

Towards a Twenty-First Century Education System

Edge Future Learning



The **Edge** Foundation



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Foreword

The **crisis in our economy and education system** is getting more acute by the day.

Skills shortages in the labour market are becoming increasingly apparent and having an ever greater impact on productivity and economic growth. Our recent Skills Shortage Bulletins have highlighted the annual need for more than 200,000 engineers qualified at Level 3 and above,¹ the 600,000 skills shortage vacancies in our crucial tech industries,² and the price we have to pay – £6.3bn annually in additional recruitment costs.³



Yet there are **beacons of hope even within this highly restrictive system** – enlightened head teachers, principals and governors whose schools and colleges are striving to create well rounded individuals with the skills that employers are really looking for. They join our network of education leaders in the devolved nations of the United Kingdom, in the United States and in Europe who are creating education opportunities that are **coherent, unified and holistic**. This report shines a spotlight on many of these success stories, showing how a broader and more

The **pace of this change will only accelerate in coming years** as a result of two factors. Brexit will restrict the flow of skilled migrants into the UK who currently help to reduce the impact of these shortages. Meanwhile, the Fourth Industrial Revolution will continue to transform the way in which we work, making some professions obsolete while others grow exponentially.

The Government's current strategy is to address these twenty-first century skills shortages using a **curriculum and pedagogy from the late nineteenth century**. Their focus on a narrow 'knowledge-rich' curriculum is squeezing out the very subjects that would train the engineers and creative professionals that we so badly need. GCSE entries in Design and Technology have fallen by more than 50% since 2010, while entries in computer subjects fell by more than 17,000 between 2017 and 2018 alone.⁴ School and college budgets have fallen in real terms and teachers have been locked into traditional methods of teaching by the strict accountability system. One of the principals we work with recently told me that they had asked a candidate for a teaching position what they thought their role was – the response 'to teach children to pass tests', was a sad indictment of our education system.

liberal approach to this phase of education can transform young people's learning, their preparation for future life and their prospects in the labour market.

Recognising the effectiveness of these approaches is an important step in an **educational revolution** to make the curriculum and teaching in our schools and colleges fit for purpose to support our ever-changing society and economy. We are taking the key ingredients from these leading examples and distilling them into a model that all schools and colleges can use to ensure that their students are developing the set of skills they really need – a model of **future learning**. We are already piloting this approach in the North East of England and look forward to providing more information over the next year about **how you can get involved as this revolution gathers pace**.

KENNETH BAKER

Chair of the Edge Foundation

1. The challenge – what do our economy and society need?

We are living through a unique period in which **three fundamental factors are affecting our economy and society** at the same time – skills shortages, Brexit and the Fourth Industrial Revolution. This chapter looks at each in turn before examining what they mean for the skills and behaviours we need young people to develop.

Factor 1 – SKILLS SHORTAGES

The closure of the UK Commission for Employment and Skills (UKCES) left a significant gap by removing the organisation that was responsible for gathering and collating information about skills shortages in the UK economy. **Skills shortages exist where there are vacancies that cannot be filled** because individuals with the right skills cannot be found.

The Edge Foundation has stepped into that gap, bringing together partners with data and an interest to form the Skills Shortages Analysis Group. This includes the Department for Education, who run some of the main business surveys, employer organisations, leading academics and sector bodies. Together the group pools information to feed into a **termly Skills Shortage Bulletin** bringing together the latest figures and each focusing on a particular sector of the economy.

It is manifestly clear from every data source available that there are **large and growing skills shortages right across the UK economy**. The Department for Education's Employer Skills Survey (ESS)⁵ is the definitive source of information, based on responses from 87,000 businesses. This shows clearly that the number of skills shortage vacancies has risen dramatically from 91,000 in 2011 to 226,000 in 2017. The highest densities of skills shortage vacancies can be found in construction, utilities, transport, manufacturing and information/



communication, and in particular within skilled trades. They also disproportionately affect smaller businesses – almost a third of vacancies in small employers (31%) were skill shortage vacancies compared to a fifth (16%) in those with 250 employees or more.

The **impact of these skills shortages** is also very clear – 85% of the businesses surveyed said that they increased workload for other members of staff, 48% that they resulted in difficulties meeting customer needs and 43% experienced increased operating costs and loss of business to competitors. As a result, more than two-fifths of businesses (41%) had to spend more than anticipated on the recruitment process.⁶

The challenge – what do our economy and society need?

Over the last 12 months the surveyed employers have:



Over the last 12 months the surveyed employers have incurred the following costs:



Source: Open University Business Barometer (2018)

This direct cost of skills shortages has been estimated by the Open University in their Business Barometer survey.⁷ When taking into account additional recruitment, increased salaries, retraining and temporary staffing, **the total annual direct cost to the UK economy is £6.3 billion.**

The true cost though is even higher in terms of lost GDP.⁸ Equally important is the high social cost – while hundreds of thousands of job vacancies remain unfilled, the number of unemployed 16-24 year olds in the UK in April-June 2018 stood at 492,000.⁹

Factor 2 – BREXIT

One factor that has been restraining the size of skills shortages in the UK economy is the ability of firms to fill these roles with migrants from the EU. The Government's own Employer Skills Survey shows that **38 % of businesses facing skills shortages tried to recruit non-UK nationals to fill the roles.** Of these, 90% of firms had looked to recruit from the EU.

No matter what the final nature of the Brexit deal, plans to leave the EU are already having an impact. **Net migration to the UK from the EU fell to its lowest level in nearly five years in 2017**, with the number of arrivals from the other 27 EU nations declining to 101,000 in the year to December.¹⁰

Towards a twenty-first century education system: *Edge future learning*

With a softening economy and slowing immigration, the BCC is calling for action to ensure business growth isn't hampered by labour shortages. Business communities need the government to ensure minimum costs and restrictions in the process for hiring EU nationals during and after the Brexit process. We need to ensure the UK's future immigration system is economically responsive, so companies have access to the skills they need. Labour and skills shortages are set to be the biggest potential drag anchor on business, since ultimately it is people that make businesses work.

Jane Gratton, Head of Business Environment and Skills Policy, BCC



Research by the British Chambers of Commerce (BCC) shows that two in five (40%) of businesses have employees from other EU countries on their workforce and that a **similar proportion (38%) said that future restrictions on the rights of EU nationals to work in the UK would have a negative impact** on their business.¹¹ Similarly, research by City and Guilds showed that Brexit was the factor most likely to be cited by businesses as a negative impact on productivity in the next five years, with 46% of firms mentioning this.¹²

Factor 3 – FOURTH INDUSTRIAL REVOLUTION

The **number and nature of jobs are changing at an unprecedented rate**, which will continue into the coming years. In our report, *The Digital Revolution*,¹³ we pointed to the significant effect that the fourth industrial revolution will have on the job market and in particular the 'hollowing out' of mid-level jobs such as those in manufacturing and general administration. At the same time, the labour market will also see the strong impact from the 'megatrends' of demographic change, our aging population and climate change.

These trends are clear in recent research by City and Guilds,¹⁴ which looks at occupations that are likely to **experience the most significant increases and reductions in numbers over the next decade**. The largest growth is predicted to be in caring occupations (care workers and nurses) and in areas such as catering assistants and waiters on the one hand and business development managers and software developers on the other. Meanwhile the largest falls are in some middle management occupations such as bank managers and clerks and in those areas that are already being overtaken rapidly by automation and online activity, such as shops, postal services and printing.

