Written evidence submitted by the EdTech Advisory Forum

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1. Executive summary

Celebrating our teachers, learners, schools and colleges

We must begin this submission by celebrating the tenacity and resourcefulness of our schools, colleges, teachers, and support staff who, with just two days' notice, implemented a vast national pivot to remote learning. Those same staff ensured that schools stayed open (both physically and virtually) to provide childcare and continuing education for the children of key workers during the height of the first wave of the COVID-19 pandemic. When the summer closure finally came, many of them had worked solidly since the February half term, without a break.

This forced transition to remote learning was hugely significant in that it showed that technology in education is now a vital aspect of all future education. The same apps and websites that we use during our daily lives have proven to have a myriad of educational applications. There are now a plethora of dedicated Education Technology (EdTech) products that focus on specific subject areas, or meet a huge range of generic and specific purposes that have huge and varied benefits and positive impacts on learning for all ages - such as digital flashcards, online assessment tools and, of course, the now ubiquitous video call.

In an ideal world, the pandemic would be behind us, and our schools, colleges and universities would be returning to normal - albeit a 'new normal' of heightened risk awareness. However, recent events have shown that COVID-19 is far from defeated. With infections at over 2,000 UK schools at the time of writing, it is time to reconcile ourselves to the fact that blended learning may well be the only way that the country's children can continue to receive something approaching a full programme of education - for this current school year and possibly beyond.

COVID-19 magnified the uneven and patchy approach to digital learning in England

Even before COVID-19, schools' use of EdTech varied widely. The virus highlighted, however, that schools and colleges need support and training. With remote learning now being thrust to the fore of education these differences have become magnified, leaving some schools, by default, better prepared than others as 'school closures' have forced pupils to work from home. As a result, investment, experience, and confidence in the use of educational technology have all affected the ability of our education system to support remote learning.

Nationally too there were differences with England being somewhat late in introducing an EdTech Strategy compared to Wales, Scotland and Northern Ireland. Were the other nations therefore perhaps able to respond in a more effective and more agile way than England?

Increased support and investment for all schools and colleges for digital infrastructure and devices is needed as well as an established set of 'digital norms' or framework for digital capacity, capabilities and access across education institutions. Moreover, we cannot allow a divide between 'digitally rich' institutions and the rest to persist because such a 'digital disadvantage gap' does not prepare our country, our schools, colleges, or learners for our future.

Parents and carers also have a fundamental role to play, in supporting and helping young people to fully understand their increasingly digital environments, but not unaided. They too need to be supported so they can help their children navigate these complexities and so digital literacy also has a key role to play.

The key disadvantages: access to devices and access to Infrastructure

The rapid shift to distance learning during COVID-19 has highlighted the long-standing digital divide across the UK and the need to support both disadvantaged children and young people without internet access at home and also schools that lack proper infrastructure and the urgency of professional development and support for staff. Support for school and college infrastructure is crucial and we would see a process of certification would need to be developed. This certification recognises the high-level skills needed to maintain safe, secure and high level networks. Alongside 'digital norms' for infrastructure, equipment, and other key issues this would enable an uplift in quality, approach and understanding.

Imaginative ways need to be investigated to ensure provision of devices for all young people. Area-wide initiatives like those in Glasgow and the Scottish Borders need to be piloted across England. Often digital poverty is deeply entrenched, and Year 8 is often too late to begin to address this.

Increased investment and support is needed for SEND support and continued investment in digital assistive technology for all young people and we should view any gains in assistive technology as a positive gain for *all* children.

Educators and EdTech had to quickly adapt to using online technology; experiences were mixed

The EdTech sector was generous in its response, with offers of free subscriptions. Often though, this may have overwhelmed educators. Key technology providers have risen to the challenge and quickly created COVID-19 information hubs to support teachers and learners. Multiple providers allowed educational establishments free access to invaluable resources and facilities for support, such as Zoom, Google and Class Dojo.

Governors and leaders had long required support and guidance on developing an effective digital strategy including a curriculum vision and delivery for digital working skills and digital living skills. Those schools with embedded digital capacity, capability and strategy managed to navigate initial lockdown better than those without. Early snapshots from Schools and colleges suggest those with effective digital deployment and experience went some way to limit the learning loss.

Strategy that supports, policy that delivers?

Technology across education has been essential in connecting school staff and pupils throughout the period of remote education and although, in England, it had taken too long to introduce the 2019 EdTech Strategy, many well-intentioned initiatives from the DfE arose from that strategy during Covid-19 and the work of civil servants needs to be recognised.

Challenges regarding infrastructure, access to devices and the lack of professional development opportunities were all recognised but were the Department for Education's attempts at addressing these timely, well co-ordinated and ultimately supportive on the ground?

Strategy impact: Was it timely and could it have been implemented quicker?

The SAGE meeting on the 30th of April stated;

"Messaging to teachers, parents, and students must be robust to enhance confidence and willingness to return"

The message to schools and colleges from the DfE needed to be clearer and less contradictory at key times. The content and updating of guidance needed to be easier to access, both in terms of content and delivery. We recognise that there is a time lag between policy and implementation, between implementation, practice and change on the ground. We are all having to play fast catch up to bring that which is already in place up to speed - it is a challenge for us all. The responsibility of school leaders as they craft responses to the fast-moving circumstances do, however, need to be matched by governments.

We need more agile cross-departmental policy development. Adopting and developing digital can be a challenge for organisations at any time. However, the scale and depth of school and college closures merited agile, cross-government and strategic thinking of a high order. To establish and develop remote learning content, resources, the pace of delivery and create supportive student management in just days, at a time of a public health pandemic emergency can set institutions, students, and educators up for frustration and failure.

Schools and colleges need long term support, peer-to-peer training, and a national network from which to learn.

A new national EdTech strategy, an Office for EdTech and a Sector Deal is vital for resilience during COVID-19 and all sectors of education

There is an urgent need in England for a new sustained EdTech strategy. The scale and ambition for the use of EdTech merits a new EdTech Vision for 2025, with key components and staged milestones for infrastructure rebuild, access to devices and support for digital capacity, capabilities, curriculum and recognition of the positives of education technology to support teaching and learning. There is a right and proper role for government; leadership that convenes, inspires, and brings fragmented policy developments across government to focus on our national digital challenge.

The creation of an Office for EdTech and Digital Skills to drive forward coherent national change to support the adoption and use of EdTech and a UK-wide approach to digital skills is needed. The Office for EdTech would also bring a focus across Government to properly support the EdTech sector across the UK and the creation of a Sector Deal for EdTech as part of the Industrial Strategy.

Ambivalence is not a policy to prepare and support young people for their digital futures.

Training, professional qualifications and shared resources for a digital future

It is clear that Initial Teacher Training, the Early Career Framework and a spectrum of national professional qualifications have little, if any, focus on digital learning and the positive support education technology can bring for teaching and learning. There needs to be urgent action to remedy this and provide a coherent national framework of support in these qualifications for the positive uses of digital and wider use of accredited Massive Open Online Courses (MOOCs) and similar imaginative training opportunities.

There needs to be universal access in England, to a shared national resources platform - like *Hwb* in Wales, *C2K* in Northern Ireland and *Glow* in Scotland - to support teacher continuous professional development.

A joined-up approach to data about children and young people

The Children's Commissioner has already called for better protection of children's information and created Childhood Local Data on Risks and Needs (CHLDRN) that provides the most complete picture of the numbers of children at risk in England, at both a national and local level. This must go further to ensure it is useful at a local level and can inform schools, councils and charities working with young people what difficulties they are facing. Whether it be for learning losses during COVID, educational comparisons at a deep level between schools within the same socio-economic level or highlighting risks to young people for local councils such as drinking or anti-social behaviours. The link between identifying risks early to young people and improving life chances are very clear. Schools often bear the brunt of disadvantage whether it be in mental health or protecting children from radicalisation.

Often schools are seeing the issue well before any plan is implemented. Schools and Colleges may collect vast amounts of educational data, we must use this with local data on children's lives to improve life chances and build a resilient educational system that treats children's data with the utmost care and consideration for their privacy and rights.

Computing and curriculum reform

An independent review of the effectiveness of the Computing curriculum and its effect on core digital skills would be a priority.

There are major arguments for developing a 'digital-supported' curriculum that is aligned with industry practice, where relevant, - with students developing a range of digital skills, digital literacy and knowledge. Consulting entrepreneurs and identifying key skills and educational technologies they

frequently use across various areas of work. Increasingly, curriculum reforms recognise and reduce the barriers to promoting cross -disciplinary teaching of a 'digitally supported' curriculum.

By investing in EdTech, an effective digital skills framework and support now, the UK will have a greater chance of being able to leverage next-generation technologies and skills effectively and competitively after COVID-19.

No more ambivalence on EdTech and Digital Skills delivery

We can no longer afford any ambivalence about education technology and digital skills. The shift to remote and online working has revealed many strengths but also substantial weaknesses in policy development, skills levels and delivery. Understanding the exponential growth of the digital economy, clarity about digital skills and focus on EdTech as a national investment priority is urgent.

