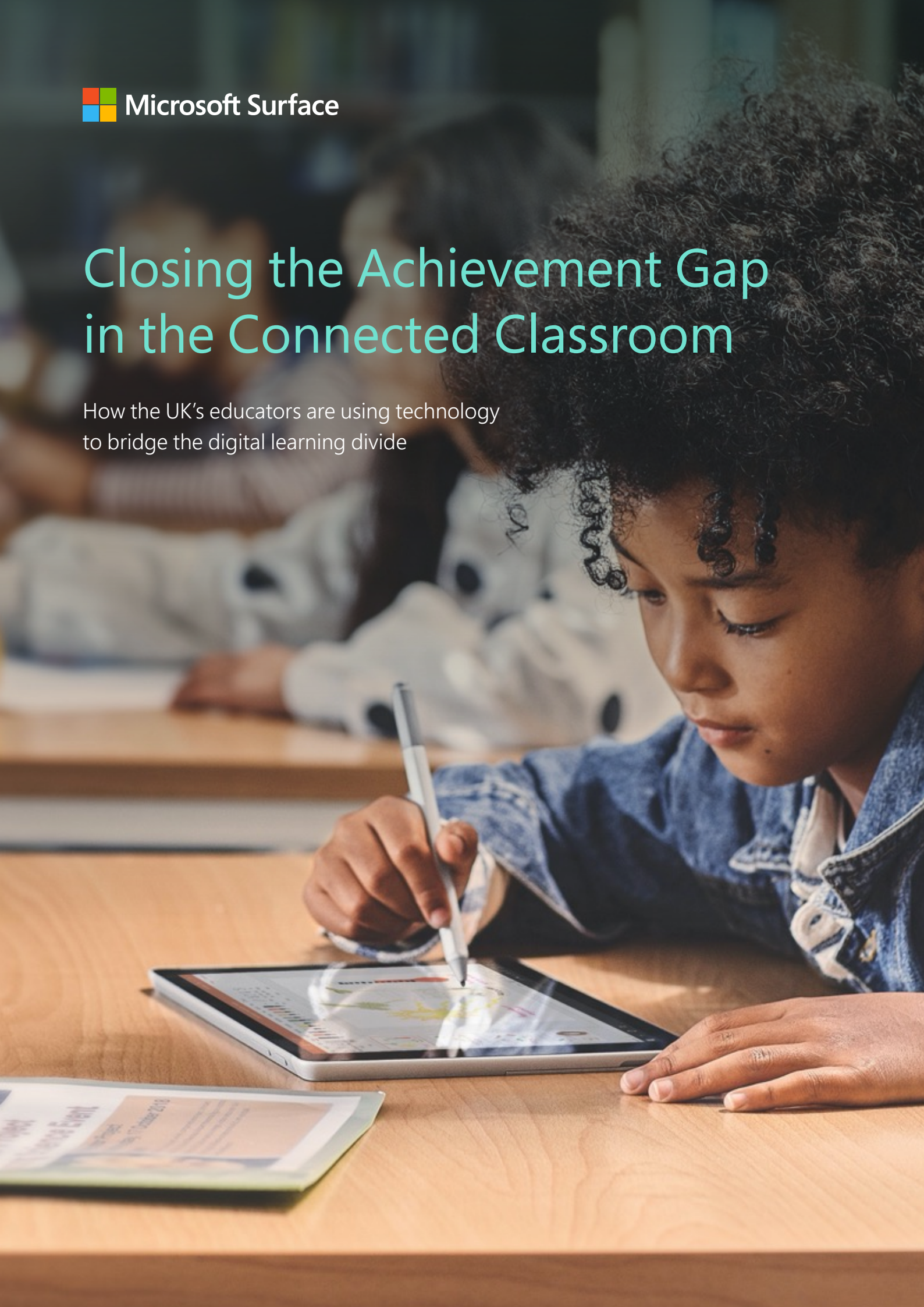
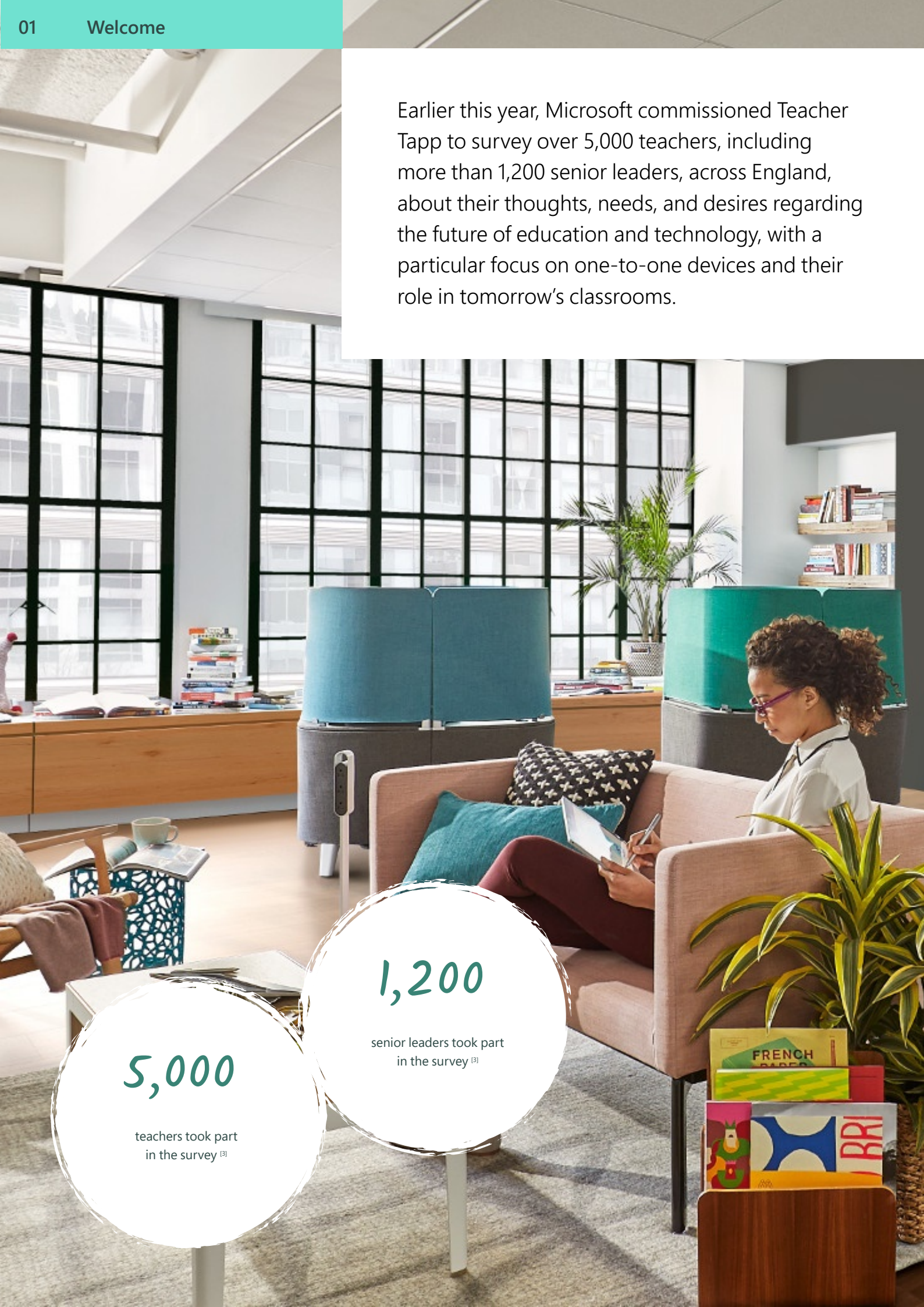
Microsoft Surface