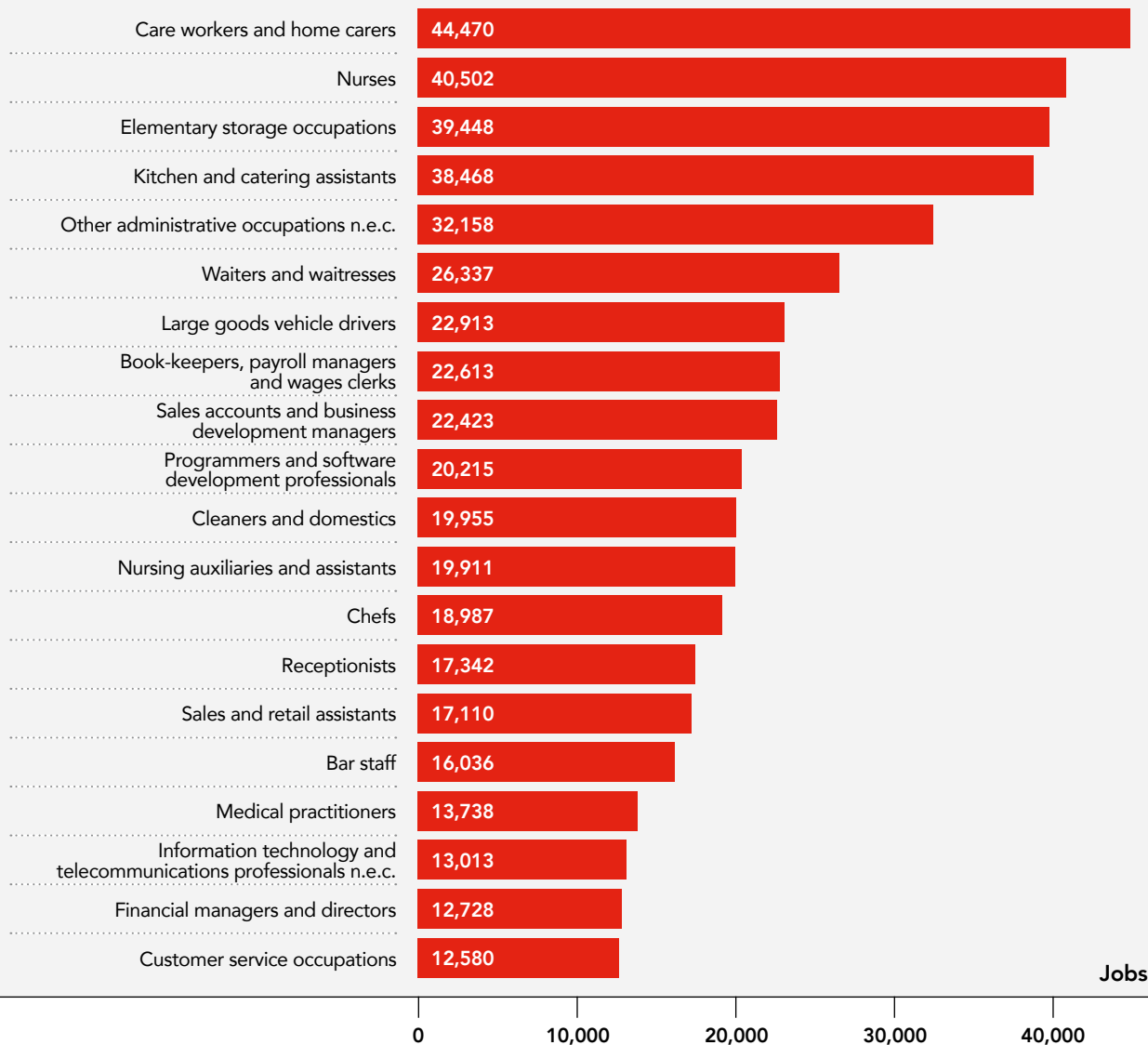
As City and Guilds' work shows, we can anticipate some key trends over the coming years. Digital technology will permeate all forms of work (digitisation), many more jobs and tasks will be done by machines (automation),

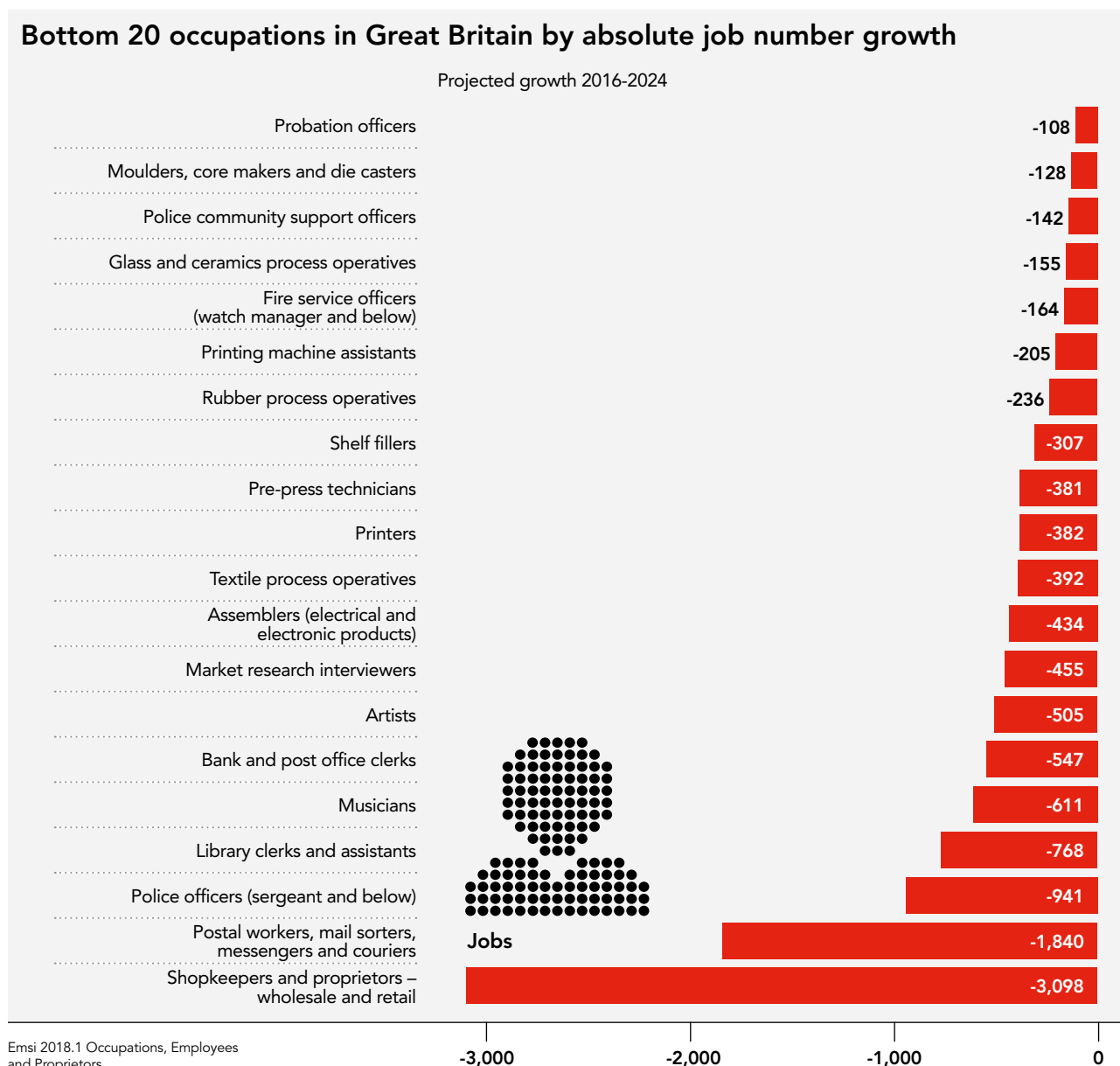




Top 20 occupations in Great Britain by job number growth

Projected growth 2016-2024





an aging population will increase demand for caring professions and climate change will continue to lead to the need for a growing green economy. However, technology, life and work are changing so fast that the only thing we can really be certain about is uncertainty itself – as Friedman says, **the collision of these changes will create a more complex world to live and work in.**¹⁵

These factors provide some clear signals about the skills that young people need to develop. Employers have been consistently clear that what they need to fill the current skills shortages is not individuals who have more academic qualifications but those with **the transferable**

employability skills that enable them to thrive in any business environment. In the Government’s own Employer Perspectives Survey, less than half of employers (46%) said that academic qualifications were significant or critical when hiring, compared to almost two-thirds (65%) for relevant work experience.¹⁶

It is important to understand exactly what skills it is that employers are looking for. In the CBI’s annual education and skills survey, businesses made clear that the **biggest drivers of success for young people were attitudes and attributes** such as resilience, enthusiasm and creativity – while 86% rated attitude and 68% aptitude

The challenge – what do our economy and society need?

as a top attribute, just 34% said the same of formal qualifications.¹⁷ This was made even clearer in the latest Employer Skills Survey, which received responses from more than 87,000 businesses across the UK.

