

Spotlight

SKILLS AND APPRENTICESHIPS: A 21ST-CENTURY EDUCATION

Tony Blair / Julia Gillard / Gavin Williamson / Andreas Schleicher



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Post-Brexit survival skills



Last summer, a survey by the Recruitment and Employment Confederation (REC) found that nearly half of British employers are worried about recruiting the right candidates. Some 46 per cent of firms expressed concerns, particularly those looking for new staff with skills in health and social care. According to another poll, by the British Chambers of Commerce, UK manufacturers are facing a major skills shortage, too – their biggest since 1989.

With Britain set to leave the European Union, the REC said, government restrictions on EU workers could exacerbate this skills deficit. Now, after three years of intense negotiations, endless parliamentary squabbles and two historic general elections, Brexit Day is upon us. The 31 January will see the United Kingdom enter an 11-month transition period lasting until the end of 2020. After that, our future relationship with the EU's single market – and the status of free movement for goods, services, capital and people – is uncertain.

Some employers, worried about the skills gap, might have been comforted by the government's stated intentions. Prime Minister Boris Johnson has promised a future "Australian-style" points-based immigration system, which he has said will be "fairer". It won't discriminate between European and non-European migrants, "treating people the same wherever they come from," he told reporters this month. But some have expressed scepticism that this can be put in place by 2021.

According to recent research, the skills deficit may even have benefitted workers. The Chartered Institute of Personnel and Development found that skills shortages are driving up wages after a decade of salary stagnation. Over half of the employers surveyed had upped advertised starting salaries in response to recruitment difficulties. In the construction sector, average pay rose 9 per cent in the 12 months to May 2019.

In the lead-up to National Apprenticeship Week, skills and training look set to remain high on the policy agenda. Last year, there were 2.27 million EU nationals working in the UK, 61,000 fewer than a year earlier. Net EU-UK migration is at its lowest since 2003 – lower than in any of the years since the accession of ten eastern European member states, including Poland, in 2004, according to the Office for National Statistics. As the government seeks to curb migration further, employers will have to adapt to a new era in which labour and skills may be in shorter supply – whether in coding or the high-skilled, green jobs of the future.

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News



SHUTTERSTOCK/MIKEDOTTA

England facing £120bn skills deficit

Samir Jeraj

England could lose up to £120bn over the next decade if it fails to improve how it provides skills, according to research by the Local Government Association (LGA).

The LGA, which represents local councils in England, claims six million people risk unemployment or being over-qualified in their job. The national skills system is described by the authors of the research as “confusing, fragmented, untargeted and ineffective.”

The report recommends government use the coming budget to devolve spending on national schemes to

groups of councils in order to set up one-stop Work Local services. These would cover local skills planning, JobCentre Plus, Work and Health Programmes and careers advice.

Currently £10.5bn is spent annually in England on 20 national learning and skills schemes.

Cllr Kevin Bentley, chairman of the LGA’s People and Places Board, said: “Councils are ideally placed to lead efforts to help the Government bring growth and jobs to all parts of the country and ensure everyone is fully equipped with the skills they need to compete for future jobs.”

Demand for blockchain “skyrockets”

Rohan Banerjee

Expertise in blockchain – a cloud-based digital ledger technology which supports the storage or transfer of cryptocurrencies and other assets – is becoming increasingly sought after by employers, a report from LinkedIn has found.

The professional social media site reviewed the profiles of its users, noting the frequency with which people with different skillsets and qualifications were getting hired. According to LinkedIn, people with knowledge of blockchain and cloud computing were the most commonly hired group in 2019 by companies across the US and the UK.

While LinkedIn found that employer demand for blockchain skills has “skyrocketed”, it also showed that searches on the site for roles specifically to do with blockchain had fallen by 53 per cent since last year.

UK adult learners at ten-year low

Samir Jeraj

A survey by the Learning and Work Institute, a think tank, has found the number of adult learners is at its lowest in ten years. Funding for adult education fell by 47 per cent over the same period. Just one in three people had taken part in learning in the past three years, according to the Adult Participation Survey, which has been run annually by the Institute for more than 20 years.

Despite the government’s focus on boosting apprenticeships, there continue to be large inequalities in access to

other forms of learning. Working-class adults and those who left school at 16 or younger are less likely to take part in learning.

Stephen Evans, chief executive of the Learning and Work Institute, said the fall in participation was a “real cause for concern.” He called for “a national mission to boost lifelong learning, backed up by sustained additional investment, and a cross-government strategy.”



£2.5m exchange scheme to include primary schools

Rohan Banerjee

An international education exchange programme, run by the British Council and Department for Education, is set to be extended for another year, and expanded to include primary school pupils. The scheme, which was launched last year, provides students from underprivileged and minority backgrounds with grants of up to £15,000 to enable them to attend twinned schools and colleges in various other countries.

Previously, only secondary school students were eligible to apply for the scheme, but from the 2020/21

academic year, it will be open to pupils in years 5 and 6 as well.

The move, which will cost roughly £2.5m to implement, was announced in a speech by education secretary Gavin Williamson at the Education World Forum earlier this month.

It is seen by many people as a direct response to the criticism the government has faced after it refused to guarantee that the UK will continue to participate in the Erasmus exchange programme after Brexit. Erasmus, which is run by the EU, was designed to facilitate student exchanges at schools and universities within European countries.

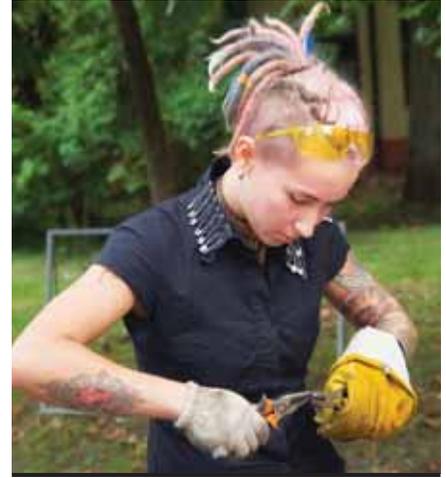
Colleges could lose powers over courses

Samir Jeraj

Further Education (FE) colleges could face losing the power to decide what courses they run. A proposed FE Bill would give more powers to Skills Advisory Panels (SAPs), according to a report in FE Week. This could lead to the Panels having a greater role in apprenticeships.

The little-known Skills Advisory Panels were a key part of Theresa May’s industrial strategy, and were intended to “put employers at the centre” of skills policy, according to the 2017 Conservative manifesto. Their aim was to ensure skills shortages were being addressed by working with businesses and colleges. SAPs cover the same areas as Local Enterprise Partnerships and mayoral combined authorities. The new bodies have been criticised for lack of the financial power to make an impact. So far, they have collectively received just £2.7m to conduct labour market analysis.

The Department for Education said SAPs have a “vital role” in promoting apprenticeships, but denied they would be involved in the standards process.



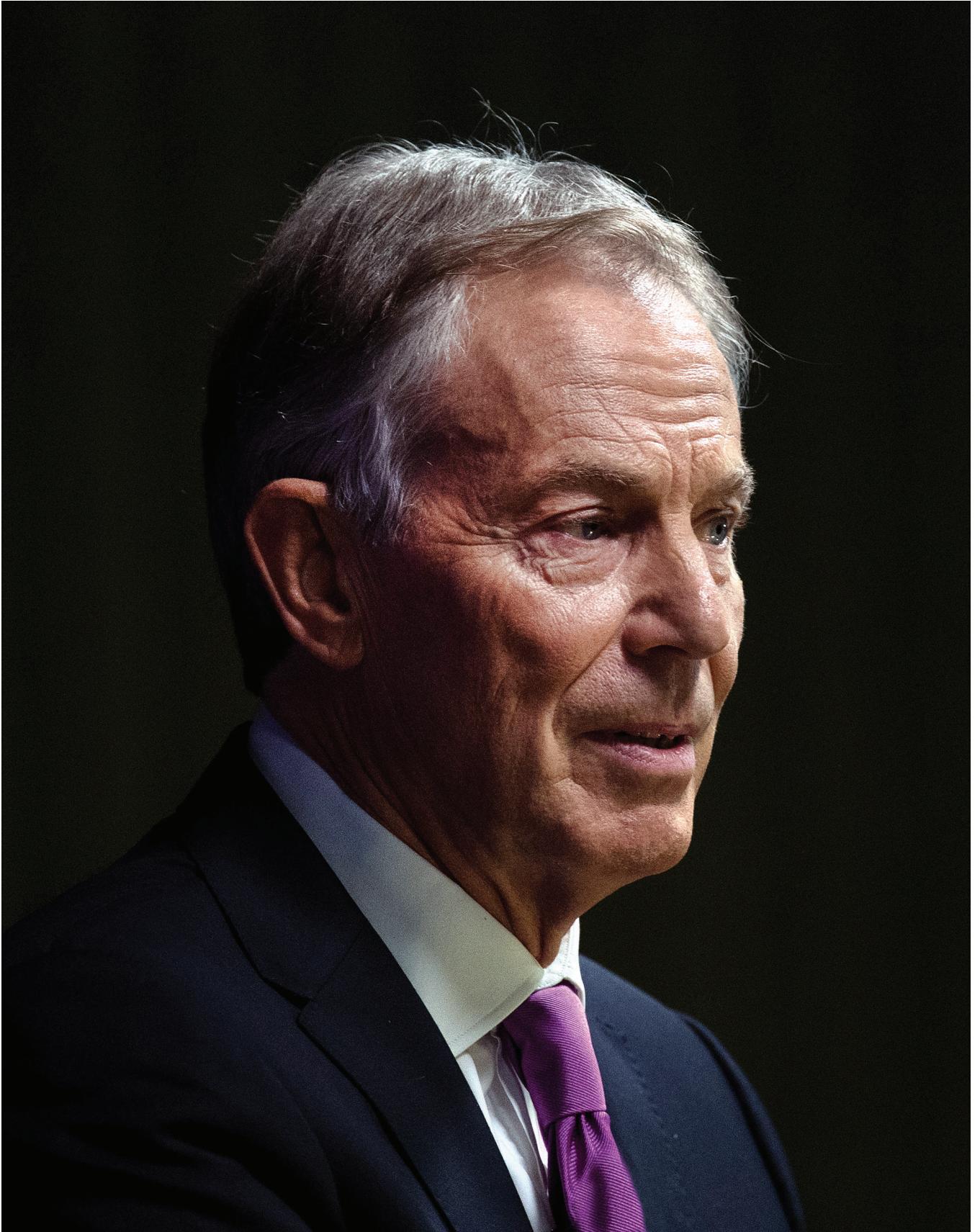
Gender pay gap for apprentices nearly doubles

Rohan Banerjee

The Apprenticeship Pay Survey, published by the Department for Business, Energy and Industrial Strategy, has found that male apprentices at Levels 2 and 3 are paid, on average, nearly six per cent more than their female counterparts.

The most recent edition of the report, which is released biennially, noted that male apprentices were paid £7.90 per hour compared to £7.47 for female apprentices in 2018-19. This means that the gender pay gap has nearly doubled since 2016/17, when the disparity was £7.10 to £6.85 (3.6 per cent).

Sophie Walker, chief executive of Young Women’s Trust, a think tank, said in a statement: “This report once again highlights the sexism and discrimination that young women face even at the very beginning of their careers. This discrimination not only shuts them out of apprenticeships such as engineering and construction that have the best opportunities for pay and progression but fails to provide high quality opportunities in childcare and social care in which the majority of young women apprentices work.”



GETTY IMAGES/ CARL COURT

Tony Blair may have lost the argument on Brexit, but now he is making the case for fighting terrorist violence through education reform. Will anyone sign up? The former prime minister talks to Alona Ferber

“You’ve got to destroy the ideas”

Eight years after Tony Blair swept Labour to power on the promise of “education, education, education”, the UK suffered its deadliest terrorist incident since the 1988 Lockerbie bombing. Fifty-six people, including four Islamist extremist suicide bombers, were killed in the coordinated 7/7 attacks in London.

“It happened,” remembers Tony Blair, “at the very moment when we were holding the G8 summit in 2005 in Scotland, and when we had just won the Olympic bid... We won the Olympic bid, hosted the G8 summit and then we had these terrorist attacks, and I remember leaving the summit, going back to London, putting in place certain measures.”

The perpetrators of 7/7, all of whom died that day, had grown up in the UK. Three, of Pakistani heritage, were born and bred in Britain. One, a Jamaican-born Muslim convert, had moved here

as a child. Leading the country through the crisis “brought home to me that, because these are people who had been brought up in this country, you are battling an ideology.”

We meet in his spacious office – the floor-to-ceiling glass roof to one side making it appear even more spacious than it is – in the London premises of the Tony Blair Institute for Global Change, where around half of the Institute’s 200 staff work. The 66-year-old former prime minister is instantly familiar in white shirt and trademark smile, an espresso on the glass coffee table in front of him.