Closing the Achievement Gap in the Connected Classroom

How the UK's educators are using technology to bridge the digital learning divide



Earlier this year, Microsoft commissioned Teacher Tapp to survey over 5,000 teachers, including more than 1,200 senior leaders, across England, about their thoughts, needs, and desires regarding the future of education and technology, with a particular focus on one-to-one devices and their role in tomorrow's classrooms.



5,000

teachers took part in the survey [3]

1,200

senior leaders took part in the survey [3]

Covid-19 has thrown into sharp relief the inequalities that divide England's children and young people. Whilst the crisis has created new inequalities, others have been there for years, hiding in plain sight, but left unaddressed for too long. It is indefensible that it has taken a crisis of this scale to reveal the material barriers to learning that stand in pupils' way. The need to act now could not be more urgent.

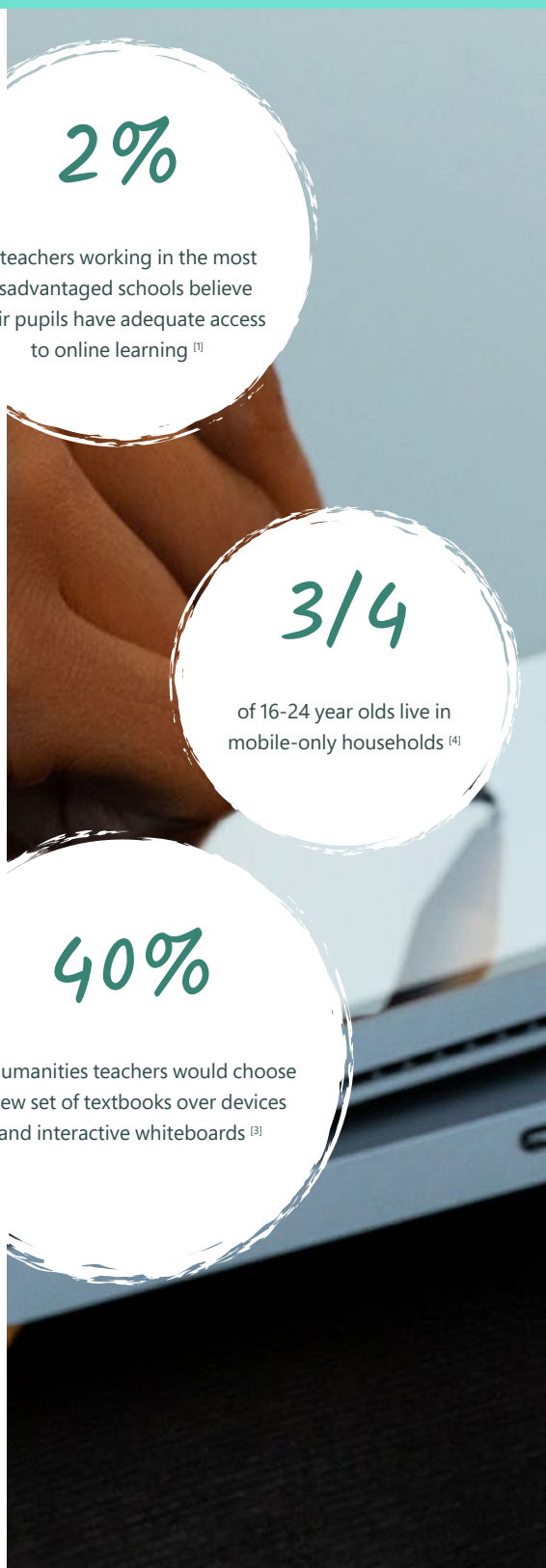
Of course, navigating an unprecedented health crisis was never going to be easy, but it is now abundantly clear that schools and pupils did not start on an equal footing. The recent Teacher Tapp survey commissioned by Microsoft reveals that two in three teachers in the private sector have at least some access to one-to-one devices, but in the state sector this figure stands at just one in three. Is it therefore any wonder that access to learning has differed so drastically over the course of this crisis?