The way digital skills and EdTech is organised across government is fragmented; Is DCMS the driver of digital skills? And who is the driver of EdTech? Is there clarity and coherence about sector support at DIT? Does DBEIS lead on sector support?

It seems that key education and economic priorities can get lost too easily in government business.

Superb efforts from educators across the schools and FE sector to protect learning during this time of national tragedy deserve praise. As we continue to embed blended learning and remote education across our institutions, we need system-wide action to acknowledge the uneven nature of infrastructure, access and capabilities. Short term remedies deserve praise; but often they fail to challenge stubborn inequalities. Not all crises can be foreseen, but our capacity and capabilities cannot be ignored now and for the future.

Our country cannot afford a 'digital disadvantage gap' in skills, education technology and supporting our teachers and learners.

2. What is EdTech UK and the EdTech Advisory Forum?

EdTech UK is a strategic body set up to help accelerate the growth of the UK's education technology sector in Britain and globally. Incubated by The Education Foundation, EdTech UK is a 'front door' for educators, industry, investment and government and a convening voice for the education and learning technology sector.

The EdTech Advisory Forum provides an open space for members to engage in a dialogue and exchange of ideas between educators, industry, academia to support policy development across Government and support the implementation of education technology, digital strategies and initiatives. The EdTech Advisory Forum is an independent and expert group from across education, the education technology sector and academia and is supported by EdTech UK. The EdTech Advisory Forum is a non-statutory committee of independent members set up to initially provide advice to the EdTech sector and members serve in an individual advisory capacity.

Context

The established structures, routines and relationships across education changed on 23rd March 2020 when closures were announced, as Coronavirus spread and social distancing and isolating became common watchwords. The picture has been the same across the world as schools, colleges and universities closed. On 5th March 2020, in an EdTech UK and Independent Schools Council Digital Group emergency bulletin said:

"We understand that there are schools with a lack of sufficient infrastructure, experience and training for staff to use digital resources to support teaching and learning."

This has become still more evident as time has progressed. By the week commencing March 16th, some evidence of intense and at speed training efforts in digital products and curriculum delivery was evident. For many, the safe spaces that schools provided disappeared overnight and by the week of March 23rd even for those who had a longer experience of using digital to support teaching and learning, a shift from the provision in a structured education setting and learning environment to something quite different (homes) was a challenge. Despite the heroic efforts, sound leadership of educators and the good intentions of education technology companies the shift to remote learning across a whole system was a challenge.

We welcome the Education Select Committee inquiry and want to focus on highlighting key issues, challenges and the positive lessons that need to be learned.

Profound events like mass school and college closures as a result of COVID-19 prompt policy, guidance and action from Government and others.

It is important and appropriate that educators reflect on the support they have been given, the ecosystems within which they operate and reflect on how the resilience or otherwise of the education system, digital infrastructure and resources were suited to protecting learning.

3. Key Question: EdTech - The impact of COVID-19 on education and children's services

3.1 COVID-19 magnified the uneven and patchy approach to digital learning in England

Even before COVID-19 schools' use of EdTech varied widely. The virus highlighted and identified that schools and colleges need support and training. With remote learning now being thrust to the fore of education these differences have become magnified leaving some schools, by default, better prepared than others as 'school closures' have forced pupils to work from home. As a result, investment, experience, and confidence in the use of educational technology have affected the ability of our education system to support remote learning. Furthermore, this experience and confidence is a composite of a lack of previous funding, digital 'insight' from school leaders (concerning strategic decision-making) and confidence of staff in their use of technology.

3.2 The key infrastructure disadvantage: access to devices and access to Infrastructure

The rapid shift to distance learning during COVID-19 has highlighted the long-standing digital divide across the UK and the need to support disadvantaged children and young people without internet access at home (Moore, Vitale & Stawinoga, 2018). Previous studies pre-COVID 19 show the extent of this divide. For example, the Lloyds Bank UK Consumer Digital Index found that 700,000 11-18-year olds (12%) had no home internet access from a computer or tablet and a further 60,000 had no internet access (Office for National Statistics 2018). In addition to this, a proportion of primary school-aged children (aged 5-10 years) also have no home internet access and The Learning Foundation estimate that, overall, there could be as many as 1 million children and young people without digital access in the UK and that there are marked regional differences based on socioeconomic data.

3.3 Educators had to quickly adapt to using online technology; experiences were mixed

Many technology providers have risen to the challenge and quickly created COVID-19 information hubs to support teachers and learners, such as Google's Teach from Home and Learn at Home sites and Microsoft's COVID-19 response site. Some of these are quite detailed and full of hints and tips for educators. For example, Apple has produced a guide to remote learning using their devices. We have also seen EdTech companies produce guidance on moving to a fully remote way of working with their products. Some key examples here include Purple Mash, Seesaw, Flipgrid, Firefly, Showbie and Socrative.

When asked by Tech companies what support teachers would like, overwhelmingly, they wanted **free access to online platforms** (62-70%) and **sharing free online resources** (87-89%) - Protect learning (2020). In 2019 RS reported in their survey of teachers about EdTech, although half of the teachers (51%) said they know what EdTech is, 36% said they have heard of it but don't know what it is, and worryingly more than 1 in 10 (14%) have never even heard of EdTech. This throws into sharp relief the need for interventions like the EdTech Demonstrator programme.

Governors and leaders had long required support and guidance on developing an effective digital strategy including a curriculum vision and delivery for digital working skills and digital living skills.

Those schools with an embedded digital strategy managed to navigate lockdown initially better than those without. Many schools like RGS Worcester, deserve praise too for an ability, at speed, to switch to effective on-line learning with over 18,000 remote lessons over 16 weeks. At their Senior School, 97% of teachers and 93% of pupils agreed that they had been able to continue to progress when using technology to learn remotely. These figures are replicated in their other schools too. They also discovered that the unprecedented circumstances had also resulted in a dramatic digital up-skilling of both teachers and pupils whilst increasing their confidence to further embrace and utilise digital technology at school.

4. Strategy that supports, policy that delivers?

Technology across education has been essential in connecting school staff and pupils throughout the period of remote education. As a response to the COVID crisis the Department for Education implemented the following:

- Promise of over 220,000 laptops and tablets and almost 50,000 4G wireless routers available to disadvantaged children who would otherwise not have access
- £1 billion COVID catch up fund to directly tackle the impact of lost teaching time as a result of the pandemic
- Free, expert technical support for schools to get set up on an accredited digital education platform to support remote education
- The EdTech Demonstrator Programme launched to provide free peer-to-peer support and advice from a national network of schools and colleges, to give educators the confidence and skills to use technology effectively
- Get help with technology service to provide schools with access to devices and internet access in the event of local coronavirus restrictions, or for vulnerable children who are shielding
- The funding of Oak Academy to develop a full curriculum to continue online learning to ensure schools have a 'back-up' remote learning offer in the event of local lockdowns or staff and pupil absences.

4.1 Strategy impact: Was it timely and could it have been implemented more quickly?

The SAGE meeting on the 30th of April stated:

"Messaging to teachers, parents, and students must be robust to enhance confidence and willingness to return."

The message to schools and colleges from the DfE needed to be clearer and less contradictory at key times. The content and updating of guidance needed to be easier to access, both in terms of content and delivery. Advice has been frequently contradictory (sometimes within the same document), has often contained errors resulting in the document being pulled down and re-uploaded and the timing of updates released at times that give schools little opportunity to respond. The nature and operation of FE colleges has not always been reflected in guidance. For example, the EY guidance was updated on Sunday 24th May during a bank holiday weekend, in half term and yet schools were expected to be ready for pupils to return on the Monday. Many headteachers and staff have had to continuously update plans or change them at short notice.

This has led to significant frustration and wariness with a recent survey conducted by TES suggesting as many as 92% of school staff have limited or no trust in the DfE's regards their response to COVID-19. There appears to be limited forward planning or co-operation with the profession - instead the DfE appears to have been reactive at key moments, focussing more on retrospective damage limitation than on proactive contingency planning.

Professor Dame Alison Peacock CEO of the Chartered College of Teaching reported on 21st September:

"The lack of equity within our society has been starkly brought into view as we have collectively tried to respond to lockdown. The harsh impact of COVID-19 particularly for those in areas of disadvantage has been all too visible. Often these areas map directly on to those where teachers and their schools are working against the odds to support their students. Even before the pandemic, teachers were telling us about the increasing role they were being asked to play in supporting families with financial worries, housing issues, safeguarding and domestic violence. For many schools where workloads are high and resources stretched, staff feel ill-equipped to deal with these issues."

- Professor Dame Alison Peacock August 26th 2020

We must face the possibility of COVID-19 becoming a more permanent issue. While there have been important investments to allow continuity of education and social care during social distancing, the schemes have a legacy as well - with schools and local authorities owning the devices. The devices will continue to be used when restrictions have changed.

In the longer term, if used well, technology has the potential to support teacher workload reductions, support collaboration across staff teams, increase flexible working, cost efficiencies, inclusive teaching practice, powerful learning experiences and supporting improved pupil outcomes. EdTech should not be viewed simply as a temporary COVID stop gap, but as an opportunity to build long lasting, future digital capacity to support learning.