The two sets of skills shortage they identified were:¹⁸

- **Technical and practical skills** – these are the specific skills required to perform the functions of a job role.
- **People and personal skills** – these are the ‘softer’, less tangible skills required to manage oneself and interact with others in the workplace.

Taking this down to the next level of detail, there have been many recent surveys in the UK and abroad about the specific skills that employers are looking for and this can sometimes present a complex picture for young people and education professionals. Working with partners at Education and Employers and the National Education Union,¹⁹ we undertook a meta-analysis of a large number of these reports to distil down the key skills and behaviours common across these pieces of research. We then tested these with employers in a series of focus groups to sense check them and bring them down to a more specific level. The result is a **definitive picture of the skills and behaviours that employers are looking for in their new employees.** (See table on right)

However, it is also clear from the research around the impact of the fourth industrial revolution that these skills will not stay static for long. It will increasingly be the **creative and digital skills** that are most in demand as we continue through the processes of digitisation and automation. We will need a workforce that can turn its hand to a range of professions and tackle challenges in unfamiliar sectors or settings. As recent research by Nesta suggests, *the problem is finding people with the right mix of skills: the data scientists who combine technical skills, analytical and industry knowledge, and the business sense and soft skills to turn data into value for employers are very hard to find.*²⁰

Colleagues at the Centre for Work Based Learning in Scotland have led some excellent work²¹ looking at these skills for the future – **meta-skills – which are defined**

SKILLS	SUB-SKILLS	
Problem solving / Decision making/ Critical thinking	Using initiative / Independent thinking	
	Using new information to solve problems	
	Taking action as required	
Communication / social skills for work	Persuasion	
	Clear language	
	Verbal communication	
	Presentation skills	
	Written communication / report writing	
	Ability to share ideas	
	Fluent in a foreign language	
	Business tone in emails and other written communication	
Self-management	Punctuality, time management	
	Dress and behaviour	
	Setting goals to achieve outcomes	
	Manage time and resources	
	Project ownership	
Teamwork	Adaptability (adapting to a business culture)	
	Team working	
Creativity	Coordination	
	Originality	
Numeracy	New approaches to solve problems	
	Use numbers confidently	
Digital Skills	Estimate and investigate	
	Digital security	
	Advanced Microsoft Office skills	
	Social media	
	Digital flexibility	
Recruitment skills	Confident use of digital devices	
	Advanced IT skills (Developing software, applications or programming) / willingness to train	
	Good body language and eye contact	
	Understanding relevance of behaviours and knowing how to demonstrate them	
BEHAVIOURS	Researching the organisation	
	Confident	Positive attitude / Self-esteem
		Leading
		Can work alone without clear direction
	Driven	Confident body language
		Desire and interest
		Flexibility
	Resilient	Hard working
		Cope with pressure
		Takes feedback and advice
Reflective	Handle criticism	
	Able to compromise	
	Willing to learn	
Informed	Learn from others and own mistakes	
	Listening and understanding	
	Understanding of job market	
	Sector understanding	
	Able to search for job vacancies	
	Commercial awareness (understanding the core principals of how a business works)	

Edge future learning

as timeless, higher order skills that create adaptive learners and promote success in whatever context the future brings. These are the skills that enable individuals to perform highly today, and in our changing world they will soon be required of us all.

These skills and capabilities themselves are not new. In fact, they are ancient human capabilities that have enabled people to succeed throughout history. They have been called many things and classified in a range of different ways across the globe. The difference now is the imperative for us to increase the value that society places on them, so that they are held by more people and in greater depth.



It is clear from all of our research that meaningful encounters between employers and young people while they are at school are crucial to their future success. Our work with Edge on employability shows exactly what skills employers would like young people to be developing during their school years to make them highly employable when they complete their education. As a next stage we have surveyed more than 600 teachers to understand where they see these skills already being developed in school – both within the classroom and outside. We will publish the results of this joint research later in 2018.

Dr Elnaz Kashfepakdel, Head of Research, Education and Employers



CONCLUSION

In this Chapter, we have argued that:

- **There are large and growing skills shortages within the UK economy, creating very significant direct and indirect costs.**
- **These will grow faster if Brexit means a reduction in the mobility of labour from EU countries.**
- **The Fourth Industrial Revolution is already having a very significant impact on the future of work and this will continue to grow over the coming decade through the megatrends of digitisation, automation, our aging society and climate change.**
- **Employers are very clear about what they need to address the current skills shortages – a sharp focus on technical and practical skills alongside the transferable employability skills, like creativity and problem solving, that help individuals thrive in any organisation.**
- **Looking to the future, it is these timeless meta-skills that will enable young people to navigate the changing workplace of the future, stay ahead of the robots and succeed in a number of different careers over their lifetime.**

It is very clear what our economy and society need in terms of education and skills development for the future. In the next Chapter we will examine the extent to which the current set of education policies and reforms are delivering against that.



2. The official response – how is education policy addressing that challenge?

As we saw in the previous chapter, the challenge set by employers and the economy is clear. They want young people leaving the education system to have a broad range of experience and they are looking for **well-rounded individuals with the interpersonal skills, resilience and problem-solving abilities** that help every organisation to succeed. This chapter looks at how the current range of education policies is helping or hindering meeting that challenge.

Curriculum, Teaching and Careers Guidance up to Age 16

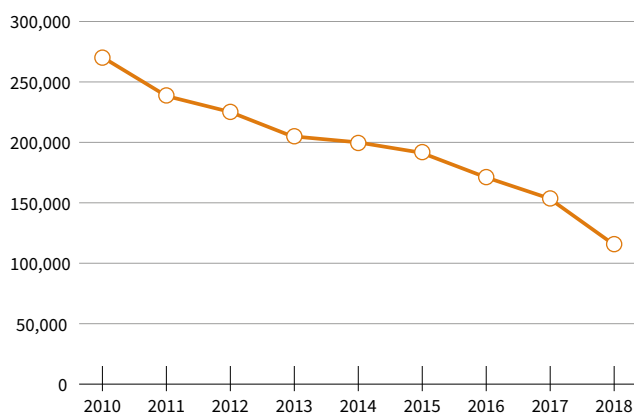
As we set out in our report *14-19 Education: A New Baccalaureate*,²² the current structure of the curriculum through the EBacc and Progress 8 effectively tries to **address the problem of Twenty-First Century skills using a late Nineteenth-Century approach to education.**

It is absolutely right that young people have access whilst at school to the rich treasury of our history, geography and literature, but the Government's focus on a **'knowledge-rich' curriculum at the expense of all else goes in precisely the opposite direction** from the challenge set by employers and the economy in Chapter 1.

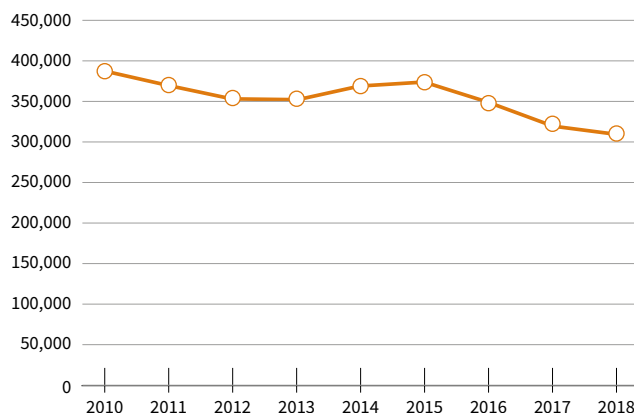
The prioritisation of EBacc subjects to the exclusion of all else has **decimated entries in Design and Technology**

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Entries in Design and Technology GCSE (2010-2018)



Entries in Creative GCSEs (2010-2018)



and creative subjects at GCSE over the last eight years. There have even been falls in entries to the computer-based subjects (ICT and computing) that will be so crucial in the Fourth Industrial Revolution. These are the ‘facilitating subjects’ of a different kind – facilitating the growth of our engineers, computer programmers and creative professionals of the future – and they are being actively shut down directly as a result of government policy.