Since 2016, in the eyes of many Brits, Tony Blair has morphed into Mr Anti-Brexit. The Labour grandee of the sensible centre (though his legacy will never be discussed without reference to the Iraq war) has spent the past few years making the case that leaving the EU is a historic error.

His interventions – speeches, opinion pieces and appearances on the *Today* programme – have inspired both relief and resentment. For some he is one of the only grown-ups in the room, and thank heavens for that; for others he is a back-seat driver who has already had plenty of time at the wheel.

But Blair continues to put a prodigious level of energy into his many political projects, which often extend beyond the UK’s borders. On top of trying to avert post-Brexit doom and convince the Labour Party to claw its way back from the far reaches of the left (if the party wants to, that is) he has been busy taking on a long list of interrelated issues facing the world.

In no particular order, his eponymous Institute is aiming its consultants and policy wonks at: rising populism; the future of the political centre (which he has described as “flabby”); the instability of the Middle East; poor governance and

dependence on aid in Africa; the fourth industrial revolution; and extremism, both violent and non-violent.

This last subject has occupied Blair's mind for a number of years. The Tony Blair Faith Foundation, founded in 2008, undertook research on religious extremism, with a focus on Islamism. The Foundation officially merged with other organisations to form the Institute in 2017, as Blair's lucrative advisory business was wound down and the reserves gifted as seed funding for the Institute. The work on extremism has continued. The organisation's stated mission is to "help political leaders and governments build open, inclusive and prosperous societies in a globalised world", including "to promote coexistence and counter extremism by tackling the ideology behind violence, not just the violence itself."

Since at least 2016, the former prime minister's push for an international mechanism to prevent extremism through education has been a part of the work. Such an initiative would involve reforming curricula and teaching methods to ensure "quality education", Blair writes in a foreword to *Teaching Tolerance: How to Educate Against Extremism*, a collection of essays published by his Institute last year. "Education has to be such that it enables creative thinking, encourages reflection and discussion, and allows young people not just to learn but to think for themselves."

The goal for Blair and his team is to create the Global Commitment for the Prevention of Violent Extremism Through Education – as it says on the tin, a multilateral accord between governments, similar to the Kyoto Protocol that was adopted by the UK and most of the international community six months after Labour came to power in 1997.

When the environment first became important to the international agenda, Blair reflects, the idea was that the problem couldn't be tackled "unless you've got countries cooperating together, and that you have to set a new

policy framework in order to incentivise the acceleration of climate change solutions". It was also based on the view "that as part of your global responsibility you have to accept that what was done inside your borders had an external impact."

Blair sees a parallel in battling extremist ideas. "If you've got an education system that's backward and regressive then it can pollute the mind," he says. He believes that "many governments want to deal with this problem. Often you have weak state education systems and those weak state education systems are supplanted by education around religion. And if that education done in that informal setting is essentially prejudiced and bigoted or based simply on reading scripture rather than literature, creative thinking, mathematics and science, and so on, then that is going to be a very big problem."

In practice, a Global Commitment means "that countries enter into an agreement where they will reform their education systems to root out cultural prejudice and promote cultural coexistence," he says. As with climate change agreements, what may sound simple in principle becomes more complicated in practice. The ambitious project has been in the works for nearly four years. There are ongoing discussions with heads of state, but the Institute can't name any yet. His aides say the project is in its early stages. What's taking so long? "We are working on getting the right sponsor governments and, you know, these commitments do take time," Blair says, adding that global consensus on the environment took "a long time to get into the state it is now." The aim, his aides say, is to launch the Commitment this year.

That education is the key to preventing extremism is not a particularly controversial idea. Initiatives in a similar vein, albeit on a smaller scale, already exist. Last year New Zealand's Prime Minister Jacinda Ardern and French President Emmanuel Macron spearheaded the "Christchurch Call" to eliminate extremism online in response



“Education has to enable creative thinking”



Tony Blair discusses Generation Global with students in Jordan

to the far-right terror attack on mosques in Christchurch that killed 51 people. The shooter, a white supremacist, live-streamed the beginning of the attack on Facebook. Arden and Macron called on governments to commit to “counter the drivers of terrorism and violent extremism by strengthening the resilience and inclusiveness of our societies to enable them to resist terrorist and violent extremist ideologies, including through education.”

So what does the Global Commitment do differently? “Well I think the commitment is to get the governments of the world to focus on that specifically,” Blair says. “Again, it’s like the environment. It’s not that... no one was doing anything about the

environment before global agreements, people were, but the global... way politics works is if the leadership of the main countries come together and say, ‘OK, this is part of our global responsibility,’ you give an impetus to programmes that coincide with the meeting of that responsibility.”

Skills are a key part of the arsenal. Signed up to the Commitment, countries would pledge to ensure that their education systems equip young people to navigate a world of fake news and populist division with digital literacy, common sense and openness to one another.

Generation Global, an Institute programme that has been running for a decade, has tested the ground for

that approach. The programme pairs students in different countries via video conference for dialogues on difficult issues, such as women’s rights or extremism. Teachers are supported with materials to help them handle tough conversations, and students develop dialogue skills.

“Teaching young people to think creatively and to question what they are taught is the biggest benefit of the programme,” he says. This thinking is echoed by the OECD, which in 2018 added “global competences” to its Programme for International Student Assessment tests that year. By adding “global competence” to its criteria for ranking countries’ education systems, the OECD rated how well states educate their young people to “understand and appreciate different perspectives and world views, interact successfully and respectfully with others, and take responsible action toward sustainability and collective wellbeing.” The results in the one-off test will be released this year.

Under Blair’s Commitment, the long-term goal is for that kind of skill-set to beat the worldview that leads, for instance, teenage girls from Bethnal Green to run away to Syria to join Isis. But these skills are also key for participation in the future economy, he says. Today “there’s no doubt what young people need to be able to function effectively... We live in an interconnected and interdependent world and, however much people don’t like that, that’s the reality.”

Global extremism has changed since 7/7, with the rise of Isis and the far right. Prevention through education is a long game that needs to be complemented with security measures, Blair says. But, he repeats in one form or another throughout our interview, security measures are not enough on their own. “I think the single most important thing is to understand that security measures are necessary, but we are spending billions and billions of dollars in security measures... In the end you’ve got to destroy the ideas.”

Security measures, as Blair calls them,

“We’ve got to redefine the word ‘radical’”



also inevitably affect the extent to which ideas can spread. The killing of former Isis leader Abu Bakr al-Baghdadi in a US raid in October, or the January US assassination of Iranian Revolutionary Guard Corps (IRGC) Al-Quds general Qasem Soleimani, are cases in point. “You are always going to have the security questions,” Blair says, “but the central point is that you can defeat Isis; you can defeat the extremism and the destabilisation that comes out of the IRGC – you can defeat these things for a time through security methods, but the only long-term way you defeat them is by supplanting their bad idea with a better idea, and that better idea is one of coexistence.”

Was Trump, then, right to take out Soleimani? Blair – whose Institute will this year “explore further the impact of Shia Islamism which is creating sectarian divides among Sunni and Shia communities that will last generations if not better tackled”, as he wrote in a foreword to its *Global Extremism Monitor* report, published in January – would rather not say. “I’m going

to comment on that at a time of my choosing. I don’t want to get into that.”

Blair’s own record in the Middle East is the most contentious part of his relationship with his party, which last year expelled his former spokesman, Alastair Campbell. Under Jeremy Corbyn’s leadership, Labour took pains to distance itself from the former prime minister, despite his achievements.

But this meant the party glossed over much of what New Labour had achieved, particularly in education. Blair’s government set ambitious targets for university entrance and invested heavily in early years provision via the SureStart scheme. Under the ensuing coalition and Conservative governments, as many as 1,000 SureStart children’s centres may have been shut in England since 2010, the Sutton Trust said in 2018. Funding was cut by two-thirds from 2010 to 2017-18, according to the Institute for Fiscal Studies. As secretary of state for education between 2010 and 2014, Michael Gove and his then adviser Dominic Cummings made radical changes to the education system.

These included expanding the scope of Labour's policy of academisation, originally intended as a measure to improve standards on failing schools, to cover almost every school in the country. New Labour was "very careful with the academy programme", Blair says, "particularly to take it step by step". He recognises that education has improved in Britain over the past 20 years, but deplores funding cuts and the "mistake" of taking away the focus from early years provision. "If I was back in power today, I would certainly still be looking at further education reform and change, but I would put a big focus on early years education." He would also "properly" reform the tuition fees system: "Ours was a lot fairer and better for students than the current one."

Blair's government also initially introduced the highly controversial Prevent policy in 2003. It remains one of the four strands of Contest, the UK's counter-terror strategy. Prevent, which aims "to stop people becoming terrorists or supporting terrorism", is undergoing a review this year, following a 2011 review under Cameron. "The basic idea behind the policy still works," Blair maintains. To the accusation that Prevent unfairly targets Muslims, he adds that some of the attacks on Prevent come from people "who are actually promoting some of these [extremist] ideas", but despite its perception "the basic principles behind the programme are correct."

Framed as a push for an open, multicultural world, the Global Commitment smacks of liberal, progressive values that might not be shared by all the leaders Blair might like to get on board. But Blair is optimistic. "I think most countries around the world – whether they are in favour of democracy or not is another matter – do share the view that in today's world, economically and socially, it is better to be open to people across boundaries of faith and culture," he says. An international mechanism would help governments "fighting conservative elements within their

society" to implement educational reforms, as they could say they are part of a global movement.

And yet the tensions between identity and community are already evident in schools in the UK. This has occurred most visibly in Birmingham, where parents mostly of Muslim faith have protested against LGBT equality lessons. A deeply religious man – Blair converted to Catholicism after leaving office – the former prime minister says his faith means he is comfortable talking about such matters. "I'm less worried about talking about religious faith because there is nothing wrong with having religious faith. We tend to live in very secular societies today, but you can't really understand this phenomenon, particularly of Islamist extremism, unless you understand that it is based on a religious view of the world."

Blair seems comfortable talking about most things. On any given topic the former PM has what sounds like a well-considered view, like a human policy jukebox. "People always think policy is a... boring diversion from the great politics," he laughs. "But it's not, it's the foundation."

He is scathing about the level of policy debate in December's election. On healthcare, for example, it was "pathetic". Labour and the Conservative Party competed about who's spending pledge was the biggest while avoiding the real issues and how technology plays a part, Blair says. "That debate doesn't even surface in British politics so we've got a big, big challenge in the progressive side of politics. While we carry on

“We’ve lost the debate and Brexit is going to happen”

defining left as more power to an unreconstructed state, or nationalisation, or just traditional tax and spend we are going to miss the point completely.”

Is Boris Johnson doing a good job as prime minister? "I wish that... we didn't have a Tory government, but my anxiety at the moment is that Labour learns the lessons of defeat."

With Labour's 120th anniversary approaching at the end of February, "it will be a time for reflection about how many years of that 120 the Labour party has spent in government." The party has been in power for a total of just over 32 years – about a quarter of its lifetime. Ten of those years were under Blair, who led the party to three electoral victories.

The Labour leadership race has some "good candidates" he says vaguely, but whoever ends up at the helm of the party following its sorest electoral loss since 1935 will face no less than a reckoning with what progressive politics means today. "The thing I would emphasise more than anything else is that we've got to redefine the word 'radical', because what the Labour Party – and not just the Labour Party, we see this around the world – puts forward as radical today is not actually radical, it's small-C conservative."

After Brexit Day on 31 January, will Blair tone down the interventions? "No. I'll continue to be involved in the debate, but I'm afraid we have got to face up to one simple point: we lost. It was a terrible mistake ever to agree a Brexit general election, as people like me tried to tell the Labour Party and the Liberal Democrats, but we did it, we paid the price for it. We've lost the debate and Brexit is now going to happen."

So no more pushes for a second referendum, no more decrying the disintegration of the EU's political project. "I'm afraid you've got to pivot to a completely new position... We're going to have to be constructive about it and see how Britain develops a constructive relationship with Europe and finds its new niche in the world." Clearly, whether anyone agrees with him or not, Blair still thinks there is a role for him to play as

A science workforce fit for the future

A diverse and adaptive workforce is crucial to the success of any innovative business, says **Jacqui Hall**, head of early careers for BioPharmaceuticals R&D, AstraZeneca

The world of work is changing, and nowhere is this idiom truer than in the pharmaceutical industry. Disruptive technologies, including digital health and artificial intelligence, necessitate a change in the way that we approach recruitment and development of staff.

Apprenticeships – paid jobs, where people learn new skills while simultaneously studying for a qualification – represent a valuable opportunity to grow and diversify workforces. The appeal to employers is clear: Apprenticeships offer the chance to hire enthusiastic minds and mould them alongside evolving industry needs. The appeal to prospective apprentices is even clearer: These programmes enable them to earn as they learn, and to have a career shaped by hands-on advice, as well as access to state-of-the-art equipment. Modern apprenticeships also offer the opportunity to re-train existing staff in new areas, supporting the aim of lifelong learning.