The EdTech Demonstrator programme, and associated national professional development, plays a pivotal role in ensuring school leaders and teachers have the capabilities and confidence to use technology well and build digital capacity, capability and strategy across institutions.

4.2 Was advice, policy and resourcing for schools and colleges timely - was it useful?

- The promise of 230,000 laptops and tablets and almost 50,000 4G wireless routers for disadvantaged children was slow to materialise and in July, several months after the initial lockdown, targets had still not been met. The DfE statement that "The government has been clear that no child should fall behind as a result of coronavirus." did not inspire. Promises of future support have therefore, perhaps unsurprisingly, been met with some caution. 'Schools Week' reported that the government reached its allocation estimates based on an assumption that secondary schools already had an average of 87.3 tablets and 194.6 laptops. Primaries were estimated as having an average of 27.2 tablets and 49.1 laptops. Schools reported that these estimates were wildly inaccurate, and they were forced to use other budgets to provide learners with equipment, whilst others had no funds to access at all.

- The £1 billion COVID catch up fund to directly tackle the impact of lost teaching time as a result of the pandemic has been welcome. However, schools and colleges are reporting they may be unable to provide catch-up learning because they have been forced to use government funds to plug the hole in finances left by implementing COVID safety measures and the DfE's underestimates of existing devices in schools, with the Association of School and College Leaders (ASCL) stating, that the refusal to reimburse schools for the cost of implementing COVID safety measures could mean that this part of the fund could be "almost entirely wiped out".
- Furthermore, it has emerged that the much publicised National Tutoring Scheme to support learners who have been struggling will not be fully operational until Spring 2021.
- Free, expert technical support for schools in regard to the EdTech demonstrator programme and technical support has been welcome, with over 1,500 enquiries to the scheme in its first six months. Demonstrator schools and colleges have built strong relationships with Local Authorities, Multi Academy Trusts and key sectoral groups;
- Free, expert technical support for schools to get set up on an accredited digital education platform: with only Google's G Suite for Education or Microsoft's Office 365 Education available to support remote education;
- The Get Help with Technology Service to provide schools with access to devices and internet access whilst a welcome extension of the initial laptop programme, has only just been implemented (September 2020) with the corollary, moreover, that further devices and internet access for children will only be provided "when local coronavirus restrictions are confirmed, or if devices need to be requested for clinically extremely vulnerable children who are shielding following official advice." Not only is this restrictive but the needs of vulnerable children could have been foreseen much earlier and devices allocated before the start of the new academic year;

- The £4.34 million funding for Oak Academy to develop a full curriculum for online learning to ensure schools had a 'back-up' for remote learning, as well as the BBC Bitesize initiatives for online learning, were welcome initiatives. The Oak Academy resources, spearheaded by school leaders has, in particular, seen a large uptake with 16.5 million lessons accessed by July. However, without adequate access for all children this could leave a key resource going to waste and there is a lack of clarity over the extent to which schools are able to re-use and remix Oak resources, which seem to be copyrighted.

4.3 Has the response been effective?

We recognise that there is a time lag between policy and implementation, between implementation and practice and that we are all having to play fast catch up to bring that which is already in place up to speed - it is a challenge for us all. The responsibility of school leaders as they craft responses to the fast-moving circumstances do, however, need to be matched by governments. We need a proper view by Ofsted of the positives of using technology. Ofsted could be useful in the longer term and focus more on EdTech use, as both a COVID-19 response and in the longer-term implementation of EdTech in schools and colleges.

We need more agile and cross -departmental policy development at speed.

Adopting and developing digital can be a challenge for organisations at any time. However, the scale and depth of school and college closures merited agile, cross-government and strategic thinking of a high order. To establish and develop remote learning content, resources, the pace of delivery and create supportive student management in just days, at a time of a public health pandemic emergency can set institutions, students, and educators up for frustration and failure. Schools need support, peer-to-peer training, and a national network from which to learn. As research from the Education Endowment Foundation noted, however:

"[This] is much more difficult than simply providing children with a set of materials or videos and letting them get on with it."

The resources in Oak Academy , BBC Bitesize , Greensward Academy, Robin Hood Multi Academy Trust, Charles Dickens Primary School and Nursery and other generous school-based initiatives, are welcome, but not coordinated. The Scottish and Welsh online hubs are ambitious and go a long way to support distance learning. It was clear early on that schools were starting from very different positions regarding their ability to offer quality remote learning. That is not surprising. The recommendations, therefore, to establish a comprehensive resource hub and quality guidance for all schools would have supported this. It was not done. Furthermore, we need more effort and co-ordination to support well-being for the many parts of the school community.

Whilst online learning does not and cannot replace face-to-face teaching in schools or colleges, it is clear that for the majority of students, the transition back to full-time education will now extend well into next

year. In late summer the government announced its headline 'Plan A'… "get them back to school as soon as possible", but there appears to be no consensus on a 'Plan B' beyond this and little idea about how we can and could best support students from home during such a prolonged period. We must have a clear, consultative and united process for schools and colleges to plan for longer-term robust and imaginative online learning.

5. A new National EdTech strategy, an Office for EdTech and Digital Skills is vital for resilience during COVID-19 and beyond

There is an urgent need in England for a new EdTech strategy.

The scale and ambition for the use of EdTech requires a new Vision 2025, with key components and staged milestones for infrastructure rebuild, access to devices and support for digital capacity, capabilities, curriculum and recognition of the positives of education technology to support teaching and learning.

There is a right and proper role for government; leadership that convenes, inspires, and brings fragmented policy developments across government to focus on our national digital challenge.

The creation of an Office for EdTech and Digital Skills to drive forward coherent national change to support the adoption and use of EdTech and a UK-wide approach to digital skills is needed.

The Office for EdTech would also bring a focus across Government to properly support the EdTech sector across the UK and the creation of a Sector Deal for EdTech, as part of the Industrial Strategy.

A new approach to education technology and digital skills has to work with present circumstances and prepare strategically for the future.

A new EdTech strategy - addressing the short term; preparing for the longer term.

5.1 Learning loss

I. It was clear that structural issues; a lack of infrastructure to enable schools to function remotely and access to devices for students were enormous challenges and in, and of, themselves contributed to potential 'lost learning;
II. Schools that had prior expertise in education technology were able to switch to being virtual schools at speed and often seamlessly; certainly helping to limit the learning loss;
III. The Networks of schools and colleges that are part of Apple / Microsoft / Google Education Technology networks could develop remote offers more quickly;
IV. The RGS Worcester Family of Schools had embraced digital technology for a number of years and re-mapped their Digital Strategy at speed to ensure delivering a full-curriculum remotely became a reality. They designed evidence-informed remote learning models, guidelines and CPD

workshops that meant pupils and teachers were fully prepared for remote schooling and avoided any significant loss of learning. At the RGS Worcester Senior School, figures suggest that 97% of teachers and 93% of pupils agreed that they had been able to continue to progress when using technology to learn remotely. These positive figures were replicated in their other schools too.

V. The patchiness and uneven nature of EdTech provision reinforces inequality and are in and of itself a cause of disadvantage;

VI. Many schools and colleges did the best with what they had and improved week on week. Others used what they had to its full benefit and learned things at speed with a tech adoption cycle at speed and unseen previously. They warrant much praise for the spirit of 'can-do' and peer to peer support and we should celebrate the hard work of many educators across the UK;

VII. Access to devices and the internet was a massive challenge for areas of deprivation – digital poverty was widespread;

VIII. In community run educational venues that support school learning, students and young adults did not have internet access and / or a device to use at home to access learning materials and online sessions - this negatively impacted on their learning. When additional funding was applied to either rent such devices or pay for internet access, participants experienced a delay in receiving these devices which in turn negatively impacted on their learning and contributed towards disengagement;

IX. Research has highlighted the relationship between digital equity and fostering intercultural education - through addressing the digital disparities, we can attempt to eliminate the deep-seated social inequalities that impact on the overall life outcomes of our students;

X. Much of the research remains speculative on learning losses and we should have a national way of assessing these losses. Given the unknown impact on children's life chances during COVID statements such as "evidence from prolonged school closures overseas, the report said average lifetime earnings could be lowered by up to 3% if pupils were not given opportunities to catch up" do not reflect the potential ability of students to catch up or combat individual circumstances. In addition to this, statements that solely focus on learning loss detract from, and underestimate, the resilience of children, ability of Educators across all stages to facilitate 'catch-up' and also detract from the much needed focus on mental health issues (which will have a much greater negative impact on students' futures. Whilst evidence from overseas may be relevant, it cannot be taken as fact.

5.2 Remote learning

I. For pupils immersing themselves in home learning, regular, ongoing contact with staff was vital in ensuring that pupils felt their work still had a clear purpose;

II. The importance of consistency. Time is a precious commodity and expecting individuals to access a school website or learning app to first locate and then complete their work was impractical and ineffective, as was any expectation for physical worksheets to be printed.

III. Many pupils live in economically deprived communities and it would be wrong to automatically assume there is access to either a printer and/ or limitless paper in the home even with access to

devices. Pupils from disadvantaged backgrounds may not have the luxury of a space to call their own for studying due to sharing bedrooms with siblings. This must be considered when building in flexibility for students.

