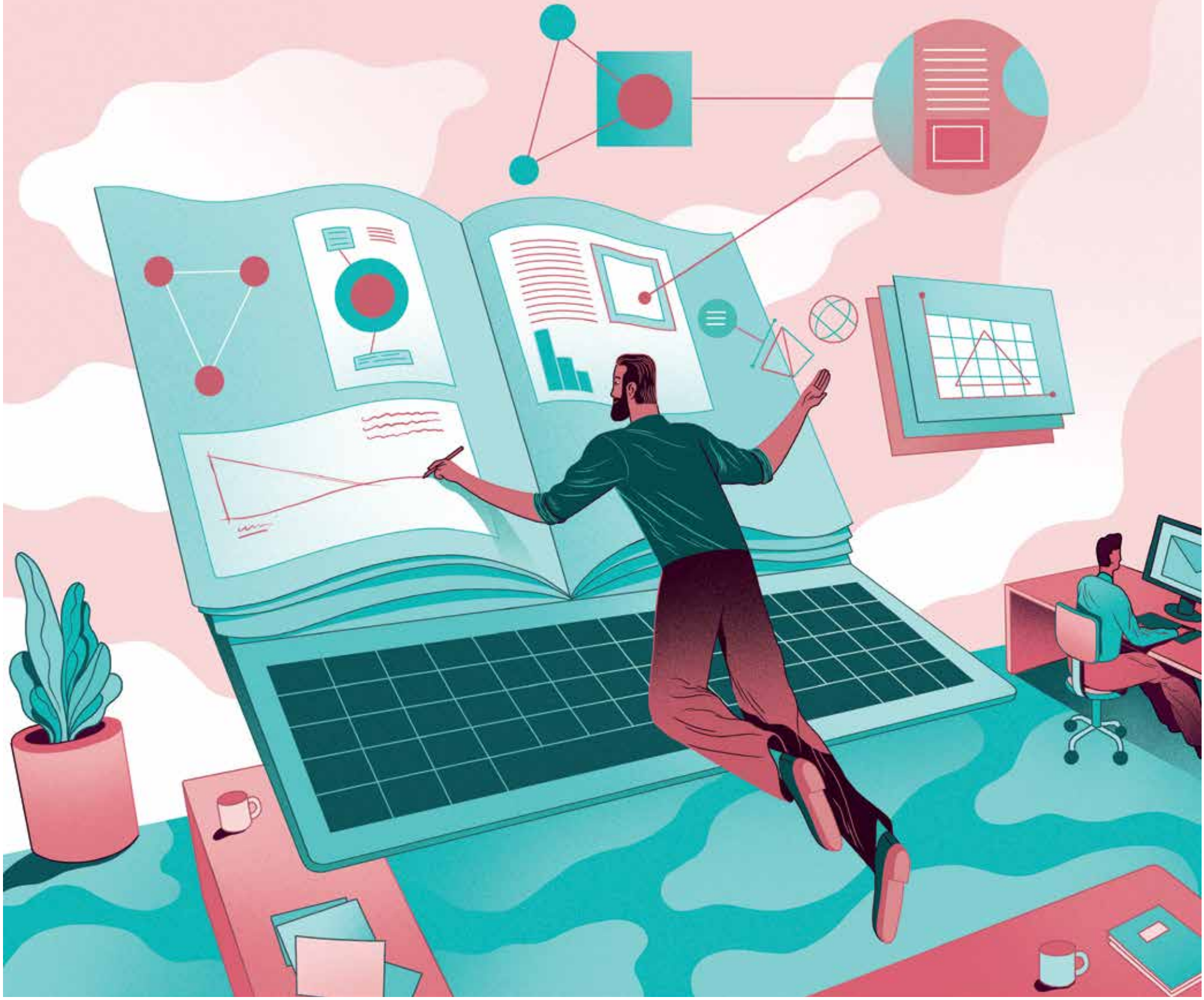
DIGITAL LEARNING



DIGITAL LEARNING

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REMOTE WORKING

Is remote working damaging our ability to learn?

While working from home for prolonged periods has taken its toll on how willing and able we are to learn, the good news is the effects are reversible

Cath Everett

Neuroscience appears to show the loneliness and social isolation experienced by people of all ages during lockdown is having a negative effect on our ability to learn.

A number of studies have found such isolation results in areas of the brain – the pre-frontal cortex, hippocampus and amygdala – shrinking. This scenario leads to a decline in cognitive function, which includes impaired learning and memory. An inability to concentrate is another common symptom.

But there are also other important dynamics that occur when people work from home for prolonged periods, although the impact may vary based on each individual's lifestyle, health and even personality.

According to Natalia Ramsden, director of cognitive optimisation consultancy SOFOS Associates, while remote working may be convenient, it robs us of a "dynamic workplace where we are stimulated and challenged", which is important in creating an optimum environment for our brains to learn.

"Our synaptic connections grow through repetition, but it's new experiences that create new connections," she explains. "For many, the office is a rich source of stimulation for their brains; challenges and cognitive stretch occur through work content, but also through difficult conversations, interactions with others and even the physical environment itself."

This deficit is not helped by secondary considerations, such as high stress levels, poor sleep, less exercise and unhealthy eating. Moreover, because the boundaries between home and work life have blurred, many people find it difficult to switch off or unwind, which is vital if the brain is to "solidify new learning and transfer things from working to long-term memory", says Ramsden.

Another challenge, according to Dr Guy Champniss, head of behavioural science at engagement consultancy The Creative Engagement Group (CEG), is we may simply be either less inclined or less able to learn due to the impact of remote working on what he calls "cognitive load", which is the amount of information working memory can hold at any one time. When this load is high, as in a remote working scenario, we simply have less "cognitive bandwidth" for learning.

fizkes via Shutterstock

"Remote working is taxing as it removes all the usual social, non-verbal and visual cues we typically use to navigate situations and understand conversations," he says. "This means we have to lean in more to compensate for their lack, so the cognitive load is high and that makes us tired."

Moreover, because any optional activity comes with its own cost-benefit analysis of whether it is worth doing or not, we may simply feel learning takes too much effort.

So, what can employers do to overcome, or at least mitigate, the worst impacts of this situation and ensure their employees' ability to learn is optimised?

The most important thing, says Ramsden, is to "promote brain health and function", otherwise known as neuroplasticity, the brain's ability to make new connections, which enables it to change and adapt more easily to different experiences, because doing so enhances cognitive performance.

"Everything we do and don't do influences neuroplasticity," she says. "What we eat, how active we are, how well we sleep, undertaking brain-specific exercises: all of it makes a difference".

To improve employee wellbeing and performance, Ramsden recommends encouraging five key brain-boosting activities. The first involves staying hydrated as drinking eight to ten cups of water a day can boost brain performance by almost 30 per cent.

The second is ensuring a good night's sleep as it detoxifies the system and solidifies learning. Next is breaking routine by trying something new or mentally challenging to build new neural connections, for example brushing your teeth with your left hand if you are right handed or vice versa.

The fourth entails eating foods known to boost cognitive function, such as oily fish and berries, while the final one involves managing stress. "Rather than being wired all the time, you want the brain to fluctuate up and down as it needs to or it'll just run out of steam," Ramsden explains.

A simple option for those who find activities like mindfulness meditation testing, says Cari Guittard, professor of global management at Hult International Business School in San Francisco, is performing a restorative yoga posture (viparita karani) that involves lying on the floor with your legs up against the wall for ten minutes.

Another approach is to write in a stream of consciousness around a given prompt for ten minutes each day to increase blood flow to the brain and focus attention. Also useful to provide instant clarity and focus are the box breathing techniques used by US Navy Seals.

Reassuringly, however, a four-week trial undertaken by CEG with pharmaceutical firm AstraZeneca in 2020 to stimulate a richer learning culture appears to provide evidence that "we're far more malleable and adaptable" in learning terms than we might think, says Champniss.

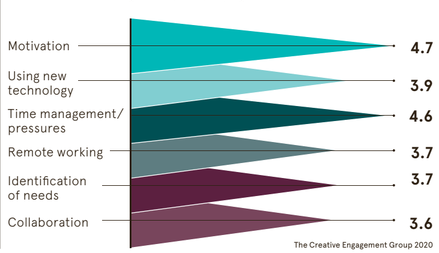
Because a learning culture is based on people's ability to be "curious, collaborative and brave", during the experiment, an unspecified number of employees received "nuggets" of content each day to draw attention to such behaviours, "boosts" to show their benefits and "nudges" to encourage them to do whatever was being signposted.

Metrics, which included behavioural measures such as interacting with websites or apps and self-reporting via surveys and learning logs, revealed the time participants spent on learning increased by 78 per cent. They were also more able to spot learning opportunities during their day, more willing to apply what they had learnt to their work and felt more confident about their contribution and personal impact.

"It's a two-way street; even if we've lost our learning mojo during lockdown, the study shows we're remarkably malleable in being able to relearn how to learn. Core behaviours aren't set in stone; we can all adapt, often to our own surprise," Champniss concludes.

THE IMPACT OF TOP L&D CHALLENGES ON EMPLOYEES

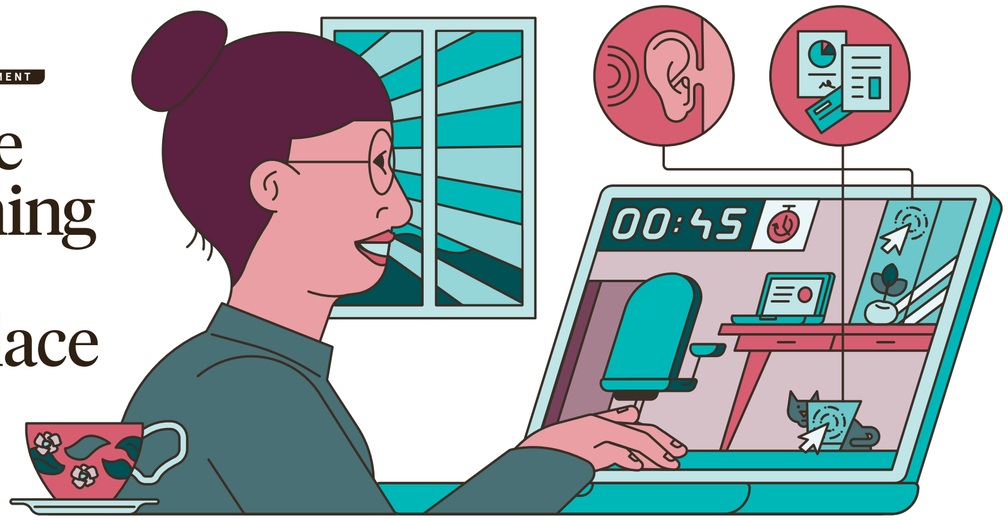
On a scale from 1 (not significant) to 6 (very significant)



The Creative Engagement Group 2020

LEARNING AND DEVELOPMENT

The role of learning in the workplace



From virtual reality to community-based projects, digital learning sets companies apart and prepares employees for the future

Marina Gerner

Picture a typical home office: there is a desk next to a window with a laptop on it, a steaming cup of coffee, a printer, a chair, a rubbish bin and maybe a notepad or plant. Now imagine this picture of a home office is actually an image on a screen in front of you and you have 45 seconds to identify the potential security risks of this setting.

You click on the bin and a voice-over says: "One man's trash, is another man's treasure. Criminals love old bank statements, utility bills, personal data; it's all a criminal needs to steal your ID. This treasure in your trash is also useful to socially engineer your trust; a scammer can sound legitimate if they have a little of your accurate personal information."

Next you click on the window. "Imagine accidentally talking about an unreleased product or sensitive customer information with the window wide open," says the voiceover, which goes on to outline the risks involved with each object you have selected.

This is a course devised by Vivida, a tech company that creates immersive learning experiences for corporate training in areas including cybersecurity, and diversity and inclusion for companies including Sky and Lloyds Banking Group.

Simeon Quarrie, the company's founder and chief executive, grew up in the 1980s and says he struggled with the traditional classroom environment of worksheets and copying off the blackboard. "It didn't resonate with me," he recalls. His parents were worried, he was worried. "But then I realised that when the learning involved creativity, storytelling and interactivity, then I got it."

This experience inspired him to set up Vivida. He began with video learning, but soon discovered virtual reality and immersive environments. "We get to build an environment that aids the learning and places people directly within that environment," says Quarrie. In these courses, participants become cyber-digital forensic experts. They get to "examine the evidence from a past criminal case and understand how criminals attempt to scam you and your colleagues", he says.

Quarrie argues that this approach changes how we learn, including our posture. Instead of leaning back while watching a video, participants lean forward and engage with the digital scenario. They review criminal interview tapes, consider the evidence and then analyse what they have learnt.

"We're now competing with other devices, different distractions," he says. "The environment that we learn in is no longer the carefully controlled corporate environment." It is therefore crucial to provide learning experiences that are engaging.

New digital learning environmen

In the past, employees were encouraged to learn new skills by going on a specific training course. Today, continuous learning is an integral part of people's working lives; whether they're employed or self-employed, people learn new skills from online courses and YouTube and TikTok videos, for example.

So, what gets classified as learning, particularly in a digital world? Global human resources analyst Josh Bersin says: "Any form of digital content is a form of learning. It could be documents, emails, recorded conversations, recorded meetings, videos. That's why capturing digital content is so valuable because sometimes you'll be in a staff meeting and somebody will say something and everybody will go, wow, I didn't know that; all of a sudden you've created a live learning experience."

He adds that "a lot of the learning that's going on in business right now is actually being developed by employee groups for each other, without training people being involved".

> **A clear sign of a dysfunctional company is when people say they don't have enough time for learning**

What's more, according to research by LinkedIn, 75 per cent of learning and development professionals say community-based learning is now more important to their businesses than before the coronavirus pandemic hit and 94 per cent agree teams that learn together are ultimately more successful. A third of business leaders say reskilling and upskilling employees is a top priority for 2021.

Comenting on the impact the pandemic has had, Janine Chamberlin, senior director at LinkedIn, says: "It has lit a fire under digital learning, because the environment that companies are operating in is changing so quickly right now. To make sure companies can keep up with that, their employees need to continuously build new skills to get ahead of what's coming next."

Teaching soft and hard skills

Chamberlin points out that companies are not just looking for people to develop hard skills, like learning to code, they also want them to develop their emotional intelligence and improve inclusion in their business.

When it comes to the former, the most popular courses on LinkedIn Learning over the past year have included learning Python computer programming language, training in Excel and the foundations of online marketing. Popular soft skill courses have included time management, strategic thinking, communicating with confidence and developing emotional intelligence. Overall, the platform, which offers 16,700 courses in seven languages, has seen the hours people spend on its courses double over the past year.

Research has shown that the most successful digital learning combines various interactive elements. When people watch a video, for example, having a structured discussion led by an instructor afterwards with their colleagues can be helpful. It improves people's memory of the content by 25 per cent, according to a 2018 study led by Dr Kana Okano, a cognitive scientist at Tufts University in Massachusetts.

It is clear companies which foster a culture of learning are more likely to succeed and adapt to future challenges. "A clear sign of a dysfunctional company is when people say they don't have enough time for learning," says Bersin.

He argues that managers need to give people time to reflect during meetings, encourage them to take time to learn how to be better at their job, send them on courses as well as buying learning content, including books, and connect people so they can learn from each other. Bersin adds: "Companies have to realise that giving people unscheduled time is a huge productivity improvement because it gives them a chance to learn."