Successful businesses should seek to



blend their apprenticeship and graduate workforces. They possess different, but equally significant, skills and expertise. But it is fair to say that when it comes to positive publicity, the graduate route has tended to be afforded the lion's share. Apprenticeships, too often, are misinterpreted as the "easy" option, but this is plainly untrue.

At AstraZeneca, we offer a wide range of programmes for early career scientists. Some individuals will move into full-time roles after these programmes, but about 75 per cent will move into the external scientific environment, either to do a PhD or to alternative employment. We pride ourselves on high-quality apprenticeships that combine advanced scientific education, delivered through leading UK universities, with practical experience. We have around 130 apprentices in the UK, based mostly at our Cambridge and Macclesfield sites. Most of these are studying for degree-level apprenticeships that are vital for developing cutting-edge skills in areas such as advanced manufacturing and

IN ASSOCIATION WITH





data science. The interface of health with the digital sector means we need new skills and apprenticeships that can help us to fill gaps where it is difficult to find graduates with the right skills, or where resources are scarce.

At AstraZeneca, we have a varied staff makeup, in excess of 60,000 across 100 countries. We are not just scientists and doctors, but businesspeople, financiers, IT specialists, lawyers and more. Our apprenticeships span all subsets of our operations and through them we are able to cast our net far and wide, discovering and nurturing talent from all backgrounds.

The aspiration for AstraZeneca, is to build a workforce that can move with the times. Apprenticeships can play a role in delivering on this aim if the conversation around them can mature. It is not about pitting apprentices against graduates. It is about recognising that both routes offer different skill-sets that are equally valuable in responding to evolving challenges.

For more information, please visit:
careers.astrazeneca.com/early-talent

CASE STUDIES

Rebecca Paige Orwig, Level 5 laboratory scientist

I did not follow the traditional path to an apprenticeship at AstraZeneca. I was working in marketing for a pharmaceutical company when I discovered my passion for science. I found that I would rather read the clinical studies for a product than write the brand strategies, and I decided to change my career to something that I really enjoyed.

As I was still paying off the debt from my previous degrees (Russian and international relations), a traditional university degree in chemistry was not an option. I found the apprenticeship at AstraZeneca and it provided the perfect solution. Not only would I receive the education (a foundation degree in applied chemistry), but I would gain

the relevant industry experience with the latest equipment and techniques while helping to produce compounds that would make a real impact to patients. The salary was also a bonus as I have a mortgage to pay.

The apprenticeship has definitely surpassed my expectations. The fact that I get paid to come to work every day and learn is amazing. The mentoring, training and hands-on experiences I have been able to gain have not only increased my passion for the sciences but have given me the confidence that I can be a successful scientist.

I would advise any person who is considering a “mature” apprenticeship to apply for one with AstraZeneca. This experience has been one of the most challenging and rewarding ones of my life, and I am so grateful that I now wake up in the mornings happy to go to work.

Holly Carter, Level 6 associate scientist

I joined AstraZeneca as a Level 5 laboratory scientist apprentice back in September 2016. I was 18 at the time and had not long finished my A-Levels. I had considered university as an alternative option, but I ultimately decided that the apprenticeship would be the right route for me.

My Level 5 apprenticeship consisted of working four days a week in the chemical development department at our Macclesfield site and one day a week studying towards my foundation degree in chemical sciences (FdSc).

My degree covered various aspects of chemistry alongside health and safety, environmental studies and business improvement. This

allowed me to gain the chemistry knowledge I need for the job while also learning about different areas that are important to working within the industry.

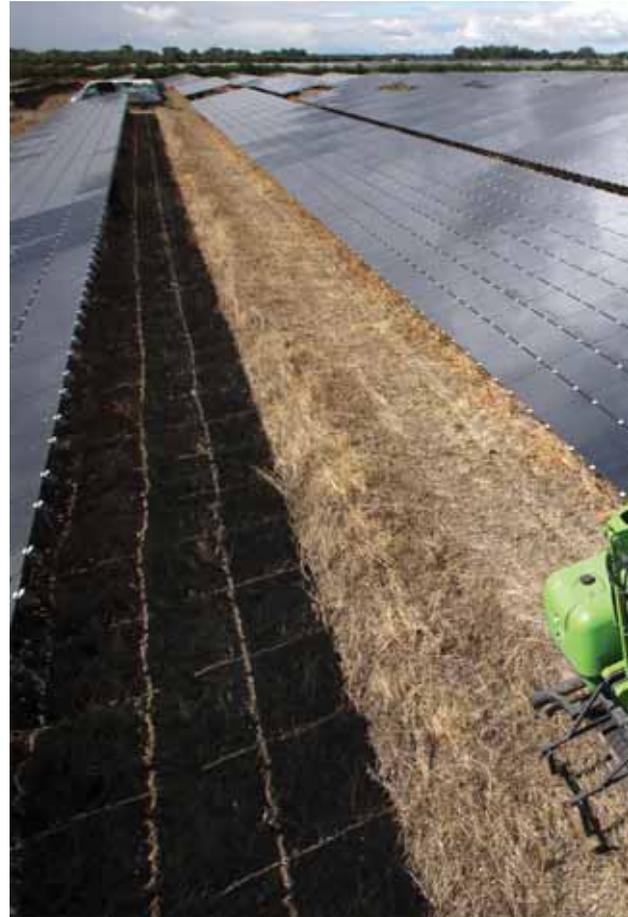
Alongside my studies I have worked with my mentor to develop and validate a new laboratory procedure for which I was awarded the Royal Society of Chemistry’s Chemical Sciences Apprentice of the Year Award in 2018.

Alongside my main work I have had the opportunity to develop a wide range of laboratory and business skills from the other experienced staff around me.

I completed my Level 5 apprenticeship earlier this year and I have now secured a full-time job at AstraZeneca while still being able to continue studying towards my full BSc in chemical sciences.

The Secretary of State for Education, **Gavin Williamson**, explains the importance of environmentally led learning

Setting the sustainability agenda



Growing up in Yorkshire – one of the most beautiful, pristine slices of the British Isles – I was no stranger to natural beauty. Consider its magnificent moors, its Dales, its coastline. But like the rest of the planet it is not going to stay that way unless we look after it.

From the fires that have been causing dreadful damage in Australia, to the flooding in Indonesia, every week seems to bring a fresh reminder that our world is fragile.

Living in the UK, we know better than most how much we depend on nature and we have always taken our responsibility for this island seriously. It is one of the reasons we have been leading on climate policy for years, relentlessly banging a drum for sustained action on protecting the environment.

We were the first major economy to pass laws to end our contribution to global warming. Thanks to our actions,

greenhouse gases in the UK have been reduced by around 40 per cent since 1990; since asking shoppers to pay 5p for a plastic bag there are now 9bn fewer of them in circulation than there were in 2015. We are also Europe's largest generator of offshore electricity and have transformed the makeup of the electricity market. Last year we launched a 25 Year Environment Plan, aiming to keep our air and water clean, and our plants and wildlife healthy.

As Education Secretary it is my job to make sure that we meet our environmental obligations by equipping our workforce with the right skills. People need to learn about environmental sustainability and prepare for a greener future. Green industries that will be the employers of tomorrow are rapidly evolving. There are already 400,000 jobs in low-carbon businesses and their supply chains alone.



The demand for green jobs is growing

If we want to be at the forefront of the industries of the future, we must equip our young people to compete with those from the top-performing countries in the world. We have not shied away from setting high standards for our schools – and it is paying dividends.

Our national curriculum now includes challenging content for every age group so that pupils gain the kind of awareness they need for careers in growing sectors like green technology. Biology, chemistry and geography programmes directly address climate change and environmental issues. All science, technology, engineering, and mathematics (STEM) subjects provide the foundational knowledge required to pursue a pathway into engineering or technology.

Establishing a cutting-edge curriculum is one part of the equation. But if this is to translate into more jobs in green industries, we also need world-class teaching in every school. Since 2016 we have committed over £200m of targeted STEM support including through our maths hubs, our network of Science Learning Partnerships and our world-leading programme to improve computer science teaching.

Our Institutes of Technology (IoT) – unique collaborations between further education colleges, universities, and employers – do similarly vital work. They are part of a new wave of further education provision that offers higher technical education and training in key sectors such as digital, construction, advanced manufacturing and engineering.

Yorkshire and Humber IoT, for example, is working with ENGIE Fabricom to help deliver the skills needed in the renewable energy sector, as well as delivering training in new precision agriculture techniques to help make farming more sustainable. Greater Birmingham and Solihull IoT will help provide the skills needed to support clean and sustainable manufacturing growth.

We are also continuing to work in partnership with employers across the country to create more high-quality apprenticeship opportunities in green career paths.

For example, energy giant E.ON has more than 400 apprentices enrolled throughout its business. Last year it took on 60 new recruits who are now working in areas such as renewables and smart metering. It is also developing apprenticeships to work on the future development of low-carbon solutions.

But we are not just looking to the young to become environmental cheerleaders. All of us need to be ready for changing business practices in the years ahead. Young people who are just joining the workforce are likely to need to upskill at some point over the next 20 years as the world of work evolves.

To accommodate this fast-moving and dynamic landscape, last year we launched the first part of the National Retraining Scheme – the Get Help to Retrain digital service – which is now being scaled up across the country. The scheme will help users adapt to the changing world of work, developing the confidence to seek new opportunities and skills.

In this way we will make sure we are flexible and adaptable enough to seize the opportunities that a greener economy will bring. Our new National Skills Fund will build on this, providing an extra £3bn over the course of this parliament to help people learn new skills so they can return to work or further their careers.

This year will see the first T Level courses delivered to students. Like apprenticeships, these have been designed to provide young people with the skills they will need to progress into a successful career. And like apprenticeships they have been designed with employers and businesses to meet their needs. Students will be able to take a T Level in subjects ranging from design, surveying and planning, to on-site construction, all of which are significant to the success of the green energy companies of the future.

Our educational reforms are going to help make sure that this green and pleasant land is in safe hands. But more than that, we hope that for the sake of the planet, the rest of the world follows our example.

Support for emerging industries

Training must modernise to keep up with the changing world of work, says **Jen Tippin**, group director, people and productivity, at Lloyds Banking Group

As we celebrate the first National Apprenticeship Week of the 2020s, it is worth noting that there are now more than 700 different apprenticeship standards, ranging from data scientists to cyber security technologists. Ten years ago, few had even heard of these roles, let alone considered them viable careers.

We should also consider how our lives have changed over the last decade. In the early 2010s, few thought we would take mobile data for granted, accessing information whenever and wherever we wanted on tablets, phones and watches. Even in our homes, smart assistants controlling heating and helping us figure out which TV shows to watch felt like a distant possibility.

In financial services, too, there have been significant changes in how our customers do their banking. The desire for instant connectivity and immediate results has seen the number of our customers who regularly use mobile

channels for day to day banking go from zero to over 9 million in just seven years. In more complex areas such as mortgages, customers are using digital tools to achieve agreement in principle decisions in less than 15 minutes from the comfort of their sofa.

These changes in customer behaviour are happening all around us, and we need to adapt effectively. They mean workplace skills must evolve too. At Lloyds Banking Group, demand in emerging growth areas such as data analysis, cyber security and applied sciences has led us to increase our investment in colleague training hours by 50 per cent – more than 4.4m hours.

As well as addressing skills gaps at the bank, this allows colleagues to focus on bringing their best to their existing role, as well as preparing the ground for exciting new and emerging career paths.

Apprenticeships are a vital part of this transformation. Lloyds Banking Group offers more than 25 apprenticeship



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Workplace diversity is an asset to any business

programmes ranging from Level 2 (an entry-level equivalent to five GCSEs) to Level 7 (senior leaders and specialists equivalent to a Master's degree). We believe apprenticeships are for everyone, regardless of age, seniority, location, career journey or working pattern. Improving the diversity of our teams remains a critical focus for Lloyds Banking Group as we build a business that reflects the variety of the customers and communities that we serve.

We are seeing encouraging progress in the diversity of the 2,500 apprentices that have enrolled with us in the past two years, but we must pursue inclusivity relentlessly at all levels to inspire people from different backgrounds to make the most of their skills. These efforts have created profound benefits for individual colleagues. Take Sabreen, for example, who left school with few qualifications. Now in the second year of a Digital Technology Apprenticeship, she is excelling in her studies and shares her experiences with other young Asian women so they are able to see the life-changing opportunities that apprenticeships can bring.

We are proud to have been recognised by the Institute for Student Employers for our apprenticeship strategy; at the National Apprenticeship Awards for our recruitment practice; and at the Asian Apprenticeship Awards for our work in developing BAME apprentices.

However, we also recognise that we have a responsibility to use our deep experience to help other employers step into apprenticeships. One way we do this is through the apprenticeship levy transfer. Lloyds Banking Group is one of the largest contributors to the apprenticeship levy and has partnered with the West Midlands Combined Authority, the Greater Manchester Combined Authority and the Advanced Manufacturing and Training Centre in Coventry to commit £9m of our levy funds over three years to supporting smaller businesses in the training and development of apprentices.