IV. There is also the issue of restrictions on devices that can be bought and distributed. Again, ensuring equity of access and provision of devices at a national level continues to be a priority.

V. DfE outline advice on remote learning was welcome, but could have gone further, as was the creation of Oak Academy, the EdTech demonstrator programme, the devices and platforms programme. Long term neglect of key parts of the EdTech ecosystem could not be remedied in a matter of weeks.

VI. Many schools provided paper booklets in areas of deprivation, this should not be criticised as this was the best method for them at the time to ensure equal access.

VII. Access for disadvantaged students supported by an online curriculum to support development of digital skills. Given loss of core curriculum ICT, basic digital skills need to be a priority. The 'digital divide' is not just about access it is about providing skills to, and a learning organisation or framework. Teaching of digital skills has to be a higher priority for all, but even more so for those currently with limited access.

VIII. Post-pandemic use of EdTech to support most vulnerable / marginalised (persistent absentees, ill, GT etc.) to support inclusion. Investment for levelling up for the long-term must be key to ensuring resilience.

IX. Consideration of how to use learning - e.g. if schools adopted resources platforms in lockdown what does that mean for learning post lockdown? How do we accelerate adoption of these tools for learning? A pedagogy first, platform second approach is needed.

X. We need further research examples from the DfE or EEF as case studies for schools, especially on how cognitive science links with effective EdTech and more investigation into the methods of online remote teaching with the 'synchronised and asynchronous' debate being clarified more.

XI. Evidence such as the Education Endowment Foundation rapid evidence assessment of remote learning became crucial. Further work of this calibre should be funded by the DfE.

XII. The physical and mental wellbeing of students needed consideration in remote learning sessions: Public Health England reported on the 9th of September 2020 that over two-fifths (41%) of children and young people said they were more lonely than before lockdown and more than a third said they were more worried (38%), more sad (37%) or more stressed (34%).

XIII. Many schools built in wellbeing into their remote offer, many did not - provision of monitored facilities such as Google Chat and Meet to help children keep in touch with friends during lockdown was beneficial in terms of mental health and well-being.

XIV. An online method of education can be a highly effective alternative medium of education for the self-disciplined student, it can be an inappropriate learning environment for more dependent learners.

XV. Online asynchronous education gives students control over their learning experience and allows for flexibility for students without devices or suffering from illness, however, this places a greater responsibility on the student.

XVI. If teachers are not professionally trained in online delivery and methodologies, the success of the online programme will be compromised.

XVII. We must recognise teachers had to prepare at speed in mixed environments.

5.3 Safeguarding

I. Safeguarding continuity of learning with an adaptive response to teaching and learning from home is our duty now. Students missed their 'tribes' in lockdown so having chat groups, online spaces, and opportunities to be less alone and more connected to each other is expected in and out of the physical classroom;
II. The students often do this well in their personal lives. We need to ensure that we are in touch with each other to keep teaching and learning moving forward should we need it.
III. Safeguarding rules regarding online live lessons were confusing and safeguarding guidance was not clear in this case, with advice from unions coming out initially.. This may have caused a school to not opt for live lessons, before clarification from the DfE on what was appropriate;
IV. Guidance on safeguarding online was issued several weeks after moving online, pastoral care or providing support for pupils with special educational needs and disabilities (SEND) was problematic;
V. Were all parents and students made aware of the potential risks of remote learning and written consent for children to be involved? Wales gave automatic consent for all learners to the full Hwb platform in March whereas previously parents had to sign to agree for any student below Yr9. Government given consent is not the same as parental informed consent - parental awareness of the benefits and dangers of online communication needs to be a part of future provision in this area.
VI. Teaching online is different to teaching face-to-face. Teachers needed support to make sure they maintain professional relationships with children and young people. Often, they were undertaking remote learning for the first time;
VII. CYPMHC Annual Report 2020 highlighted growing levels of poverty and inequality and their impact on infant, children and young people's mental health by a coalition of over 200 organisations. Action needs to be taken swiftly to safeguard children at risk during remote learning periods;
VIII. The County Councils Network (CCN) found that every single respondent felt up to 10% of their childcare providers at least could close this winter rising to one in four in some areas, even without a second Coronavirus wave;
IX. The report by UNICEF's Office of Research , urges governments to improve and protect child well-being in the face of the economic, social and educational fallout from the COVID-19 pandemic.

5.4 SEND and assistive technology

I. It is important to recognise that the design of the school system was challenged for all as the balance of safety and curriculum vision is tackled including SEND;
II. The key collaboration across the teaching profession and multi-agency practitioners - the team around the child - sat at a standstill as pandemic response limits partnerships;

III. Vibrant communities of educators engaged in professional dialogue and debate find themselves challenged by safety and wellbeing as a priority topic - risking developments in curriculum, pedagogy, and provision;
IV. School communities with coordinated multi-agency relationships across education, health, and social care faced the risk of partnerships faltering as schools shift into protective bubbles and remote working arrangements;
V. The wellbeing of our education workforce is striking a fine balance as they compromise their own safety and mental health and wellbeing through the commitment to supporting children and young people;
VI. The SEN Support for Parents document - more specific additional needs such as ADHD, ASD and dyslexia was crucial, as was support for parents moving to remote learning. Dyslexia support for example, could have been the use of something as simple as IDL for home and school use, or Open Dyslexia extension for Chrome to help children and parents with reading;
VII. Assistive Technology is a priority for all children and is vital needed to help SEND students and requires further development and assessment.

5.5 Teacher training and support

It is clear that Initial Teacher Training, the Early Career framework and a spectrum of national professional qualifications have little, if any, focus on digital learning and the support education technology can bring for teaching and learning. Governors and members of Trust Boards need to acknowledge potential Edtech and Digital Skills deficits. There needs to be urgent action to remedy this and provide a coherent national framework of informal support and content in professional qualifications for the positive uses of digital. The wider use of accredited MOOCs and similar are attractive options. The Chartered College courses on use of technology are a positive first step.

I. There is need for professional training for all Initial teacher training students on EdTech/remote learning, and an embedded element of EdTech strategic oversight for all school leaders on the various National Professional Qualifications;
II. Training to improve Governor skills and teacher confidence to support hosting and using pre-recorded or live lessons;
III. Initial teacher training (ITT) providers who "might have only touched on remote learning in the past" have now begun to "embed it into their programmes", according to the National Association of School-Based Teacher Trainers (NASBTT);
IV. We welcome this and feel it should be an urgent requirement;
V. This must be balanced with an awareness of teacher and particularly headteacher workload to prevent further dips in retention, particularly in headteachers.

5.6 Access and infrastructure - a set of 'Digital Norms' for education institutions

I. Some students and young adults did not have internet access or a device to use at home to access learning materials and online sessions which negatively impacted on their learning;
II. When additional funding was applied for to either rent such devices or pay for internet access, participants experienced a delay in receiving these devices which in turn negatively impacted on their learning and contributed towards disengagement. Through addressing digital disparities, we can attempt to eliminate the deep-seated social inequities and injustices that impact on the overall life outcomes of our students;
III. Schools, colleges and universities should be able to provide learners with an agreed level of broadband and wireless connectivity without which many learners will not be able to access essential knowledge, resources and support available within and beyond educational institutions. There needs to be a set of 'Digital Norms' for education institutions;
IV. The Spring budget announcement on broadband for rural schools was welcome. Yet, at the present time there is a very uneven playing field of connectivity and wireless infrastructure in the UK's schools, with a March 2017 survey by the Education Suppliers Association (Besa) finding that 48% of schools reporting that their current provision was inadequate. At present school connectivity and infrastructure is patchy, whereas colleges and universities receive a standard level of service through Jisc's Janet network;
V. In spite of the government's EdTech Strategy encouraging schools to take up cloud platforms, a 2019 survey found that only 58% of secondary schools had implemented cloud services such as Microsoft Office 365 and Google's G Suite, whereas only 36% of primary schools had done so;
VI. RS survey in 2019 found that 37% of teachers have previously purchased tech supplies for their students and have, on average, spent over £40 doing so;
VII. Government initiatives such as the Rural Gigabit connectivity programme are a huge positive and extremely beneficial but lack oversight and clear parameters and deadlines for funding use - overall effectiveness of the programme is significantly reduced as a result of this.