ENGAGING WITH CONTENT HELPS PEOPLE RETAIN AND APPLY INFORMATION

Score on a test out of 100 after people had:

Tufts University in Massachusetts 2018

Commercial feature

Upskilling the workforce for a new digital economy

The post-pandemic digital economy requires a highly skilled workforce, but a skills gap is creating an urgent need to upskill and reskill those being displaced from other roles

The essential role of technology in enabling organisations to adapt quickly to a new working environment, after governments suddenly imposed coronavirus lockdowns, has gone a long way to banishing the age-old notion of IT as a big black hole that sucks in money. Though digital transformation may have been somewhat on the minds of leaders for several years, the pandemic elevated it to a highly urgent prioritisation.

What it also did, however, is amplify a digital skills gap which organisations have already spent numerous years struggling to fill. Globally, 255 million full-time jobs were recorded to have been lost in 2020 due to COVID-19, particularly among hourly roles in sectors like hospitality, tourism and travel. A large number of these roles won't return.

Meanwhile, many digital transformations unfortunately fail and typically not because of technology, but because companies overlook the fundamental part people must play in their success. Investment in technology too often falls short of expectations because the talent is not equipped to leverage the new tools or ways of working across the organisation. The only way to solve both of these issues – the widening digital skills gap and the underperformance of digital transformations – is to reskill the workforce.

"Focusing on talent within the organisation, by embarking on upskilling and reskilling initiatives in tandem with transformation programmes, is the key to success in the post-pandemic economy," says Charandeep Chhabra, president of global enterprise at General Assembly. "We've worked with over 400 enterprise clients, many of whom have invested in multi-year training programmes, to meet their transformation goals since having the right skills to support their transformations is critical."

Children are now taught coding and artificial intelligence development skills at school, preparing them for a high-value career in the digital economy. But for the digital economy to work, and be open and inclusive, it needs to be accessible to all generations. Upskilling and reskilling programmes are pivotal to filling the digital skills gap that is holding organisations back.

Programmes offered by General Assembly help employers thrive in their transformations by closing digital skill gaps among their existing employees and helping companies build up their candidate pipelines with net-new tech talent. Their expert-led bootcamps and workshops blend quality teaching, coaching and hands-on practice with asynchronous, self-paced learning in data, technology, digital marketing and general digital fluency.

General Assembly helps leaders develop the skills and mindsets for their team to accomplish transformation goals. Its education encompasses five key elements: harnessing data as a strategic asset, transitioning from legacy technology systems, marketing for digital customers, designing experiences customers love and reinvention as a digital-first business. All businesses are going through this journey, requiring a diverse, future-ready workforce.

2021 marks General Assembly's tenth anniversary and in that time the company has established three pillars to digital learning, starting with people. While it teaches tech skills, it is a human-centred and purpose-driven company. This comes to life through its network of more than 80,000 global alumni and over 400 clients, including 35 of the Fortune 100, which trust General Assembly as their partner in transforming careers.

The second pillar is General Assembly's comprehensive view on how to build, execute and manage digital-skill building for corporate transformation. Stephen Kirsch, vice president of client success at General Assembly, says: "There are hundreds of online content libraries available, but organisations and individuals need more than open access to materials. To enable long-term transformation, organisations need a partner that can work alongside them throughout the whole journey of creating a learning culture: awareness of digital skills initiatives, employee selection, training and impact measurement."

The final pillar is General Assembly's focus on outcomes. As the needs of the market change, so does General Assembly. The company has adapted quickly to meet the changing business priorities of organisations, as well as the learning needs of individuals. "GA serves as a guide for tech talent and workforce trends into the future," says Chhabra. "The relevance of our programmes in a fast-changing market is why we've upskilled and reskilled talent for ten years and we will continue to do so."

> **Focusing on talent within the organisation, by embarking on upskilling and reskilling initiatives in tandem with transformation programmes, is the key to success in the post-pandemic economy**

In a world where new skills are in high demand and most professionals are fully employed, it is no longer cost effective to simply "buy skills" through hiring new employees. A recent study by General Assembly, examining the benefits of building talent from within versus hiring externally, showed the costs of recruiting a mid-career software engineer externally can be more than $30,000 when including recruitment fees, advertising and onboarding. This is two to three times higher than an internal recruit.

The cost-savings of reskilling an internal employee can amount to as much as $116,000 per person over three years, according to General Assembly's research. Not only do intensive internal training and upskilling initiatives help individuals evolve into new job functions, they also significantly boost employee engagement and loyalty, not forgetting the intellectual property of workers, which employers retain by keeping them in the company for longer.

When the economy rebounds, as economists expect it to later this year, it is vital organisations have the right digital talent ready to leverage opportunities to grow. The demand for digital skills has increased significantly in magnitude and businesses need to keep pace to evolve and achieve successful digital transformation.

According to the World Economic Forum, 40 per cent of the skills essential today will change and 50 per cent of employees will need to be reskilled , making investment in digital skills, in the form of lifelong learning, absolutely crucial for employers to set up their workforce for success. But digital transformation is not a short-term agenda that will expire when the COVID crisis finally comes to an end.

"It's a continuous journey we will see for many years to come and digital upskilling and reskilling are fundamental to executing that successfully," says Chhabra. "Their effectiveness, compared to more traditional learning and development, is measured on the ability for employees to use what they've learnt to drive business impact. Often, the best results come through taking targeted cohorts of employees through highly engaged programmes, as opposed to just learning with limited direction or oversight."

For more information please visit www.ga.co/enterprise

GENERAL ASSEMBLY

DO YOU KNOW WHAT SKILLS YOU NEED FOR THE FUTURE OF WORK?

53% of organisations can't identify what skills they need to transform their workforce

Gartner

75% of digital transformations fail to generate returns

pwc

The average cost of recruiting a mid-career engineer can be

2–3x

higher than reskilling an internal employee

Rethinking the Build vs. Buy Approach to Talent

In the next 5 years

40% of core skills will change for workers who remain in their roles

50% of all employees will need reskilling

World Economic Forum

5 Key Transformation Initiatives Enabled Through Upskilling & Reskilling Your Workforce

1. Harnessing data as a strategic asset
2. Transitioning from legacy technology systems
3. Marketing for today's digital customers
4. Designing experiences that customers love
5. Reinventing as a digital-first business

General Assembly

TECHNOLOGY

Using VR and AR to make education engaging

Once reserved for frivolity, virtual and augmented reality are now being used in practical ways to teach schoolchildren, construction workers and even surgeons

Sarah Dawood

The use of technology in teaching has become the norm, but some businesses and universities have taken it to the next level through virtual and augmented reality.

VR and AR, once best known for fun applications like the *Pokémon Go* app and Snapchat filters, are increasingly being used alongside traditional training. A recent study of 151 adults by Neuro-Insight, Mindshare UK and Zappar found AR had a significantly positive impact on both attention span and information retention.

There are limitations - cost, access and user willingness to name just a few. But as it becomes more mainstream, immersive learning has huge potential to boost skills and improve educational experiences.

Helping surgeons practise operations

VR is being used to train surgeons before they even step into the operating theatre. Dr Alex Aquilina, an orthopaedic surgeon based in Bristol Children's Hospital has been using Virti's VR tech to create 360-degree surgical videos. Cameras are set up in theatres, with patient and staff consent, and operations filmed from all angles. Patients are anonymised and trainee surgeons watch on-demand through a headset or via Zoom training sessions.

This process does not substitute real-life training but enhances it, says Aquilina. It also enables junior doctors to learn without needing to come into hospital during the ongoing pandemic, reducing infection risk to themselves and patients.

"Your in-surgery learning opportunities, when you're actually holding the knife, are really precious," he says. "The more informed you are beforehand, the more you'll benefit."

> **When children are participating, they are far more likely to retain information**

CITB CWIC

01

The films teach trainees about the whole process, from setting up equipment and assembling joint implants to briefing staff and positioning the patient correctly. For all these, video is a more effective format than reading manuals or looking at photos, says Aquilina.

In future, he plans to embed AR elements, such as close-up footage of laparoscopic (keyhole) procedures, infographics and questions, where the user would be led down different filmed routes based on their answers.

There are some technical challenges, such as mitigating camera glare from the theatre's bright lights, and ethical concerns around patient and staff consent. But Aquilina believes VR and AR have huge potential to empower patients; someone with diabetes who has witnessed a foot amputation may be more likely to manage their condition well, for example.

01
School children trying out Project Convert's AR woodworking machine, courtesy of Construction Wales Innovation Centre (CWIC)

02
A virtual 3D model of the Giza Plateau in Egypt, courtesy of The Giza Project, Harvard University

"It helps demystify the operating theatre," he says. "I'm hoping increasing accessibility to what surgeons do can enhance recovery and help prevent future disease."

Teaching children about nature

AR apps are being used to engage schoolchildren and bring topics to life. The Museum Alive app, developed by Alchemy Immersive in partnership with Sir David Attenborough, allows users to place extinct animals and their natural habitats in the real world by activating the user's smartphone camera to "project" animations into their living room.

This is coupled with other learning resources, such as voiceovers, soundscapes, maps, written information and pre-recorded films. "Apps like this give children agency within a story," says Elliot Graves, creative and technical lead at Alchemy Immersive. "When children are actively participating, they are far more likely to retain information. Once this tech is worked into the national curriculum, it could have a huge impact."

Alchemy Immersive worked with Durham University to conduct school workshops to test the impact of immersive tech. Dr Noam Leshem, associate professor of geography, set up 11 to 14 year olds with a VR project called Portraits of No-Man's Land, where they looked at redefining areas of conflict in Colombia, Cyprus and France.

Leshem found VR should be used alongside other resources, like discussion groups and worksheets, to be truly effective. "Students were curious and excited," he says. "But we don't know what will happen when the novelty of VR wears off. Grabbing their attention is the first step, ensuring VR streamlines into the classroom will be harder."

The technical skills gap between teachers and students will also need to be addressed before it makes its way into mainstream education. "VR headsets still appear intimidating to some teachers, even though most students find them intuitive," says Leshem. "Price has dropped but budgets are tight; convincing schools this is a worthwhile investment will remain a hurdle over the next few years."

Training construction workers

The Construction Industry Training Board is investing £3 million in several immersive tech projects that will help improve industry training. The biggest is Project Convert, which delivers four different types of training to six UK-wide colleges: VR building, where students construct from scratch; VR scaffolding and working at heights; VR drone training, for site surveyance; and AR woodworking and paint-spraying, which incorporates elements like a vibrating magnetised table to replicate the feeling of physical pressure during carpentry.

Gareth Evans, centre manager at Construction Wales Innovation Centre (CWIC), which is leading on Project Convert, says students are not normally exposed to these skills before employment due to cost or health and safety concerns. "Using VR first means that when they navigate real drones, they're not crashing them into trees," he says. "When they move onto physical woodworking machines, they're not risking losing fingers. It helps them learn from their mistakes."

The technology is being used by students at the University of Wales Trinity Saint David, where CWIC is based. Alongside helping them avoid accidents or costly building alterations, the range of training opens their eyes to different jobs, says tutor and landscape architect Sheila Holmes, and allows her to assess students more accurately. "The software measures the students' decisions and knowledge. I can view their progress in real time and talk to them about their material selections and processes," she says.

For a minority prone to vertigo or claustrophobia, for example, VR experiences like working at heights or in confined spaces might not be appropriate, says Evans. But the main hurdle is in encouraging less tech-savvy educators to try it. "Some staff can be nervous about VR," he says. "The biggest challenge isn't so much the tech itself, it's changing people's perceptions."

> **People can be nervous about VR. The main challenge isn't the tech itself, it is changing people's perceptions**

Exploring ancient civilisations

The Giza Project is a digital archaeology initiative based at Harvard University, which curates records of the Giza Pyramids in ancient Egypt. Anthropology and Egyptology students can explore the 5,000-year-old civilisation through VR simulations, either via a headset, a university lab or an online video version. During lockdown, tutors have shared 360-degree videos over Zoom.

The students can undertake virtual conservation work such as rebuilding architecture or repainting tombs. They can build architecture from scratch using evidence such as studies of parallel buildings. Avatars can be placed in scenes to give a sense of scale and context. The project both helps students visualise how ancient Egypt would have looked and offers them opportunities to contribute to digital research with their own builds.

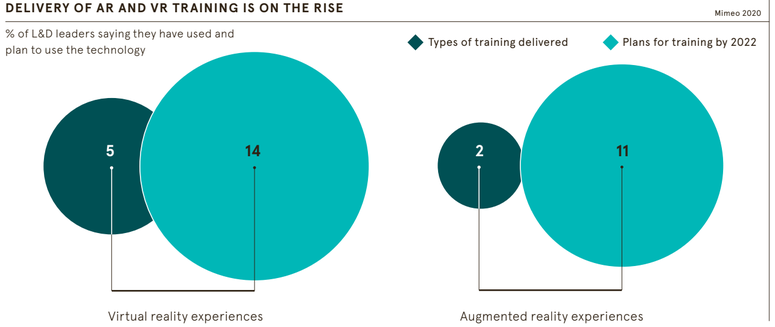
It also challenges students to consider ethical issues, such as the accuracy of portrayals of ancient Egypt in modern media like film and gaming, encouraging them to be more analytical. "The VR helps them distinguish between theory and archaeologically attested designs," says Peter Der Manuelian, professor of Egyptology at Harvard. "Ultimately, it helps them look at Egyptian civilisation through the lens of its most important site."

He hopes the immersion element will spark undergraduates' fascination. "We're hoping for a renewed interest in the human past and to encourage some students to major in archaeology," he says. "The aim is to educate students on sources, documentation and accuracy, but also to make education fun."

02

DELIVERY OF AR AND VR TRAINING IS ON THE RISE

Mimeo 2020



TEACHING

Changing role of the teacher

With a move to online learning, the education sector has gone through a seismic shift over the past 12 months that will have a lasting impact on how students are taught

Emily Seares

Over the past year, the role of the teacher has changed dramatically as a result of the coronavirus pandemic. Classroom teaching ground to a halt, remote learning was propelled to the forefront of every school, college and education provider's approach to learning, and teachers were forced to rethink their delivery methods to adapt to this new digital world.

Addressing the Education Policy Institute, education secretary Gavin Williamson called the response a "major achievement", saying it would bring about a "revolution in learning".

"Unprecedented problems require unprecedented solutions," Williamson said, "and schools, teachers and leaders have all pulled together to bring about one of the biggest shifts the education sector has ever seen."

Lord Jim Knight, former schools minister, edtech adviser and life peer, feels teaching has now crossed a Rubicon. "We are not going to go back to the normality of 'chalk and talk'. There has been a shift in the adoption curve of technology within the teaching profession; it has now gone over the hump," he says.

Teachers have had to adapt to a new form of delivery at record speed over the past 12 months, which has involved combining small face-to-face sessions with remote classes.

"Teachers have had to find a way of teaching that is suited to this new era of remote learning, one that involves pacing input compared with independent work," says Dame Alison Peacock, chief executive of the Chartered College of Teaching.

Dr Jonathan Doherty, lecturer at the Institute of Childhood and Education, Leeds Trinity University, says: "It is an exciting time to be a teacher. Teaching is no longer confined to the classroom, nor indeed to the normal school day, allowing learning to take place at any time of the day both in and outside the traditional classroom."

The benefits of this new era of digital pedagogy have resulted in teachers being able to access a wealth of extra resources. Virtual lessons have facilitated new and exciting opportunities for lesson planning, bringing otherwise inaccessible experts into classrooms via Zoom. Digital resources have also provided teachers with real-time access to student data and insights, which are valuable tools for measuring progress and identifying any knowledge gaps, says Dame Peacock.