This initiative started in 2019 and we

have already supported 90 small to medium-sized enterprises (SMEs) and 120 apprentices to develop high-demand, high-complexity science, technology, engineering, manufacturing and digital skills. SMEs account for 60 per cent of total employment in the UK, and we believe we have a responsibility to help them prosper by accessing the skills they need.

One business we have supported through this initiative is Jamieson Contracting. With rising demand, Jamieson, like many businesses in the construction sector, has struggled to recruit talent with the right skills needed to sustain business growth.

Apprenticeship levy funding has helped managing director Andy Jamieson take on Chaya Wheeler, who has just started a five-year apprenticeship as a chartered surveyor. With a gender imbalance in construction, with only 14 per cent of roles being held by females, Jamieson has been thrilled to be able to hire a talented individual to join his team and bring new perspectives to this growing company.

It is not just through the levy transfer that we help British skills prosper. Across Lloyds, our colleagues are also proud of the way they can share their expertise, offering more than 26,000 volunteering hours to help others learn and develop their skills.

Charities, social enterprises and small businesses have benefitted from the establishment of digital academies in major cities. Initiatives such as Code Club and Rediscover Project are helping young people in primary and secondary schools develop both an interest and excitement in digital careers.

We may not be able to predict what the jobs of 2030 will look like but we do know, with certainty, that investing in our own skills, and those of others, is a fundamental step in preparing for what lies ahead.

Apprenticeships, in their many forms, designed to meet the needs of that workforce of the future, will be a crucial part of meeting that challenge.

Computing is an essential skill for young people, but few choose to study it. Will a £100m government investment be the solution?
By **Oscar Williams**

The coding crisis in our schools



In August 2011, Google's then chairman, Eric Schmidt, made a rare intervention in British politics. Delivering the MacTaggart lecture in Edinburgh, the Silicon Valley executive lambasted the standard of computing education in Britain's schools.

"I was flabbergasted to learn that today computer science isn't even taught as standard in [the UK]," he said. "Your IT curriculum focuses on teaching how to use software, but gives no insight into how it's made. That is just throwing away your great computing heritage."

Within six months, Michael Gove announced the most radical shakeup of IT education in a generation. Speaking in London in January 2012, the then education secretary described the existing ICT curriculum as "harmful", before vowing to scrap it.

The hastily arranged announcement, inspired by Gove and his adviser at the

time Dominic Cummings' reverence for Silicon Valley, was calculated to preempt a Royal Society report that would also call into question the quality of the existing computing curriculum. The report was published just two days later.

"They knew what was coming and tried to present it as a government initiative rather than a response [to what we found]," says Steve Furber, a computer science professor at Manchester University who led the Royal Society's review.

His report made for damning reading. It revealed that just 35 per cent of ICT teachers were specialists, compared with 74 and 80 per cent of maths and English teachers respectively. "We heard from young people that they often knew more than the teacher giving the lesson," the report's authors said. "Action is needed not only on the curriculum itself, but also to recruit

and train many more inspiring teachers to reinvigorate pupils' enthusiasm for and interest in computing."

Two-and-a-half years later, in September 2014, the government launched its new GCSE in computer science. The course was designed

"Students often know more than the staff"



to be tougher than the original ICT curriculum, putting a greater focus on developing software, rather than using it. The government's intention was to equip students with the skills they needed to thrive in an age in which digital technologies, including artificial intelligence, would shape the future of work.

But despite the course being a central component of the overhaul of secondary education led by Gove, teachers soon began complaining of a lack of training budgets. Lucrative salaries commanded by computer science graduates made it particularly hard for headteachers to recruit the necessary expertise, making retraining essential.

In 2017, five years after plans to overhaul the curriculum were announced and three years after computing science was introduced as a GCSE, the Royal Society conducted

a second review, "After the reboot: computing education in UK schools". Led once again by Furber, the review reached some startling conclusions.

Over the five-year period from 2012 to 2017, English schools met only 68 per cent of their recruitment target for computing teachers. In Scotland, the total number of computing teachers had suffered a 25 per cent decrease, and nearly half of teachers across the UK surveyed by the committee lacked confidence when it came to teaching the latter stages of the curriculum.

Uptake of the subject was also cause for concern. Only seven out of ten schools offered computer science as a GCSE in 2017 and adoption remained low. Just 11 per cent of students had decided to take the subject, a statistic the Royal Society called "disappointing".

The review also revealed that the gender divide in the uptake of computing

courses had been exacerbated by the decision to drop ICT, which had traditionally attracted more female students.

"Though many of the great pioneers of computing were women, across the UK computer science is an overwhelmingly

Uptake of the computer science GCSE is just 11%

CTRL, ALT, DEplete

The state of UK computing education



£100m

The government investment in computer science teachers



8,000

The number of computer science teachers the government has pledged to train



45%

The drop in Year 11 students taking computing qualifications, 2017-2018



35%

The drop in the number of hours of computing taught in secondary schools, 2012-2017



25%

The drop in computing teachers in Scotland, 2012-2017

male-dominated subject and workforce,” the report’s authors wrote. “At GCSE, there is a 20 per cent uptake from girls, while Scotland also had a 20 per cent female uptake at National 5 in 2017. At A-Level, there is only a 9 per cent uptake from girls, and this has not changed for many years.”

The new curriculum was failing. While a tougher course had been introduced, few students were taking it and even fewer teachers could teach it. In many cases, even those who could felt uncomfortable doing so.

In November 2017, just weeks after the Royal Society published its second report, the government took drastic action in an attempt to salvage one of their flagship educational policies. During the Autumn Budget, Philip Hammond announced that the Treasury had allocated £100m to the launch of a National Centre for Computing Education (NCCE) that would train 8,000 computer science teachers.

“It’s really not that often that a government takes a report like this and says we’ll make £100m available for professional development and training for teachers of a particular subject,” says Simon Peyton Jones, a Microsoft Research computer scientist who chairs the NCCE. “It’s quite remarkable and

it’s having a kind of seismic impact. The new curriculum is about re-envisaging computing as a foundational subject like you might think about maths, physics, chemistry or natural science; that is, a subject that all children should learn to understand and have agency in the world that surrounds them.”

Peyton Jones describes the funding as “sorely needed.” In May last year researchers at the University of Roehampton revealed a “steep decline” in computing provision, “both in terms of hours being taught and qualifications being sat across the country”. The number of hours spent teaching computing fell by 36 per cent between 2012, when the curriculum overhaul was announced, and 2017. At Key Stage 4, the fall of 47 per cent, equivalent to 31,000 hours, was even more dramatic.

In one twelve-month period between 2017 and 2018, the number of computing qualifications taken by students at Year 11 decreased by a 45 per cent. Roehampton’s Peter Kemp, the author of the report, said at the time: “The government clearly sees the importance of computing through the establishment of the National Centre of Computing Education, and it is encouraging to see a slight increase in number of students

sitting GCSE computer science (CS) and schools offering the qualification.

“The overall picture is that young people are now less likely to access any computing education than they were before CS was introduced. If computing increasingly means CS, it looks likely that hundreds of thousands of students, particularly girls and poorer students, will be disenfranchised from a digital education over the next few years.”

Simon Peyton-Jones is optimistic that, eventually, the NCCE will begin to reverse this trend, but he warns that it will take time. “The new curriculum only started in 2014”, he says. “It’ll be 2024 before the first child falls off that conveyor belt and it’ll all take a while.”

Although he says he has concerns about the current Key Stage 4 offering, and particularly the low esteem in which technical computing qualifications are held, he adds: “We are doing something in this country that is the envy of the world. I am really proud of what we have chosen to do in our national curriculum to make computing a foundational discipline. It is a big change. It is being disruptive. It is a huge challenge for teachers who do not have a computer science education. They are stepping up to it, but don’t underestimate the scale of the challenge.”



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Securing a bright future for UK tech

Amazon has ambitious plans to engage more young people in science and computing

As a leading technology firm employing nearly 30,000 people in the UK, Amazon is determined to play its part to ensure the next generation is equipped with the skills they need for the future economy. The UK is a major hub for Amazon, so investing in skills is a core part of our work here.

Since 2010 we have invested £18bn in this country – this includes in our people, in our operations and in new research and development facilities. We are very excited by the talent in the UK. It is a thriving centre of activity in the technology sector, and can become even better in the future.

Research by Capital Economics, commissioned by Amazon, shows the UK could miss out on £33bn a year by



2030 if it does not ensure the workforce has the right skills in computer science and related areas.

This means the country needs an additional 38,000 skilled workers every year, including 21,000 computer science graduates, to take this opportunity. Amazon is working to make sure the UK can take advantage of this opportunity.

To help meet that need we have launched Amazon Future Engineer in the UK. It is a comprehensive childhood-to-career programme to enable children and young people from low-income backgrounds to try computer science. Through this programme we want to reach more than a million children and young people across the UK over the next two

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years. This is a programme we are also operating, with success, in the US.

Amazon Future Engineer aims to inspire the next generation to get interested in robotics and technology at each stage of the career journey. For primary school children we are offering 10,000 pupils the opportunity to take part in free robotics workshops at Amazon fulfilment centres across the UK over the next two years. The workshops, accredited by the British Science Association, give young people the chance to work with robots and see computer science in action in the real world.

Further to this, working with Code.org, we have created an online tutorial based around dance that features music from leading artists, to engage young

people in coding. Globally, tens of millions of children and young people have already participated in Hour of Code tutorials since 2013. One hour of learning through Hour of Code is proven to have a positive impact on students, with a significant increase in the number of students reporting that they like computer science after taking part.

We also know the power of teachers in helping young people find the right path for the future, and at the secondary school level we are supporting Teach First in recruiting and training 50 new computer science teachers and 200 careers leaders. Focused on schools in low income areas, this will improve teaching provision and help students understand the opportunities and careers available in the computer science industry. Careers leaders will receive support to develop a long-term careers strategy to improve students' opportunities in their schools. After two years, this investment is expected to benefit 50,000 secondary school students.

These initiatives are designed to inspire a generation in the growing industries of tomorrow. But Amazon isn't just looking to encourage people into developing their careers. Through Amazon Future Engineer, we are also directly funding people to gain the skills they need to succeed. Earlier this year we announced our intention to

offer a further 1,000 apprenticeships, to add to the 300 apprentices we already had on board.

They range from entry level to degree level, and among those are 120 Amazon Future Engineer apprenticeships in software development engineering, automation and advanced mechatronics. Participants in our apprenticeship programmes will benefit from a mix of on-the-job work experience and classroom-based learning.

We also fund bursaries for students from lower-income backgrounds studying computer science at Cambridge, King's College London, Manchester and Edinburgh universities, which neighbour our corporate sites and development centres there. Those who get Amazon Future Engineer bursaries don't just receive financial support; students also benefit from mentoring and internship opportunities from within Amazon, helping them to take the first steps in their career.

The future of the UK's technology sector is bright. The world of tomorrow will increasingly become dominated by computer science and technology-related industries, and we need to make sure that the workforce of tomorrow is equipped with the knowledge and skills to succeed.

For more information, please visit:
www.amazonfutureengineer.co.uk

CASE STUDY

Nicola: pursuing a dream career in engineering

Growing up, Nicola Elliott dreamt of becoming an engineer. She says: "I have always been interested in technology, I liked fixing things but I didn't think it was possible. I had never met a fully qualified female engineer in my life."

She discovered Amazon's Automation Engineering Degree apprenticeship on a website dedicated to women in engineering. It was a

chance to fulfil her dream. Now in the second year of her apprenticeship, Nicola is working at the Amazon fulfilment centre in Bolton.

Her four-year scheme offers a blended approach of classroom training and on-the-field practice, culminating in the achievement of an engineering degree alongside a number of academic and vocational qualifications.

Julia Gillard, the prime minister of Australia from 2010-13 and chair of the Global Partnership for Education, on making the world a more equal place for men and women. Interview by Alona Ferber

An education of one's own

During the “big bang” of internet virality, Australia’s first – and to date, only – female prime minister became an online sensation. In 2012, from the house of representatives, Julia Gillard delivered a withering diatribe against misogyny in politics that had then leader of the opposition Tony Abbott visibly squirming in his seat.

“The leader of the opposition says that people who hold sexist views and who are misogynists are not appropriate for high office,” she said of the motion to remove Peter Slipper as speaker following a series of inappropriate and sexist messages Slipper had sent to an aide. “I hope the leader of the opposition has got a piece of paper and he is writing out his resignation because if he wants to know what misogyny looks like in modern Australia he doesn’t need a motion in the house of representatives, he needs a mirror.”

The 15-minute address earned Gillard fist pumps from women worldwide. In office from 2010 to 2013, the 58-year-old former leader of the Australian Labor Party faced the kind of sexist vitriol now familiar from Hillary Clinton’s presidential run. Abbott, who would later serve as prime minister himself, was pictured at a rally where demonstrators furious with Gillard’s proposed carbon tax, carried banners reading “Ditch the Witch” and “Juliar [sic] Bob Brown’s bitch” (Brown was leader of the Australian Greens). There were other, still cruder, indignities.