5.7 Ensuring staff and student wellbeing with increasing use of digital in learning

I. Social isolation is tough on everyone. Maintaining staff and student community was challenging, especially for those in vulnerable catagories;
II. Student and staff families had various pressures on them and little support was given in the earlier stages of the pandemic to support them;
III. Advice was given to staff or students on "Setting up an effective space that can be used for safe and productive work";
IV. Spending hours in front of a screen each day is not healthy for young people, whether it is for educational or recreational purposes, and this should be taken into account as schools plan timetables for students and staff;

V. There is no one, correct, set way that educational establishments can support and support families at this trying time. All establishments know their families and children, teachers know what learning is required and families will do their best to facilitate supporting this in difficult, unprecedented circumstances – something all educators will be very appreciative of;

VI. In a study entitled 'Parental involvement on student academic achievement: A meta-analysis' Castro et al. (2015) carried out an analysis of 23 published studies across early years, primary and secondary and looked at the correlation between student attainment and parental involvement. Their findings highlighted two key things that are particularly pertinent to our current situation:

- The results show that the parental models most linked to high achievement are those focusing on general supervision of the children's learning activities;
- The strongest associations are found when the families have high academic expectations for their children, develop and maintain communication with them about school activities, and help them to develop reading habits;

VII. Families also know their children and will do their best to follow clear guidance, recognising when rest or family time is more important. No educational establishment would realistically advise, or expect, children to spend the equivalent of a full school day at home, in front of a device on a regular basis. Both parents, carers and educators should be aware of this and a balance needs to be found - which may be very different depending on each individual.

5.8 Across the UK – learning lessons

There is much to learn from the experiences and responses of other countries. There are key differences in approach, resources, digital capacity and levels of preparedness from those closest to us; Wales, Scotland and Northern Ireland. As Google's Head of Education declared, did some of England's schools fall behind and get "caught out in the rain" ?

Wales

I. In 2016 Wales published a Digital Competence Framework in response to the ICT Steering Group report in 2014 and also the Donaldson Review (which has ultimately led to widespread changes to the whole curriculum in Wales). It was felt that the Digital Competence Framework was needed in advance of the rest of the developing curriculum;

II. In terms of curriculum, Wales did not get rid of ICT as a subject, unlike England, and whilst Computer Science is an offer at KS4, and computational thinking is part of the new curriculum, digital skills remain at the heart of the new curriculum, and a new Digital Technologies GCSE has just been published (AS and A2 level to be published shortly) which includes a wide range of digital knowledge and skills. This will continue to push the importance of digital from age 3-18 in schools;

III. In addition to the importance given to the DCF, Wales also places importance on digital access and skills across the country, committing to broadband connection in all areas and offering grants to support the costs to homes and businesses.

IV. A commitment for a more digital Wales has been in place since 2010, an action plan in 2014 and a further action plan in 2017 to keep the momentum of this desire;

V. In schools the commitment at the start of the COVID-19 outbreak was clear, in addition to the existing plans to upgrade broadband across the nation, a further £3m was committed to the national 'stay safe, stay learning' to fund devices and Wi-Fi for pupils who did not have access at home. This was rolled out through local authorities;

VI. The commitment made by the Senedd in 2012 to fund Hwb, a national learning platform which had since developed links with both Google for Education and Microsoft Office 365, gave every learner and teacher a single login to cloud-based packages and virtual learning environments .

VII. The Wales-wide roll out and funding of Hwb has been a clear bonus for the students of Wales during COVID-19 as they, and their teachers, had access to a set of high quality recognised applications to work from;

VIII. Wales has a commitment to digital across its nation and this is shown in its commitment to schools, disseminated through local authorities. Five regional Consortium (school improvement services shared amongst groups of local authorities) all provide support and training for Digital in addition to the ICT and Computing subject level support.

IX. Cross-curricular digital is recognised at events such as the National Digital Event, and there is increased commitment to including digital in the training of new teachers.

Scotland

In 2016 Scottish Government published A Digital Learning and Teaching Strategy for Scotland. Its aims were to ensure that all learners and educators were able to benefit from digital technology in education.

It was structured around four interrelated objectives:

- Developing skills and confidence of educators in the appropriate and effective use of digital technology to support learning and teaching;
- Improve access to digital technology for all learners;
- Ensuring that digital technology was a central consideration in all areas of curriculum and assessment delivery;
- And empowering leaders of change to drive innovation and investment in digital technology for teaching and learning.

These were ambitious aims and, four years on, many ground-breaking digital initiatives have been rolled out in local authorities across the country. That being said, achieving equity and consistency in the ubiquity and quality of technology-enhanced learning remains an ongoing goal.

COVID-19 has shone a lens on the need for equity of access to online learning spaces across Scottish Education. It remains a key priority for Scottish Government.

I. The General Teaching Council for Scotland has, this year, updated the Standards for Registration. This includes the Standard for Provisional Registration (SPR). All teacher education programmes in Scotland are framed against this. In relation to digital capabilities, the SPR specifies what is

required from a student teacher as they progress through their initial teacher education experience;

II. It is essential that all future teachers are provided with, and are seeking out, opportunities for professional development in digital teaching, learning and culture and that they are endeavouring to integrate this into their ongoing learning discourse;

III. Under Professional Knowledge and Understanding: all new teachers entering the profession must have knowledge and understanding of current guidance on the use of digital technologies in schools and know how to use digital technologies to enhance teaching and learning. Under Professional Skills and Abilities: individuals must be able to demonstrate that they can select and use a wide variety of resources and teaching approaches, including digital technologies. In addition, they can organise and manage digital technologies to support teaching and learning.

IV. 2018 saw Skills Development Scotland publish Skills 4.0. This paper acknowledged that we are moving into a fourth industrial revolution, driven by technological disruptors and characterised by an exponential rate of change. It identified a range of meta-skills including Self-management, Social Intelligence and Innovation and goes on to conclude that these meta-skills and digital intelligence should be developed across the entire education and skills system in Scotland and maintained and further developed in the workplace. Educators are required to be responsive, reflexive and proactive in ensuring that their own professional learning and practitioner inquiry has a regular focus on the constantly changing landscape of pedagogy, practice and culture in the digital domain;

V. In August 2020, the National Framework for Digital Literacies in Initial Teacher Education (ITE) in Scotland was published. Although in production long before COVID-19 struck, its launch could not have been more timely. The Framework has been designed to ensure that all students who undertake undergraduate or postgraduate courses, across all of Scotland's ITE providers, are appropriately guided and supported about the place, purpose and pedagogy of digital tools in teaching and learning in 3-18 settings. The framework is wide ranging in its intended reach. Therefore, it is as relevant to student teachers as it is to those responsible for delivering ITE and supporting newly qualified teachers in schools. It aims to meet the Scottish Government's vision of a relevant and forward-looking framing of digital learning across ITE programmes.

A view from Schools

I. There was a concerted effort to provide practitioners with required support and training in digital learning at both a local and national level. Staff CPD was conducted both at a local level by LA's and nationally by the Education Scotland Digital Skills Team. This consisted of webinars and support videos along with a 'team' offering help and support. Having teachers know where to go for support is essential. Lockdown highlighted the need for staff CPD. Although there was a disparity between local authorities, the national support could be accessed by all teachers;

II. All pupils have access to the digital tools through Glow (Scotland's educational intranet). Being prepared for virtual learning and familiarity with the platforms helped schools to navigate and continue learning when pupils were not in the building. On the whole, this allowed for a more seamless transition as pupils had experience of using the platforms such as Google Classroom or Microsoft Teams;

III. The biggest hurdle was access. Many pupils were sharing devices with siblings and parents. For these individuals, the provision of asynchronous content proved particularly beneficial. Moving forward, how do we ensure our young people at home have the infrastructure they need and support on how to access the resources? Many vulnerable students did not have their Government allocated devices and internet access by return to school in mid-August 2020.

Northern Ireland

Schools in Northern Ireland have access to technology tools and resources through "C2K". These tools have the potential to provide active learning experiences, safe access to resources in a secure environment and allow collaboration with other learners as well as their teachers. There is no doubt that access to the platform aided the response to lockdown.

Teachers built on established practice to roll out remote learning. School responses to home learning resulted in a number of issues quickly coming to the fore.

1. Gaps in teacher professional learning;
2. Inequalities in access to devices and internet provision for both children and school staff;
3. Parental engagement;
4. Safeguarding in a remote learning environment.

Gaps in teacher professional learning

Courses in Northern Ireland had been face to face, with no training budget and the demise of the former Curriculum Advisory and Support Service many teacher skills were not at the level required for a quick move into remote learning.

The Education Authority through C2K and Stranmillis University College did provide online training on remote learning and the use of applications available through the My School national platform. However, it was the number of ground up collaborations of teachers that ensured greater sharing of practice. Social media was mobilised to connect teachers across Northern Ireland; @learn_ni, @BlendEd_NI and NI Teachers Collaborate. The collegiate approach to solving issues from the remote chalk face has led to more trust within the system.

Shared drives of resources, digital teach meets and the collaborative use of Microsoft Teams at both Principal and Teacher levels have improved the delivery of educational technology across the system.

The Education and Training Inspectorate (ETI) have paused inspection activity and assumed a supportive role in the system to support school leaders. The ETI met reference groups of curricular co-ordinators, Heads of Department and leaders on a cross-sectional basis from across Northern Ireland to seek their views on the challenges of remote learning and teaching, and what approaches they might take in moving towards the return to school with as many children and young people as possible, complemented by blended learning where necessary. Documents to guide school-based staff on remote and blended learning were published in June 2020 and provide a useful framework of support.

Inequalities in access to devices and internet provision for both children and school staff.

Despite the effectiveness of the teaching workforce, the response was hindered by the technology infrastructure. Whilst C2K NI offers a national platform, access to devices and WIFI highlighted the inequalities of home-based learning. The Department of Education scheme to provide access to devices has begun. The Department has requested that key year groups be prioritised.