However, the move to a more digital-led programme does come with its challenges, says Pat Black, head of primary and early years education at Bath Spa University. "In a classroom, a skilled teacher can easily identify if a pupil is disengaged, but this can be much more challenging during an online lesson," she says.

While teaching and learning may have benefited from change and improvements online, in terms of access and content, the human aspect of the teaching role is needed more than ever, says Lara Péchard, head at St Margaret's School in Hertfordshire. "For the child that struggles to motivate themselves or procrastinates, the digital learning environment can hold distractions, poor organisation of online files, roaming the internet or messaging friends," she adds.

Teachers will inevitably move to a more blended learning model, using technology intelligently to take care of certain aspects of teaching, freeing up time to focus on other areas.

"Live digital lessons all day every day is just not sustainable," says Lord Knight, "but as part of the mix, it is. Technology can never be used to replace teachers, but it can definitely be used to enhance teachers and support them, as well as their support staff. It will also allow teachers to address more diverse needs in the classroom."

Alexa Toy, educator, writer and speaker, says this offers teachers a huge opportunity to facilitate learning that is far broader than would otherwise have been possible, but also offers students the opportunity to become more self-motivated as a result. "Learners are used to working in breakaway Zoom groups, they are becoming more self-disciplined, they don't need to be spoon fed as much," she says.

This is something Ed Kirwan, former secondary school teacher, and founder and chief executive of Empathy Week, a global education programme that uses the power of film and interactive learning to help teach empathy in young people, passionately believes in. "We need to question, what is the point and purpose of education? Digital technology is moving so fast. Children are learning, but we are way behind in delivering this education," he says.

Moving away from the "chalk and talk" lecture style could see teachers take on more of the role of facilitator, encouraging self-learning in the classroom through the use of technology and increased peer-to-peer collaboration.

Lord Knight says as teachers become more accustomed to teaching online, skill sharing will become part of the course. He says: "Teachers will be teaching each other, there will be a lot more professional development with peer-to-peer resource sharing."

> **Technology can never be used to replace teachers but it can enhance and support them**

Ben Evans, headmaster at Windlesham House School in West Sussex, says digital delivery requires teachers to take a step back, plan effectively and signpost pupils to the correct areas for them as individuals. "It is far less about whole-class delivery and allows for a more tailored and individual approach. This can be a big shift in approach for many teachers, who are used to complete control in the classroom," he says.

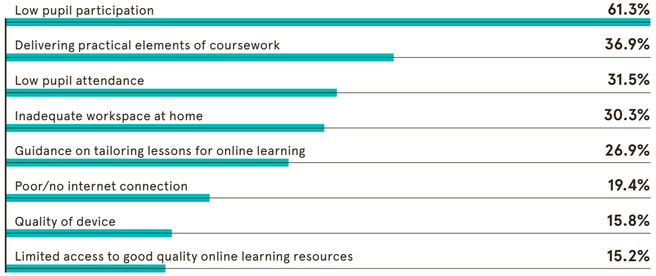
Hugh Viney, chief executive and head of academic at Minerva's Virtual Academy, says there is much evidence to support the notion that effective learning can be delivered via fit-for-purpose online learning platforms, which means guided learning led solely by a teacher may not be the best use of time or talent.

"The entire GCSE syllabus in 11 different subjects can be studied without the physical need for a teacher to be present, providing there is an option to obtain support as and when it is needed; this is where teaching as a role needs to adapt," he says. "Teachers of the future could focus more on bespoke intervention, motivation, wellbeing, mentoring, nurturing confidence and boosting resilience in pupils while they learn and flourish."

The pandemic has unquestionably lifted the veil on the complexities involved in teaching. "Remote learning has required teachers to quickly adapt and upskill to help minimise any disruption to learning, but the lasting impact of these new skills and experiences means considering what the future of teaching itself looks like," Dame Peacock concludes.

THE BARRIERS TO TEACHERS DELIVERING HOME LEARNING EIS 2020

% of teachers in Scotland



Commercial feature

Building emotional intelligence one company at a time

The monumental disruption and uncertainty businesses have experienced in the past year has shaken up the way we work forever

Employers around the globe have scrambled to offer their workers the right software, hardware, digital and collaboration tools to manage this upheaval. But this is only half the story. Many workers just haven't been given the right emotional tools.

Whether it's talk of the fourth industrial revolution, the rapid digital transformation of industries or the evolving workplace, our human workforces are expected to rise to the challenge and adapt as fast as the technology that serves them. However, many decision-makers in business are now realising the emotional bandwidth needed to tackle such changes needs far more investment.

"The human operating system also matters, yet it is so often neglected," explains Raul Aparici, head of faculty at The School of Life for Business. "Organisations don't just need to be artificially, digitally or technologically intelligent to be successful in the 21st century: they need to be emotionally intelligent too, but this is often an afterthought."

Much of our working day, which previously centered around belonging and identity in a real office, has been disrupted and replaced with technologies like Zoom and Teams. These have become our new tethers to connectivity. Face-to-face interactions that once allowed for high levels of intimacy and understanding have been lost to poor audio and visual cues via a struggling computer monitor.

"Last year's events created a perfect storm for employers and employees. We've found that it's generated radical levels of uncertainty and a lack of real guidance for how to cope. This means businesses need the help of philosophy and psychology more than at any point since the global financial crisis," says Rachel Munden, head of business at The School of Life, which helps build emotionally intelligent organisations through virtual and in-person training and engagement programmes, and with a broad cirriculum drawing on art, philosophy, history and psychology.

"In the coming months, as businesses try to bring people back together, re-energise progress in the economy and reimagine a new normal, they'll need a reinvigorated set of emotional skills. Organisations will have to rebuild cultures that foster self-awareness, connection and resilience. People are not born with these skills. They can be learnt, through expert-led self-reflection, group work and practice."

Upgrading the emotional intelligence of a whole organisation isn't the same as upgrading to the latest version of Microsoft Office, adopting a new SAP or Salesforce platform. It involves wholesale employee engagement, collaboration and buy-in. Bringing people together to talk and share their thoughts is vital.

"Workshops allow employees to do this under a common purpose and in the process steadily reform corporate cultures and patterns of behaviour. Every organisation and executive has the capacity to learn and grow emotionally. Firstly, people need to be encouraged to question themselves and each other, to think deeply, as well as open up and share," says Munden, whose organisation works with the likes of Sony Music, Facebook, Google and Havas Media.

"What's interesting about the last 12 months is that every employee, from the CEO to the junior school-leaver, has experienced the same events. This is a common emotional reference point to coalesce around when looking to the future and building more resilience into businesses."

> **Organisations don't just need to be artificially, digitally or technologically intelligent to be successful in the 21st century: they need to be emotionally intelligent too, but this is often an afterthought**

Wellbeing takes investment in emotional intelligence

The concept of wellbeing at work extends well beyond coping with the mentral stresses of the nine to five or the pressures of productivity in fast-moving sectors. Organisations that are serious about wellbeing are looking to kickstart their human capital, allowing it to flourish. This takes investment in emotional intelligence.

"Organisations that really care about wellbeing try to ensure their teams have the emotional resources to enjoy their work and realise their full potential. This involves giving employees a chance to gain self-understanding and work on key emotional skills, including communication and diplomacy. In turn this can improve engagement and productivity. It also helps people to understand what drives their sense of personal satisfaction," says Munden.

Trust and leadership have also become bigger issues for corporations. Recently, there's been a shift away from classic top-down management to new forms of distributed decision-making, where decisions get pushed to teams at the peripheries of an organisation in to meet the demands of faster business cycles. It means the C-suite now has to build a lot more trust laterally within an organisation.

"When leaders believe in, and invest in, their teams' abilities to grow and learn, trust becomes inherent. Managers throughout an organisation must constantly think of other people's mental wellbeing and be continuously concerned with their development. This involves a great deal of strategic empathy, as well as the ability to both encourage and set limits," explains Munden, whose current clients include Publicis Groupe, Google and ViiV Healthcare.

"Business leaders need to be increasingly self-aware and pinpoint how their own insecurities play out negatively on their teams and instead how to empower them. Training can now help managers be more mindful of their behaviour. It's hard for bosses to hear, but collaboration with employees requires vulnerability. To build stronger working relationships also requires an openness about each other's imperfections."

It is rare in the fast-paced business cycles of this tech-fuelled era for employees to be given the space to consider the meaning of their work. Yet if they are presented with the opportunity to have deep, enlightening, inspiring conversations, people learn things about themselves and their colleagues. It also means relationships deepen, trust builds, support is offered when needed and collaboration flows.

"The workshops, while fun, provided a confidential space where we were prompted by intellectual frameworks, guided through focused conversations and ultimately came to understand that during this period of imposed remote working, we'd actually been experiencing many of the same emotions," says Natasha Shafi, managing director of Mr & Mrs Smith, following a programme of emotional skills workshops. "The programme has definitely been the catalyst for further conversations that will help, not just in the workplace, but in our personal lives, too."

If you'd like to learn more about how The School of Life for Business can teach your teams the emotional skills that will allow them to flourish, and to attend a free taster session, please visit theschooloflife.com/thetimes

THE SCHOOL OF LIFE

Commercial feature

Q&A

How edtech is transforming learning

Rapid acceleration of digital transformation in the past year has put edtech at the very heart of university learning, says **Itay Koppel**, chief executive at education technology firm Proprep, whose technology has helped more than 500,000 STEM students to maximise their academic potential

Q How has learning been transformed by digital innovation?

A For 2,500 years, since the days of Socrates, Plato and Aristotle, education was really only done in one unchanging format: a teacher standing in front of a class and addressing them. Technology helped improve content, but it didn't change the way it is actually consumed. Recent digital innovation, however, is now changing the way people learn. Learning no longer starts and ends with a teacher and textbooks. Students can be given the tools to absorb information in multiple forms, which is where Proprep's learning resources come in.

As students enter the workforce, they'll probably change their career multiple times and this is really only possible if they have the capacity for self-learning. Those who are ready and able to review additional resources outside the classroom, and practise in their own time, will have the tools to adapt to new job positions with ease later in life. As we move into this generation of self-serve and more customised learning, digital innovation is helping to make this as efficient as possible.

Q What impact has the coronavirus pandemic had on education?

A It has accelerated processes that were already happening, but which we thought would be very slow. For example, the move to self-learning and utilising new technologies was already underway, but sped up rapidly when traditional learning environments like lecture theatres vanished basically overnight. Adapting to these challenges has definitely been tough for universities, but the shift to blended learning is positive because it has been proven to be much more efficient than learning fully in-person or fully online. A recent study found that the average grades of students who watched videos in addition to their existing classes rose from a B to an A, and suggested that this is because they were able to pause and rewind the videos to "manage their own cognitive load". With more blended learning and customisation of learning resources, we can better empower students to succeed in their studies, especially in STEM (science, technology, engineering and maths) subjects.

Q How did you respond to the pandemic to support students and universities alike?

A We recognised early in 2020 that students were facing serious challenges as a result of university closures. Our response was to open up access to all our bite-sized video tutorials and study guides, which are created by expert professors, free of charge for the whole academic year. We also introduced a scholarship fund of £50,000 so STEM students could focus on their studies without having to worry about finances.

Unfortunately, university satisfaction rates were often low even before the pandemic forced campuses to close. We are determined to change that, working with universities to improve their services using our technology. Our video tutorials and study guides can be customised to the requirements of any university syllabus within minutes. By enabling these institutions to offer additional, reliable resources, Proprep saves them valuable tutoring time and office hours. We also work with lecturers to improve the experience of their students, particularly their engagement with course materials.

Q What are the key challenges students have faced in adapting to blended learning?

A Leaving the specific issues of the pandemic aside, I think change is always scary and students probably feel a lot of uncertainty when trying something new. In particular, blended learning changes the traditional relationship between students and their university and might leave both sides confused about their role in this new environment.

What students have learnt the hard way over the past year, unfortunately, is that using online video communications services or pre-recorded lectures to teach isn't really blended learning at all. Although educators may be embracing new forms of technology, they are still standing in front of their class talking, albeit on the internet. This is far less efficient for a student than self-learning or learning one on one alongside a tutor, both of which work much better and can be employed with the help of technology.

Q Which specific technologies does Proprep utilise to create its learning resources?

A While we make use of algorithms and artificial intelligence, it's our team of seasoned university professors who create our video tutorials. We then use our award-winning technology, which can create up to 95 hours of customised learning content and 1,200 practice questions within minutes.

> Our mission is to support STEM students because these subjects are the future of the workforce, and STEM skills are a crucial launchpad for social mobility

37%

of students reported being "dissatisfied" or "very dissatisfied" with their academic experience

Office for National Statistics

90%

of students believe that technology used as part of their learning is basic and 3% say no technology is used at all

Student Academic Experience Survey (Higher Education Policy Institute)

This process is completely unique, and the closest you can get to having a tutor, without the high prices. Our technology enables us to scale fast and create personalised STEM courses for any English-speaking university student.

Q Why do Proprep's learning resources and thousands of practice exercises focus on STEM subjects?

A Our mission is to support STEM students because these subjects are the future of the workforce, and STEM skills are a crucial launchpad for social mobility. The low uptake of these subjects at university level is leading to a national and global skills shortage, which is impacting our economy and progress in science, research, medicine, engineering and other areas. By giving students learning tools that can help them to maximise their potential in STEM, we want to break down the barriers that might have put them off studying these subjects. Making them accessible to everyone paves the road to future success.

Q What are the ultimate benefits to students who use the Proprep platform?

A Sadly, STEM degrees have some of the highest dropout rates. By breaking down complex subject matter into bite-sized learning resources, students who are struggling can use Proprep to get that extra knowledge boost and help them push their academic performance over the line. This works on two levels, as it caters for students who find following lectures challenging or are stuck on a particular subject, as well as for those who want to get ahead in their studies. Our mission is to improve students' success by supporting them to realise and maximise their academic potential. We want to ensure every STEM student around the world has access to trusted online learning tools, which can help them to excel and thereby ultimately close the gap in STEM education.

For more information please visit www.proprep.uk

proprep

SOFT SKILLS

How to develop relationships digitally

Can interpersonal skills really be taught effectively via digital platforms?

10'000 Hours via Getty Images

Morag Cuddeford-Jones

Humans are social by nature; most of us prefer to interact in person. Apply a filter, whether it's a video call, email or text chat, and we have to find a whole new range of tools to make sure what we mean is what is understood.

This is a particular minefield for those in professions that lean heavily on interpersonal skills. The areas of sales, business development, teaching, journalism and more all depend on learning how to be what some might call a "people person".

With a huge shift to online interactions, the challenge is twofold: how do we train and then replicate interpersonal skills in an almost totally digital environment?

Digital is not a barrier to learning

"I don't see the difference between having a cup of coffee with someone versus having a Zoom. If I start putting up mindset barriers then psychologically that has a big impact. You have to normalise this," says Heather White, chief executive of Smarter Networking.

White reels off the tips and tricks for adapting the in-person approach to a digital version. One notable aspect is time; online the rule of thumb appears to be that the time needed for a conversation is halved. But other rules remain largely the same. As you might connect with someone over your surroundings in a café or office, so you do the same across a video call, picking out interesting items in their background or even bringing a prop, such as the latest book you're reading, to create an interesting segue in the conversation.

"If you translate these skills online, it's near enough the same stuff. The only difference is that you're on conference calls and you can see them looking at different screens. The format is slightly different. That's all it is," says White.

Piers French, director of clients, supported living, at AO.com, agrees: "There isn't a secret sauce for a Zoom meeting. It's connecting with a person who sincerely wants to do some good for them."