Gillard has channelled the “cool anger” of her viral moment into the struggle for gender equality and better access to education. As chair of the Global Partnership for Education (GPE), patron of the Campaign for Female Education, and inaugural chair of the Global Institute for Women’s Leadership at King’s College

London (KCL), which she established in 2018, Gillard is working to close gaps between boys and girls from schools, to skills, to the workplace.

“I tend to be optimistic on most things,” says Gillard in a phone call from Adelaide, the Australian city where she lives, and where her family moved from Wales in the Sixties, “but I do understand that we live in a pretty quarrelsome, contested world, that it can be quite hard for evidence and reason to break through.”

It would require truly rose-tinted glasses for anyone to believe that real equality between the sexes will happen anytime soon. According to the World Economic Forum’s Global Gender Gap Report 2020, gender parity will take the world another 99.5 years. The WEF’s annual index predicted it would take 257 years to redress the balance between men and women on economic



GETTY IMAGES/ LISA MARBE WILLIAMS STRINGER

participation. “It would be nice if they were measuring it in five or seven years, but it’s never like that,” Gillard says, “It’s always pointing to a time horizon that you know you are never going to see the end of.”

One of the greatest challenges in closing the economic gap is the under-representation of women in emerging roles in fields such as artificial intelligence (AI) and cloud computing. There are no quick fixes, says Gillard. “If it was quick and easy I suspect we wouldn’t see these stubborn gaps. We would have closed them by now.”

Part of the problem is that statistics are too often taken at face value. For example, the fact that more women than men now attain bachelors’ degrees in countries such as the UK, Australia and the US has “spread a bit of complacency that means well, you know, gender gaps in our society in education have closed, we don’t have to worry about that anymore,” says Gillard. But the headline figure, she suggests, masks “gender segregation on topics studied and qualifications gained. And when you then think about where the jobs of the future are coming from, that does give us a key focus on the science, technology, engineering, maths area...and the gender differentials between men and women there.”

For Gillard herself, education was “the initial motivator for getting into anything that looked like public policy or public advocacy”. She campaigned against government cutbacks to tertiary education as a student, served as education minister from 2007 to 2010, and pushed major reforms to the education system. “When I left office here it made sense to pursue what had been a lifetime passion but to do it in a different way. I knew I didn’t want to be a continuing commentator on Australian domestic political affairs. I wanted to leave that to the current generation of politicians.”

Gillard has become a major voice in global education policy, counting Rhianna and Hillary Clinton among her friends and allies. In her KCL podcast – a riff on Virginia Woolf’s feminist classic,

titled “A Podcast of One’s Own” – she has interviewed a litany of luminaries, from Clinton to the BBC journalist Carrie Gracie and the comedian Sandi Toksvig, about the challenges professional women face. Under her seven-year chairmanship of the GPE, due to end in 2021, the rate of girls finishing primary school in the organisation’s 68 partner countries is 75 per cent, compared to 2002 when it was 57 per cent. In 2016, 41 million more girls enrolled in school across GPE partner countries than did in 2002.

Making sure girls can simply go to school in the world’s poorest countries is a matter of utmost urgency, says Gillard. But at the same time as closing that gap, developing countries can learn from “historic errors” of education systems such as our own. “Rather than mimicking our schools of the Fifties, Sixties and Seventies, on subjects and expectations between boys and girls,” says Gillard, the GPE encourages them “to actually be designing in now strategies to make sure that every child can engage in and succeed in the science and technology subjects, to be designing in now gender-inclusiveness and responsiveness in the way that schools are planned.” This ranges from basic safety and facilities, such as providing toilets for girls, to curricula “that make it clear that girls can do anything and it’s not a question of these subjects are right for girls but this path of study is right for boys.”

A child of the Sixties, Gillard herself remembers “being presented with teaching styles and curriculum materials that would have led you to believe that some things were, you know, really more for boys than they were for girls.”

Equality of access will not guarantee a future society devoid of sexism. “If educational equality was all you needed to do to create gender equality then nations like our own would be further along the track... than we are,” Gillard says. Alongside ensuring girls are in the classroom in the first place, when young women leave school they need to have “the ability to go into work, to make sure that all aspects of the workforce are open to them, that there isn’t any form of bias

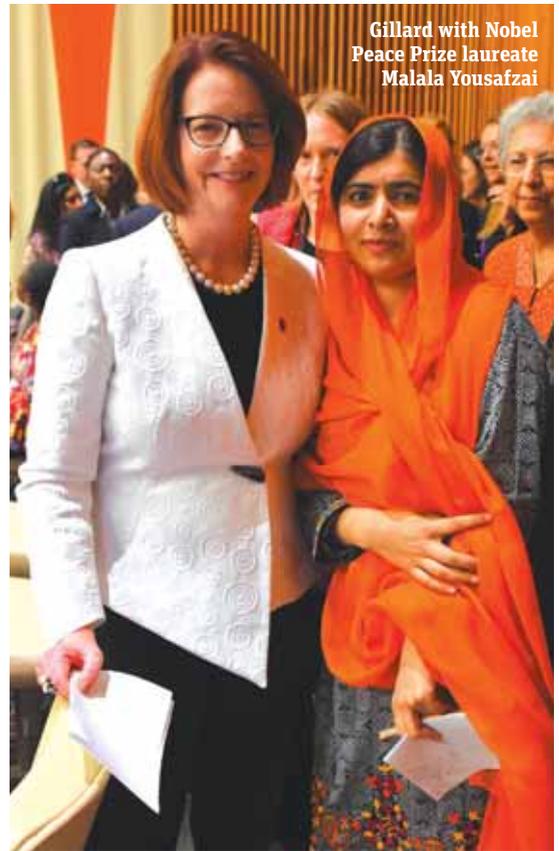
Gillard with GPE global ambassador Rihanna and Global Citizen CEO Hugh Evans during a trip to Malawi



in who is recruited, in who is promoted, in who is retained.”

Role models are key to redressing the balance in STEM subjects and skills in emerging fields, she says. “It’s very important for girls to see female role models in advanced computing, AI, quantum physics to show that it is possible for women to achieve.”

As one of the few women in modern history to become a national leader, Gillard is herself a role model for girls looking to succeed in any male-dominated arena, and certainly for those considering entering politics. This is something she hears often. Last year, Gillard shared on Facebook a note she received from a stranger on a flight. In the message, Kate, a public service worker, said of her and her colleagues that “when one of us is being unfairly sidelined we use the term ‘WWJD’ — ‘what would Julia do?’! It’s our rallying cry to be the absolute best at our jobs.”



Gillard with Nobel Peace Prize laureate Malala Yousafzai

Politics still has “gendered moments”

Gillard would “absolutely” recommend politics as a career path. “Whenever I talk to young women I always say if you’ve got the passion to seek change in this society there is no better way to pursue that than being actively involved in politics, involved in politics and seeking political office, so go for it. But, you know, recognise that there will still be some gendered bits and it will pay to think in advance about how you would deal with those gendered moments when they come.” Her advice for dealing with those “gendered moments” is to think through what you would do, what you would be prepared to call out, and who you would be able to rely on for support in the face of sexism. “One of the things we sometimes unfairly do is we put all the weight on the shoulders of women who are in politics to call out the gendered bits... whereas really everybody should be calling them out.”

Does she still feel the same calm, collected rage against misogyny evident

in her 2012 speech? “That speech was obviously given in a context, in a moment, so I don’t walk around the world re-giving it... I try to be more analytical and dispassionate than that.” Gillard wants to be “involved in deepening that now to new evidence, new research that can then be deployed for greater outcomes.”

She thinks politics has become a better place for women overall, from the lively debate in Australia about women in politics to the example of New Zealand’s prime minister Jacinda Ardern, who has shown the world it is possible to have a baby and lead a country. Though of course, “there are... millions and millions of others around the world [who] would want to see a far, far faster pace.”

And, really, how easy is it to refrain from commenting on Australian affairs? “Some days are harder than others,” Gillard laughs, “but it’s a discipline I’ve exercised for a fair time now, so the longer I do it, the easier it gets.”

Training the leaders of tomorrow

Niamh Mulholland, director of communications and external affairs at the Chartered Management Institute, on the value of management degree apprenticeships

It is no revelation that British businesses are facing seismic change. The rules and regulations that govern their interactions, transactions, and determine their priority markets may alter as the terms of our new relationship with the EU unfold. Industries evolve; consumers become more sophisticated and demanding; and external factors such as political crises and extreme weather events have ramifications for every business, big or small.

Politicians and top-level executives will rightly “lead the charge” in planning for business change, but the decisions-makers on the ground – the managers – will be on the frontline, facing change head-on and having to adapt at pace. The UK Commission for Employment and Skills projects that the UK will need nearly 2 million new managers by 2024, and we at the Chartered Management Institute (CMI) estimate that we already have some 2.4m “accidental managers” in the country, who grapple with change on a daily basis without an assured management skill-set to help them make the best decisions.

But how do you prepare for a future that is still taking shape? At CMI we are currently exploring what the future of good leadership might look like through our Management 4.0 campaign – and assessing how we can best equip our membership community and the country at large for future challenges with the best resources and training. But



while we can anticipate the changes to come no one can truly know what that future will bring.

But what we do know is that investing in strong, transferable skills now will equip people for success, whatever challenges the future throws our way. It is what a responsible, progressive, ambitious country like the UK should be doing. Enter degree apprenticeships. They strengthen our workforce by offering genuine professional development across a range of roles, levels, and industries. They offer young people an alternative route into the workforce, acknowledging that traditional education is not the only path to success (a survey of parents commissioned by CMI shows that nearly three fifths of parents think an apprenticeship provides a better chance of getting a good job than going to university). And degree apprenticeships combine full-time employment with formal study and 83 per cent of managers agree that degree

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apprenticeships build the prestige of the apprenticeship brand. Our research also shows that apprentices completing a higher apprenticeship could earn £150,000 more during their career.

Upskilling the nation

This is why the CMI believes passionately in working with business and education providers around the world to deliver first class Management Degree Apprenticeship courses. We have over 500 UK education centres, 50 overseas, with more than 110 accredited qualifications. Many are apprenticeships because they give workers the skills they need to be work-ready and become leaders of the future.

But what about the leaders of the present? Well, degree apprenticeships allow them to improve by gaining a new qualification without taking time away from work. Nearly three quarters of management apprentices agree that they are gaining the skills they need to achieve promotion in their current

role. And it is not just employees who see the benefits.

We know that employers want new recruits to be equipped with professional management skills and behaviours relevant to a changing world of work. Apprenticeships deliver this. But CMI research also finds that 83 per cent of managers feel apprenticeships are beneficial for developing employee's existing skills, and 86 per cent feel they provide employees with additional skills.

Driving diversity

And business adaptability goes beyond increasing skills. It is also about casting a wider net during hiring and training processes. Apprenticeships are key to this, and since the introduction of standards, nearly half (46 per cent) of management apprentices have come from some of the country's most deprived areas, while 49 per cent are women. Investing in apprenticeships helps businesses tackle imbalance all the way up to the boardroom. Why does this matter as much as skills? Because McKinsey estimates that a more diverse workforce could boost the economy by up to £150bn by 2025 – a “diversity dividend” we can not afford to miss.

Without a variety of people around the table, you get people who all look the same, with the same backgrounds, reinforcing each other's decision. Diverse workforces bring new perspectives that help businesses adapt to new and future challenges.

Tackling the productivity crisis

We also need to turbo-charge the British economy into a healthier, more stable state by investing in the right tools and education – this will, in turn, turbo-charge our productivity levels. The Office for National Statistics found that improving managerial effectiveness scoring by merely 0.1 per cent was linked to a near 10 per cent increase in productivity – 92 per cent of CMI management apprentices agree that they are acquiring the skills needed to be more productive at work. The data is

CASE STUDIES

Charlotte Potter, Pendragon PLC:

“We have invested in our apprentices and know this will pay off in the long run. The [CMDA] programme is shaping the future leaders of our company who will possess a strong base in true professional management.”

Rav Billan, CMDA:

“As a manager, you're in a privileged position to shape others' futures and destinies. I definitely feel this course has given me the foundations and skillset to excel at the next stage.”

clear: improving leadership quality in business achieves significant increases in productivity and economic growth.

Despite some criticism of its implementation, the apprenticeship levy has been an important innovation in skills funding. Through joint government and employer investment it has created high quality entry-level opportunities beyond traditional education; allowed established workers to become better leaders in their fields; and provided progression opportunities to those who might not have previously had them. At the CMI we welcome flexibility to reduce bureaucracy and support employer choice, as argued for in our 10-point plan with the British Chamber of Commerce. We also support calls to introduce lifetime learning allowances for individuals to support upskilling with approved education and training providers.