This includes:

- Supporting the provision of an initial quantity of up to 2500 MI-FI devices which is a mobile connectivity solution to support those children who are not within a BT WIFI hotspot: and
- Providing 8,300 WIFI vouchers for disadvantaged children with up to eight month's internet access.

Safeguarding in a remote learning environment

Many school leaders were attempting to meet parental expectations of online face to face teaching. This presented many issues with teacher unions and the infrastructure of C2K.

The ETI published the Safeguarding Remote and blended learning: challenges and approaches paper in June 2020. This highlighted which identified the key safeguarding challenges faced by schools and educational/training organisations during the period of educational closures due to COVID-19 and how these have been approached across all phases of education and training.

Parental Engagement

The Report: Home-Schooling in Northern Ireland during the COVID-19 Crisis by the Centre of Research for Educational Underachievement at Stranmiliis University College highlighted that for a sizeable minority of families, the experience of home learning has been enjoyable, offering them an opportunity to spend more time together, enjoying a calmer pace of life, giving parents time to engage confidently and more directly than ever before in their children's learning, supported by appropriate online resources from the school, while also giving children more time to play, relax and enjoy the outdoors.

This was in conflict with many school leaders who found it difficult to engage parents through remote learning. The report did acknowledge the challenging experiences by some parents and high levels of stress and exhaustion among others, especially those on the front line employed as Essential or Key Workers.

Many parents found themselves ill equipped for the challenges of homeschooling. Many did not have access to a printer or another connected digital device other than a mobile phone. Parents with more than one child struggled to maintain the expected levels of work shared by the school.

Recommendations

In moving forward key recommendations for strategic planning are emerging:

1. Despite a huge appetite to learn, there remains a skills gap across the teaching profession and an urgent need for Professional Learning Opportunities for Teachers;

2. Teachers' own access to the internet, availability of appropriate hardware and software, and teachers' own need to maintain a work-life balance;

3. Time for school-based staff to design and share online lessons;

4. Time to communicate with parents and design how to guide in order to support learning remotely.

It is clear that many school leaders feel there will be a long-term impact on schools and addressing the increased needs of pupils. This will require additional funding, clear guidance and strategic planning from statutory and non-statutory bodies.

5.8 Valuable lessons from other countries

	Links to International responses
Croatia	https://mzo.gov.hr/news/coronavirus-organisation-of-distance-teaching-and-learning-in-croatia/3634?fbclid=IwAR1SePphFjc2DeqAiVdB_ixQJBhp7LG3tz9Ly10KkxH4bIDb1bsKw-uUmcI
Bulgaria	https://eacea.ec.europa.eu/national-policies/eurydice/content/support-primary-and-secondary-schools-teachers-put-place-during-pandemic-bulgaria_en?fbclid=IwAR0IZd8WqWpUJhsR6TsL-16pvpezrJLaVJd7RsWvQtB68DktvWYV-YyD4Z0

6. Supporting the EdTech sector – a mature sector better serves teaching and learning.

I. Education technology is one of the fastest-growing digital sectors in Britain with over 1000 companies, including major clusters in London, the North West, North East of England and South Wales. The sector is also growing at a rapid rate globally and is predicted to reach a global value of $220bn by 2020 within an education sector worth $5in a year. (source – EdTech Vision 2020);

II. The digital economy in Britain is a major source of future economic growth and there is a level of work going on across government to promote this success - more needs to be done - from organisations with Tech City UK and Tech North involved;

III. Research quoted by EdTech UK and London & Partners found that UK schools spend over £900m a year on education technology products, and that the global market for e-Learning products is predicted to reach £243.8bn by 2022. The UK is home to some of the world's leading EdTech firms.

6.1 Positives of increased digital for education

1. The gains in independent digital study skills across all subjects have led to empowered student-led evidence creation e.g. photos, video, audio - which is good for modelling complex ideas and can then be shared with the class for supportive peer feedback.

2. Sense of community, belonging, and collaboration between students in chat and video groups. The support and understanding between groups have been another real positive as they came together as teams in these virtual spaces to help each other achieve their goals.

3. The increase in digital going forward can create a more inclusive and adaptable workforce for the Future of Work.

4. Online Safety is still at the forefront by introducing a consistent platform across the schools and by carefully selecting a mobile device for our 1:1 schemes that could be managed centrally, it has been possible to provide pupils with the benefits of online learning while still ensuring remotely that they can stay safe. For example, if access to a specific website is required for schoolwork and is blocked, those restrictions can be removed centrally and 'pushed out' to all learners, or with graduated access dependent upon age. Likewise, pupils' usage of learning suite accounts can be monitored and measured, both to evaluate engagement and ensure responsible use. In many ways, the move to home learning replicated the practices that were already in place in the classroom, albeit now in a different location.

5. Teachers can provide excellent feedback directly on digital work. Whether pupils have taken photographs of an art project, written an essay or completed a Science experiment, teachers can respond by either giving summary feedback or by writing directly on to the work itself, much like in a workbook. School systems and processes have been followed even though the pupils are learning from home and features such as a 'Comments Bank', allows staff to re-use the same detailed feedback that they may repeatedly give to pupils genuinely helps reduce teacher workload. Making use of other media for feedback (including audio and video tools) can further reduce workload and increase student and parental engagement.

6) The ability to schedule work on learning platforms can serve two important purposes:

A. Teachers can control their workload, choosing when and how they prepare resources and give feedback to pupils. If they wish to work later in the evening due to their own childcare/ other commitments, staff can choose to do so, and it will not affect when work 'goes live' for the learners;
B. If pupils cannot work during certain times as a result of lack of access to a device, they know that the work will have been set at a specific time for them, with a realistic period for completion and that all the resources required will still be available to them on Classroom.

7) One of the main positives that have become evident during this period of home learning has been the rapid acceleration of both pupils' and teachers' digital skills. The pupils' development - where young people have both motivation to learn and access to technology, makes them keen to experiment and self improve. And changes have been evident in staff teams:

- Staff have 'upskilled' themselves because they have had no choice - their learners have depended on them to do so and they have felt a strong sense of responsibility to rise to the challenge;

- Staff have pushed themselves out of comfort zones. Working from home, without the technical support of technicians, network managers and other colleagues, each individual has had to show the same set of skills that we encourage in our learners - predominantly problem solving, resilience and a growth mindset.

6.2 Data and analytics

I. A vast amount of data is produced as a byproduct of 'digital exhaust' from learners' interactions with EdTech products and services. At present, some of this data goes into common platforms and databases, such as the DfE's National Pupil Database and Jisc's Learning Analytics service, but the vast majority of it is simply discarded;

II. By adopting a common (open) standard as a partnership between the education sector and the EdTech industry, we could make it much easier to integrate EdTech applications with institutional systems, and to use advanced machine learning and artificial intelligence techniques to predict learning outcomes and where interventions may be helpful;

III. During lockdown, there was no way of national accessing data for understanding the learning gap;

IV. The Data collected by the DfE is often national and does not inform local areas and is separated from other children's data;

V. There is no national audit for children's data protection regarding EdTech Data in schools despite concerns raised from the Children's Commissioner. Government must set clear expectations about how learner data can be used, and the need for explicability of data-driven decisions such as grading of assignments via AI.

6.3 Jobs and growth

I. The EdTech sector is already employing thousands of people but that could grow at a much more rapid rate. The creative and digital economy is the fastest growing in the UK and the EdTech sector needs to adopt similar 'ecosystem developing' programmes. The Digital Economy Council stated the EdTech sector is estimated to be worth £3.4bn by next year, even before the crisis.

II. There is a developing pattern of investment across social, seed, angel to private and venture capital in education and learning technology in the UK.

- EdTech investment climbed by 91% from 2018 to 2019;
- UK companies attract 41% of all investment in EdTech in Europe in 2019;
- On a global level, EdTech companies saw VC investment grow by 22% in Q1 2020;
- Since 2014, EdTech companies in the UK have raised a total of $857m in venture funding.

III. This growing investment landscape and pattern is a real strength. A light touch review with an economic impact audit is an important first step in assessing the strengths and potential for

growth of the EdTech sector. However, startup and scaleup EdTech firms also report that they find it difficult to engage with education institutions that can be rightly cautious about dealing with unproven technologies from small businesses. We believe there is much that can be done here to de-risk engagement for institutions, leading to UK areas becoming a 'learning laboratory' for new EdTech developments;

IV. The Confederation of British Industry (CBI) has reported that: two-thirds of businesses have unfilled digital skills vacancies; 95% of businesses expect their digital skills to increase;

V. The WEF report on global economic growth and increasing globalization and many like it have already shown an increasingly digital world. COVID-19 pandemic means UK growth prospects are now very different and there is an economy of consensus emerging that COVID-19 will not only accelerate several previously observed societal and technological trends such as increased online shopping and the use of contactless technologies, this will also accelerate digitisation and automation across the economy - thus highlighting the need for young people to be prepared for a digital world and workforce;

VI. With a predicted market worth close to $252 billion, EdTech startups are on the increase all over the world.

6.4 Investing in digital skills improves economic growth

I. National sectors of the digital ecosystem in the UK are dependant on digital skills, with Tech Nation reporting in 2020:
   - UK digital tech exports are currently projected to grow by 35% by 2025, resulting in an additional £8.15bn worth of tech exports - £31.45bn by 2025;
   - The UK is the 5th greatest digital tech services exporter in the world at £23.3bn in 2019, behind India, the US, China and Germany;
   - Trade surplus (the gap between exports and imports) for digital tech was up 68% over the last four years (2015-2019) - in 2019 there was a trade surplus to exports proportion of 55% in the UK, higher than the global average of 48%.