Between 2010 and 2018, there was a fall of 154,000 (57%) in entries to Design and Technology GCSE and a reduction of 77,000 (20%) in entries in creative subjects. In computer-based subjects, there was a fall between 2016 and 2018 of 17,000.²³

A relentless focus on performance tables and teacher accountability, together with an adversarial relationship

between schools and Ofsted drives teachers to simply focus on teaching for these tests. This **reduces teacher autonomy and makes it little wonder that so many are leaving the profession**. The number of teachers dropped by 7,000 between 2015 and 2017. Looking beneath the surface, we see an increase in teaching staff in EBacc subjects, yet falls of 1,300 in Design and Technology and 1,700 in the creative subjects. These are the exact subjects that would have helped young people to develop those skills that employers truly want.²⁴

Those teachers that remain are consistently thwarted by the narrow curriculum and pedagogical approach from teaching in the way they know will help young people to flourish and meet the challenges set out in Chapter 1. As some of the respondents to one of our recent surveys put it:²⁵

“[Problem solving/decision-making skills were developed] traditionally through designing and making / problem solving in Design & Technology but this is in decline due to curriculum changes” (DT teacher, Norfolk, Academy)

“Very few opportunities in lessons [to teach broader skills] due to content demand and exam coaching” (Science teacher, Havering, Academy)

“Narrow academic subjects taught in a narrow academic way simply don’t give young people the skills we are looking for when we recruit. We want to see evidence of abilities like problem solving and team work. These most often come from extra-curricular activities or part-time jobs.”

(HR Manager, UK business)



The Great Stagnation

Why government policy may be depressing educational attainment, restricting choice and undermining progression

Lynne Rogers and Ken Spours, Centre for Post-14 Education and Work, UCL Institute of Education

Attainment and participation rates have flat lined and even declined

14–19 learners in England face an unprecedented situation. A historical view of a 30-year timespan suggests that for the first time in a generation, overall levels of attainment are plateauing and are even in decline in key areas such as GCSE.

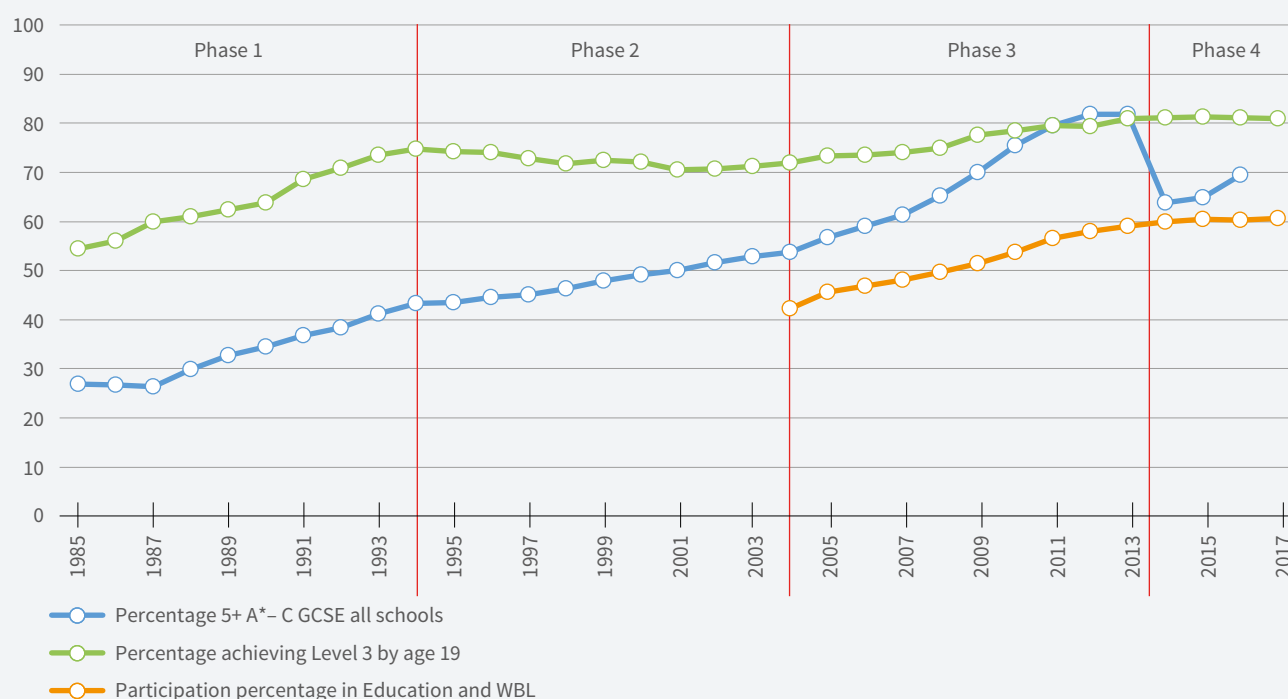
Reflecting on historical data we argue that there have been four phases of attainment and participation development since the 1980s – a growth phase in the late 1980s around the introduction of GCSE; a slow-down phase in the 1990s resulting from assessment changes to general education qualifications; an expansion phase in the 2000s as New Labour’s 14–19 and ‘parity of esteem’ reforms kicked in and the latest (Fourth Phase) of

plateauing and retrenchment – what we term The Great Stagnation.

This latest phase is not just an issue for the status of the English upper secondary system when compared internationally (we could stand still while others advance), but also for middle and lower attainers who will be disproportionately affected by the current Government’s reforms.

Initial analysis suggests that this new stagnating trend results from the combined effects of the reform of qualifications and assessment (linearity; more external assessment and new grading systems); changes to accountability measures (EBacc and Progress 8) and the ways in which these are interpreted by schools and colleges; giving rise to more selective institutional behaviours.

Trends in participation and attainment 1985-2017



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This timeline for attainment at GCSE is in some ways a best approximation due to the significant changes to the population of pupils, the nature of the qualifications, the inclusion of equivalences in addition to the different methodological and reporting approaches adopted since 1985.

The 14-16 crisis

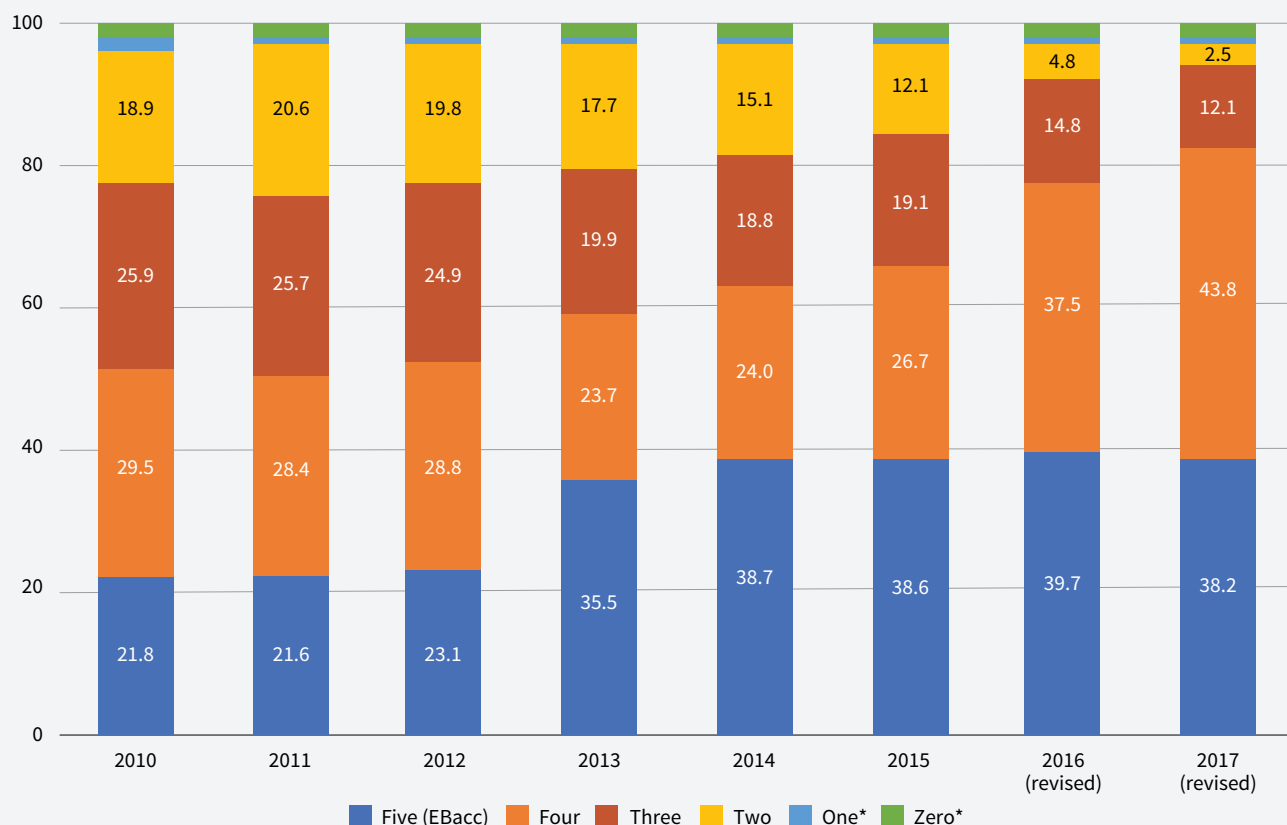
While overall there are plateauing trends in Phase 4, there have been actual declines in measured attainment in the 14–16 phase - GCSE attainment/Attainment 8 score in state schools dropped from 49.9 in 2016 to 46.3 in 2017; there was a decline in those entering the EBacc – from 39.7 per cent in 2016 to 38.2 per cent in 2017 and those achieving the EBacc from 24.7 per cent in 2016 to 21.3 per cent in 2017. At the same time, however, there was an increase in young people entering all components of the EBacc over time - from 23.1% in 2012 to 35.5% in 2013 up to 38.2% in 2017. This has not been met with a corresponding rise in attainment.