In short, management apprenticeships are essential for developing the highly skilled, highly waged economy that the UK needs to remain internationally competitive in a world transformed. Investing in qualifications such as Chartered Manager Degree Apprenticeships creates conscious leaders that will steer British industry to a brighter future.



GETTY IMAGES/ROBIN BECK



I, Teacher: AI and school transformation

Rose Luckin

A new decade is a great time to think about the potential ways in which technology will transform future teaching and training. Past decades saw Smart boards, learning management systems and the iPad, but none of these technologies have been transformational. The dawn of this decade brings with it the possibility of a quantum leap forward, however – through Artificial Intelligence (AI). Will this be the decade when the education revolution really happens?

At a time when six out of ten children globally are not reaching minimum proficiency in reading and mathematics, according to Barclays equity research, and employers increasingly complain that new staff are not work-ready, what can AI offer? AI can be used to individualise the way that people of all ages learn about the world, from maths to Spanish. Feedback can be tailored to match ability and AI can select the activities and tasks that appropriately extend their ability to solve problems and understand new concepts. Interfaces to learning that enable voice-activated and physical interactions can bring greater access to technology, and intelligent virtual and augmented reality can be created that offers the opportunity for people to try out their skills, from driving to mountain rescue or A&E triage, supported by their AI mentor.

AI can also be used to process data about what people say, how they move, how they are feeling and what they are looking at or touching. This means that teachers

and trainers can understand the way that their students are learning and the way they are feeling, as well as what they are learning and how they are performing.

AI cannot do everything that a human teacher or trainer can do, and we will always need an expert human to orchestrate, empathise and mentor, but AI can augment our human educators and support learners in ways that are extremely useful and efficient.

The potential of AI is recognised across the world: Singapore has set aside US\$150m for a five-year national program called “AI Singapore”. Interest in AI in the East is also driven by the expanding middle class in China, with their high demand for education and skills. This is evident in the rate of government investments in EdTech (US\$5.2bn in China in 2018, compared to US\$1.6bn in the US and US\$0.5bn in Europe) and AI in particular. In Estonia, there is a mission to increase awareness and use of AI and to transform that country’s education system with learning environments that are built to combine school, vocational, cultural and adult education and workplaces, including their vibrant start-up culture.

AI is transforming our lives. It promises great changes in education and training. The heart of the action is with start-ups.

Rose Luckin is the founding director of EDUCATE: the world’s only EdTech Research Accelerator

The new power generation

EDF's chief executive officer, **Simone Rossi**, says apprentices have a vital role to play in ensuring the energy industry responds to climate change

Achieving net-zero greenhouse gas emissions in the UK by 2050 is a big challenge. As the demand for low-carbon energy increases, the country will require new energy infrastructure, innovative technology and a skilled workforce.

That is why EDF is investing so much in apprentices. Across our business, we and our contractors run more than 25 apprenticeship schemes, giving young people a chance to work in an industry that is crucial to the fight against climate change.

EDF is already the UK's largest producer of low-carbon electricity. We operate the country's eight existing nuclear power stations and a fleet of more than 35 wind farms. At Hinkley Point C in Somerset, we are building the UK's first new nuclear power station in a generation. We are investing in battery storage and electric vehicle charging, as well as new ways for our customers to use energy more efficiently.

More than 500 apprentices have already worked at Hinkley Point C. Nuclear energy produces reliable low-carbon electricity and is widely recognised as having a vital role to play alongside renewables in ending our



reliance on polluting fossil fuels.

Opportunities for apprentices are available in almost every activity at Hinkley Point C, from steel fixing and construction management to catering, hospitality and accountancy. We have worked hard with our contractors to

KEY FACTS

APPRENTICESHIPS AT EDF

- More than 25 apprenticeship schemes across the business
- More than 500 apprentices trained so far at Hinkley Point C
- Ofsted "Outstanding" award for Engineering Maintenance scheme
- Large Employer of the Year Award from Engineering Construction Industry Training Board

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create schemes which will give our apprentices skills for life.

Many of the apprentices are local and we are proud to be helping transform the lives of young people. The legacy we hope to leave could be replicated in the East of England if Sizewell C is built.

We are on track to create 1,000 apprenticeships during construction of Hinkley Point C. Some will continue to play a crucial role in operating and

Over 500 apprentices have worked at Hinkley

maintaining the power station for its 60 years of electricity generation.

Each year around 45 apprentices are trained in our existing power stations. We have been training apprentices since the 1970s and, for the last nine years, we have been running a four-year engineering maintenance apprenticeship, which has been given an “Outstanding” Ofsted rating. Our new Nuclear Engineering Degree Apprenticeship allows students to get a full degree qualification after four years of study and work experience.

Our apprentices are ensuring the UK has the skills to build and operate the low-carbon infrastructure of the future. Young people are at the forefront of the fight against climate change. By working in an industry that is leading the way in reducing emissions, they are directly involved in creating a better, more sustainable future for our planet.

CASE STUDIES

Hinkley Point C

Bethany Sharkey (pictured, left) from Bridgwater is completing a Lifting Technician Apprenticeship with one of Hinkley Point C’s main contract partners, Bylor. Bethany got a job doing general work at Hinkley Point C and then successfully applied to become an apprentice. “I saw the tower cranes and realised I wanted to drive one,” she said. “I wouldn’t be who I am without this apprenticeship and couldn’t imagine myself doing anything different.”

Heysham 2 power station

Sasha Merrick completed the Engineering Maintenance Apprenticeship and won EDF’s top apprentice award. Sasha spent time on work experience then secured an apprenticeship and now works in control and instrumentation. She said: “I had always been interested in engineering and taken maths, science and engineering at school and I did think of going to university but joining EDF’s apprentice scheme was the best decision I could have made.”

Smart meter programme

Andrew Leakey from Wells now trains other technicians in how to install smart meters after an EDF apprenticeship in 2011. He said the best thing about his course was being given responsibility at a young age. He explained: “You can be successful through an apprenticeship scheme. When I joined EDF as an apprentice I never anticipated working my way up in the company. If you do a good job in your current role and you have completed a respectable training programme then you will have opportunities in the future.”

**New Labour education guru
Andrew Adonis on the need for
more options for young people.
Interview by Rohan Banerjee**

The politics of opportunity



In December 2018, the Labour life peer Andrew Adonis told the House of Lords that, when it comes to education, the state has failed to live up to the expectations of “wise” parents. Alongside exclusions and citizen engagement, the former Minister for Schools and author of the 2012 treatise *Education, Education, Education: Reforming England’s Schools*, highlighted apprenticeships – for which he has long banged the drum – as a seriously overlooked area.

“What the wise parent would wish for their child is to have equality of opportunity whether they go on to university or to a non-university course,” he argued. “We in this house and beyond have been going on about this issue now for at least a generation, but the problem is there is not equality of opportunity at the moment.”

Today, the ardent Remainer is perhaps better known for his social media soapboxing on leaving the EU than for

his time as New Labour’s education guru. But the 56-year-old is still a champion of alternatives to university education, and he still believes that a focus on education, apprenticeships and skills is “integral” for “rebalancing” the UK economy. If done well, Adonis says at his Milbank offices a few days after December’s General Election, education “of all kinds” can serve as a “catalyst” for social mobility. If done badly it achieves “the exact opposite”.

The Conservatives’ apprenticeship levy – a 0.5 per cent tax on UK employers with an annual wage bill of more than £3m to fund new apprenticeships – was launched in April 2017. There were 375,800 new apprenticeship starts for the 2017/18 academic year, according to official government data, compared with 494,900 in 2016/17, and 509,400 in 2015/16 – a decline of 24.1 and 26.2 per cent respectively. Adonis stops short of saying that the levy has failed, but thinks that the policy could do with a

rethink. “I think the levy could stand to be more flexible and include things like retraining as well. It doesn’t have to be focused on school leavers; you can have management apprenticeships too.”

The current minimum wage for an apprentice in the UK is £3.70 per hour – less than half of the national living wage for someone aged 25 or older. Adonis, who has two children currently at university, agrees that any hope of packaging apprenticeships as a “credible alternative” hinges on them being paid “properly”. He says: “There is no appeal in earning while learning if what you are earning is very little.”

There was a belief among policymakers, Adonis says, that the lower rate of pay for apprenticeships may actually encourage the provision of more. “That belief, evidently, has not manifested itself. And the lower rate of pay [for many apprentice-level jobs] certainly affects the public’s perception of them.”



Education is a “catalyst” for social mobility

In 2013, Adonis led an independent review of the UK’s economy for Policy Network, a think tank, in which he argued that there is an “imperative for a major expansion” of high-quality apprenticeships, namely those “accredited by professional bodies”. A mistake has been made, he reflects, in viewing university courses and apprenticeships as “necessarily opposite”. Rather, he suggests, “aspects” of each can be applied to the other.

Increasingly university graduates are being criticised for lacking soft skills or industrial awareness upon entering the workforce. More “employer involvement” in designing and setting the standards for degrees, according to Adonis, could go some way towards squaring this circle. “It should be a partnership. Employers know what they want from their graduate candidates, so it makes sense for them to be able to collaborate with schools, colleges or universities on this. This sort of thing

already happens in Germany.”

In 1999, the Labour government set a target of 50 per cent of young people attending university, which was, according to the Department for Education’s official figures, reached in the 2017/18 academic year. But, in 2020 there is an excess of graduates without a job who are burdened with thousands of pounds’ worth of student debt.

“When we introduced tuition fees, the debt level wasn’t excessive,” says Adonis, who was one of the chief architects behind Labour’s policy. “It was being paid back through a tax system, linked to your income. Philosophically, that was more defensible and more manageable [than the trebled rate introduced by the Coalition government of 2010].”

But he doesn’t think the answer is to scrap fees entirely, as proposed by Labour’s most recent election manifesto. “There is no point in pretending that you can have a first-class higher education system without sharing some of the cost with the graduates. I think the right thing to do would be to return to the pre-2010 regime, which would mean fees of between £3,000 and £4,000 a year, rather than £9,000 or £12,000. That is a lot more affordable for a start and far less culturally off-putting for working-class students.”

The rising cost of qualifications together with the narrative about the value of university has, Adonis believes, created an over-reliance on the graduate talent pool. “We have a situation now where there are more graduates than there are jobs.” And although he would, “for the sake of learning as an embedded feature of our society”, like to see all people attend university “at some stage in their life”, Adonis says, the “lack of options” on offer to school leavers is neither sustainable nor desirable.

Learning “at all levels”, he suggests, should be more creative. “When I did my finals at university in the 1980s, every single paper was a written three-hour exam. And when I was doing my A-Levels a few years before, every paper bar one, my French oral, was a written exam. Fast-forward to now and, in

“Employers value skills as much as qualifications”



the main, we are still assessing people through written exams. The world of work is constantly changing... yet the way we teach students has barely changed in 30 years.”

The shift away from coursework, during school years, is, according to Adonis, “one of the stranger points of consensus” among successive education ministers, “especially as more university courses are built on independent research and projects undertaken over an extended period of time.” Coursework, which requires students to get out of the classroom and actively do some research, is a “helpful process in preparing them for further study and for many jobs.”

Soft skills – specifically public speaking and building interpersonal relationships, as well as political and financial awareness – should be thought about “earlier on” in the education pipeline, he says. “This is something we should be working on while people are still at school. Employers value skills just as much as qualifications.”

Adonis is “hugely in favour” of extracurricular activities as a way of developing skills and feels that this is one area in which state schools should be emulating private schools. “I don’t like the social elitism that accompanies many aspects of private schools,” he admits, “but we do need more of the DNA that

makes up private schools to be shifted into the state sector, for example debating societies, drama, and sport.” His thinking on this has drawn criticism in some quarters. In her review of his 2012 book, for instance, Melissa Benn dismissed the approach as “ersatz elitism” and “phoney blazered privilege for all”. Adonis is adamant, however, that investing in activities “alongside” the curriculum will help students to “broaden their thinking and become more confident.”

Good policies cost money and Adonis “obviously” supports investing more in the UK’s education system. But, following the “disaster” of Labour’s election result in December, he reiterates that going forward, the party can’t “simply throw figures” into the public domain and expect them to be voted for on goodwill alone. “It is all well and good saying you’re going to pump millions into schools – but what exactly are those millions being spent on?”

And despite his disappointment over Brexit, Adonis does not dismiss its ability to act as a shot in the arm for UK training and education. “That may be one happy side effect,” he admits. “For the UK to thrive it needs an education system that is diverse and well-funded. And all courses and apprenticeships need to be thought about with the world of work, and how it is changing, in mind.”

How to build capacity through apprenticeships

Aviva has embraced the apprenticeship levy to boost business success both today and in the future, says **Sophie Gray**, head of UK apprenticeships

We have 430 levy-funded apprentices across our business who reflect the broad range of skills we need to thrive. We will always focus on developing core insurance skills such as underwriting and actuarial, but also need to develop new skills such as digital, analytics and cyber to be successful in today's market.

Apprenticeships are helping us break down the traditional requirements for entry-level qualifications, and helping colleagues develop their career. Not everyone knows exactly what they want to do, but often being given the chance is all that is needed to find motivation to learn.