Evidence regarding the severity of England's digital divide has been mounting throughout the pandemic. It is one of the first things The Centre for Education and Youth flagged in our *Supporting Vulnerable Young People through Covid-19* report back in April 2020. Meanwhile a report by the Institute for Public Policy Research estimated that 1 million children and their families do not have adequate access to a device or connectivity at home and that more than a third of 16-24 year olds live in mobile-only households[4]. Additionally, a survey by Teach First suggested that only 2 per cent of teachers working in the most disadvantaged schools believe their pupils have adequate access to online learning[1]. Microsoft's determination to work alongside policy makers and schools to tackle the digital divide is therefore welcome, and The Centre for Education and Youth is delighted to have partnered with them for this publication.

Perhaps one of the unique things about this report is that by commissioning a survey through Teacher Tapp, Microsoft has given a much-needed voice to teachers who have shared where appetite for technology is greatest. It is striking, for example that although over 40% of Humanities teachers would choose a new set of textbooks over devices and interactive whiteboards, more than half of KS2 and Art/DT teachers would choose one-to-one devices. Teachers across the board have also made it clear that what they want from technology are better ways to meet individual learning needs and reductions in preparation time that free up time for teaching. These are powerful messages that technology companies will need to listen to. I hope that this points the way to how tackling the digital divide and focusing on teacher and pupil needs can narrow the inequalities children face, both at home and in school.

Loic Menzies
Chief Executive of
The Centre for Education and Youth

The Centre for Education & Youth



During 2020, where most parts of life rapidly transitioned online, the current global health crisis changed the way daily schooling happens. In the UK, teachers were ordered to move to hybrid learning, and many pupils were expected to access their entire schooling via online activities practically overnight. Even though previously on any given day in England, only around 15% of lessons involved anyone using a device, suddenly the entire country had to plug in. As such, new questions have arisen - what does this mean for teacher attitudes about technology? And will such large scale educational change last?

1.37 billion

children and young people impacted by school and university closures in 138 countries [5]

Today's classrooms are packed with technology, from tablets and laptops to digital readers and interactive whiteboards. These devices use gamification, cloud technology, artificial intelligence, and in some cases augmented reality to personalise the learning experience in new ways that can enhance educational outcomes. In our connected world, access to these tools and online resources is becoming increasingly important for meeting individual learning needs and helping students from all demographic and socioeconomic backgrounds prepare for further education, work, and life in the digital economy – but largely these have been accessed in the classroom.

A digital divide is now widening the achievement gap, with teachers citing a lack of access to ed tech tools in the schools that are least able to provide access to technology for individual students. We believe that technology companies, Microsoft included, have a responsibility to step up and help tackle this issue. We have to find a solution that delivers a range of robust, cost-effective and flexible tools and connected classroom technologies – alongside free resources, ongoing collaboration initiatives and long-term, professional-grade training that helps UK teachers to be up to speed on the best solutions available both inside and outside the classroom.

Making tools and software designed especially for the education sector is a core part of our mission, because we want to help every individual and organisation on the planet to achieve more. However, to realise this goal we first have to listen to teachers' needs so that we understand the challenges they face and the tools they need most urgently to do their jobs effectively and efficiently. That's why we commissioned Teacher Tapp to survey more than 5,000 teachers. The result is a report that helps us to better understand how educators perceive the value and benefits of current connected educational technologies, insights into the barriers to connected learning, and their hopes for future innovation.

Teachers have long been among the UK's unsung heroes. As the world continues to adapt to this global health pandemic, teachers are navigating a remote teaching and learning environment at utterly unprecedented scale and speed. Whilst this has allowed us to gain valuable insights into the short and long-term future of British education, schools are constantly adapting to the evolving circumstances we find ourselves in, choosing the right tools and understanding how to use them optimally has never been more important, or more urgent.

Howard Lewis
Surface Business Group Lead
Microsoft UK

Technology is now deeply connected to education, skills, and social development

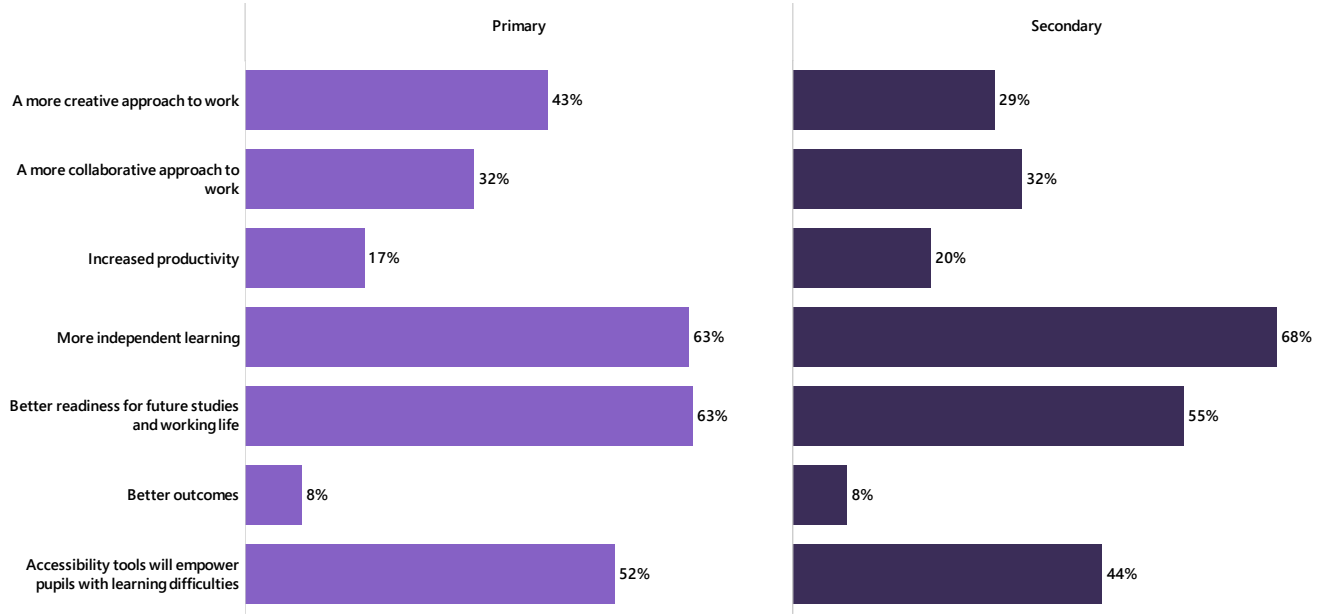
Teachers across specialties recognise technology's potential to help develop a range of critical life skills