The driving force here is accountability – the EBacc qualification and the weighting of the EBacc subjects in Progress 8 - linked to inspection. At the commencement of the EBacc in 2010 29.5 per cent of students entered four EBacc subjects. This figure jumped to 37.5 per cent in 2016 before reaching 43.8 per cent in 2017. Schools are compelling learners, including middle and lower attainers, to enter more EBacc subjects in which they will attain low grades or fail, while ignoring young people’s interest in subjects of their choice including vocational study, which often count for less in the progress measure.

A ‘perfect storm’ for middle and lower attainers

Middle and lower attainers (defined by their prior SAT attainment scores) benefitted from the ‘expansion’ of the 14–19 phase under New Labour. The combined effects of vocational qualification equivalence in Key Stage 4, together with the modularisation of GCSE saw measured GCSE attainment rise year on year between 2004 and

Entry for EBacc subjects 2010-2017²⁶



*A data label for the percentage entering zero or one components is not shown on the chart

The official response – how is education policy addressing that challenge?

2010. This meant that more than two-thirds of the cohort were attaining the threshold to aspire to Level 3 study post-16. While these rises in attainment were not without their progression challenges - for example, relatively high drop-out rates at 17+ - the fact remained that the progression landscape 14–19 became relatively open. Furthermore, disadvantaged young people were also able access Education Maintenance Allowance (EMA) – a factor that boosted post-16 education participation.

These influential ‘push’ factors have been entirely changed by policy since 2010: a focus on ‘facilitating subjects’ for entrance to research intensive universities; the suppression of measured attainment at both GCSE and A Levels with a similar approach being introduced into vocational qualifications; accountability measures that relegate the importance of vocational study in the 14–16 phase; together with a focus on maths and English post-16 using the discredited GCSE re-sit route. The Coalition and now the Conservative Government

have pushed into reverse qualifications and a curriculum that motivated young people through more applied forms of learning.

This initial research into 14–19 system performance now requires a more in-depth look at the effects on middle and lower attainers in terms of the impact on their progression pathways. We speculate that more 16 year olds could be denied access to Level 3 programmes or end up entering courses in which they might not attain as highly as in the previous growth phase. Either way, upper secondary education as a whole in England looks as if it has become more difficult to navigate for middle and lower attainers who comprise over 50 per cent of the cohort. In the space of a decade we have moved from a situation where over two-thirds of the cohort could achieve the threshold to move to Level 3 study at 16 to one in which this form of progression may now be open to a minority. We appear to be turning the clock back.²⁷



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Education policy up to the age of 16 is designed to promote a 'knowledge-rich' curriculum learned by rote for stringent end-point examinations. Its primary aims are to ensure that as many young people as possible have studied the so-called 'facilitating subjects' that could allow them entry to a Russell Group University and to accelerate the UK's standing in the international PISA tables. This provides a very narrow focus that meets the needs of a minority and **fails to give all young people the skills that employers have clearly asked for in their workforce of the future.**

At the same time, the Government's Careers Strategy suggests that young people should be receiving a high quality set of careers support and employer engagement to help them to consider their future options. The benchmarks designed by colleagues at the Gatsby Foundation²⁸ are a highly effective tool for underpinning excellent careers guidance, but **only where they are fully implemented in spirit as well as to the letter.**



Careers guidance and employer engagement will only truly become a priority in all schools, as it has been in the pioneering schools that have been part of the Gatsby pilot in the North East, when this is properly funded and reflected in a more holistic accountability system based on the destinations of a school's pupils. As we showed in *Our Plan for 14-19 Education*, if funding for Connexions had been properly distributed to schools rather than drawn back into the Treasury, **every secondary school would have received at least £100,000, enough to support a full time senior Careers Leader** and programme of employer activities.

Post-16 Education and Training

The first challenge here is the simple fact that 'post-16' even exists as such a separate concept. Other successful systems, such as the world-renowned International Baccalaureate taught in 146 countries (see Chapter 3), provide a **coherent curriculum all the way through the teenage years**, albeit broken down into phases, which helps to prepare young people for further study and work.

This is something that is totally alien to our system, with its clear break at 16 marked by the GCSE exams that are a relic of the days before the raising of the participation age to 18. Young people are increasingly being asked to make a binary choice at the age of 16 between a wholly academic and a wholly technical route. Again this **goes in exactly the opposite direction of creating the broad and rounded individuals** that employers are looking for. In the academic route, as an extension of the impact of the 'knowledge-rich' curriculum pre-16, A-levels in technical and creative subjects are rapidly dying out – entries in design and technology A-Level have fallen by 7,000 (41%) since 2010 and in creative subjects by 9,000 (13%) over the same period.

Meanwhile the creation of T-Levels as a separate choice with no real prospect of blended learning **simply serves to reinforce that divide.** They are slow to get off the ground, with even the Permanent Secretary of the Department for Education requiring a rare 'ministerial direction' to overrule his view that implementation should be delayed further given the level of readiness and resources in the system.²⁹

The official response – how is education policy addressing that challenge?



The FE sector educates and trains more than 2.2 million young people and adults in skills vital to the future of the British economy. Their work is even more important than ever, given the uncertainty of the labour market post-Brexit. Developing skills in technical subjects requires state of the art equipment and highly qualified teachers and assessors with industry experience. However, FE funding lags significantly behind school funding (11-16 funded at an average of £5,228 per pupil, 16-19 at £4,498 in colleges). It has a capital investment infrastructure which relies on skills being a focus of each Local Enterprise Partnership (LEP) and colleges being able to bid for and match fund any investment from the LEP. Further Education can provide the solution to increasing productivity, filling emerging skills gaps and future proofing the workforce, but does need equitable and stable funding to ensure it is equipping students with the skills and attributes to step into the workplace.

Kirsti Lord, Deputy Chief Executive, Association of Colleges

Business organisations have been clear that employers will struggle to offer work placements in the volumes required to make T-Levels a success. **These reforms can still be a success** – rather they need to be a success given that there have been 28 skills system reforms in 30 years⁹– but to do so they need to be implemented from at least age 14 and offer true blended learning like the excellent Scottish Foundation Apprenticeships (see Chapter 3).

The challenges of delivering post-16 education and training have been compounded over recent years by the salami slicing of FE budgets, caught as they are between the protected school and early years budgets and the comparatively generously funded Higher Education system. This has left nothing short of a **crisis in Further Education funding**, with less money available while expectations of the sector continue to grow.

The other component of the post-16 skills system is apprenticeships, which can undoubtedly play a key role in developing the skills that employers want, particularly since the new standards designed by employers include ‘behaviours’ – the **only place in the whole of our education system where these are formally recognised**.

However, there are two key challenges for apprenticeships that are preventing them from fully realising their potential. First, the new standards are **too narrowly occupationally specific** and risk training an individual simply for a specific job role when we know that the Fourth Industrial Revolution will mean that in the coming decades people will have multiple careers requiring transferable meta-skills. Second, partly driven by the levy, the volume and makeup of apprenticeships is dramatically changing – **numbers have fallen and companies are using apprenticeships as an opportunity to train existing members of staff in management rather than to give new entrants their first step on the career ladder**. We will explore these themes further in our forthcoming report on apprenticeships.