II. The economic impact of Basic Digital Skills and inclusion in the UK report by the Centre for Economics and Business Research (CEBR) estimated that 7.9 million people will still lack digital skills in 2025 (see The economic impact of Basic Digital Skills and inclusion in the UK (PDF, 1.73MB));

III. The Good Things Foundation states that 'providing everyone in the UK with the essential digital skills they need by 2028 will lead to a benefit of £15 for every £1 invested, and a net present value of £21.9 billion';

IV. In 2017 the U.K. government projected that within 20 years, 90 percent of all jobs would require digital skills to some degree, this has been accelerated due to COVID-19;

V. A 2019 report by the Office for National Statistics (ONS) revealed that, although declining, the number of 'internet non-users' is still large in the UK. In 2018, there were 5·3 million internet non-users in the UK: 10% of the adult population.

VI. Lloyds Bank UK Consumer Index 2018 (PDF, 3.16MB) estimated that the number of people in the UK lacking basic digital skills is declining, but in 2018, 8% of people in the UK (4.3 million people) were estimated to have zero basic digital skills. A further 12% (6.4 million adults) were estimated to only have limited abilities online (missing at least one of the basic digital skills);

VII. The Centre for Economics and Business Research (CEBR) have identified five areas in which individuals who acquire basic digital skills are able to benefit (PDF, 1.73MB):

- Earnings benefits: these relate to increased earnings of between 3% and 10% through acquiring digital skills;
- Employability benefits: this reflects the improved chances of finding work for someone who is unemployed and an increased likelihood that someone who is inactive will look for work;
- Retail transaction benefits: shopping online has been found to be 13% cheaper on average than shopping in-store;
- Communication benefits: basic digital skills can enable people to connect and communicate with family, friends and the community 14% more frequently;
- Time savings: these relate to the time saved by accessing government services and banking online rather than in person, estimated to be about 30 minutes per transaction.

VIII. The UK Government reported in 2017 an estimated 1.2 million new technical and digitally skilled people are needed by 2022 to satisfy future skills needs and a promise of a new method of:

" Working together: A more collaborative, coordinated and targeted approach to digital skills"

We are yet perhaps to see this approach benefit schools and colleges in a way that would meaningfully impact the digital skills gap or increase opportunities for young people. The Department for Digital, Culture, Media & Sport in 2019 published the report: No Longer Optional: Employer Demand for Digital Skills stating:

"Evidence suggests that while the UK does have a strong digitally enabled workforce, there remains a digital skill shortage that holds back the UK economy."

6.5 Digital skills and talent

I. England is one of only five countries in the world which have a compulsory computing curriculum. The other four (South Korea, Israel, Estonia and New Zealand) are groundbreaking in so many ways, but the UK is also a leader in this area;

II. Develop the growth of digital skills for educators and the growth of EdTech companies, perhaps by creating and also supporting an EdTech Catapult;

III. Scaling and expanding a digital-first curriculum to meet student demand is needed;

IV. Recognising and reducing the barriers to promoting the cross disciplinary teaching of a digital curriculum;

V. Building digital capability and digital skills: we are asking more and more of teaching staff in terms of using EdTech applications and other digital technologies to support teaching and learning. At the same time, these are the very skills that the learners of today will need in the economy of tomorrow. The challenges experienced with the implementation of the new computing curriculum have demonstrated that more needs to be done to support teachers and lecturers, not just in teaching computing, but in digital capability more broadly. Leaders need to clearly articulate their digital curriculum intent detailing how they will ensure all students develop their digital working and living skills;

VI. The dominant force shaping the Computing curriculum for pupils aged 11-14 is the GCSE examination in Computer Science although most pupils do not go on to take this qualification. For instance, in the recent and exemplary Manchester City Council High School Digital Audit, only two out of 36 schools have developed a mature, digital skills offer for all students at KS4. This issue also creates a large problem and challenge for UK firms;

VII. Has the Computing Curriculum actually set us back as a country in terms of wider digital skills acquisition?

VIII. Teachers expressed a concern regarding the lack of development of practical digital skills such as those outlined in the U.K. Government 'Essential Digital Skills Framework' in particular:

- Online safety dominates but pupil's wider understanding of digital living skills and their social and ethical implications are marginal especially at KS4;
- Digital working skills including Internet research skills, the capacity to collect and interpret data, financial and budgetary planning, the use of email and problem solving are not strong features of the curriculum especially at KS4.

IX. An urgent need to celebrate and foster diversity and inclusion - from role models in the classroom and workplace, to representation in marketing and communications, actively challenge and close gaps for underrepresented groups at graduate level through industry and education working to support positive pathways for inclusion;

X. Teacher and employee training around dispositions (e.g. unconscious bias and inclusion) and data, programmes to improve diversity statistics for students and closing gender and inclusion gaps in education and industry;

XI. Ensure engagement and dispositions to technology (especially at transition points) that are personalised to individuals, not 'stereotyped' initiatives to retain and recruit students, ensure confidence in technology is secured between Primary and Secondary education. The recent DfE guidance on this is welcome, but more must be done to close the gap and support positive steps towards inclusion.

7. Recommendations

7.1 Increased support for all schools and colleges for digital infrastructure and devices

The Learning Foundation estimates that overall there could be as many as 1 million children and young people without digital access and there are suggestions of marked regional differences based on socioeconomic data. Furthermore, recent research on the digital divide (Deursen & Helsper, 2018) suggests that there are "systematic differences in the opportunities and abilities that individuals from certain groups have to translate access, skills and use into tangible outcomes in their everyday lives."

Disconnected households, without relevant devices, can mean that pupils are disconnected from learning.

A digital divide can worsen the attainment gap, despite the ingenuity and creativity of educators. An estimated 9% of families in the UK do not have a laptop, desktop or tablet at home. The DfE has provided 200,000 devices and 50,000 routers. This compares to the 540,000 children in groups currently eligible for the scheme, meaning that only 37% of these could be allocated a device. Ofcom estimate that between 1.14m and 1.78m children in total in the UK have no access, meaning that the scheme only targeted between roughly a third and a half of children who needed one. Many schools have been given very few devices and cannot provide them for the entire cohort of disadvantaged students. With the estimate that schools already had onsite 282 laptops before even calculating the allocations being highly inflated in our view and report that some trusts received just 1 laptop.

Educational access must be for all.

Even within schools, the lack of infrastructure is widening the disadvantage gap. Schools in the UK moved at speed to prepare for closure because of COVID-19, often with little guidance to facilitate remote or flexible learning. Many schools were better prepared as they had an investment in infrastructure and an institutional plan, strategy, or experience to support teaching and learning with technology. Support for school and college infrastructure is crucial and we would see a process of certification would need to be developed. This certification recognises the high-level skills needed to maintain safe, secure and high level networks.

Not all schools were as digitally prepared as others and, despite the generosity and support of other educators, it was a challenge to use any digital infrastructure to communicate with pupils without superfast broadband for schools. In England, particularly, we recommend establishing a unified superfast broadband infrastructure to be implemented by Government investment, partnership with Telecom companies and building on existing superfast networks or approaches to make sure no school or pupil has less digital access than the any other industry. We need consistency and reliability across our school and college estate to allow support and evolution of digital support for teaching learning.

7.2 A new National EdTech strategy; an Office for EdTech & Digital Skills and a Sector Deal

There is an urgent need in England for a new EdTech strategy.

The scale and ambition for the use of EdTech merits a new Vision 2025, with key components and staged milestones for infrastructure rebuild, access to devices and support for digital capacity, capabilities, curriculum and recognition of the positives of education technology to support teaching and learning.

There is a right and proper role for government; leadership that convenes, inspires and brings fragmented policy developments across government to focus on our national digital challenge.

The creation of an Office for EdTech and Digital Skills to drive forward coherent national change to support the adoption and use of EdTech and a UK-wide approach to digital skills is needed.

The Office for EdTech would also bring a focus across Government to proper support for the EdTech sector across the UK and the creation of a Sector Deal for EdTech as part of the Industrial Strategy.

School funding on infrastructure must be under one roof - previously proposed EdTech Office is key to coordination of funding priority identification, allocation and value for money. It is important to continue to invest in infrastructure - levelling the playing field for the UK's schools, in a programme compared with the US Office of Education Technology's Gigabit connectivity initiative.