Technology has become deeply interwoven with how education, skills and social development are supported and delivered in both primary and secondary schools across the UK. Findings from the Teacher Tapp survey reveal access to technology across England at a one-to-one level can help meet students' individual learning needs, supporting them in their development of critical life skills. Teachers who said that all their students had devices were much more likely to say they felt they had adequate access to the right tools and resources to deliver the skills they believed their pupils will need for future work (60%, compared to 34% of those who had no access to one-to-one devices).

Teachers across all sectors and specialties largely agreed that connected education tools actually benefit students across a whole range of needs – from developing more independent learning skills (65% agree), to preparing them better for future studies and life at work (59% agree), and empowering students with special educational needs (48% agree).

> *"A large majority of teachers believe that tech tools can empower pupils, particularly by supporting independent learning. This will come as no surprise to parents who have watched the increasing role education technology has played in supporting their children's education during lockdown"*
>
> **Loic Menzies**, Chief Executive of The Centre for Education and Youth

How can tech tools for learning empower pupils?



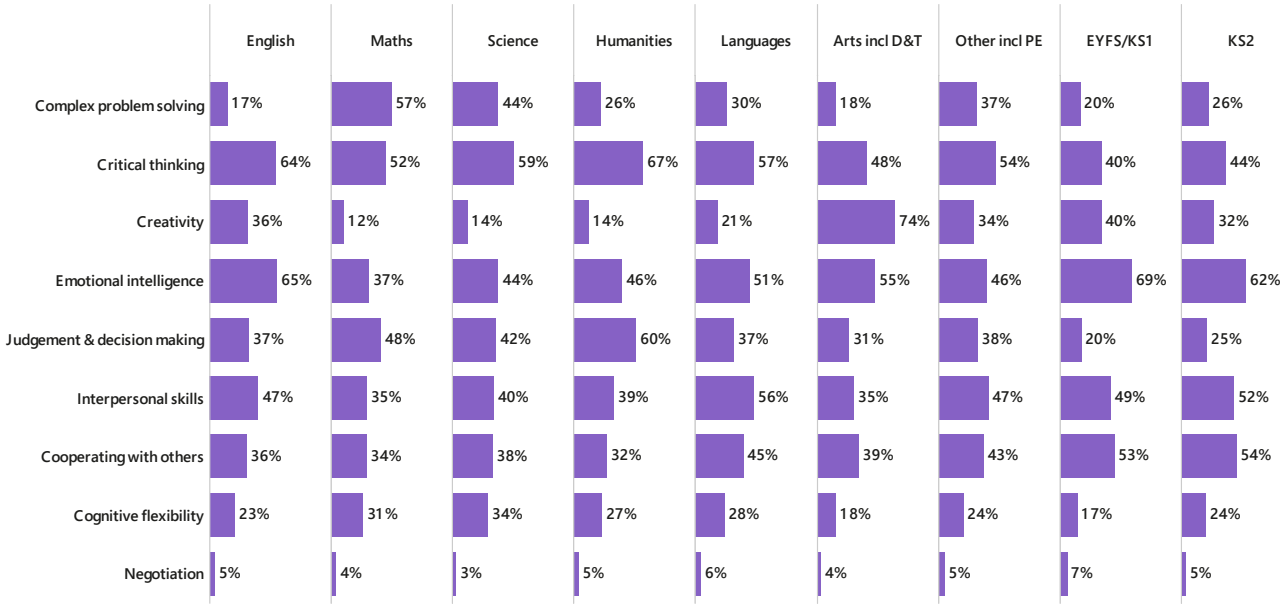
Overall, teachers across all types of school feel that technology tools for learning will empower pupils to learn independently and prepare better for future studies and working life.

Primary teachers are more likely to emphasise future preparation, presumably feeling that basic technological competence is important for secondary education. Many of them also feel that technology can promote a more creative approach to work.

It's important to first understand teachers' needs. According to the survey, there are key differences in the skills that teachers are striving to help students develop; they change across primary and secondary groups, but also from subject to subject. For example, helping students boost their creativity is most important to art, design and technology teachers, and yet half of all teachers who prioritise creativity say they don't have adequate access to the tools and resources they need to achieve this goal.

> *"The survey data shows that the digital divide does not affect all subject disciplines equally and that many teachers who prioritise creativity are frustrated by a persistent lack of access to technology"*
>
> **Loic Menzies**, Chief Executive of The Centre for Education and Youth

What are the most essential skills you are striving to help your pupils to develop throughout their education in preparation for the world of work?



There are enormous differences in the skills that teachers are striving to develop in their students. At one extreme, the maths teachers are clearly prioritising complex problem solving and critical thinking. This contrasts with their peers in the English department who also seek to develop critical thinking, but combine it with a focus on emotional intelligence. For Humanities teachers, their mission to help students make sense of the world we live in is reflected in the importance they give critical thinking and judgement/decision making. Art and Design/Technology teachers are the only ones who overwhelmingly try to help students develop their creativity skills.

Primary teachers are very different in the skills they seek to develop in their students. On the whole they look to develop strong emotional and interpersonal skills, such as cooperating with others and emotional intelligence.