Developing authentic connections with people seems to be key to successful relationships in digital environments and perhaps the last 12 months has been a fast track to getting to the point. "We've learnt more this year from clients than any possible selling techniques. You're having more in-depth, valuable conversations." French adds.

Adapting to the digital medium

That's not to say raw authenticity doesn't need a polish. Without some of the delaying tactics common to in-person connections – it's not called an elevator pitch for nothing, it may be quick but the audience is captive – it's hard work developing a cold connection digitally.

"We took on three recruits who had never done outbound selling in our industry before and taught them about how to secure time with a busy executive. That meant researching the right people in a business and creating a warming email that shows them as worthy of that person's time," says French.

Maggie Jones, director of qualifications and partnerships at the Chartered Institute of Marketing (CIM), agrees interpersonal skills via the written word has boomed in lockdown: "One of the most important soft skills to learn now is actually writing because that's how people are interacting with their customers. Our copywriting courses are now one of our most popular because you have to get the message across as succinctly as possible. If you don't get that initial email right…"

But, by and large, the online environment has presented as many opportunities as it has challenges.

> We forget with skills and relationship building that it can be difficult to do that behind the screen

The former include the ability for more junior staff to get involved, receive real-time feedback and take a leap of faith.

Embracing shadowing

Kate Hamilton, global customer experience manager at petcare company Lintbells, explains how customer service representatives are able to explore resources and receive support, wherever they are. "We're adapting as best we can remotely. A lot of it is about listening to calls in real time and we make sure we can still do that. We also have a buddy scheme so if they feel they benefit from 'sitting' with other people. Finally, we invested in a new customer service system that will let us create a bank of best-in-class calls and this lets us work on specific soft skills."

Being able to "lurk" digitally, among both managers and junior staff, has been seen as a huge benefit. Aaron Shields, executive director of experience strategy, Europe, Middle East and Africa, at Landor & Fitch, notes the previously somewhat performative and often highly orchestrated process of client pitching in the marketing agency sector has been opened up to more junior staff, allowing them to learn at potentially an accelerated pace.

"The great thing about lockdown in terms of less experienced staff is you used to have to worry about 'casting' who was in the room. That's gone away. The junior folk are present a lot more than they used to be in client-facing meetings. They're getting to see the client's eyes light up and have more exposure," he says.

Support for emotional fallout

Support has perhaps been the hardest part of managing interpersonal and soft-skills learning remotely. "We forget with skills and relationship building that it can be difficult to do that behind the screen. We make sure they have support and know who they can go to," says Hamilton, noting it is a sad fact of their business that customers cancel subscriptions due to the death of a pet. "When you're sitting on your own it's hard," she acknowledges.

Kate Gardhouse, CIM director of customer experience, IT and operations, says digital learning still has a way to go to replicate vital office interactions that are more than just watercooler chat. She says: "What people miss is learning by osmosis, overhearing a colleague dealing with a situation and learning from that. I have so much admiration for the people who have joined our business in the last year because this is so much harder to do from the spare room. If you're in the office and have a bad call, your colleagues are there to bring you up."

TOP 5 MOST IN-DEMAND SOFT SKILLS LinkedIn 2020

Skills that are in high demand relative to their supply according to LinkedIn job ads and skills listed on profile pages

1 CREATIVITY
2 PERSUASION
3 COLLABORATION
4 ADAPTABILITY
5 EMOTIONAL INTELLIGENCE

EDTECH

Building trust in digital learning

Provision of digital tools by schools has mushroomed over the past year, raising questions over what works in education and where to source content

Nick Easen

A year of coronavirus lockdowns has fuelled the use of digital learning around the world. School closures forced pupils, parents and teachers to adopt edtech en masse; a mad scramble for resources ensued. In the UK alone, BBC Bitesize has experienced an average of five million unique visitors a week, while on the Edtech Impact website, which aims to help teachers find edtech resources, almost 1,500 solutions are available.

"It's the biggest use cycle of edtech we've seen in history," says Ty Goddard, chairman of strategic body Edtech UK. "There has been an explosion of goodwill and free resources. But to be honest teachers have felt bombarded. It's been a bit of a minefield to make sense of what to use."

The past 12 months has been a period of mass experimentation, with many educators, both at school and at home, having to evaluate an overwhelming choice of digital tools at short notice. "I worry that some widely adopted approaches to learning during the last year have not been as good for children as they might have been," says Jon Smith, chief executive of education platform Pobble.

In an age when anyone can post teaching material online and make claims about student results, it's raised questions about quality and standards. Not all digital offerings are created equally.

"The universal issue has also been a lack of consistency. It was an impossible task for educators and families to adapt to the challenges of home schooling in a unified way; it's created enormous variability. Some schools had structures and set-ups that allowed them to be clear about which tools and products to use, while others were more reactive," says Murray Morrison, chief executive of online learning platform Tassomai.

"Many products schools look to buy make compelling claims and look flashy and impressive. Everyone is busy and it's all too easy to take something on without digging deeper."

On the plus side, the sheer length of the remote learning lockdown periods have allowed many educators to test drive a variety of digital solutions and work out what works for them and what doesn't. Teachers are now a lot more confident using technology, they're more discerning and have been able to collect more evidence and feedback on the tools they're deploying.

> **It was impossible for educators and families to adapt to home schooling in a unified way**

"It's very likely that many will want to continue with the tech tools that worked out well, especially those that are designed both for classroom and remote learning," says Pete Read, chief executive of Persona Education. "Schools will only invest in tools that help them to meet their objectives, whether set by Ofsted, the Independent School Inspectorate or their own school improvement plan."

Marko Geber via Getty Images

A new era of edtech evidence

While word of mouth and adopting best practice from other schools has helped educators navigate the past year, there are now calls for more evidence on what really works when it comes to digital learning, especially with the proliferation of content, tools and claims, with a low bar to entry into this market.

"I want schools to demand more rigorous proof from edtech companies; there is the will. Our own research has found more than three quarters of teachers and school leaders want to see clear proof edtech works," says Dan Sandhu, chief executive of Sparx.

"The most commonly cited benchmark of evidence offered by edtech companies is customer quotes and school case studies. These provide helpful insight, but they're not enough to help a school to make an informed decision about whether an edtech solution will help their learners to make more progress."

This is why the Edtech Evidence Group was founded a year ago by a small group of leading edtech companies that believed there needed to be a step-change in the level of proof around digital solutions. The aim is to encourage the industry to provide clearer and better evidence about products. In the process this will help schools evaluate providers and enable them to ask the right questions.

"As a co-founder of the group, we want to demonstrate to other companies the importance of transparently sharing impact evidence and to help push each other for increased transparency and evidence collection," explains Michael Forshaw, chief executive of Edtech Impact.

The need for contextual learning

Certainly, every vendor in the market is looking to build their evidence base. It's the secret sauce in the digital trade. "Schools are using the evidence that's available. But the challenge is how thin some of that evidence is," says Matt Hood, principal at Oak National Academy, set up last year to support remote learning.

But compiling huge datasets is an issue in an industry where it's difficult for companies to scale up and many are startups. Evidence has played second fiddle when many promising providers are just trying to innovate, sell and market products.

"Evidence is also a thorny concept in education, compared to fields like medicine. It means different things to different people. I believe schools must be granted autonomy to define their own educational objectives and to then demand of edtech providers that they demonstrate how their offering supports their goals," says Junaid Mubeen, director of education at Whizz Education.

"We do need standards to filter the deluge of content out there, but they must not be monolithic. 'What works' must be coupled with 'in what context?' to ensure it's meaningful."

Everyone agrees edtech in the UK should be celebrated. There's a great deal of innovation in the market, with many solutions created by teachers and parents turned entrepreneurs looking to improve children's education.

Now schools are returning to the classroom, these tools aren't disappearing and are complementing teaching. Hopefully, edtech will supercharge catch-up for pupils who have struggled over the past year.

"Something has definitely changed. It's clear more people see education as less bricks and mortar and more anywhere, anytime," Sharon Hague, senior vice president of schools at Pearson, concludes.

THE IMPACT OF LOCKDOWN ON SCHOOLS AND PUPILS

Data from March 2021

of the world's student population affected by school closures

144

million learners out of school

26

countries affected by school closures

Unesco 2021

The convertible and ruggedised ASUS BR1100 (above) comes with a garaged stylus and world-facing camera.

Helping children catch up on lost learning

In recent times, teachers and parents have undertaken heroic efforts to facilitate remote learning for children across the UK

One-to-one technology, which brings together one laptop with one student, has allowed thousands to learn new skills for the first time. During coronavirus lockdowns it's been a game-changer. As schools return, the use of devices will help supercharge catch-up.

Teachers now face an overwhelming task of assessing pupils, tackling lost learning and getting children back on track, while still managing the rest of the class. Laptops loaded with edtech tools will be vital. Digital homework, revision tools and past lockdown lessons could also prove invaluable especially with disadvantaged pupils, making sure no one is left behind.

"While the pandemic has shown what's possible when it comes to digital learning, not every pupil may have had sufficient access to technology, often sharing a device with the wider household or, in some cases, lacking any access at all," says Chris Whiteman, UK head of commercial solutions at ASUS, a multinational and global leader in IT hardware.

"As pupils return to school, this issue is compounded in the classroom where devices are often shared between large groups or are significantly outdated and no longer fit for purpose. Some take a long time to start up, others have poor wifi connections meaning disruption and lost lesson time, when pupils have already missed so much."

To its credit, the UK government has delivered more than one million new laptops and tablets to children who needed them most to help with their education during the pandemic lockdowns. Those devices are now more readily available for catch-up in schools and with home learning, as part of the Department for Education's long-term strategy; another 300,000 devices are also earmarked for delivery.

"It is great that Whitehall officials increasingly value the difference laptop provision can make to a child's education, especially during this ongoing catch-up period. Teachers can easily check the progress of a student in real time or through online reports. Pupils can be set different tasks and work at their own pace without disrupting the class dynamic. There's huge potential," says Whiteman.

However, the UK is ranked well below other developed nations when it comes to penetration of devices per pupil, with a rate of only 30 per cent projected for 2021 versus the United States (98 per cent), Japan (74 per cent), Sweden (57 per cent) and the Netherlands (48 per cent). Despite the level of investment, this ratio is not expected to rise in the next five years, even though the UK is a world leader in edtech solutions.

A survey reported by the Sutton Trust in January also shows the lack of technology resources available to pupils in the UK. Only 10 per cent of teachers said all their students have access to an internet-enabled device. The pandemic has certainly highlighted the digital divide with disadvantaged communities and the need to address this.

"These figures show we need to accelerate change. We know one-to-one provision of laptops can make a real difference to students and, until everyone has a laptop or device, the digital divide will continue to haunt us. It will also prevent many young students from having equal access to education and better opportunities," says Whiteman.

> **Over the last year, digital solutions have become ingrained in the UK's education system**

Evidence is needed by teachers and educators to show a greater penetration of devices, especially at scale, can lead to better learning outcomes. When 450 ASUS laptops were supplied to Little London Primary School in Leeds to use in both the classroom and at home, across all student groups independent of background, the results were promising. Before the students received the laptops, few students had any access to the internet or a computer.

"The ruggedised ASUS laptops have been an absolute godsend during this recent lockdown and our engagement in home learning has risen from between 28 and 32 per cent in previous lockdowns to 89 per cent this time," says headteacher Jill Wood. "Standards have risen incredibly."

One-to-one solutions have also shown to break down barriers to learning, with improved hardware and software uniquely helping places like Little London, which has 82 different languages spoken across the school. Students can now read learning materials or be read to in their native language, using tools such as Microsoft's Immersive Reader. They can also seek support in their native tongue or translate school texts if needed, speeding up the process of learning.

"The issue now is scaling up supplies of laptops to schools and determining what laptops are right for them. Schools should speak to their IT suppliers, manufactures and other schools. ASUS is happy to offer free advice via our education experts and help with referrals to schools that are looking to implement one-to-one solutions," says Whiteman.

"Funding can also be a challenge, but parent contribution can be a way to minimise the cost of investment. Buying in bulk also matters. When budgets are tight and buying devices outright isn't an option, there is another model."

An operating expenditure model can work for schools. This involves leasing devices. It is the only type of lease that can be taken on by a state-funded school without specific approval, according to guidelines from the Department for Education. Instead of owning the laptops, the school makes regular payments, usually monthly, to use them for an agreed length of time.

"Whatever model a school deploys, the need for one-to-one technology-based learning isn't going away. Over the last year, digital solutions have become ingrained in the UK's education system. We are only starting to realise their potential. This is just the beginning. If we're to unlock the ongoing edtech software revolution, pupils are going to need the hardware to do it," says Whiteman. "These are exciting times."

ASUS ranks in the top three for global sales of consumer notebooks and has been named one of the world's most-admired companies by Fortune magazine.

For more about one-to-one technology please go to www.asus.co.uk

ASUS

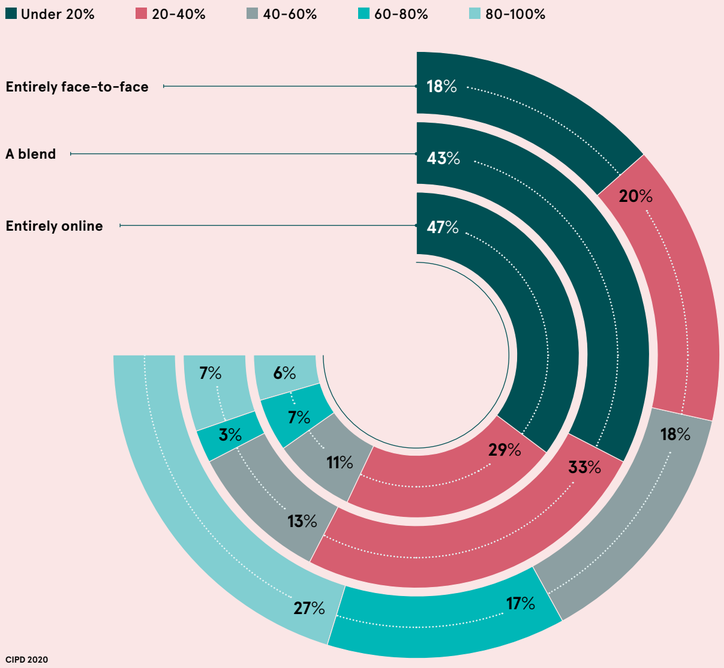
Windows 10

THE TRANSFORMATION OF **WORKPLACE LEARNING**

The coronavirus crisis has upended many disciplines, learning included, forcing many businesses to rapidly transform how they train and develop their employees. But there are major challenges to overcome if online learning is to be as transformational as hoped

BEFORE THE PANDEMIC, ONLINE LEARNING INVESTMENT WAS RELATIVELY LIMITED

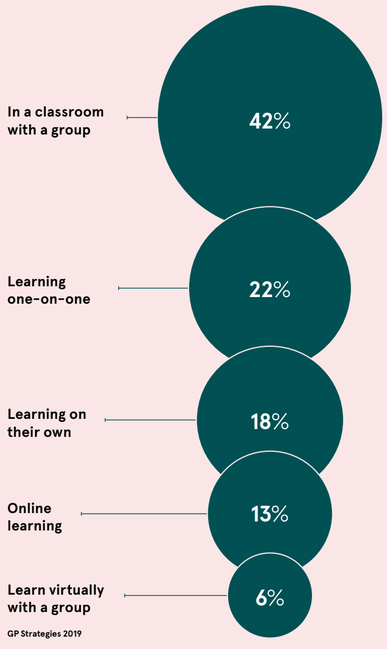
The proportion of learning delivered face-to-face, through technology or a combination (%)