It is therefore clear that **the position is just as bleak post-16 as pre-16 in terms of the education system meeting the needs of the economy**. Young people are being asked to make a binary choice at 16 between a narrow academic pathway and a technical route that does not yet exist and will remain unproven for the foreseeable future.

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Employers, parents and society as a whole are very clear about what they expect from education: rounded, resilient young people who can communicate, solve problems and apply their skills and knowledge in different settings.

Yet so many aspects of the current education system act in opposition to this – the combination of a narrow curriculum focus embodied in the EBacc, high stakes exams and very limited approaches to assessment can all lead schools to focus on rote learning and simply teaching for the test.

Brave schools and colleges are offering a curriculum that delivers what young people, families and employers actually want and need - an entitlement to a broad and balanced whole

education for the future. The time is now right for our country's system to actively encourage, promote and incentivise it too.

David Crossley, Associate Director, Whole Education

CONCLUSION

In this Chapter, we have argued that:

- **Secondary education up to the age of 16 is a 19th-century curriculum designed to focus on the Russell Group 'facilitating subjects' and on PISA scores. A narrow 'knowledge-rich' curriculum that excludes technical education and creativity goes directly against what is expected of the education system.**
 - **Whilst the Gatsby benchmarks are a step in the right direction, without proper accountability and funding in the area of career advice and guidance, schools may be under pressure to implement these as a tick-box exercise rather than an opportunity for rich employer engagement.**
 - **Post-16, the narrow focus continues as young people are asked to make a binary choice between an academic and technical route.**
 - **Within the academic route, technical and creative subjects continue to be pushed out, while T-Levels are lagging behind and risk not securing enough employer placements to succeed.**
- **Apprenticeships offer excellent opportunities, but only to a small and reducing number of young people starting their careers and then risk too narrow an approach to meet the changing needs of the labour market.**

It is very clear that current education policy does not address challenges set by employers, the economy and young people sufficiently. The system is not only failing to meet their very clear needs, but **actively accelerating in the opposite direction**. It is becoming more narrow, more focused on examinations, knowledge and end point tests rather than on experience, employer engagement and skills or competencies. But all is not lost – as David Crossley says, there are a number of state-funded schools and colleges that are swimming against the stream and trying to give young people the rounded education they actually need, and which ironically is commonplace in the government's beloved independent sector. These beacons of hope are the subject of our next chapter, and they join a growing community of enlightened and successful schools and colleges in the wider United Kingdom and internationally.



3. Swimming against the stream – beacons of hope from home and abroad

Despite the very challenging climate caused by the structural changes to our economy (Chapter 1) and exacerbated by an outdated and narrow approach to education policy (Chapter 2), there are a number of forward-thinking schools, colleges and projects across England that are striving to **support young people to develop the skills they need for future life and work.**

This chapter provides an overview of some of these **beacons of hope**, together with similar projects already showing the impact of these approaches across the rest of the UK and in the wider world.



Beacons of hope – England

We begin with **case studies from inspirational schools** that are using innovative curriculum and pedagogy to support young people to fully engage in their learning and develop the wider skills they need.

CASE STUDY – Stanley Park High, Sutton

Stanley Park High (SPH) is one of a handful of non-selective secondary schools in the London Borough of Sutton. It has pioneered its own model of teaching, using project-based learning to help students build skills such as perseverance, team work, and risk-taking. Their approach blends academic with technical subjects, exposing students to an innovative curriculum and a wide range of viable career-paths.

In 2006, head teacher David Taylor set about transforming the school. Inspired by cutting-edge practices across America, Iceland, and Denmark, SPH reformed its

philosophy to focus on relationships and pupil wellbeing first and foremost. Mr Taylor believes that good relationships are at the heart of a good education, not only between students and teachers but among all school stakeholders: *We take care to foster good relations among staff, parents, and students. If improving our league table results means damaging these relationships, we're not going to do it.*

At SPH, students in years 7 and 8 dedicate half their lesson-time to their Excellent Futures Curriculum (EFC), a project-based approach to learning that blends different subjects. Projects culminate in real-world outcomes, from art exhibitions to product pitches. For instance, *Behind the Selfie* is an art and science project for year 7s to investigate the anatomy behind self-portraits. Students learn drawing techniques as well as how the human skull, eyes, and ears function.

EFC teachers do not grade projects – instead every student works towards exhibition standard. Through teacher feedback, peer and self-assessment as well as receiving feedback from experts in industry, students work on producing real life outcomes. At biannual student-led conferences students also articulate their progress and learning journey to their parents and other stakeholders. By the end of year 8, students demonstrate highly developed speaking and listening skills.



Swimming against the stream – beacons of hope from home and abroad

EFC is taught in purpose built studios and is delivered by the form tutor in small mixed ability classes. Teachers also have the opportunity to team teach to enable students to benefit from tailored guidance and bespoke breakout sessions.

In Year 9, students are given the chance to ‘taste’ eight of the 27 options SPH offer at GCSE over the course of two terms. These options comprise both academic subjects and skills-based subjects, such as hairdressing, horticulture, and motor mechanics. Students are encouraged to regard all subjects as equal and to choose options that suit their passions. Having had the opportunity to sample them, they then continue four options into GCSE level, alongside English, Maths, PE, RE and Science.

After ten years of refining its singular approach, SPH was recognised as Secondary School of the Year by TES at their 2016 School Awards.

Miss Hawkins (English and EFC teacher at SPH) said:
Everyone can thrive under the project-based learning model because there's no limit to how deep you can go

and how creative you can get. This is true for teachers and students alike. I've learned so much by teaching the Excellent Futures Curriculum. At university, I studied English Language and Linguistics and then went onto train as an English teacher. At any other school I'd just teach my own subject, but here I'm teaching aspects of geography, art, science... – it's just amazing! Not to mention, I've become a better leader and team player. My confidence has increased tenfold.

CASE STUDY – Plymouth School of Creative Arts, Plymouth

The Plymouth School of Creative Arts (known locally as The Red House on account of its striking architecture) was created about five years ago in an area of Plymouth with high levels of deprivation. There is an 11 year difference in life expectancy between this area and the most affluent part of the city.

It was established in partnership with the Plymouth School of Art with the ambition that children could start in the reception class and move through the school and into the art college through to an MA.



Towards a twenty-first century education system: *Edge future learning*



They now have 940 children on role (anticipated to rise to 1,050 in September, 600 of these at secondary level) and use project-based learning with a strong creative thread running through the curriculum.

Projects are often delivered in partnership with local employers and organisations, for example building a sailing vessel with local boat builders, or year 4 and 5 pupils working with students from the local college to create film. Headteacher Dave Strudwick says: *We integrate people doing real jobs into the projects; it's important it has authenticity and because they're working with businesses, what they create actually has to work.*

The school has close links with the local community: it is open every evening for activities such as basketball or martial arts, is used as a performing arts academy at the weekends and as a church on Sundays. The building is open plan and reflects the culture of team-working. It functions well in enabling cross curricular projects and learning. Cathy, the Head of Art, described working with local colleges, galleries and practising artists and craftspeople so students have a clear idea of progression. The practicalities of organising, curating and hanging an exhibition and meeting 'real' artists makes it all seem possible.

With the support of its governors, the school has not adopted Progress 8 and similarly eschews the EBacc. The school's head, Dave, says students are free to do two or more arts subjects if they wish. Some do a level 2 qualification, which doesn't count towards Progress 8. At KS2 students the day is divided between a PBL project, maths and English.

Teachers are given eight days a year for CPD, although they are about to shorten the school day slightly to give staff more time for prep and professional development. Morale amongst staff is high. Many are teachers who've returned to the profession to work at the school; one has even come out of retirement.

Ian was an NQT and was so disillusioned with teaching that he had started his own business. A professional meeting with Dave led to him joining the school to teach music and in the primary phase. He has since supported students to take part in a project to visit an archaeological dig where they used imaging techniques to envisage what the settlement would look like, created models, wrote a daily diary as if they lived in the settlement and made their own artefacts to bury and create a treasure hunt.