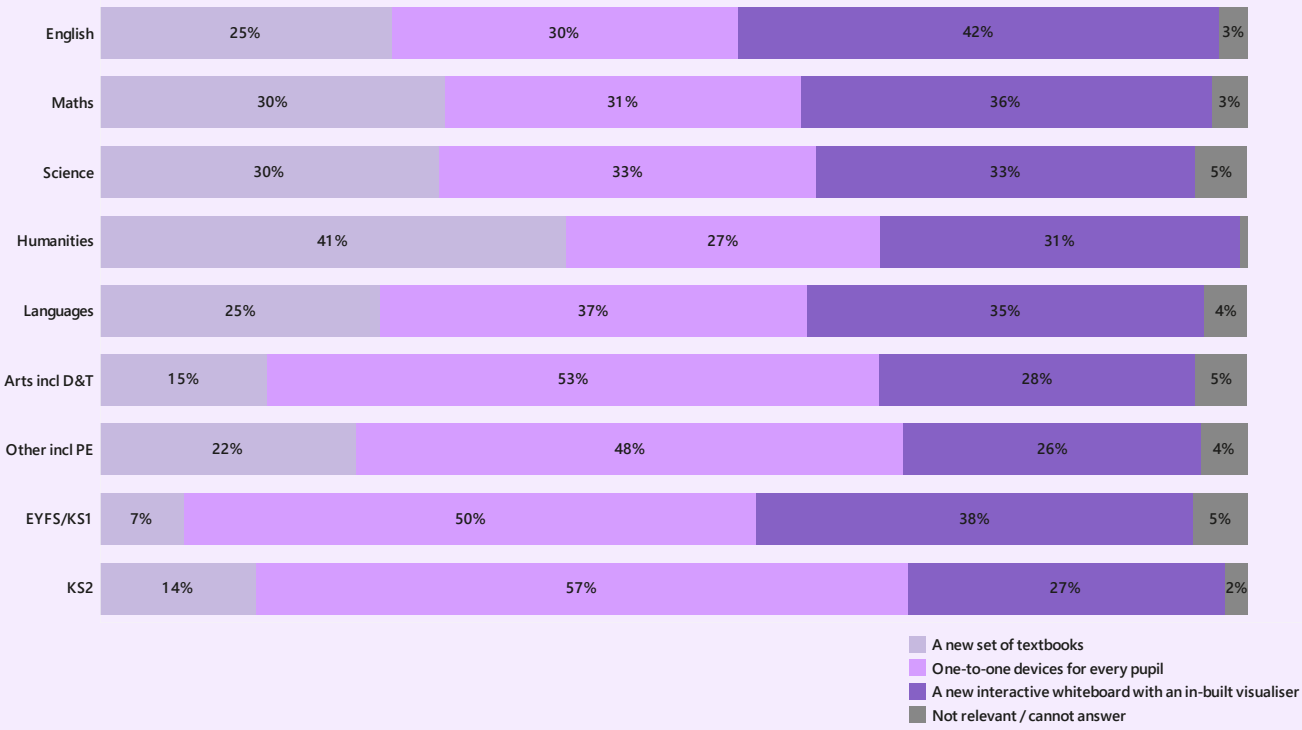
> *"In order for children to reach their full potential, they need teachers who are working at their full potential. Technology can help them achieve that."*
>
> **Chris Rothwell,**
> Director of Education, Microsoft UK

The survey results also reveal that teachers have very different levels of enthusiasm for digital devices. This is directly related to their specialist subject. Given the choice between a new class set of textbooks, access to individual education tools and technology for the whole class, or a top-of-the-range interactive whiteboard, educators' preferences vary: Art and design teachers in primary schools overwhelmingly prefer individual devices such as tablets and laptops. English and math teachers are keen to have interactive whiteboards. And humanities teachers for their part mostly want new textbooks.

Regardless of their specialty or enthusiasm for technology, survey results also reveal the many ways ed tech tools can empower teachers; many say that it can reduce the time they have to spend on preparing lessons, giving them more creative and aspirational ways of teaching.

> *"In recent years there has been a welcome refocusing on how ed tech can help free teachers up to concentrate on the substance of learning. This research gives voice to teachers' demand that technology should reduce the time they spend preparing lessons, saving more time for teaching"*
>
> **Loic Menzies**, Chief Executive of
> The Centre for Education and Youth

If you could purchase one of the following for your classroom next year, which would you choose?



A digital divide is widening the achievement gap

Lack of access to technology at school is exacerbating the achievement gap between the wealthiest and poorest children