CIPD 2020

EMPLOYEES PREFERRED TO LEARN FACE-TO-FACE BEFORE THE PANDEMIC

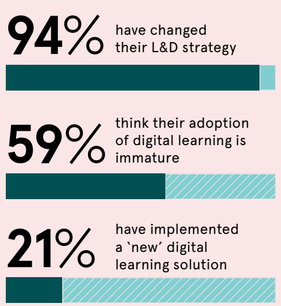
% of employees preferring each way of learning



GP Strategies 2019

WORKPLACE LEARNING HAS CHANGED SINCE THE PANDEMIC

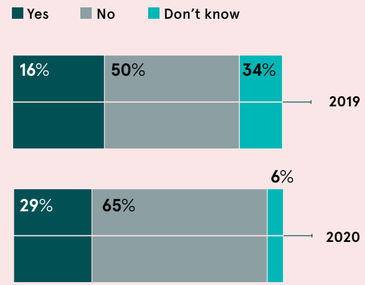
Proportion of businesses



Fosway Group 2020

CURRENT LEARNING PLATFORMS ARE NOT SEEN AS FIT FOR MODERN WORKPLACES

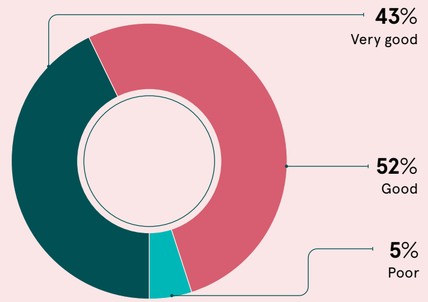
% of businesses saying they are fit



Fosway Group 2020

LEARNERS ARE BROADLY SATISFIED WITH VIRTUAL LEARNING EXPERIENCES

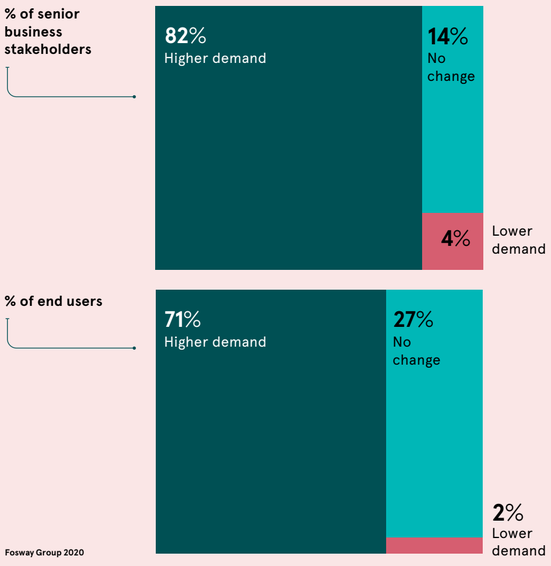
% saying virtual learning is very good, good or poor



Fosway 2020

DEMAND FOR DIGITAL LEARNING IS INCREASING

Changes in demand seen at the start of the pandemic

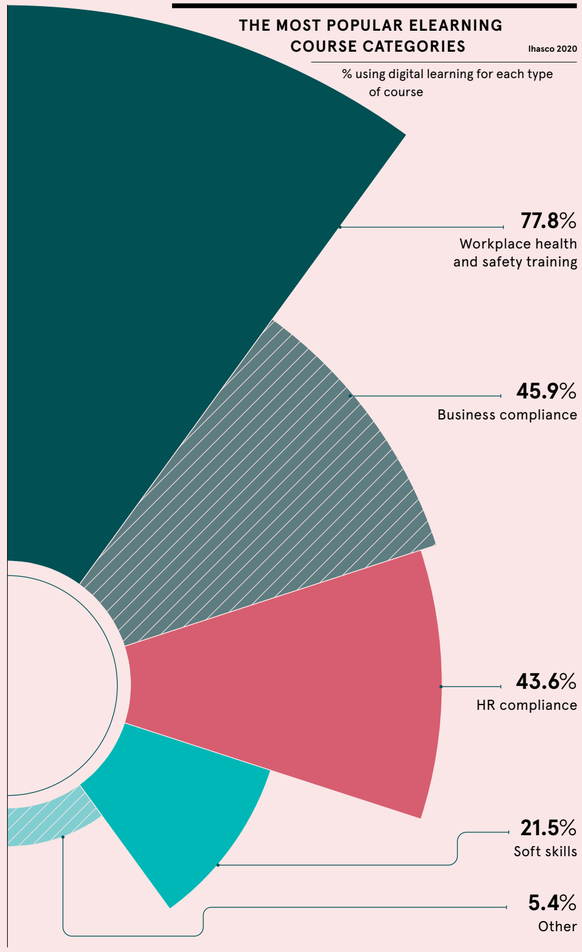


Fosway Group 2020

THE MOST POPULAR ELEARNING COURSE CATEGORIES

Ihasco 2020

% using digital learning for each type of course



DIGITAL LEARNING WAS ON THE RISE EVEN BEFORE CORONAVIRUS

CIPD 2020

% saying types of l&d had increased, decreased or stayed the same in the past two to three years

THE VAST MAJORITY OF COMPANIES ARE NOT CLOSE TO COMPLETING THE DIGITAL TRANSFORMATION OF THEIR LEARNING CAPABILITIES

Fosway Group 2020

% of companies

SPECIAL NEEDS

Tackling the remote learning challenge for pupils with SEND

Equal access to learning is essential for children with special educational needs and disabilities to thrive. Digital tools and techniques can provide much-needed support and social interaction for pupils and their families

Magda Ibrahim

Information overload, physical and technological hurdles, loss of specialist support and social interaction: remote learning has been a challenge for many children. But for pupils with special educational needs and disabilities (SEND), the coronavirus pandemic has spotlighted the critical need for equal access to learning.

Around one in four pupils at special schools and colleges have been at home throughout the pandemic, with a similar proportion of those with education, health and care plans across all state schools unable to attend.

"The main challenge is that while we might all be in the same storm, we are not all in the same boat," says Zoe Mather, education officer at the National Association for Special Educational Needs.

With formal shielding measures for the clinically extremely vulnerable in place until at least March 31, there is a continued need for digital learning even as schools return. At least 15.4 per cent of pupils in England have special educational needs, according to government data, and "there is no one size fits all", says Mather. Each child's needs are unique, as are provision and access to technology across the country. A child with autism spectrum disorder, for example, has different needs from one with hearing or visual impairment, dyslexia, developmental language disorder or Down's syndrome.

The importance of considering pupils' needs first and their diagnoses second is highlighted by the Chartered College of Teaching. Its report on distance learning approaches during the pandemic found strategies supporting pupils with SEND by making content more accessible are likely to benefit all students.

These include close collaboration with families of pupils with SEND, but also specific adaptations such as captioning and visual aids, making content easy to edit and wearing plain clothing in live and recorded online lessons.

A steep learning curve

After a year of digital learning becoming a daily reality for teachers, pupils and family members, the learning curve has been steep. Alistair Crawford, SEND deputy regional lead for the North, is part of a specialist team developing hundreds of dedicated SEND-focused educational videos and resources for Oak National Academy, set up at the start of the pandemic to support remote learning.

"We had the chance to have a wider conversation around the curriculum we had never had on that scale in the specialist sector," he explains. "When we first started, we were trying to emulate children's TV presenters, but quickly realised it was going to be a family member such as a parent or sibling working alongside, so had to adapt the tone."

5.3%

increase in pupils in state-funded special schools in 2019/20

Gov.uk 2020

SeventyFour/via Shutterstock

While individual support is essential for SEND pupils, it was important to work out what would best fit the needs of so many different children through a virtual offer. Oak's 10,000 free lessons for use by teachers or families were developed with closed captions on all videos and British sign language-interpreted English and maths lessons for younger children.

The resources also offer visual support and Makaton signs, full transcripts available for all lessons and considerations of fonts and colours used. There are no references to a particular year group on content as it is "really important we don't alienate any pupils with the stigma of age grouping", says Crawford.

Desire for continued educational attainment versus speech and language development, social skills and physical development has been a challenge for many schools working with SEND pupils. At St Martin's School, a specialist secondary in Derby for young people aged 11 to 19 with additional needs, up to 50 per cent of pupils have been learning remotely.

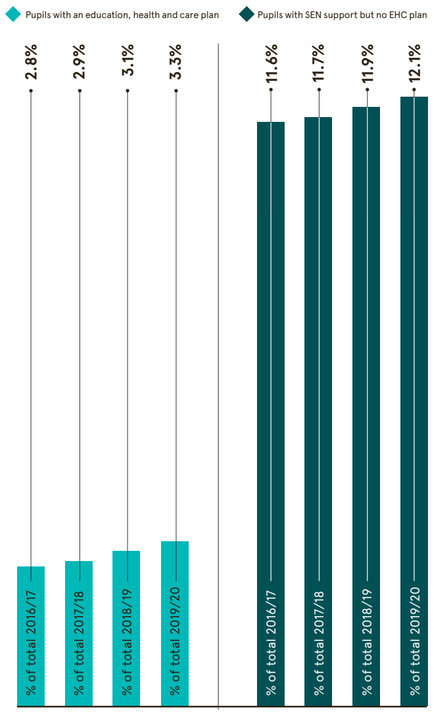
Joining live English and maths lessons in the morning, pupils were encouraged to meet up online socially at lunchtimes, playing games with their peers, before taking part in wellbeing, personal, social, health and economic education, and social development lessons later in the day. "The social part was really important to us," says headteacher Debbie Gerring.

Changes have also included moving careers days and jobs fairs online, with virtual tours and workshops, improving inclusivity for pupils who wouldn't previously have been able to take part.

THE NUMBER AND PERCENTAGE OF PUPILS ON SEN SUPPORT IS RISING

% of pupils in England per school year

Gov.uk 2020



"There have been silver linings for us as we can open up that access," says Gerring. "And for those with anxiety or pupils with high-functioning autism, this way of learning has been fantastic for them."

While the challenges of learning remotely have been considerable, some of the silver linings point to exciting possibilities for continued learning even when class bubbles have to isolate or individual children need hospital stays.

A patchwork of tech access

A mixed patchwork of technology resources across the country meant the first challenge for some schools was getting equipment for interactive learning. For Karen Revill, who teaches at Middlesbrough-based Beverley School for children with autism, once teachers had overcome the challenges of access to webcams, laptops and the internet, the "digital learning was wrapped up in the ethos of connectivity".

"Making sure the families and students didn't feel isolated made such a difference to their wellbeing," she explains.

Timetabled lessons for some students, virtual tours of colleges for those continuing their education, meet-and-greet sessions with a new tutor supporting maths GCSE and even a school YouTube channel all helped pupils remain connected to the learning routine. "It has felt like the most powerful thing to retain that sense of learning community," adds Revill.

Oasis Academy Warndon principal Suzanne Owen agrees investing in technology and training throughout lockdowns means teachers are now ready to continue the online learning journey in the future. Around 20 per cent of pupils at the school in Worcester have special educational needs and disabilities so ensuring inclusivity across all teaching is crucial, says Owen.

The Oasis Horizons project provided each pupil with an iPad in January, which means every child can take part in daily live lessons and asynchronous recorded sessions. Children with additional needs also got support through apps such as Nessy and Dynamo Maths, as well as a chance to use an immersive reader to read out text.

> **Everybody's situation is different; it is about working with parents and carers**

Live one-to-one video calls enable pupils to benefit from emotional and social support too.

"Everybody's situation is different, but it is very much about working with parents and carers," she adds.

Lessons learnt from the pandemic and a more flexible learning approach could change the prospects for children with SEND longer term, believes Cristina Bowman, who runs training and events organisation Diff-Ability for children with Down's syndrome. Her four-year-old son Max was among a group who fundraised to create a series of bespoke learning resources specifically for children with Down's, which launched at the end of 2020.

The Teach Me Too project aims to plug the gap in specialist intervention by delivering important cognitive and communication skills to a generation of early learners. She says flexible working hours and access to online working for pupils whose "pain means they cannot get dressed or their anxiety means they cannot walk out of the house that day will benefit many children".

Catalyst for change

The pandemic has forced change upon many schools, pupils and their families, with mixed consequences for many. But pushing a new way of approaching learning into the spotlight is a catalyst for change, argues Lynn McCann, specialist teacher and founder of Reachout ASC autism support service and training for mainstream schools.

"I would love to see we assess how tech and online learning could be used to develop blended learning for some, if not all, children going forward," she says. "Clear instructions, chunked steps through the learning and clear feedback that shares what they have done well could be a real option for students who struggle with the school environment.

"Children with SEND should not be an afterthought, but at the heart of our curriculum planning and delivery whether through traditional or technology-based teaching."

Commercial feature

Bringing tacit knowledge back from the brink

The way we work has changed dramatically over the past year, but it had been evolving long before the coronavirus pandemic, just at a slower pace, says **Steve Dineen**, founder and president of Fuse

Rewind one generation and it wasn't uncommon for people to spend their entire career with the same company. That's almost unheard of today and, depending on the industry, the average tenure can be as little as two or three years.

One of the biggest questions raised by these evolving societal trends – increased job-hopping, an ageing workforce and the shift to remote work – relates to tacit knowledge. Why? Because this implicit kind of expertise, rooted in context and experience, is notoriously difficult to transfer to other people.

What is certain is that organisations need to act now before their tacit knowledge falls off a cliff, never to be accessed again.

Here's three ways to bring tacit knowledge back from the brink:

1 Enable meaningful connections

To share tacit knowledge, we need to create meaningful human connections. All too often though, companies make a fundamental mistake as they bypass these connections and skip straight to content.

Here's the thing: it is meaningful human connections, not content alone, that spark people to actively engage in learning and tap into tacit knowledge for the benefit of work.

A learner engages with an expert they trust because of the perceived value it will deliver. We know this because data consistently tells us that learners are more likely to engage with content if it has been created by someone they know or a known expert and ideally that person is one and the same.

But how do we facilitate this in today's globally disparate and remote or hybrid working world?

Learning technology is certainly a key enabler, but not just any technology.

> To future-proof tacit knowledge, we need to create a tech-enabled learning engine

Learners must be able to connect with experts and trusted sources in a completely frictionless, consumer-like way. We're talking about facilitating conversations and questions in the flow of work, on the fly and at the point of need. This is how we extract, store, access and share experiential knowledge for the benefit of people and business performance.

2 Encourage experts to share their knowledge

When we refer to engagement in learning, 90 per cent of the time we're talking about the learner. There's no denying this is key to learning success, but what about engaging the organisation's subject matter experts (SMEs)? Where's the sense in building an army of engaged learners if there's no expert tacit knowledge for them to tap into?

Learning culture and leadership support are essential for two reasons: SMEs whose organisations demonstrate a value for learning are far more likely to invest in sharing their knowledge and by seeing other leaders lead by example, the process not only becomes normalised, but actively encouraged.

There's another factor to consider, too: character. Some experts will relish the opportunity to share their knowledge. Others will be more reticent. Empowering, training, and coaching the SME to "bottle" and share their tacit knowledge in a way that works for them and their audience, whether that be a video or a lunch and learn, is therefore essential to ongoing success.

3 Future-proof with a self-feeding cycle

To really future-proof tacit knowledge though, we need to create a tech-enabled learning engine, a self-feeding cycle whereby learners who regularly consume valuable content can gradually develop their own knowledge and expertise to a point where they themselves become a contributing SME.

It's a cycle that, when fully optimised, can also support employee engagement and an intrinsic motivation for continuous learning. This means improved employee retention and, by association, the retention of tacit knowledge.

That's a very powerful engine and it provides the ultimate means of solving the tacit knowledge conundrum.