7.3 National platform for England - like Hwb and Glow

The Department for Education in England should create a national platform that includes access to a wide choice of cloud-based platforms for schools and create an educator designed and led, national platform for useful, secure and reliable resources. There needs to be universal access to a shared national resources platform - like Hwb in Wales, C2K in Northern Ireland and Glow in Scotland - to support teacher continuous professional development

However, it remains to be seen and debated whether schools in Scotland, Wales and Northern Ireland were better prepared for the rapid switch to remote and flexible learning because of previous investment in national resources platforms, consistent access to Learning Platforms and professional development and developed national communities of practice. Feedback from educators across Scotland, Wales and Northern Ireland suggests a national platform helps educators, pupils (and by extension their parents) also consistently access digital tools. A national platform also prevents educators from being inundated with product offers that have not been fully assessed concerning their educational value and/or security by professional educators.

The strength of communities of professional practice and ease of access to an ecosystem supports educators during the normal school term and at times of extraordinary upheaval. Whether the existence of national platforms has supported teachers better to protect learning will need further study.

However, when we begin to think in terms of 'system resilience' for the future; the creation and investment in national digital platforms will be a priority for access, equity and support for the digital journey of schools.

7.4 Increased investment and support for SEND and digital assistive technology

As assistive technology develops, a fundamental aim must be to support families with structures and routines to help them support and engage their child with home learning activities that align to their complex SEND profile. In addition to this, specific support must be provided for families who have to support children with complex needs in both the context of learning and care in periods of lockdown. This support will include hardware devices, software and furniture that may be available educational establishments but must also be available or accessible in home environments and / or for families on periods of lockdown.

During these turbulent times, a school must have support to develop a rapid and sustainable response to run the school remotely. Many schools - especially special schools- working with pupils with a range of needs focussed on engagement, communication and independence. Many used live interactive learning with core activities uploaded from the school's learning app directly to families prompting holistic outcomes.

Many staff also focused on embedding the digital strategy that also importantly included dialogue with Multi-Agency Support Team partners.

Providing students who have specific needs with their own mobile device (e.g., a tablet) can make a significant difference to their ability to personalise resources and employ widely available accessibility tools to support visual/hearing impairment, dyslexia, autism, limited motor function and other sensory issues. Tools such as speech to text and auto-layout can help to level the playing field, improve the quality of work and increase student confidence.

Going forward many in the SEND educator community would like to see:

1. Increased CPD for families and communities to make the home learning offer more robust;
2. Infrastructure for schools and families to access home learning - including access to hardware, software and furniture;
3. CPD for leadership teams, staff and families to embrace the changing digital landscape and raise awareness of accessibility tools and approaches to support SEND
4. Increased investment/funding in assistive technology to secure the learning of all disadvantaged children.

7.5 Digital economy and clarity about digital skills and EdTech as a national investment priority

We can no longer afford any ambivalence about education technology and digital skills. The shift to remote and online working has revealed many strengths but also substantial weaknesses in policy development, skills levels and delivery. Understanding the exponential growth of the digital economy , clarity about digital skills and focus on EdTech as a national investment priority is urgent.

The way digital skills and EdTech is organised across government is fragmented.

Is DCMS the driver of digital skills? And who is the driver of EdTech? Is there clarity and coherence about sector support at DIT? Does DBEIS lead on sector support? It seems that key education and economic priorities can get lost too easily in government business. The EdTech sector has been growing in previous years and a Sector Deal would help the sector focus investment, priorities and growth.

An Office for EdTech and Digital Skills with clear Ministerial responsibility, located at the heart of government, would coordinate and focus actions and improve focus across DIT, DCMS, DfE and DBEIS.

As part of national recovery planning, there should be a cross-departmental light touch review, as part of the preparations for the EdTech Sector deal, to look at barriers to adoption and potential for growth of education technology, and an economic impact audit of potential growth in London and across the country with a focus on key growth clusters.

The EdTech sector is a growing, vibrant and important sector for UK skills, jobs and growth. Government must continue to work with educators and EdTech firms to maximise the potential of data and analytics to improve learning outcomes and achieve potential institutional efficiency savings. There needs to be proper and sophisticated strategic oversight across Government; including properly viewing the sector as a vibrant export asset and the UK as a location for global firms.

Creating a more cohesive sector, with a focus on better outcomes will be of benefit to teachers and learners.

7.6 Computing and curriculum reform

An independent review of the effectiveness of the Computing curriculum and its effect on core digital skills would be a priority.

There are compelling arguments for developing a ‘digital-supported’ curriculum that is also aligned with industry practice, where relevant, - with students developing a range of digital skills, digital literacy and knowledge. Consulting Industry, entrepreneurs and identifying key skills and educational technologies they frequently use across various areas of work would also be beneficial additions. Increasingly,

curriculum reforms recognise and reduce the barriers to promoting cross-disciplinary teaching of a 'digitally supported' curriculum.

By investing in EdTech, an effective digital skills framework and support now, the UK will have a greater chance of being able to leverage next-generation technologies and skills effectively and competitively after COVID-19.

7.7 A joined up approach to data about children and young people

The Children's Commissioner has already called for better protection of children's information and created Childhood Local Data on Risks and Needs (CHLDRN) that provides the most complete picture of the numbers of children at risk in England, at both a national and local level. This must go further to ensure it is useful at a local level and can inform schools, councils and charities working with young people what difficulties they are facing. Whether it be for learning losses during COVID, educational comparisons at a deep level between schools within the same socio-economic level or highlighting risks to young people for local councils such as drinking or anti-social behaviours. The link between identifying risks early to young people and improving life chances are very clear. Schools often bear the brunt of disadvantage whether it be in mental health or protecting children from radicalisation.

Often schools are seeing the issue well before any plan is implemented. We collect vast amounts of educational data and we must use this with local data on children's lives to improve life chances and build a resilient educational system that treats children individually and regions individually.

Coordination is needed at a local level. Too often the agencies that support our young people and schools are separated from the information given to local councils or those collected by third party organisations such as charities or EdTech organisations. Key data are all too often held in 'silos', isolated in separate systems and databases, and there appears to be a reluctance for these data to be shared because of concerns about potential breaches of General Data Protection Regulations (GDPR).

This situation prevents schools and agencies from working together to best support vulnerable children. Schools have become, over the years, the central hub of service provision and coordination for young people's lives. Schools and colleges need support - early identification of challenges and a web of school focussed support around the child is vital. Children's data must work for children. The Open Data Institute's pioneering work on Data Trusts may point to a way forward here.

8. Remarks

The global pandemic has highlighted the urgent need to ensure equitable digital provision. Increases in home working may have personal and environmental benefits, but these need to be supported by national infrastructure. Our vision for EdTech in 2025 is that this infrastructure should encompass everything from devices and connectivity to smart and sensitive use of data, proactive training and support for educators to make the most of the technology.

We believe that new ways of organising delivery will be required to ensure that the lessons learned during the pandemic are embedded. Chief amongst these is as an Office for EdTech and Digital Skills in government, which would oversee this programme of work.

COVID-19 has exposed the extent to which many schools are struggling after years of real terms budget cuts and grant funding to schools and colleges. In the short term, Education can move forward and prevent learning 'loss' through developing targeted blended learning but only if this is adequately supported by the Government. Developing digital strategy and a blended approach can have huge benefits for institutions, educators and learners.

Professional development can become more cost effective and easier to access across the country using virtual conferencing and recorded talks giving teaching and support staff more opportunities to learn and develop. However, all of this depends on the will to change and the funding to support it – many teachers and students now see the benefits of providing blended learning – something the Open University has excelled at for years.

Thank You to all those educators, school and college leaders and support staff for protecting and inspiring learning during these turbulent times.

EdTech Advisory Forum

EdTech UK,

September 2020.

9. Membership

Members of the EdTech Advisory Forum include:

Nathan Ashman, Educator
Tracy Atkinson, Teaching Fellow in Digital Education, University of Strathclyde
Becki Bawler, Teacher, Risca Community Comprehensive School, South Wales
Abdul Chohan, Director, Think Simple
Sarah Clark, Teacher of Biology, Queen Anne High School, Fife
Farida Danmeri, Educator & Learning Designer
Emma Darcy, Director of Technology for Learning, Chiltern Learning Trust
Debra Gray, Principal and Deputy Chief Executive, Grimsby Institute
Ty Goddard, Director, Education Foundation, Chair, EdTech UK
Sir Mark Grundy, CEO, Shireland Collegiate Academy Trust
Martin Hamilton, Principal, Martinh.net
Scott Hayden, Digital Innovation Specialist & Lecturer, Basingstoke College of Technology
Greg Hughes, Vice Principal - Learning Tech & Curriculum, The de Ferrers Academy
John Jackson, CEO, LGfL
Matthew Jessop, Headteacher, Crosthwaite Primary School
Caroline Keep, Spark Penketh, Penketh High School
Corinne Latham, Headteacher, Seaview Primary, Belfast
Mark Martin, Teacher, @urbanteacher
Ian Philips, Asst Head, Chair, ISC Digital Group
Ed Pitcher, Leader of Technology, Swiss Cottage School
Nic Ponsford, CEO, GEC
Claire Price, Principal, RSA Academy
Peter Rafferty, Educator
Rae Snape, Headteacher, Milton Road Primary School

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