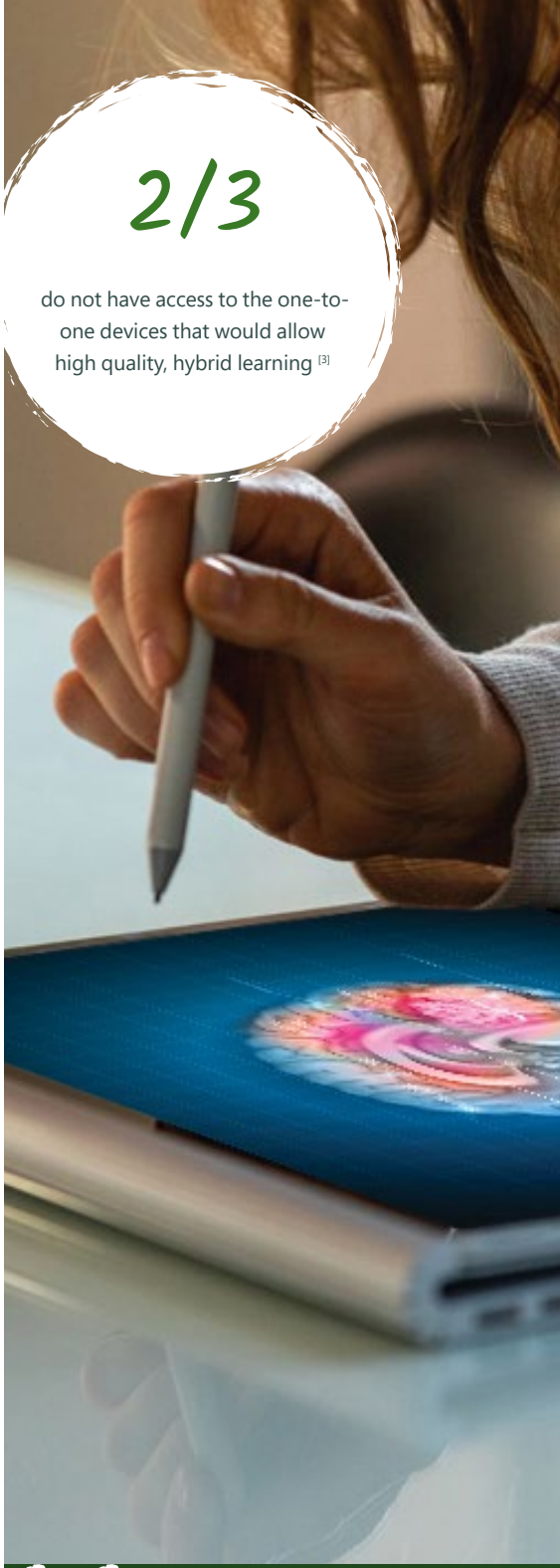
The global health crisis changed schooling overnight. In the UK, teachers were ordered to move to hybrid learning, and many students were expected to access their entire curriculum remotely. This overnight shift has only deepened an existing digital divide, with most home-learning requiring students to have access to some connected tools and the web to continue participating in learning.

The shift has been easier on some students and institutions than others. Survey findings show that in the private sector, two in three teachers have at least some access to one-to-one technologies, whether through students providing their own tech, or via the teacher's own digital device or a shared set of tools. In the state sector, however, this drops to just one in three, severely limiting pupils' ability to access learning in what is fast becoming the new normal.

Moreover, teachers at schools that are rated inadequate by Ofsted are particularly likely to say they have insufficient tools or lack access to such tools which aid the development of the skills students need to get ready for the world of work. Schools that are rated inadequate by Ofsted are also less likely to have access to tech solutions at the individual student level, compared to schools rated Outstanding.

Do you and your students have access to the right tools and resources to develop future skills?

	Ofsted rating		
	Outstanding	Good	RI/inadequate
Yes	47%	36%	29%
No	24%	35%	43%



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do not have access to the one-to-one devices that would allow high quality, hybrid learning [3]

"The survey findings show that two thirds of all teachers do not have the tools they need to deliver a hybrid learning approach, never mind a full-on, digital-only delivery of education during a time of lockdowns."

Howard Lewis,
Surface Business Group Lead,
Microsoft UK

This is not just based on perception; according to the findings of the survey, schools with lower Ofsted grades do indeed have fewer devices available for their students. 72% of students in schools rated inadequate by Ofsted do not have access to individual devices in their classrooms, compared to 59% in schools rated Outstanding.

Do you have one-to-one technology devices in your classroom?

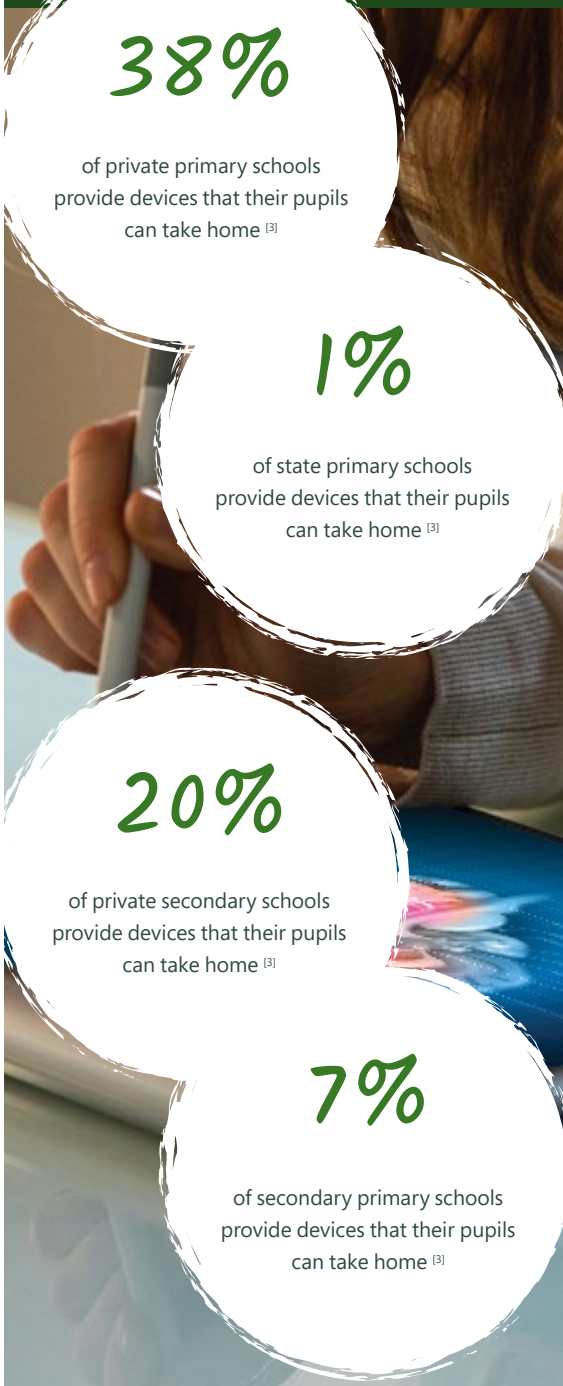
	Ofsted rating		
	Outstanding	Good	RI/inadequate
Yes, all students have devices	7%	3%	2%
Yes, I have access to my own whole-class device supply	2%	3%	1%
Yes, I can access a shared whole-class device supply	24%	23%	18%
Partly - some year groups have their own devices but others don't	6%	6%	5%
No	59%	64%	72%
Not relevant / cannot answer	2%	1%	1%

Only a tiny minority of pupils (8%) can take devices home for digital learning that are owned by the school. But this rate varied dramatically between private and state, and primary and secondary schools. While 38% of private primary schools provide devices that their pupils can take home, just 1% of primary state schools do so. 7% of secondary state schools provide take-home devices, whilst 20% of private secondary schools do so.