To discuss future-proofing your organisation's expert tacit knowledge please contact the Fuse team at www.fuseuniversal.com

fuse

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HIGHER EDUCATION

Digital inclusion and universities

The shift to online and blended learning poses a vital question about whether the "old normal" needs to return

Chris Stokel-Walker

Children have returned to classrooms up and down the country, much to parents' relief, but older siblings studying at universities in the UK are still likely to be hunched over a laptop at home. Learning online is the new norm for higher education, begging the question of whether universities ever need to return to campus.

"Where distance learning was a small part of every university's portfolio, it's become front and centre," says Claire Taylor of SUMS Consulting, which is based at the University of Reading. She points out that compared to the Open University, which marks its 50th anniversary this year, the move to remote learning is a forced pivot, rather than a choice, but this does not mean it hasn't been beneficial.

For students, who might be put off by the high cost of tuition and accommodation, the ability to learn from home without having to worry about studying in a strange city is a massive relief.

> **There is potential for a more egalitarian, widely inclusive higher education**

For forward-thinking universities looking to expand their student base beyond their borders, it's a boon to access new markets. According to UCAS, the Universities and Colleges Admissions Service, 12 per cent more students from outside the European Union held an offer at a UK university for the 2020-21 academic year than 12 months before, offsetting losses from EU countries.

While distance or digital degrees aren't anything new, the range of universities offering these options is different and could make university much more accessible. "Is there the potential for a more egalitarian, widely inclusive higher education? I would say yes," says Dr Richard Watermeyer, professor of higher education and co-director of the Centre for Higher Education Transformations at the University of Bristol.

Yet Watermeyer thinks that's the case internationally and not necessarily in the UK higher education sector. "In the UK we operate on a market model," he adds. "Everything universities do is accordingly dictated to by financial imperatives. That becomes something of a bind to universities: the philanthropic versus the bottom line."

Because UK universities were relatively slow to adopt digital tools for learning even before the coronavirus pandemic, the amount of investment required to bring them up to date is significant. This means that a fragmentation of the market into higher-priced, on-campus teaching and lower-cost remote tuition is unlikely, Taylor, a former England cricketer, believes.

"The movement of a standard module from being a face-to-face campus experience to distance learning would require a significant increase in the volume of students on that module to make it worthwhile," she says.

Universities are also unlikely to want to reduce fees for online teaching, despite the protestation of students who believe, often incorrectly, that they're getting an inferior service, just to shore up a university's bottom line. "If students are taking degrees with online components to them and still getting into good jobs that are well paid, the justification for the fees will remain as the return on investment the students are getting is the same," says Andrew Crisp of consultancy CarringtonCrisp.

Digital learning is more egalitarian in many cases, but universities acknowledge they're still on a war footing in putting together their online teaching offering and therefore are keen to return to campus when they can. There's also the added complication that not being on campus has a knock-on effect on university finances as students, who are distant from the physical space, are not spending money on their accommodation or in their campus shops and bars.

"If those add-ons, like accommodation, are not being used in the same way, universities are losing out," says Crisp. Watermeyer also points out that large campuses are important money spinners for universities even when students aren't there. "Think about conference season during the summer," he says.

But he believes that the dash back to on-campus teaching won't be a wholehearted reversion to the norm. Blended learning, combining the best elements of face-to-face tuition and online learning, is the most likely path for those courses that don't need fully practical teaching.

"Having a flexible model that is part online and part on-campus means there's a way forward that allows people to have their practical experience but also the benefits of an online experience as well," says Crisp.

He thinks the university experience may change from one where fresh-faced 18 year olds pack themselves off to another city for years into a more sustainable, equitable, lifelong learning model. "There's an enormous potential to take the content they have and shape it into short courses, perhaps a certificate rather than degrees, which support people in extending their employability as they work longer and live longer. People will need to reskill and upskill more," he says.

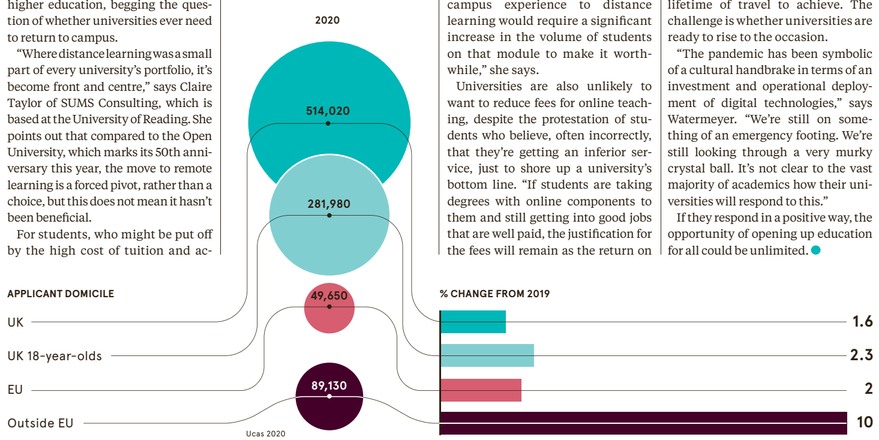
Through the most challenging of circumstances, there are as many opportunities as setbacks in digital learning. There is the opportunity for more inclusive education, bringing a more global cohort to UK universities, and the chance for students to pick up new skills and understanding that would take a lifetime of travel to achieve. The challenge is whether universities are ready to rise to the occasion.

"The pandemic has been symbolic of a cultural handbrake in terms of an investment and operational deployment of digital technologies," says Watermeyer. "We're still on something of an emergency footing. We're still looking through a very murky crystal ball. It's not clear to the vast majority of academics how their universities will respond to this."

If they respond in a positive way, the opportunity of opening up education for all could be unlimited. ●

GOING TO UNIVERSITY IS INCREASINGLY POPULAR DESPITE THE PANDEMIC

University and college applications made by 30 June 2020



OPINION

'As lockdown has proved, there is no one size fits all for education'

The past 12 months show clearly what is possible when the education system and wider community pull together with shared purpose. Our nationwide response to the essential closure of education settings and institutions during the initial outbreak of the coronavirus in the UK saw parents, childcare workers, teachers, lecturers, school leaders, industry, celebrities, civil servants and government unite behind the aim of helping educate our children during a time of crisis.

The nation's collective and awe-inspiring effort has helped limit the longer-term impact of the pandemic on many children. Without these efforts, the damage and lost-learning to this COVID generation could have been even greater. The challenge is, of course, still significant and I welcome the government's appointment of catch-up tsar Sir Kevan Collins, who will be leading a co-ordinated charge to help support children and learners over the coming period.

The government's 2019 edtech strategy, masterminded by the then education secretary Damian Hinds, was underpinned by an understanding and commitment of the benefits edtech, when delivered effectively, brings to reducing teacher workload burdens, personalised learning approaches, assessment, system leadership and communication.

Promising early results were achieved by a number of the strategy's key initiatives, including the Chartered College of Teaching's online edtech support, the LendED EdTech lending portal and the LearnED teacher continuing professional development (CPD) roadshows before the arrival of COVID-19 rewrote the normal operating procedure for the UK's education sector.

The pandemic also exposed areas where more investment is needed. Lockdown meant access to school devices during the day and after hours to homework clubs was impossible for those students most in need and the nation's digital divide has been laid out starkly, in terms of access to connectivity, kit and content.

I'm proud that British Educational Suppliers Association members stepped up to provide an answer to the content challenge, providing £36 million in free educational resources and support to schools and families during the initial three months of lockdown alone.

The edtech sector became an unofficial emergency service, supporting school-home communications and stepping in to provide additional training and CPD to teachers to help them navigate and use unfamiliar digital tools effectively to aid online teaching and learning.

The Department for Education has acted too with a series of initiatives such as the COVID-premium, the National Tutoring Programme (although there is a missed opportunity here given the exclusion of digital curriculum resources from the programme currently) and other devices and data schemes to support schools and learners.

These efforts are to be welcomed, but what must follow is a revised and updated edtech strategy and approach to address the challenges and opportunities that experts from the teaching community, industry and parliament have identified, as evidenced in the All-Party Parliamentary Group for Edtech's Lessons from Lockdown report published in March.

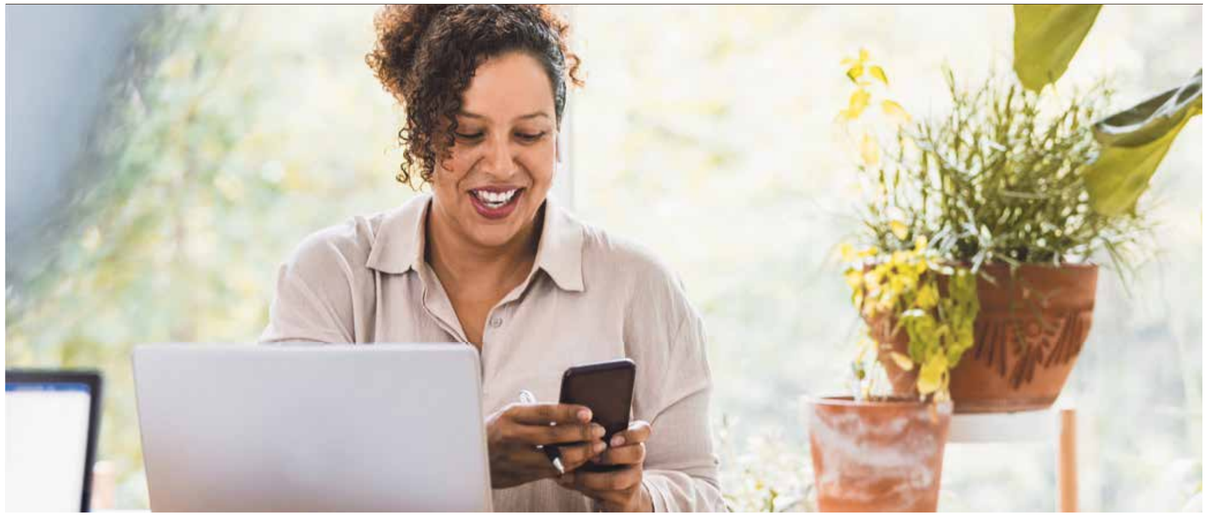
It will be important that any future government interventions recognise and celebrate, rather than stifle, the expertise and autonomy of school leaders and multi-academy trusts in supporting their school communities, alongside the innovation and creativity of the UK's vibrant edtech sector.

As lockdown has proved, there is no one size fits all for education. Each young person deserves to receive the individual package of support they need to help reimmerse themselves in their education environments and enjoy the very best of the inspirational learning opportunities that are available thanks to our talented teachers and school leaders.

The edtech industry looks forward to working together with policymakers, practitioners, parents and pupils to help develop and deliver an edtech offer that will be fit for the post-pandemic needs of pupils and young people. ●

Caroline Wright
Director general
British Educational Suppliers Association

Commercial feature



Language learning in an ecosystem of experiences

People in the UK face additional barriers to learning a language, but digital tools can provide immersive, user-centric experiences that connect them with new cultures

Advancements in technology and digital content have globalised language learning, while highly engaging learning tools and greater accessibility to subtitled video on platforms like Netflix and YouTube have presented richer mediums through which to engage. When the coronavirus pandemic hit, the foundations were in place to support an explosion of new interest in learning a language online.

Recent research in the UK, commissioned by Babbel, the online language learning company, found that over 20 per cent more people have become more interested in learning a new language as a result of COVID-19. At the same time, however, the lockdowns and travel restrictions have made it more difficult for learners to immerse themselves in languages. Many have therefore sought language experiences online, as well as practising with fluent friends from overseas.

Native English speakers tend to face more challenges than European language speakers. As English is somewhat of a lingua franca, a common language used even among non-native English speakers, many UK learners feel less of a practical need to learn a new language. English speakers primarily learn languages to connect with another culture, as opposed to career-driven reasons such as seeking a job overseas, with 70 per cent of UK language learners motivated by showing respect to people in foreign countries, according to Babbel's research.

"Brits are at least five times more likely to be learning for cultural or social reasons than out of necessity, such as career," says Lucy Criddle, head of English-speaking markets at Babbel. "Without a hard goal, the learning process risks becoming more of an intermittent hobby. When learners travel, they often find locals can speak better English than their own language efforts, leaving them feeling deflated, affecting their motivation and confidence."

Barriers to language learning in the UK start at school, where modern languages are often not mandatory subjects. The extent to which children engage with language learning is highly dependent on the quality of teaching and the chosen language may not even be available.

Unlike European counterparts, language learning starts at a later age and many students are not embedded with the real skill of how to learn a language. Even with English language, the fundamentals of grammar are rarely taught, adding another obstacle to the foreign language learner's journey, when faced with the Latin-based languages of Europe.

"With schools reopening, I hope they continue using some of the digital tools students have had access to during lockdown, but I'm afraid many will drift back to how they taught before," says Geoff Stead, chief product officer at Babbel.

"Classroom teaching works if you have a really enlightened, passionate teacher who can keep 20 or 30 students excited about languages. But that's pretty rare and, with underinvestment in language teaching and classes that large, it is unsurprising. No wonder so many kids in the UK are missing out by not speaking a second language."

This makes digital learning platforms and environments such as Babbel essential to expanding good language teaching and offering students a more immersive and engaging experience. Babbel does this through an ecosystem of immersive experiences, such as Spotify playlists, YouTube videos, vocabulary games and live teachers. Crucially, it's a personalised experience, which Babbel constantly analyses and adapts to behaviours to make language learning more effective.

"An ecosystem of experiences is like oxygen; it's the diversity that helps to make the language real," says Stead. "Some people just enjoy learning a language for itself, but for most people it's about speaking to somebody, being somewhere or trying to navigate a real conversation. Our ecosystem enables people to broaden their lens of what language learning is, letting them dive into moments and interactions. The key thing is to make sure language is used in a real way.

"We're trying to make language learning as meaningful and personal to each learner as possible. Language is amazing because it's a key that unlocks this world of meeting new people and discovering new cultures. Learners come to Babbel to help them do that. We're passionate about finding playful, diverse ways for our linguists to create learning tools and for our users to interact with them."

COVID hasn't only transformed language learning for individuals. Businesses have also drastically accelerated digitalisation processes to support their more distributed, remote workforces. Conventional training sessions were immediately swapped for digital alternatives, enabling more traditional companies to experience the cost and flexibility benefits of digital tools such as Babbel for Business for the first time.

At the same time, digital language learning has been crucial to talent acquisition strategies. Finding top-tier personnel, particularly in high-demand professions such as full-stack engineering, often means looking for talent across borders and committing to teaching them the company's native language. Digital language learning solutions enable them to start this training process even before a relocation.

"For companies, learner engagement is an important factor, so learning with the app needs to be structured, engaging and fun, and give individual corporate learners that feeling of accomplishment," says Michael Blazek, director of business to business at Babbel.

"Everything Babbel does with the core app, guiding learners and providing them with an ecosystem of enjoyable content that appeals to different types of learners, also benefits our corporate learners. Often business learners need different learning paths tailored to their department or speciality. We provide them with curricula for their individual needs, giving them structure and scale."

Babbel focuses on blending humanity with technology. More than 60,000 lessons across 14 languages are handcrafted by over 150 linguists, teachers and experts. But while it powers an ecosystem of immersive experiences through its app, Babbel realises that achieving its mission of giving learners the confidence and motivation to speak a new language relies on connecting people on a human level online.

"We spend a lot of time getting the best out of our human experts and then using technology to offer this expertise to learners at scale," says Stead. "You can see that in our lessons, but also in the cracks between them. It's the nudge you get at the end of a lesson or the recommendation when you've had three similar lessons and we know you should try something else. That's all designed by our amazing team of people. Our secret sauce is combining human expertise with insights from data and the personalised reach of great tech."