For one of our apprentices who struggled within the traditional education system, being given the chance to earn and learn vocationally was the change he needed. Entering the world of work not only gives the independence but often the motivation. One of our apprentices, who struggled in school, achieved a distinction in their Level 3 Insurance Practitioner Apprenticeship, a core skill for Aviva.

We also have people who come to us with fresh ideas, motivation and a propensity to learn over time. We are embracing new skills, such as data science, to equip us for the future and apprenticeships are helping us grow our own experts. Last year an apprentice qualified as a Level 4 data analyst and immediately enrolled on the Level 6 data science degree to keep developing and learning.

Two-thirds of our apprentices are current colleagues who are looking to develop their skills – that is how our programme has evolved. Originally we thought apprenticeships would primarily attract new talent to entry-level roles, but the diversity of schemes means we can be more inclusive for people from different backgrounds and career stages – be it school leavers, people returning to work, or people reinventing their careers. We have found that this makes for more engaged and dedicated employees with skills that are extremely valuable to us.

A diverse workforce is key to success

Apprenticeships can be for everyone. We are focused on developing a diverse and inclusive pipeline of apprentices as we need colleagues who mirror the demographics of our customers. We have apprentices whose ages range from 18 to 68 years old and these opportunities help foster social mobility in our community.

For example we have a large presence in Norwich, and some coastal towns nearby have fewer links to long-term, highly paid employment. Working with schools in these areas helps us attract a new and diverse demographic of employees, which is mutually beneficial.

Companies do not have to take advantage of the apprenticeship levy, but we have chosen to embrace it and integrate apprentices within our overall talent strategy. Building these skills through apprenticeships is helping us to develop the capability and achieve commercial success both today and for the future.

For more information, please visit:
www.aviva.com/careers

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The UK must radically reform education to prepare young people for the industries of the future, says Green Party MEP **Molly Scott Cato**

The skills for a Green New Deal



The Green New Deal advocated by the Green Party aims to reshape our economy and society to tackle climate and ecological breakdown with the urgency dictated by science. It will transform almost every aspect of life, including how we work. This, in turn, will require learning new skills and taking up new jobs. For many working in the fossil fuel economy it will mean the end of the jobs they currently have. It will require retraining or adapting their skill-sets to meet the needs of the new green economy.

A Green New Deal must transform not only the economy but also be a break with the business-as-usual approaches of the past, based on exploitation, inequality and environmental destruction. It can lead to greater social equity and sustainability but, as we saw from the gilets jaunes protests in France, if these social benefits are not clear from the start, resistance can be immediate and destructive.

So the Green New Deal must be taken forward in partnership with trade unions and ensure a smooth transition where workers receive training and guidance to move them to the next economy. This must not be a process of capitalist “creative destruction” where individuals are left to fend for themselves.

Greens believe the UK needs to invest £2bn a year in preparing citizens to access the new jobs created in a low-carbon economy. For many young people this will mean training in areas such as renewable energy technologies, public transport and organic farming. Such training is a central plank of the Green New Deal.

Those already in work need publicly funded retraining. This is likely to be in the form of in-job courses as sectors restructure to meet the requirements of working towards a carbon-neutral economy. So for example, builders learning about insulation and retrofitting,



electricians and plumbers taking courses in heating controls and post-fossil home heating, mechanics learning how to service electric vehicles, farmers knowing how to incorporate protecting soil and biodiversity into farming practices, and those in tourism learning how to put the “eco” back into eco-tourism.

But we will not achieve sustainability without a major redesign of our relationship with work and our understanding of political and social processes. That has as much to do with

Citizenship must become a core subject

values as it has to do with the acquisition of skills.

A Green New Deal must embrace a new ethos based on learning by doing and taking a systems approach, particularly one that focuses on the circular economy. It must equip all citizens with the skills of resilience and adaptation, since this is a whole process of transformation. Learning to deal with mistakes these will require flexibility and wisdom.

Such a deal will only gain the right support if young people are committed to the transition. Any discussion on the skills and training needed for the green jobs of the future must start at the beginning: We need to transform our education system. Young people must leave school and college with a clear understanding of why we need to transform our economy and society, as well as a desire to actively bring about such a transition.

Schools and colleges need to help this

process by helping students become politically literate and understand what it is to be an active citizen. This will require citizenship education to become a core subject, equal in importance to numeracy, literacy, and science. All schools should offer a GCSE in citizenship studies; currently many do not.

In parallel with a renewed push for citizenship education, the introduction of a Natural History GCSE would aim to instil in young people, through first-hand outdoor experience, an understanding of the value of nature.

We also need a Climate Emergency Education Act to support schools in teaching young people about the urgency, severity, and scientific basis of the climate and environmental crises. This will help ensure that youth voices are heard on climate issues.

Finally, this investment must prioritise communities hit hardest by economic changes and those where the transition away from the fossil economy will involve job losses. It is essential that local authorities be given the power to decide how money on training should be spent. With many councils having declared climate emergencies and pledging to become carbon-neutral by 2030, a Green New Deal is going to be key to achieving such an ambitious target. It is vital that while government provides the funding for Green New Deal training and skills programmes, local authorities in partnership with businesses and the public and voluntary sectors decide how best to spend the money.

A Green New Deal offers opportunities for the creation of thousands of high-skilled, well-paid jobs in all our communities. But it could also mean the contracting out of bargain-basement employment to some while others are thrown on the scrap heap. It is our job to ensure the sustainability transition is owned and led by citizens, and supported by trade unions, so that it can fulfil its social and its environmental promise.

Molly Scott Cato will be Green Party MEP for the South West of England until 31 January

Linguistic skills are crucial for long-term career prospects and for the economy, but fewer young people are gaining them. By **Samuel Kerr**

A 21st-century illiteracy

As chancellor of the exchequer, George Osborne thought he had found a key to boosting British competitiveness: teaching more children Mandarin. In September 2015, he announced a £10m investment in the Mandarin Excellence Programme, which aimed for an extra 5,000 children in the UK to be learning the language by 2020.

Two years later, the country's first entirely bilingual English-Chinese school opened its doors in London. At Kensington Wade, founded in 2017, children shout out answers in Mandarin in one classroom, practice calligraphy in another, and sing English songs in the next. Pinned to the wall of the school's waiting room is a quote from businessman Sir Martin Sorrell: "Chinese and computer code are the only two languages the next generation should need".

But the 61 pupils at the £17,000-a-

year establishment, expected to be fluent in Mandarin by the age of 11, will be in the minority of young Brits who speak a second language. According to Eurobarometer, only 32 per cent of Britons aged 15-30 can read and write in more than one language. The EU average is 80 per cent. Given that it is compulsory for children in Wales to take Welsh until GCSE, fluency in non-UK languages is likely to be even lower.

The British decline in language learning is an issue for employers, and for the economy. In March 2019, the All-Party Parliamentary Group (APPG) on Modern Languages published its National Recovery Programme for Languages, outlining strategic objectives for schools, further and higher education, business, government and society. They noted that "the UK loses 3.5 per cent of GDP in lost business opportunities due to our poor language skills" and that

"SMEs who deploy languages report 43 per cent higher export/turnover ratios."

The fact that English is such a widely spoken language worldwide is part of the challenge. The problem with finding policy solutions to that challenge, Labour MP Tonia Antoniazzi, vice-chair of the APPG for Modern Languages, told *Spotlight*, is that "[politically] languages belong everywhere a bit but nowhere holistically or strategically."

This is despite the importance of language skills "not just in education, but in areas such as international relations and security, social mobility cognitive health, and of course trade and exports."

A study by Geneva University found that 10 per cent of Switzerland's GDP could be attributed to the country's multilingual heritage and abilities. Matthew Fell, the Confederation of British Industry (CBI)'s chief UK policy director, says that better foreign language





skills are “critical to increasing the UK’s global competitiveness and to ensuring young people have the high level of cultural awareness that supports a successful career.”

Employers recognise the value of linguistic skill-sets. CBI has found that two-thirds of firms value foreign language skills among their employees.

Languages are key to social mobility

Typically, businesses do not demand native-level proficiency, but want employees to be able to build positive relationships and demonstrate the cultural awareness that often comes with having studied a language.

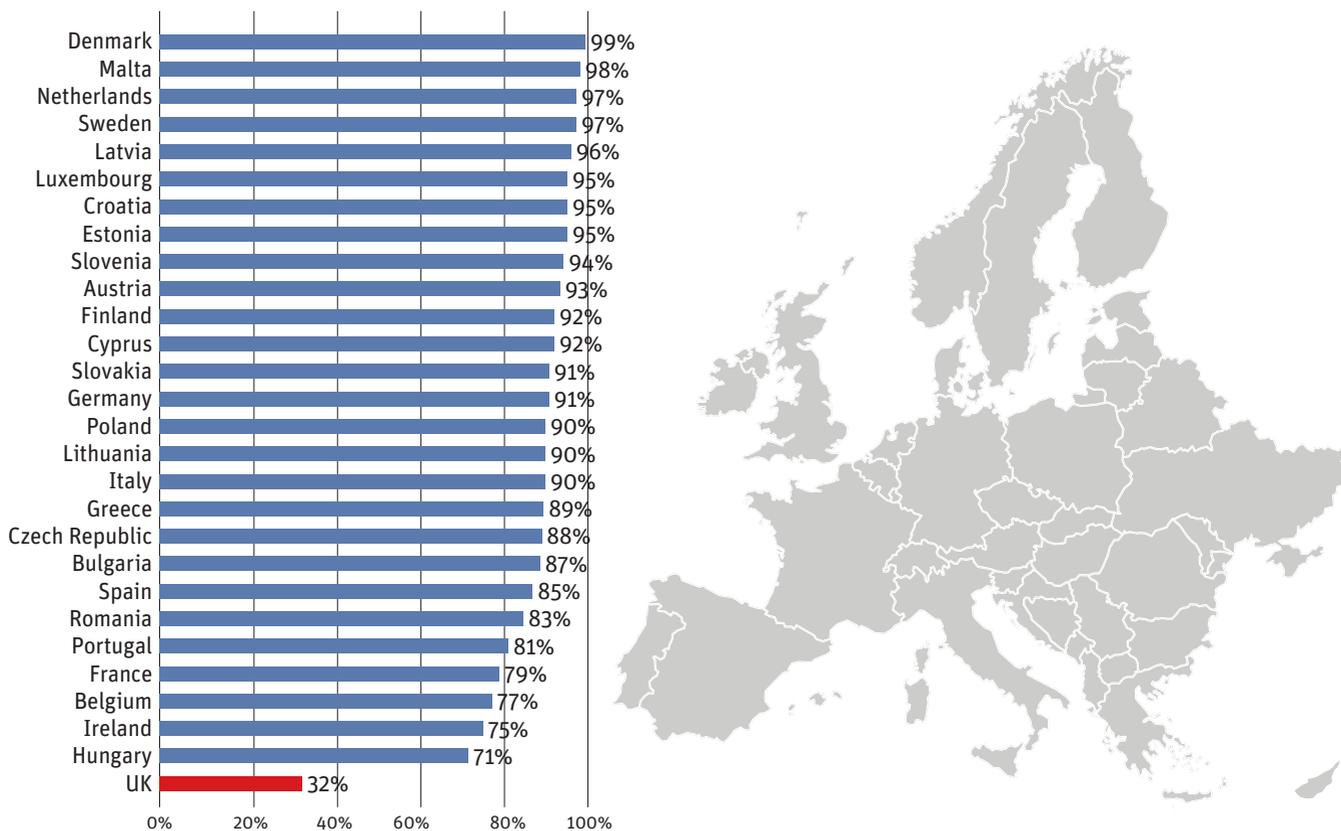
Last year, the British Academy together with the Academy of Medical Sciences, the Royal Academy of Engineering, and the Royal Society published a joint statement calling for a national languages strategy. They said that “monolingualism [is] the illiteracy of the 21st century”. They highlighted the “decline in the relative influence of English online, from 51 per cent of traffic in 2001 to 26.8 per cent in 2011”.

The rate of young people studying foreign languages at GCSE or A-Level is hardly cause for encouragement. In 2004, the government changed its policy that languages should be compulsory at Key Stage 4. The number of pupils

studying French and German has since declined. Today, less than half of pupils in England, Wales and Northern Ireland take a foreign language GCSE, whereas in 2002 it was three in four. Only pupils in London and the South East rank above the national average for taking a language GCSE. Some 4,410 students registered to learn Mandarin at GCSE in 2018, 300 up on the previous year.

In 2010, the Department for Education introduced the English Baccalaureate (EBacc), for which young people needed to study English literature and language, maths, the sciences, history or geography, and a foreign language at GCSE. The EBacc measures the proportion of students who score a grade of five or more (A*-C under the previous system) in these subjects. Among other things, it was hoped that making a language compulsory would arrest their declining popularity. Since

Ability of EU 15- to 30-year-olds to read and write in two or more languages



Source: Flash Eurobarometer 466, European Commission survey on the European Education Area, April 2018

its introduction, the number of children at state-funded schools taking a language at GCSE has gone up to 46.6 per cent from 40 per cent in 2010, according to the DfE.