Ian says: *We are constantly trying to kick them into a higher level so they're thinking all the time. I have the best job in the world.*

CASE STUDY – XP School, Doncaster

XP School was opened in Doncaster in September 2014, building up gradually from a Year 7 intake. The size of the school was deliberately set at 350 students when full to ensure a strong community approach in which pupils form high quality relationships with each other and with staff. This is reinforced through their tutor groups, or 'crew' of 12 or 13 students to one adult that cross academic years through their vertical crew buddy system.

As at High Tech High in San Diego, XP uses a pure lottery system for admissions, ensuring that it has a truly comprehensive intake from across the Doncaster area.

The curriculum and pedagogy at XP is designed around the model of expeditionary learning to be highly interactive and break down the conventional boundaries between subjects. Instead of separate lessons on individual topics, students typically take part in two expeditions at any one time – one focused on STEAM and one on humanities. In general, each lasts half a term, but full-term project and short projects are also both used within the model.

Swimming against the stream – beacons of hope from home and abroad



The expeditions are rigorously designed by staff at XP and each one is road tested by the teachers before it is signed off to be used with students. The staff map the expeditions carefully to the National Curriculum and GCSE syllabus so that whilst students experience the curriculum holistically, teachers are absolutely clear exactly which elements of individual subjects are being taught at any time. Each expedition also has a clear rubric and standards-based grading so that students are clear from the start exactly what they will achieve and how it will be measured.

Expeditions are brought alive through a large amount of fieldwork in the local community and further afield, and by opening up the school to bring in experts from the outside world. This is supported by a professional communications manager who spends time engaging local organisations.

Students present or display their work at the end of each expedition and, as with many of our other leading case studies, the school is full of exhibitions and beautiful work that acts as an inspiration to the pupils.

These are also curated digitally at

<http://www.xpschool.org/our-expeditions/>.

In addition, students are supported to study an extra GCSE of their choice as self-directed study, supported by teacher experts, helping them to develop not only that specific knowledge but the independent skills that will support lifelong learning. All students also take part in the Duke of Edinburgh award at bronze and silver level at least, representing a strong commitment from the school to developing rounded individuals.

Just a few years after opening, XP has received Ofsted Outstanding across the board and has expanded whilst staying true to its model, building a second autonomous small school next to the first to create a campus model.

Gwyn ap Harri, Chief Executive of XP: *Our team of staff is our most important asset. In most schools, teaching staff have five days a year to spend on professional development, but at XP they have 15, three times as much time to collaborate on the design and delivery of our creative and rigorous curriculum. Teachers are experts in learning, so we should always be learning how to do our craft better. The results speak for themselves – we are yet to have a full-time member of staff leave, and staff absence is so low we have never had to fund cover.*

Towards a twenty-first century education system: *Edge future learning*

CASE STUDY – The Academy Grimsby

The Academy Grimsby (TAG) focuses on offering greater choice to their students through a broad and balanced curriculum delivered in partnership with the local college and high quality enrichment opportunities.

As well as offering pupils GCSEs in a wide range of subjects, from Maths and English to History, Dance and Psychology, TAG also offers the choice of technical and professional pathways in a number of popular sectors. Students spend around 70% of their time studying GCSEs and for the remaining 30% they choose a pathway. Options include Engineering, Health & Social Care, Creative & Digital, and Performing Arts, amongst others. The vocational areas are chosen to reflect industry-related trends and thus provide an excellent route into careers in their chosen field.

For students studying the Engineering pathway, for example, the course provides them with a wide range of engineering topics and activities, including workshop skills such as hand tools and making engineering products. Students gain a level 2 BTEC qualification.

The Academy is sponsored by the Grimsby Institute, a successful local FE and HE provider, and makes use of the college's latest high specification facilities and equipment,

as well as its specialist teachers. If pupils choose the Health Care pathway, for instance, they have access to a Clinical Skills Room that replicates a hospital environment and a Specialist Care Suite that has been designed to replicate a real-life care environment. These facilities are equipped with the latest care equipment, including a hoist that simulates the safe lifting and moving of individuals. This ensures students will be prepared for the world of work or further study.

In addition to the broad curriculum, TAG is preparing its students for their future through a programme of engaging enrichment activities including the Duke of Edinburgh Award. They believe this helps students improve their confidence and acquire new skills that will help set them apart in the job market.

The attainment achieved at TAG puts them on a par with high-performing local schools and their highly individualised programme has contributed to the Schools grading of Outstanding by Ofsted.

Laura Donovan, parent: *“All thanks to TAG, my daughter has been given the confidence to believe she is capable. She has come on leaps and bounds and has so much more respect. The school respects the students and has helped her so much. What a brilliant choice we made!”*



Swimming against the stream – beacons of hope from home and abroad



It is essential that we learn the important lessons from some of the innovative school models currently operating in England. That is why the Edge Foundation has commissioned independent research looking at Studio Schools and University Technical Colleges (UTCs).



The SKOPE research centre at Oxford University are leading research looking at the ways in which the innovative CREATE curriculum is being used within Studio Schools. Here **Dr James Robson** and **Ashmita Randhawa** (above) from the team reflect on five key lessons for potential wider implementation from their work so far:

- **Leadership** – Schools attempting to implement innovative models require strong leadership and an unwavering belief in the strengths of the model. This

ensures they maintain their unique identity and ethos in the face of increasing accountability measures and marketisation.

- **Ownership** – The implementation of employability frameworks involves multiple stakeholders (students, parents, employers, staff). All stakeholders should have a sense of ownership of the framework and its use to ensure meaningful engagement.
- **Language** – In order to ensure frameworks developed or adopted by a school are fit for purpose, the language used must be relevant for all the key stakeholders, particularly the students who may initially be unfamiliar with terms used in the workplace.
- **Training** – Successful implementation requires dedicated and consistent training for all members of staff. This ensures a shared understanding of the goals and ethos of the framework and clear communication within the team.
- **Integration** – New approaches are most successful when they are embedded and integrated into the culture of the school. This ensures that they sit at the heart of all activities allowing for a deep understanding and development of employability skills for both students and staff.

Towards a twenty-first century education system: *Edge future learning*



The first phase of work by the National Foundation for Educational Research (NFER) on UTCs³¹ highlighted some of the excellent work being done on project based learning and employer engagement in some of these schools, as well as some important lessons for wider practice. The team are

currently looking in more depth at three UTCs to inform a second report for publication at the end of 2018. Here **Dr Tami McCrone**, lead researcher, reflects on the top five lessons for practitioners from this piece of work.

1. **Research and understand your local economy** and build productive relationships with businesses and other institutions throughout the local community. Nurture working relationships with employers over the medium- and long-term.
2. Take a proactive approach to working with employers to achieve a **common vision that is mutually beneficial** to teachers and employers and ultimately benefits young people. Point out to employers that involvement in their local school/college can provide benefits to them in terms of meeting their future recruitment needs.
3. Provide **CPD for teachers and staff working with employers** to deliver project based learning in technical subjects. Such training and support should include not only updates on current business and industry practice but also techniques on how to value and work collaboratively and effectively with employers.
4. Ensure that the **employer is contributing in a way, and at a level, that suits them**. Provide employers with very clear guidance on exactly how they can work with the school/college and what is expected of them by when. Emphasise the importance of ensuring that employer representatives who work with young people can relate to them and are happy to do so.
5. Provide students with **genuine and meaningful employer experiences**. These should encompass authentic projects that contribute to qualifications or deliver useful knowledge and skills that young people can use for CVs, job/apprenticeship/university applications or in interviews. They should also be overtly relevant to employers. Such experiences will develop young people's transferable skills and confidence and help them to take advantage of positive progression opportunities.



Swimming against the stream – beacons of hope from home and abroad



CASE STUDY – UTC READING

UTC Reading provides education to around 450 students aged between 14 and 19 and offers two specialisms: computer science and engineering. Its location provides access to many businesses linked to these specialisms. The UTC describes its offer to students as including: ‘opportunities to test new skills through practical, real-world projects; experiences of work which demonstrate the relevance and impact of knowledge; a focus on developing independent learning skills, communication and teamwork; and a supportive learning environment which encourages students to take risks and learn from mistakes’.

UTC Reading works with industry partners in a variety of ways, for example businesses mentor students, offer enrichment activities, carry out career talks and offer work experience.

Project-based learning (PBL) forms an integral part of core curriculum subjects, and reflects current industry practice. The UTC uses a CoTeach methodology to deliver its PBL with industry partners who support students to develop the technical skills needed within their specialism and to understand the relevance of these skills in the workplace. Industry partners work with teachers to identify learning topics and design project briefs. PBL is linked to specific qualifications such as BTEC Engineering units.