> Our secret sauce is combining human expertise with insights from data and the personalised reach of great tech

For more information please visit uk.babbel.com

+Babbel

LEARNING

How digital is opening up later life learning

Record numbers of baby boomers and older retirees are enjoying the manifold benefits of taking online courses

Oliver Pickup

The proverb "you can't teach an old dog new tricks" is barking up the wrong tree in 2021. Record numbers of baby boomers, aged between 57 and 75, and older retirees, including care home residents, are taking advantage of digital technologies to acquire novel skills and develop hobbies. In droves, they are turning on, logging in and not dropping out.

The enforced lockdowns of the past year have accelerated this trend. Silver web surfers, unable to hug friends and family, have had the time, confidence and access to technology to embrace digital learning. Indeed, 41 per cent of people in the UK over 55 said they were comfortable learning a new digital skill during lockdown, according to BT research.

Moreover, older generations are expressing a greater thirst for knowledge when compared to younger cohorts. The 2020 LinkedIn Opportunity Index suggested that not only are baby boomers more willing to welcome change (84 per cent) than millennials (74 per cent) and members of Generation Z (72 per cent), they are also more likely to invest time in learning transferable skills (78 per cent) than the two other groups (72 and 74 per cent, respectively).

Rocketing interest in online groups provided by the University of the Third Age (u3a), whose network has expanded to almost 500,000 older adults no longer working full time, supports this data. A year ago, with members forced to stay at home in an attempt to stem the spread of coronavirus, the UK-wide charity, which celebrates its 40th anniversary in 2022, pivoted online, establishing Trust u3a.

"We've been excited to see huge numbers of members embracing digital learning and turning to online and social media, sometimes for the first time, to keep their interest groups going," says Sam Mauger, chief executive of u3a.

Trust u3a's online offering has attracted hundreds of new members and spawned more than 80 online groups and courses, ranging from Japanese to birds of prey, from cooking to painting. "Digital technology has empowered us to keep learning and active, and allowed us to remain connected with one other," says Mauger.

"Instead of meeting face to face, photography groups can share images on WhatsApp, ukulele players have turned to Twitch to make music together and ballroom dancers are using Zoom to show off their moves."

She plans to adopt a blended learning model when lockdown restrictions lift, as going digital has opened minds and virtual doors. "It has removed geographical barriers and enabled members to expand their learning and forge new relationships across the movement, from Scotland to Cornwall," she says.

Discovering new interests and friends is one of the biggest pluses of digital learning for retirees, according to Amanda Rosewarne, business psychologist and co-founder of the Professional Development Consortium, which accredits online courses. "By learning via live online classes, you can interact with others who may also be feeling isolated and lonely," she says.

Elderly students enjoy several other benefits. "Studies show that learning new things triggers serotonin release in the brain, which is akin to the effect of antidepressants," says Rosewarne.

Further, a 2017 study for Age UK, Europe's largest charity supporting older people, found that keeping the mind active can prevent age-related conditions, such as dementia. Committed learning, rather than crosswords or sudoku puzzles, is most effective, though.

Thanks to a variety of user-friendly devices and online courses, picking up a language, for instance, has never been easier or more convenient for retirees willing to enter the digital classroom.

Birmingham-based septuagenarian John Bishop has attended a Greek class for years. Soon after his course went online in the autumn, with lessons conducted on Zoom, he "took the plunge" and bought a smartphone. Technology is not all Greek to Bishop now; all that is required to join his group is the click of a hotlink. "The ease of access and ease of use are key for my generation when it comes to online learning," he says. "My advice is keep it simple and provide non-bot help."

> Digital technology has empowered us to keep learning and active, and allows us to remain connected

While Bishop is delighted that his lessons can continue online, he is looking forward to returning to in-person sessions. "Zoom is not superior to live lessons," he says. "Video conferencing requires more concentrated eye focus, because all you are seeing is the screen rather than a room, and student interaction is less fluid. It also lacks the ancillary benefits, like the exercise of walking to and from the class."

Sarah-Jane McQueen, general manager of CoursesOnline.co.uk, argues the convenience of online learning is hugely appealing to elderly students. "Rather than having to get up early and travel a sizeable distance to learn," she says, "users can now get the same experience from the comfort of their own home and at a time that suits them, allowing them to easily balance learning around their daily schedules."

However, McQueen notes the surging popularity of online courses for retirees has not gone unnoticed by those seeking to make quick money. "Particularly since lockdown, there has been a rise in the number of fraudulent courses being offered by scammers who are looking to profit from people's willingness to learn," she warns.

"To help address these concerns, providers should make a concerted effort to highlight the feedback and reviews they've obtained from previous users that can work as testimonials which assure new users they are legitimate."

Building trust so older people feel comfortable online, and don't get left in the wake of technology, is vital. There is now a vast number of online resources and initiatives designed to boost digital literacy among the elderly. For example, Barclays' Digital Eagles scheme, launched in 2013, has delivered digital skills training to staff and residents in more than 500 UK care homes.

"There are many retirees who have achieved great things thanks to digital learning, often in fields that were perhaps far removed from what their previous careers encompassed," McQueen adds.

Clearly, a more apposite idiom for 2021 is "you are never too old to learn" and, with easy-to-use digital technology, there is no obstacle to becoming a very mature student.

41%

of those aged over 55 said they were comfortable learning a new digital skill during lockdown

BT Research 2020

OPINION

‘Coronavirus was the kick the L&D sector needed to lurch forward; it must now maintain that momentum’

Just hours after the first coronavirus news, the memes started rolling in. Within weeks, people were ordering Zoom shirts from Instagram and sipping quarantinis. Then the reality of juggling home schooling with furlough finances began to bite.

Yet from the chaos, came progress. Restaurants signed up to Deliveroo. Yoga classes went virtual. Classrooms went online. Businesses adapted to the most devastating year of the 21st century.

Those that prevailed had one vital advantage: not their office spaces or their balance sheets, but the creativity of their people. Programmers, marketers, salespeople, accountants, administrators, all had to mine deep reserves of innovation, agility and collaboration to save their companies from disaster.

For those who work in corporate learning, the lessons are unforgettable. Firstly, miracles can and do happen in companies that value human potential as deeply as raw profit. Secondly, people will adapt, learning new skills when and where they need to, not when and where they are told. Thirdly, agile and flexible networked teams will naturally outperform isolated people in fixed roles.

Technology, too, played its part. 2020 was a year in which going online meant survival, yet pre-COVID it was considered an optional extra. Consequently, some learning and development (L&D) professionals found themselves ill-prepared and lacking the necessary digital skills to drive the machinery.

That it needed a global pandemic to drag classroom training online, when employees had been plugged into YouTube and WhatsApp for years, was proof of how arrhythmic the L&D profession had become to the beat of its learners. Coronavirus was the kick L&D needed to lurch forward. It must now maintain that momentum and advance into a fearless digital future, building next-level skills such as data analysis, artificial intelligence personalisation and performance consulting, and primed for the next challenge.

I am confident we will succeed. Last year, more than 100 prominent chief executives signed a statement on the purpose of a corporation, pledging to “support employees through training and education that help develop new skills for a rapidly changing world”. In America, the Securities and Exchange Commission recently mandated that training and development metrics be included alongside financial statements for certain US companies. These bold actions will undoubtedly have a far-reaching impact on workplace L&D.

What does this all mean? Firstly, we must cultivate the human skills that will help us tackle future challenges . Secondly, we must build digital skills to support a rapidly evolving technical landscape. Continuous skills mapping will become critical for workforce planning, as will the need for communities of practice that keep ad hoc skills current. For more in-depth learning, capability academies will become the backbone for specific business strategies and function areas.

As we reflect on 2020, it is clear learning is not merely about courses, tutors or platforms. It is about attitude and action; it is the armour with which we fortify ourselves against challenge and adversity with confidence and alacrity.

Corporate learning must now power up and transform. It must be compelling by creating an irresistible magnetic pull for the employee. It must be constructive by fulfilling a purpose for both the company and its employees, while striking a balance between stability and dynamism. And it must be convenient by effortlessly integrating into the flow of work, neatly synchronised with how people learn.

Human ingenuity in harmony with digital skills, orchestrated by compelling, constructive and convenient experiences: this is the learning meme of 2021. ●

Ed Monk
Chief executive
Learning and Performance Institute

Maksym Panchuk / EyeEm via Getty Images

GAMIFICATION

How gamification is transforming training

Expected to be worth £1.3 trillion by 2024, the gamification education market is proliferating across the corporate world as pandemic-pressured companies search for new ways to upskill and engage teams

MaryLou Costa

When Leon UK managing director Shereen Ritchie started her first hospitality job in the 1990s, training consisted of reading a “100-page document, sat in the smoking section with a milkshake for about four hours”.

“You’d lose the will to live,” she jokes but, on a serious note, recalls engagement and retention being low. It is a world away from now, when she is woken at 3am to the sound of her phone pinging with notifications of employees all over the country rising up the leaderboard of Leon’s new gamified learning platform.

“Honestly, it got real: people were challenging each other and wanting to get more points. It’s created such a buzz. I’ve never had health and safety training completed so quickly,” she quips.

Working with gamified solutions provider Attensi, the coronavirus pandemic was an ideal time to redefine the training experience for the Leon UK team across 59 branches. Some 94 per cent of staff have now undertaken the gamified training, taking part in simulations set in a 3D replica of a Leon restaurant with authentic dialogue and characters. Some 91 per cent report it has helped them better understand company values.

Leon can now update and publish its own content on the Attensi platform, which is built on the same game engine Xbox and PlayStation game designers use. And Richie is benefiting from a more data-driven approach to both staff and business development.

“Evolution in training was needed before the virus, but when the pandemic hit you had three options when it came to learning and development: you stopped doing any, you tried to adapt your current processes as best you could and hope they worked or you took the opportunity to evolve and grow,” she says.

“We have a training school in our head office, which is amazing but not scalable. I’m not saying gamified training is the only training tool we’ll use; there will always be a place for face-to-face and some documentation. But it’s about how people retain information by learning in a gamified way.”

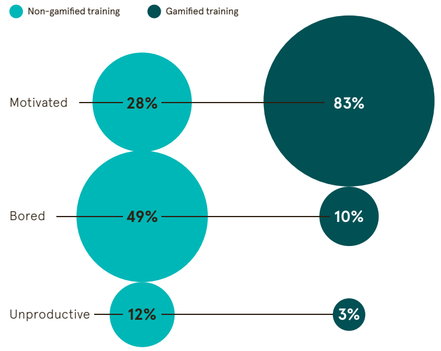
Gamification is also gaining traction in the insurance sector. Attensi this year announced the world’s first underwriter simulator for insurer Hiscox, a custom-built 3D simulation challenging underwriters to compete in a number of realistic, gamified scenarios.

By the end of 2021, more than 90 per cent of the firm’s junior underwriters will have done the training. Around 85 per cent of the participants say it has helped them understand how to apply technical concepts across the underwriting cycle, freeing up senior team members to provide support for more complex tasks, such as assessing risk. Like at Leon, the competitive element has been a hit, with people repeating a simulation up to 30 times to top the leaderboard.

Des Bishop, group head of people development at Hiscox, describes the shift as a” game-changer” against one of the sector’s key challenges, which is a shortage of high-quality technical underwriters.

WHEN GAMIFIED ELEMENTS ARE ADDED TO TRAINING, ENGAGEMENT GOES UP

How employees feel while taking training



TalentLMS 2019

“Underwriting drives profit, so our business needs an exceptionally talented team of technical underwriters. Our simulation allows team members to experience the results of their actions in a safe environment. It provides insights that face-to-face and elearning exercises can’t match,” says Bishop.

Putting purpose over platform

Yet there are senior learning and development professionals who warn gamification should be used carefully, especially when tackling complex subjects like leadership as well as diversity and inclusion, which may need a more specialist, tailored approach.

“We’ve seen a backlash in the past couple of years from people getting excited about gamification, but without thinking about the purpose. For mandatory training, it can spice up a dull subject matter. But we have to make sure gamification adds value for learners, rather just being a gimmick. This is especially true for senior leaders who may be more sceptical,” says Julia Tierney, chief executive of peer learning platform Hive Learning.

Purpose is certainly more important than platform for finance firm Legal and General, which last year undertook a digital transformation of its entire learning offering. While exploring the use of gamification, the company’s head of people development for experiences and innovation Gemma Paterson is cautious not to “introduce tech for the sake of tech”.

> **We have to make sure gamification adds value for learners, rather just being a gimmick**

“People are dealing with so much change already. We have to only do what’s going to be helpful. It’s about how we understand the challenges people are up against, then give them exactly what they need in a format that’s going to work for them,” she says.

And as Legal and General group people development director Tanya Bagchi adds, it’s about making meaning and connection part of the rollout process. “If we can help people see how technology can make their lives easier, not as another system to learn, then we can connect people more meaningfully and frequently, giving them a better chance of collaborating and working in agile ways,” she says.

Applying gamification to leadership and diversity

Yet Leon’s Ritchie sees the value of gamification in areas like leadership and diversity, and is considering how it can be applied to individual team member development and appraisals.

This does require a different approach from practical skills building, adds Attensi’s business development director Greg Hull, switching the focus from points and high scores to metrics like trust.

“We work with professional services and consultancy firms around management and leadership training. We’re able to put people into situations that are familiar and build confidence. Especially when you promote somebody from within, it doesn’t necessarily mean they immediately have the skills to suddenly take on leadership. We do a lot of this type of training, in terms of soft skills, around team interactions and peer-to-peer management,” Hull explains.

While Ritchie now sees previous training styles as “old hat” and gamification as “the way of the future”, Hull’s final piece of advice is to prepare teams adequately for a new way of learning. “If you can do that, then when you implement something you are 70 per cent of the way there in terms of it really landing,” he recommends. ●

TEACHING

Three views on digital learning over the past year

The past 12 months have provided an opportunity to rethink approaches to digital learning. Three professionals share the lessons they've learnt

Chris Stokel-Walker

We're just processing some current research which shows only one in five expect resources and learning strategy to return to what it was. Most people are saying this has changed for good. Many organisations, while valuing digital learning, now see it as a necessity. Previously, face to face might have been seen as preferable, but now leaders say digital is vital, particularly for dispersed workers. It's not going back.

There's also been a real emphasis on wellbeing. Homeworking and the whole coronavirus pandemic scenario has brought to the fore that we need to consider the wellbeing of staff. There's also been a real trend around helping teams work in a flexible way. We've seen a shift in strategy.

Organisations are prioritising the digital learning they're offering. In the pandemic, there's little room for luxury. In the past, we may have had a broad offering of learning, but under COVID there's a laser focus on what is needed. The use of virtual classes and online communities mean a shift towards creative digital learning. There are not many good things that have come out of the pandemic, but the drive for transformation in digital learning is very welcome.

Organisations have also had to reconfigure the way they use and develop online networking. Those that have done really well during the pandemic have managed to capture the sense of online communities of practice; the sharing of information and support in the moment of need is beginning to happen.

Everyone has unique circumstances: homeschooling children, caring responsibilities. We need to recognise one size doesn't fit all and think about that in our learning approach. Diverse teams need diverse solutions. One thing coming out is a more human-centred approach to learning.

Andy Lancaster
Head of learning and development content, Chartered Institute of Personnel and Development

When the pandemic hit, that spring term was very difficult because many colleagues had to start from scratch without any previous experience. There was a huge shared force and urgency to make that change possible. It was amazing to see academics learn so much within a very short period of time. As a researcher I've been talking about online learning for ten or twenty years now, but it was very new to my colleagues in other disciplines.