For your pupils who regularly use devices for learning, how do they get access to them normally?

	School phase-funding			
	Primary Private	Primary State-funded	Secondary Private	Secondary State-funded
School provides them (for use at school and home)	38%	1%	20%	7%
A mix of school-provided devices and pupils using their own	1%	9%	54%	21%
We don't have a clear approach to this	8%	24%	4%	34%
Not relevant / cannot answer	15%	6%	7%	6%

> *"It is far more common for private schools to provide pupils with devices to use at home compared to state schools, despite the fact that it is state school pupils' whose families are most likely to struggle to provide their children with devices. There is surely no doubt that this makes it much harder for some pupils to learn from home than others."*
>
> **Loic Menzies, Chief Executive of The Centre for Education and Youth**



38%

of private primary schools provide devices that their pupils can take home [3]

1%

of state primary schools provide devices that their pupils can take home [3]

20%

of private secondary schools provide devices that their pupils can take home [3]

7%

of secondary primary schools provide devices that their pupils can take home [3]

In addition to issues around accessibility of devices, there are other barriers to adoption of connected technologies in the classroom. Approximately one in four teachers said they would need training to use new tools and technology effectively, and a similar number had concerns around the durability of the solutions. Teachers also raised concerns about safeguarding and keeping children safe online. They are also price-sensitive, with more than half (54%) of teachers indicating that the price of a device is a key factor when it comes to deciding on which product to buy.

Technology firms can help address these concerns and imbalances by working directly with governments and offering robust devices at a range of price points.

> *"As schools, parents and children adapt to the changing environment we are all faced with, it is vital that we provide them with the right support so young people are able to continue their education."*
>
> **Nick Gibb,**
> **Minister for School Standards**

How tech firms can help close the digital divide, and what teachers should look for

Technology companies have an opportunity to help UK educators make the most of the technology solutions available to them. Here is what teachers and school administrators should look for in a technology partner:

Security and privacy. Security in an education setting is crucial, especially because schools now have an increased need for remote learning capabilities that can be activated at a moment's notice. Microsoft Surface keeps students, teachers, and schools safe with built-in capabilities, cloud-powered intelligence and the highest standards for security, privacy and compliance.

Leasing options. For schools that don't have the budget to purchase devices outright, look for solutions that offer leasing, which can remove much of the initial cost barrier. In addition to options that allow schools to lease Surface devices, Microsoft is also working with partners to offer the best prices on Windows 10 notebooks and 2-in-1 laptops for a limited time to help schools transition to remote learning quickly and confidently.

Focus on training. Ongoing, professional-grade training is critical for teachers because technology evolves rapidly, and innovation is speeding up. Microsoft provides online training and workshops, from webinars to on demand sessions through its Education Centre. UK education resources for senior leaders are also available, such as our online Microsoft Experience Centre Discovery Days supporting training on how Microsoft can transform classrooms and schools through technology. Microsoft have recently launched an online hybrid learning course, that introduces educators to the elements of the hybrid learning model, how to implement them and how to use our technologies to create a dynamic learning environement for students.

Additional resources. The Department for Education (DfE) is providing a range of support through its *Get help with technology programme*. For the 2020 to 2021 academic year, more laptops and tablets have been made available for disadvantaged children in certain year groups who are affected by disruption to face-to-face education at their school. The Microsoft Education Centre is another free resource, offering a range of materials including remote learning guidance, alongside the Microsoft Education YouTube channel with a library of bitesized tips supporting teachers to get the most from technology.

Lessons from the lockdown point to new avenues for learning

80%

of the world's student and teacher population impacted by school closures [5]

Teachers have used technology to brilliantly navigate the "new normal" of remote learning

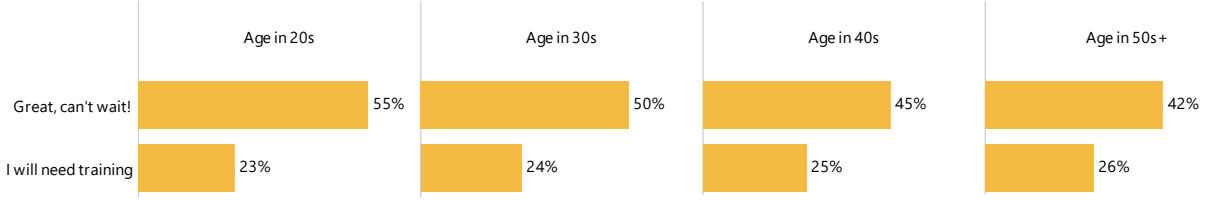
With nearly 80% of the world's student and teacher population across 138 countries impacted by school closures, the current health crisis may prove to be a tipping point for the way that education is delivered. Thrown almost overnight into a virtual classroom, teachers are using the internet in new and imaginative ways to give lessons and communicate with students. Even once the health emergency has well and truly subsided, it's reasonable to expect that at least some of these 'new' teaching methods will be here to stay.

