier, we discussed some of the benefits of distance learning, how can these be maintained for these students now they are back in school and going forward? Which other aspects of distance learning do you want to maintain for them?

9) How, if at all, has this period of school closures and distance learning changed your perception of education and what do you think should be the number one priority education systems should focus on going forward?

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