At A-Level, the picture is one of decline. Last year, just 1 per cent of A-Level students took French – a total of 7,503. In 1996, that number was over three times greater – 22,718. Spanish has now surpassed French as the most popular language subject, chosen by 1.1 per cent of A-Level students. In 2018, Mandarin overtook German among A-Level learners with 3,334 compared to 3,058.

The data at undergraduate level is not much more promising. The number of language graduates has declined by 20 per cent over the past five years. In 2019, fewer than 25,000 people – less than one

in 20 UK graduates – attained a foreign language degree. This will likely impact the intake of foreign language teachers at secondary level.

Gender is also a factor. In the UK three-fifths of secondary school teachers are women, and language teachers are even more disproportionately female. In 2018, 63 per cent of all candidates for A-Level language subjects were female. Taking inspiration from the push for girls to study Stem subjects (science, technology, engineering, and mathematics), similar encouragement for boys to study foreign languages may help to redress the balance.

In January, the Higher Education Policy Institute, a think tank, published its *A Language Crisis* report, which calls for the reintroduction of compulsory language education up to Key Stage 4, a

more varied language curriculum, and for language teachers and assistants to be added to the Home Office's Shortage Occupations List.

The APPG's report from that year also recommends the government introduce a language accreditation into apprenticeship programmes and develop an inclusive language policy from ages 5 to 18 with different routes to gaining language qualifications.

For the UK to thrive as "Global Britain" as we exit the European Union, says Mark Herbert, head of schools programmes at the British Council, "we will need more of our young people to be equipped and willing to study and work internationally." In this way, the UK can take "advantage of the increasingly globalised economy, rather than [be] sidelined by it."



Playing second fiddle to Stem

Jonny Ball

In 2013, Dominic Cummings published a 237-page post on his blog. In “Some thoughts on education and political priorities”, later re-packaged as a slimmed-down essay on “Odyssean education”, the senior adviser to Boris Johnson decried educational standards in the UK. “The education of the majority even in rich countries is between awful and mediocre,” he wrote. “In England, few are well-trained in the basics of extended writing or mathematical and scientific modelling and problem-solving”.

At the time, Cummings was special adviser to then secretary of state for

education Michael Gove, who was last year named as “the most damaging political figure for the UK’s education system this century” by 80 per cent of headteachers polled by the *New Statesman*. Part of Gove’s legacy is

The arts are key to the UK economy

a steep fall in uptake of creative arts subjects taught in state schools. Last year, three former education secretaries – Kenneth Baker, David Blunkett and Estelle Morris – as well as two former Ofsted chiefs and the current chair of the education select committee, wrote a letter to current Secretary of State for Education Gavin Williamson to voice their opposition to the new EBacc system. According to the letter, the policy had led to a 24 per cent fall in music enrollments, a 29 per cent drop in drama, and 46 per cent in dance.

A 2017 Education Policy Institute report found that the proportion of students in England taking arts subjects had fallen to its lowest level in a decade. The report laid the blame firmly on the Progress 8 performance measures for schools, introduced in 2016, and the promotion of the Ebacc since 2011, which both focus on a narrow range of traditional academic subjects. Teaching unions have also reported steady declines in the number of teachers for art, design, music and drama since 2010. Part of Gove’s radical curriculum changes have led to intense pressures on teaching staff and a heavier focus on “facts” and on science, technology, engineering and maths. The unions and the Labour Party have criticised Gove’s curriculum reforms as a throwback to “1950s-style education”.

In 2019, it was reported that the combined value of the creative industries to the UK’s GDP was over £100bn and had been growing at twice the rate of the rest of the economy since 2010. An open letter from 100 leading UK artists, condemning the exclusion of the arts from the Ebacc, pointed out that this was “bigger than oil, gas, life sciences, automotive and aeronautics combined.”

The government has said “film, TV, radio, photography, music, advertising, museums, galleries and digital creative industries are all part of this thriving sector.” If it is to continue to thrive, the decline of creative arts subjects in UK schools will have to be reversed and the Gove-Cummings vision of “Odyssean education” will need re-vamping.

Enhancing education through tech

Paul Bailey, senior co-design manager at Jisc, on the potential impact of increased digitisation at colleges and universities

Technology is embedded within today's student experience. From the virtual learning environment that underpins the day-to-day study activity at many UK colleges and universities to the use of digital lecture capture, enabling students to process information anytime and anywhere. It has changed – and will continue to change – the ways in which we live, learn and work. And as technology permeates most aspects of our lives, the case for it to play a more prominent role in how we organise our education system grows ever stronger.

Supporting humans

Digitisation is no longer the “added bonus” that helps elevate a college or university from the crowd. We already live in a world where teachers can use artificial intelligence to generate reports and to track learners' progress on a digital dashboard created by a data analytics system. Students might



immerse themselves in a novel or take a field trip using a virtual reality headset, benefitting from interactive and personalised learning. Apps, digital content and websites that are fully accessible can boost engagement, bringing improved outcomes and widening participation.

In these ways and more, humans are already using technology to support collaboration, reduce the administrative burden, and ensure easy access to the information we need, when we need it. Applied well, we also know that technology can help deliver better value for money. And it has great potential to help us create education environments in which students feel safer and more satisfied. Jisc's Education 4.0 vision celebrates cutting-edge use of tech at colleges and universities and considers how we may go further, imagining scenarios in which staff and student experiences are not just enhanced but transformed by technology.

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Technology is a tool, not a solution

Engagement and feedback

A good example of Education 4.0 in practice is Unitu. Implemented at Swansea University, this online platform was initially developed with funding and support from a Jisc EdTech competition. Using cloud-based software, Unitu is a digital forum; a space where students and staff can collectively raise and resolve both academic and more general issues. It has a discussion board with two areas. In the first area, students can ask questions and post ideas. Topics that attract enough comments and “likes” are moved into the second area, which is divided into three sections (open, in progress, and closed). Here, staff can interact with the discussion and work with students to resolve problems and develop ideas further.

This multi-device student voice platform earned Swansea University the Technological or Digital Innovation of the Year 2019 accolade from the Times Higher Education Awards. It has been described as transformative, with users praising the way it challenges the cultural norms around feedback and changes staff and student views of how to engage with each other. The platform has also been instrumental in providing a voice for students who are often hard to reach, stimulating student-led debates on topics such as gender equality, and effective learning and assessment. Furthermore, Unitu has helped to increase Swansea’s National Student Survey (NSS) metrics, with improvements in the university’s Learning Community and Student Voice categories.

Data and analytics

Another emerging area in which technology supports education practice is data and analytics. Colleges and universities already have access to a huge range of data about their students and their estates and analysing this to support strategic planning is now common in the sector. Learning analytics are also being used extensively to help identify students at risk of

failing a course, and to improve student outcomes more broadly.

Curriculum analytics might be the next step, which is why Jisc is currently exploring ways of using data to improve institutions’ understanding of how students respond to different learning designs. Monitoring attendance or offering the opportunity to give feedback in real time, for instance, may give staff – who are often time-poor – a quick and concise review of what does or doesn’t work for different people.

Beyond that, institutions may soon start to analyse and utilise physical data about campuses, for example by checking that the environment is supportive of the learning activity by monitoring temperature, air quality, noise or occupancy; and to explore data about assessment to personalise learning for individuals or groups of students.

Integrating information from a range of different university sources, as well as from EdTech services, could offer significant improvements to the student experience – if handled with sensitivity and care, managed in a way that is ethical, and driven by student needs. Balancing these aspects is likely to be one of the key challenges the sector faces over the next few years.

The future of learning

For all its great potential, technology is a tool, not a solution. UK colleges and universities are led by human creativity, human innovation and human analysis. In that context, technology has a fantastic supporting role to play. As Industry 4.0 emerges (the fourth industrial revolution), it brings new needs, demands, possibilities and opportunities. By embracing technology and valuing human skills, Education 4.0 holds great promise to support teaching staff, deliver cost and time savings, enhance and transform the student experience, and provide connectivity for lifelong, flexible learning. When considering new ways to deliver positive experiences for students and staff in tertiary education, the future is tech enhanced and always human led.

Breaking down learning barriers

A combination of creative and technical skills is the key to a rounded education, says **Ji Li**, managing director of Plum Innovations

No less a person than Albert Einstein said: “To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science.”

In the 21st century, this spirit of problem solving and innovation is embodied in STEM subjects (science, technology, engineering and mathematics). The skills of observation, logical thinking, creativity and application of maths, can address real-world issues with the support of technologies.

“STEM is the intellectual compass for enabling future generations of children to prosper and succeed in a world being revolutionised by digital innovation,” says John Jackson, CEO at London Grid for Learning. He believes that if we do not energise STEM now then we risk casting future generations adrift at a time when they need our support more than ever. “These skills will enable them not only to stay afloat, but to confidently explore and benefit from the seismic and accelerating technological change.”

The UK has always been a leader of innovations and industrial revolutions. The list of transformative products and technologies designed here include trains and televisions, telephones and the internet – and of course, chocolate. STEM has been the key competitive strength and driving force for inventions, economic growth and improvement in living standards across the globe since the start of human civilisation.

Caroline Wright, director general at the British Educational Suppliers Association, thinks maintaining expertise in STEM is crucial. For her this is both about expanding scientific knowledge, and about ensuring future generations develop creativity, critical thinking, resilience and the ability to experiment, test and learn from mistakes. “I, for one, often learned more and made better progress in my scientific studies as a result of trying again after failed experiments and incorrect hypotheses.”

Right now we are in the eye of the Fourth Industrial Revolution’s perfect storm. However, STEM is talked about less and less both inside and outside schools. While we know that STEM subjects are interdependent, maths, design technology and computing are taught almost completely separately in schools – and rarely. Even topics like coding are just one part of what children need to know about computing, and in turn computing is just one part of the STEM ecosystem.

Rob Carpenter, CEO at The Inspire Partnership Multi-Academy Trust believes “deep learning is intrinsically linked to the application of thought and making sense of the world around us.” He says educators need to “mobilise curriculum knowledge and create networks of subject learning communities.” Carpenter says this will help to prepare our children as the post-digital era generation workforce to harness AI and any unknown technology that might emerge in a decade’s time.

We have to bring together teachers in maths, computing, art, science, and design technology and support them with resources, collaboration and training. Schools can also harness STEM to improve subjects such as English and foreign languages. This is key to helping children still in primary schools develop the skills and creative imagination to ignite the next industrial revolution.

For more information, please visit:
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Preparing the next generation for their future, not our past

For those with the right knowledge and skills, digitisation and globalisation have been liberating and exciting. But for those who are insufficiently prepared, they can mean insecure work and few prospects. Our economies are shifting towards regional hubs of production, linked by global chains of information and goods, but concentrated where comparative advantage can be built and renewed. This makes the distribution of knowledge and wealth crucial, and that is intimately tied to the distribution of education.

The next generation of young citizens will create jobs, not seek them, and collaborate to advance a complex world. That will require imagination, empathy, resilience, and entrepreneurship. The most obvious implication of a world that requires constant adaptation from learners is the need to enable lifelong learning. We used to learn to do the work; now learning is the work.

That change needs to be supported by shifting from qualifications-based certification to more knowledge- and skills-based certification. It also means moving from documenting education pathways to highlighting what individuals can do, regardless of how and where they acquired their skills.

The UK has seen a massive expansion of university degrees over the past generation. However, the actual knowledge and skills of young Brits entering the workforce are only marginally better than among those nearing retirement – the slowest progress among OECD (Organisation for Economic Co-operation and Development) nations. There is a lot



Technological and social success rely on each other, says Andreas Schleicher, OECD director of education and skills

that government and society can do to help learners adapt. The easiest is telling young people more of the truth about the relevance of their learning, and to incentivise educational institutions to pay more attention, too. The UK is also doing well in developing alternatives to degrees, but apprenticeships are still seen as a last resort.

Things that are easy to teach are easy to digitise and automate. The future is about pairing artificial intelligence with the cognitive, social and emotional skills and values of humans. Contrast this with the fact that the OECD's Programme for International Student Assessment rankings reveal memorisation remains the dominant learning strategy in British classrooms. Also, the push for smaller class sizes means UK teachers have less time for other important things.

Social media algorithms are sorting us into groups of like-minded individuals. Tomorrow's citizens will need to think for themselves and join others, with empathy, in work and citizenship. They will need to develop a strong sense of right and wrong and a grasp of the limits on individual and collective action.

AI is ethically neutral. The only reason we should fear the robots is that they will always obey us and never rebel. That is why education in the future is not just about teaching people something, but about helping them develop a compass. Work-readiness today requires people to understand the dynamics of globalisation, and to be open to people from different backgrounds. If the UK succeeds with this, it can deliver a future for millions who currently do not have one.



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