The second semester was better; colleagues had done one semester of trial and error, and realised where students were listening or paying attention. Some of the data from learning analytics was useful because they could track if students were engaged. On a case-by-case basis, and it's different across disciplines, they learnt how to best accommodate students.

This year, I've noticed a lot of my colleagues enjoying teaching online. They're starting to find the way they can teach for their own convenience. They have enough basic technical skills now; Zoom and breakout rooms aren't really a problem. Now they can think about how to play around with their daily schedules. They can find a flexible way of working and talking to students.

People will try to figure out, at some level, how to keep the things they like that will make all face-to-face courses blended. How they're going to blend things will be very different. The students' experience will be very different. They'll walk into a module and each module will be quite different, because academics, based on their experience during COVID, will design their own module and choose their pedagogy in a way they find useful. Whether that's going to be too confusing to students or not, I'm not really sure.

Dr Kyungmee Lee
Lecturer in technology-enhanced learning, Lancaster University

Moving to online teaching was difficult. It was a learning curve for everyone. We spent a lot of money getting Chromebooks, then did online training for the parents to access Chromebooks and Google Classroom. We supported the children and the parents to be able to access those platforms. We were learning what worked best for the classes, how to engage children properly and how to make sure they were providing the best work they could.

The children became really independent in scheduling and accessing learning, and managing their own workstream. Google Classroom had a really good function in terms of being able to give feedback to the class. One thing that revolutionised how I teach is the marking section. Though we used that before, during online learning that was a lifesaver and something I will integrate into my teaching as we return to face-to-face teaching. It's a collaborative tool where you can use it to share.

The children are keen to come back to school and want to use the technology to decide independently whether to use a piece of paper or type something up. Because they've had time to hone their skills using the software, they are really good at being able to select what works for them and the best media for different things.

I spoke to some of the children and asked what their thoughts were. Many of them said they feel more organised and independent, and able to see what works for them. It's improved their confidence to feel they know what they're learning. Children have had to become really independent and know how to complete a piece of work.

Sarah Koratzitis
Teacher, Cramlington Village Primary School

> We need to recognise that one size doesn't fit all and think about that in our learning approach

Commercial feature

Boosting engagement in a future of distance learning

Coronavirus accelerated the gathering momentum of distance learning, but maintaining engagement and delivering its promises requires fully emulating the classroom experience

Acceleration of digital innovation over the last decade has supported new methods of teaching and learning, and driven the move to more interactive classrooms, including tools for polling and quizzing. Meanwhile, education and training providers were increasingly experimenting with remote use-cases and trying to emulate in-person classroom learning.

The coronavirus pandemic, however, has flipped learning on its head. With the ability to travel to classrooms removed altogether, institutions and businesses had to adapt almost overnight to providing their education and training completely online. Though this triggered a significant distance learning boom, organisations soon discovered limitations in the video-conferencing solutions many turned to, such as Zoom and Microsoft Teams.

"These solutions were designed for meetings, not learning," says Jan van Houtte, vice president of Learning Experience at Barco, a leading technology company which develops digital projection, visualisation, imaging and collaboration solutions. "They are also designed to be used from behind your PC, with everybody sitting at home looking at a screen and, if somebody is presenting, it is very difficult to see the people on the call.

"These fundamental components had a negative impact on distance learning. For educators, not being able to see your audience is like an aircraft captain flying blind. You don't know whether people are following what you are saying because you can't see their facial expressions. The risk of disconnect grows significantly and it is very unnatural to them. For learners, meanwhile, they don't feel that connection either, resulting in low engagement."

Education thrives when learners feel energised and connected to their teacher and subject, yet the most common video-conferencing solutions that many educators have turned to are failing to emulate the experience in a distance-learning format. Recent research by Stanford University validated what most remote learners and workers already knew: "Zoom fatigue" is real and it causes greater stress than real-life interactions. In a poll on Blind, more than half of respondents said they are frequently "doing other stuff" or "zoning out".

"It is important to find a solution and technology that provides real interactivity and engagement," says van Houtte. "Through the sheer brute-force circumstances imposed on them by the pandemic, even the most sceptical of organisations and institutions are realising they can do distance learning. But by doing so it is extremely easy for them to accept a return to non-interactive sessions as the norm. That would be a big step back."

Barco has collaborated with the world's leading business schools, universities and corporate learning and development departments to develop a purpose-built digital-learning solution, weConnect, whose capabilities in an educational environment far surpass those of video-conferencing tools. With an innovative and differentiating teaching and learning experience, weConnect allows teachers to interact in real time with students in any kind of set-up to deliver new levels of engagement, learning outcomes and retention.

As the solution combines scalable software with a real classroom studio, which can be hybrid or fully virtual, the experience for the teacher is much closer to what they are used to. The sheer scale of Barco's video wall means even those learners joining remotely are presented at a near to real-life size, meaning the teacher can see their facial expressions.

"Every student is visualised in a similar way," says van Houtte. "Imagine a big video wall where all participants are displayed in real time. The size of their heads, if you put six students on the display, is close to what you get in the physical world. As a teacher, you're in that room, you have all your students in front of you like in a normal room, you can address them, look around, see who's paying attention, walk up to the whiteboard to further explain something. In summary, you can teach like you're used to.

> For educators, not being able to see your audience is like an aircraft captain flying blind

"Students get an interface where they can look at the teacher, whiteboards and digital content, with the freedom to choose where they want to focus. Just like in real life, they can interact with the teacher and say, let's look at that slide a bit longer or let's have another look at the whiteboard. We have tried to mimic the physical world as much as possible to make it as natural and engaging as a real-life classroom. weConnect drives a far bigger impact on the whole learning experience, including less fatigue because it's so interactive."

As companies and educational institutions now look to reimagine how they will deliver their learning experiences when the pandemic finally ends, it's clear the future is not just hybrid but blended, with adapted programmes based on needs, possibilities and participants. This will open up new opportunities for universities, business schools and corporate organisations to take a more global approach.

"They no longer have to restrict themselves to catering to those who can physically travel to them," says van Houtte. "Hybrid, blended learning means they can think more broadly and internationally, smashing through geographical borders.

"However, while they may not have sunk after being thrown into the deep end of distance learning, they now need to learn to swim well before advancing to the exciting opportunities presented by blended learning. That means creating a truly engaging experience for teachers and learners alike. If digital replacement was the immediate solution right after the pandemic outbreak, it's now time to think and act on the true digital transformation.

"At Barco, we believe remote participants should have an equal spot in the room as the physical participants. Though they are only there virtually, they should feel as physically and audibly present, and have the same ways to interact with the teacher as those actually in the room. We very often see that remote students are put on the last row, but our advice is bring them to the front. It's an easy way to give them even more attention so you really don't forget them, and actively interact and engage them in all discussions. Everybody should feel equally engaged in a course or training session, wherever they are."

BUSINESS SCHOOL EDUCATION WILL NEVER BE THE SAME AGAIN

82%

of participants plan to invest in technology over the next 2 years to enable online teaching

76%

predict that MBA programmes will be taught in a blended or hybrid mode in the next 5 years

AMBA & BGA Education Technology Research (mandated by Barco)

For more information please visit barco.com/weConnect

BARCO

ASSESSMENT

The complex role of AI in exam marking

The application of machine learning to exam marking might save time and money, but some educational scientists think it could also change the nature of assessment itself

Klaus Vedfelt via Getty Images

Sam Haddad

In January 2020, Ofqual invited schools to submit student essays for a research project to explore the potential of artificial intelligence (AI) in exam marking. In the accompanying blog, the exam regulator reassured teachers and pupils this was just a preliminary test and "we wouldn't suddenly see AI being used at scale in marking high-profile qualifications overnight."

Just seven months later, prime minister Boris Johnson was blaming a "mutant algorithm" for an exam fiasco that saw more than 40 per cent of A-level students in England downgraded, including many high achievers from disadvantaged backgrounds. That led to the AI marking study being put on hold.

This despite the A-level algorithm being based on statistical methods rather than AI, not to mention it was trying to achieve the impossible by generating exam results without there being any exams.

Still, in the public's mind, it was all part of the same problem. A sudden and unsettling ceding of power to opaque machine-led operating systems with real-world implications for young people's futures. As Robert Halfon, Conservative MP and chairman of the education select committee, put it: "What Ofqual needs now is a period of long reflection and internal examination rather than an AI revolution."

Use of algorithms and AI

Algorithms, statistics, data science and AI are already widely used in education. Ofqual themselves have been using algorithms for years to offset grade inflation and smooth out regional discrepancies without any public fuss or worry.

AI is used in plagiarism detection, exam marking and tutoring apps with real-time feedback, such as On-Task and Santa for TOEIC (Test of English for International Communication) in South Korea, which has more than one million subscribers and appears to rapidly improve student test scores in just 24 hours using an intelligent machine learning-based algorithm.

In America, AI-driven platform Bakpax, which auto-grades students' work and is free and compatible with Google Classroom, has been proving popular with teachers during the pandemic. Its marketers promise teachers "more time for your students or yourself" and to "provide students with instant feedback when they're still most engaged", along with performance insights on which topics are easier or more challenging for students.

Dee Kanejiya, founder and chief executive of Cognii, an AI-based platform that uses natural language conversion to assess passages of longer text that have traditionally been harder for AI to grade accurately, wants to help correct what he sees as an over-reliance on multiple choice questions in US assessments.

He believes these do not help students in the real world and is a format that favours boys over girls. But marking longer answers is time consuming for teachers and therefore expensive, which is where he hopes Cognii can help.

Kanejiya is excited about the potential of AI to free up teachers from repetitive tasks such as marking, though he insists it isn't about replacing them. "You get more time for that intimate relationship between faculty and students if teachers are not grading," he says. "They can spend more quality time with the students, time for the emotional side of things, which they're good at."

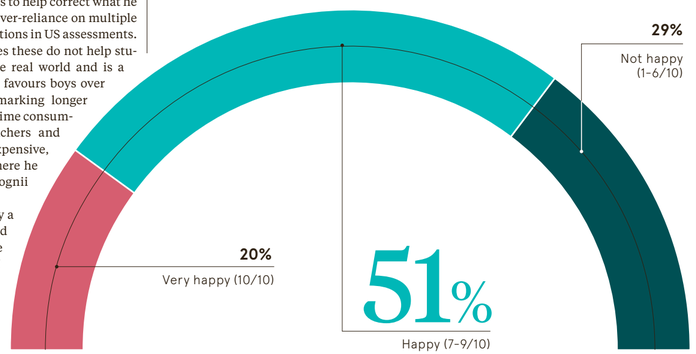
He also thinks cloud-based AI systems such as Cognii could play a crucial role in improving the access and affordability of education globally, especially in countries which suffer teacher shortages.

> **You get more time for that intimate relationship between faculty and students if teachers are not grading**

A THIRD OF EXAMINERS ARE 'NOT HAPPY' WITH THE CURRENT ONLINE STANDARDISATION SYSTEM FOR MARKING EXAMS

Ofqual 2018

Examiners were asked to rate the system between 1 (not at all happy) and 10 (very happy)



Being aware of data bias

But the potential labour and cost benefits to using AI in education inevitably come with some downsides. Last year there was a story about students gaming an AI marking system by typing in lots of keywords in otherwise incoherent sentences and scoring full marks. Kanejiya says they have checks in place to prevent that type of abuse with Cognii. "We have factored in syntax and semantics to the system so that couldn't happen," he says.

Algorithmic and AI bias is a real concern as well. We expect these models to be neutral and impartial, but the data we feed them means they are often subject to many of society's existing biases and can discriminate against certain user groups.

Hansol Lee and Renzhe Yu are postgraduate students at the Cornell Future of Learning Lab and experts in algorithmic fairness. "Machines learn historical principles and rules, and therefore learn what to apply to the future," says Yu. "But that historical data will contain inequalities, such as students of colour have had lower achievement in the past or black students don't learn maths. That simple rule could make the system recommend those students don't learn maths."

Bias can also occur if an AI system is trained on a dataset that has less data for a certain student group. It's a data representation problem that is not deliberate, but nonetheless exists. "There might not be a quick-and-easy fix," says Lee. "But it's important to be aware of the problem so you can find other ways to make the system less biased."

In adaptive learning tests, which are often used in private school entrance examinations in the UK, students are exposed to a different question path according to each answer they give, which presents its own concerns.

"One study found the algorithm can make a more accurate diagnosis of the student's performance if they're a quick learner on the more advanced path," says Yu. "So, anything it recommends to the quick learner would be more appropriate, but using the same AI, the slow learner will start to suffer."

Learning about learning

Last summer gave the British public an uncomfortable insight into the dangers of data-science modelling in exam marking. Dr Rose Luckin is professor of learner-centred design at University College London and director of EDUCATE, a hub for educational technology startups. Is she worried the A-level debacle will derail the use of AI in UK education? "It has set the cause back," she says, but cautions against rejecting its use entirely because of concerns regarding algorithmic fairness.

Luckin adds: "To avoid AI because it's too risky would be a huge shame, as there is lots of potential for schools and especially for disadvantaged learners."

These benefits include a more tailored and adaptive assessment system centred on the individual learner, rather than the current one-size-fits-all model that favours a certain type of student who is good at exams.

"At the moment, we assess what's quite easy to assess," says Luckin. "But AI lets us assess a number of things we can't assess that are things society needs for the fourth industrial revolution, such as collaborative problem solving, which PISA [Programme for International Student Assessment] introduced a couple of years ago, metacognitive awareness, self-regulation; incredibly important things that boost learning."

She says we could use AI to do continuous formative assessment, rather than one-off exams. "That could help us really understand the learning process, as well as the learning product, so it becomes a learning activity not just an assessment activity. You can learn about yourself as a learner, what your strengths and weaknesses are, where you need to focus more attention and what coping strategies work for you," says Luckin.

36.5%

of A Level results in England in 2020 were downgraded by Ofqual's algorithm by one level

3.3%

of A Level results in England in 2020 were downgraded by Ofqual's algorithm by at least two levels

Ofqual 2020

One thing she doesn't want is for AI in education to be solely reduced to the role of auto-marking exams, as she thinks this would be a missed opportunity. "Assessment will always be the tail that wags the dog in education," she says. "It's so important to the system, to the government, but also to parents, so I think there will be a strong focus on using AI in assessment.

"But what I fear is that we'll invest money and skill and expertise in automating something that perhaps itself is not the right thing, rather than looking at how we could do this differently."

Instead Luckin would love AI to usher in a future where the learner themselves demonstrates what they've learnt. "My real dream is where the learners themselves say, 'I think I should have this grade' and bring out all the evidence built up over years to demonstrate why, showing they have understood themselves well enough to pull that together, which would tell you so much about that individual," she says.

How could this be scaled for something as big, complex and life dictating as university admissions? "There will be ways of digitalising that," says Luckin. "I imagine there would be some sort of digital gate or point through which a student passes and they demonstrate their credentials, and over time you would be able to automate that.

"We're not miles away from this technically; you'd need broadband connectivity everywhere, but what is much harder is the human acceptance of it. At what point do you feel you can say to parents, 'OK, we're phasing out the exams now'? They'd say, 'Well how does my child get to the next stage?' And I completely understand that."

The best approach will probably involve a hybrid transition period until the point is reached where people felt confident in the replacement as a "truer assessment" of an individual's learning and strengths, "celebrating human intelligence and the non-cognitive skills which differentiate us from machines", Luckin concludes.

> **To avoid AI because it's too risky would be a shame; there is lots of potential**

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