This does not mean that technology firms are off the hook. This places new responsibilities on technology firms. Teachers may have risen to the occasion in a time of crisis, but to be truly effective in a hybrid approach, they need ongoing, professional-grade training as technology continues to evolve. As device accessibility improves, so too will teachers' readiness and familiarity with technology – thereby making it more mainstream. But this too will increase the demand for proper training and tech support. It is a fundamental reality of our digitally connected world. As advanced technologies like artificial intelligence and virtual and augmented reality permeate the classroom, on-going training is becoming the norm for both teachers and students alike, with education tailored to their individual needs as they move through life. In our Teacher Tapp Survey, when asked if you could have a technology device for each pupil you teach tomorrow what would be your first thoughts – 48% of all respondents were pleased and eager to have such tools, alongside 24% stating they'd need more training. Plus, when it comes to access, further studies reveal that 52% of teachers over the age of 55 feel they don't have enough access to training in their role, dropping to 38% of teachers aged 25-34[2].

> *"Recent months have left teachers and pupils with little choice but to embark on a steep learning curve when it comes to technological fluency. In the coming months, tech firms need to play their role in holding the sector's hand and supporting everyone to adapt to the changes."*
>
> **Loic Menzies, Chief Executive of The Centre for Education and Youth**

> *"When it comes to career professional development, schools must get to a position where technology is not seen as something that exists separately from teaching and learning – it is integral to it."*
>
> **Paul Edge, Deputy Headteacher, Ribblesdale**

If your headteacher said you could have a technology device for each pupil you teach, what would be your first thoughts?



Overall, younger teachers tend to be more enthusiastic about the introduction to one-to-one technology devices in their classroom, with 55% of teachers in their 20s saying they would be very keen indeed to see it happen.

However, about a quarter of teachers of all ages feel they would need training to be able to use the devices with their class, and similar numbers expressed concern that the devices would be broken.

Just one-in-five teachers express very negative views about the introduction of one-to-one devices because they feel they would not get used.

Teachers at all stages of their careers and across specialties are embracing the potential of technology to transform their continuing professional development. Findings from the report show teachers young and old feel that tech holds the key to better learning outcomes for students. By making access to technology equally available to all UK students, and by ensuring that educators are supported as they incorporate connected tools into the classroom, we can empower a generation of students to achieve their full potential.

"Schools across the UK are facing unprecedented challenges and their staff are showing incredible resilience, imagination and passion to ensure that they can help keep children safe and can keep learning while they at home. Technology is helping teachers keep in touch with students and to maintain a connection to the school and each other."

Chris Rothwell, Director of Education, Microsoft UK

A look inside the classroom of 2030

Recent events have necessitated rapid shifts in behaviour for both students and teachers and accelerated existing trends toward technology-enabled learning. Here's what we might expect to see in the classroom of 2030:

Hybrid learning becomes the norm. More learning will take place at home and outside of the traditional classroom, aided by connected devices that encourage collaboration, autonomy and creativity.

Virtual and augmented reality will create immersive learning experiences. With VR/AR technology, students will be able to explore ancient ruins, tour art galleries and visit far-flung destinations without ever leaving the classroom.

Learning will become more flexible and personalised. With one-to-one devices, teachers can make assignments based on skills and competencies, and students can choose how they demonstrate mastery, from putting together a video to delivering a presentation to creating a drawing or animation.

Case Study

UTC Reading is part of the national network that is using technology to enhance teaching in the traditional and virtual classrooms. The Surface laptop, for example, has dual far-field studio mics and an HD camera which ensure that teachers can be heard and seen clearly when in contact with students or colleagues. The school has used Microsoft Teams so teachers can continue their teacher training during lockdown. It has also created a video bank of lessons so students who may have missed classes can catch up in their own time, and there is potential to work remotely with school refusers in the future. Siobhan Tyson, UTC's director of science with additional responsibility for professional development, says the technology is transformative: "It is giving us flexibility and it's definitely going to have an impact on future teaching."

Hybrid learning - the new normal

As demonstrated in recent months, a hybrid learning approach is now part of the 'new normal'. To ensure that both teachers and students are set up for success, schools need to be considering long-term investments in technology that can give them a stable foundation for continued growth and education.

The results of the Teacher Tapp survey show that teachers see connected tools, like one-to-one devices, as having a range of benefits, especially when it comes to better meeting students' individual learning needs and supporting them overall in the development of key life skills. However, a growing digital divide means that not all students and teachers have the same opportunities to realise these benefits.

The recent lockdowns and the resultant shift to hybrid learning have given us a preview of the potential future direction of education and the fresh creativity this could afford. They have also underscored the importance of connected tools in the learning experience. Technology firms, school administrators and governments everywhere now have an obligation and an opportunity to work together to bridge the digital divide so that every student has a chance to succeed.

At Microsoft, we are dedicated to this effort. It is our aim to provide both learners and educators with a transformative classroom experience that encourages a lifetime love of learning. Tools such as our Surface devices make this possible by encouraging educators to create engaging, interactive lessons that students can enjoy in both virtual and physical classrooms, built and made more secure with Windows. Microsoft Surface is the device of choice for UK schools committed to deploying technology that ignites the potential and passions of students' learning while safeguarding their wellbeing and future readiness.

To learn more about the results of the survey, or to speak to someone about sourcing better tools for your school, please visit **aka.ms/Education/Surface**

You can also learn more about Microsoft's vision for the future of education in our new paper "Reimagining education: From remote to hybrid learning," a collaboration between Microsoft and New Pedagogies for Deep Learning.

[1] www.teachfirst.org.uk/press-release/only-2-teachers-working-most-disadvantaged-communities-believe-all-their-pupils-have
[2] Reimagining education: From remote to hybrid learning. All figures, unless otherwise stated, are from YouGov Plc. Total sample size was 1020 Primary and Secondary Teachers online. Fieldwork was undertaken between 17th - 22nd July 2020. The survey was carried out online.
[3] Microsoft commissioned Teacher Tapp Survey May 2020. All figures, unless otherwise stated, are from Teacher Tapp. Total sample size 5,000 Teachers across England online. Fieldwork was undertaken 6th and 7th May 2020.
[4] ippr.org/files/2020-03/1585586431_children-of-the-pandemic.pdf
[5] iite.unesco.org/news/1-37-billion-students-now-home-as-covid-19-school-closures-expand