Students work on projects in small teams for an extended period of time ranging from one term to a year. The project is usually launched at the business site. Industry partners visit the UTC four times during the course of the project to deliver

knowledge transfer sessions and support and critique project work, and carry out a final visit at the end of the project to judge project presentations and select the winning team.

Participants report that PBL results in young people developing their technical and employability skills. Benefits include enhanced presentation skills, confidence, communication skills, questioning ability and career decision-making skills – a UTC senior leader notes that ‘PBL helps to shape their aspirations and decisions and develops their awareness of the routes open to them’. Students recognise that these experiences provide them with useful information for job applications (including apprenticeships), CVs, UCAS applications and interviews.

Students gain an understanding of the way the world of work operates and develop a sense of responsibility as they engage in real-life projects, prioritise their activities and work within timelines and costings. As one employer noted, this makes a difference to young people ‘understanding that the responsibility and urgency of completing a project for a customer is important. And that independent work and professionalism are important’.

Jonathan Nicholls, Principal: *UTC Reading continues to develop innovative ways to ensure young people are prepared for the world of work in the computing and engineering industries. Closer working relationships with businesses from these sectors using our unique Pipeline programme will ensure our students are making connections and establishing clear career pathways where success is inevitable.*

Towards a twenty-first century education system: *Edge future learning*

There are also a number of broader projects and approaches that are being supported by Edge as they

CASE STUDY – International Baccalaureate Career-related Programme (IBCP)

More than 4,000 schools in over 140 countries worldwide teach the International Baccalaureate (IB). Alongside the original IB Diploma Programme, many schools are choosing to offer the Career-related Programme to ensure their students have the skills to progress on either into higher education, apprenticeships or employment.

The IBCP is a flexible baccalaureate composed of three elements: the IB core; courses from the IB Diploma and career-related study. This enables it to remain broad and balanced, providing a well-rounded programme rather than a narrow course of study.

Students take a minimum of two IB Diploma Courses that develop academic understanding of subjects and can prepare a student for entry to higher education. The Career-related study can be undertaken as part of any appropriate applied general or vocational qualification, such as a BTEC or Diploma. This provides career-related learning but also carries UCAS points, keeping young people's options open. Finally, the IB Core fosters students' cognitive and employability skills through four key components:

have the potential to make a wider impact in a range of schools and colleges.

- Reflective Project
- Personal and Professional Skills
- Language Development
- Service Learning

Westminster Academy is one of over 40 schools in England that offer the IBCP and prides itself on giving students from all backgrounds the chance to study the IB. A comprehensive school with a diverse intake, it fully switched to the IB five years ago, rejecting A-levels in favour of running only the Career-related Programme and the Diploma Programme.

Dr Saima Rana, Principal, Westminster Academy:

The IBCP, while challenging, can be more accessible to students. A higher level of coursework means students grow in confidence as they make progress throughout their first year. As a result, students are much less likely to drop out as they move into their second year. The staff also love to see students graduate from our IB programmes with not just knowledge of their subjects, but with the values to ensure they go out and change the world for the better.



Swimming against the stream – beacons of hope from home and abroad



CASE STUDY – The WOW Show

Edge is one of the founding partners of The WOW Show, a radical broadcasting approach aiming to bring the world of work to life for young people.

The show is streamed live directly into classrooms, providing classes or year groups with a fast-moving, interactive magazine-style programme showcasing different career options. It is also available on demand through its own YouTube channel so that students can watch on catch-up at home or with parents.

The show features real-life encounters with employers to discover the opportunities available and the skills students will need to enter and succeed in different industries, with content produced or endorsed by employers, educators and Local Enterprise Partnerships. This is supported with specially authored lesson plans for teachers to help students prepare and think more about

the programme content, making the connection to the wider curriculum.

The pilot programme aired in May 2018 and was promoted to 250 schools. Independent evaluation carried out by Britain Thinks showed that it resonated strongly with students and teachers and the team are aiming to develop a weekly careers programme designed for a range of audiences from primary to secondary and college students.

Kirstie Donnelly, Managing Director of City & Guilds: *Interventions like the WOW Show break down misconceptions and stereotypes about the workplace and expose young people to a wide range of jobs. By democratising careers advice and making it accessible to all The WOW Show broadcasts are not only levelling the playing field for young people but also support employers by widening the pool of potential candidates.*

Edge future learning

CASE STUDY – The Association of Education Business Professionals

Edge supported the foundation of the Association of Education Business Professionals (AEBP) in Summer 2018 to represent all of those organisations playing a vital role in brokering relationships between schools, colleges and businesses. These are essential to offering young people truly meaningful encounters with employers, from work experience to internships and employer-led projects.

The AEBP already represents over 50 organisations across the UK who together work with more than 173,000 employers. It exists to champion the importance of employer engagement, promote the work of its members, professionalise the workforce and share effective practice in this space.

Tower Hamlets Education Business Partnership is just one of those organisations, which has been working with schools and businesses for almost 30 years. Last year they worked in partnership with over 500 employers to support over 15,000 young people across 80 schools.

They develop and deliver a wide range of practical volunteer-based programmes and workshops all aimed

at raising young people's achievement and aspiration, helping them to gain employability skills and develop an understanding of the world of work. These cover everything from helping primary school children with literacy to supporting sixth form students to make informed decisions about their future working lives.

Iveren Yongo, Alumni Ambassador at Tower Hamlets EBP said: *I believe the support provided by THEBP has helped shape me into a more ambitious and determined young person. It has essentially provided me with the positive mindset to overcome challenges I encounter, both professionally and personally. Most importantly, the support from THEBP has encouraged me to think beyond my local area and any perceived limitations – the world is my oyster!*

We will continue to support these experienced and successful organisations to provide independent expert brokerage to schools, colleges and employers. You can find out more at: <http://theaebp.co.uk/about-us/>.



Swimming against the stream – beacons of hope from home and abroad

Taken together, these examples of good and innovative practice show that in spite of the restrictions placed on the system by the current set of education policies (Chapter 2), there is a **wide and growing movement of schools, colleges and approaches seeking to deliver what young people and employers truly need** (Chapter 1). Whilst they may not currently get the support and acknowledgement they deserve through

the educational establishment and performance system, they know that they are doing the right thing for their students and are already making a huge difference to young people's lives. They can take courage from the fact that they join a growing international community both in the wider UK and further afield. A few leading examples from these regions are explored in the next sections.



Beacons of hope – United Kingdom

International comparison is a hugely powerful tool in policy making when it is used in the right way – **learning from and contextualising effective elements** rather than seeking to simply transplant programmes from one setting to another. When visitors from overseas come to look at the 'UK education system' one of the first things to be said is that there is no single system. Education, FE and skills are areas of devolved responsibility and have developed very differently in each of the four nations.

That can present challenges of coherence, for instance where an employer seeks to train apprentices in more than one nation within the UK, or a training provider wants to operate across boundaries. It also presents a unique opportunity. As with federal nations such as the US and Australia, it provides us with a **potential laboratory to test and improve our education policies**. The four

nations share many characteristics of labour market, organisation and culture and yet are pursuing sometimes very different approaches, with a variety of outcomes.

That is why we commissioned the Institute of Education to lead a piece of work comparing the FE and skills systems across the UK to draw out lessons for practice.



Policy learning in FE and skills across the four countries of the UK

What lessons can England learn?

Ann Hodgson and **Ken Spours**, *Centre for Post-14 Education and Work, UCL Institute of Education*

Home international comparison – a context for policy learning?

Comparing education systems across the countries of the UK has been seen as particularly fruitful because of what has been termed the ‘Goldilocks Zone’ – contexts that are not too similar, yet not too different. The similarities are interesting because they can be based on sharing common problems, while the differences are equally intriguing because they may point to differing approaches to addressing the problems. Comparisons across the UK – known as home international comparisons – can therefore provide a good basis for policy learning.

In the period following 2010 and the Coalition Government, this assumption was challenged because of accelerated divergence between the three smaller countries of the UK and England in relation to general education policy. This raised a question about the ongoing validity of home international policy learning.

More recently, the development of policy on vocational education and apprenticeships has provided an opportunity to revisit this idea because of the need to strengthen the relationship between education and working life across the UK.

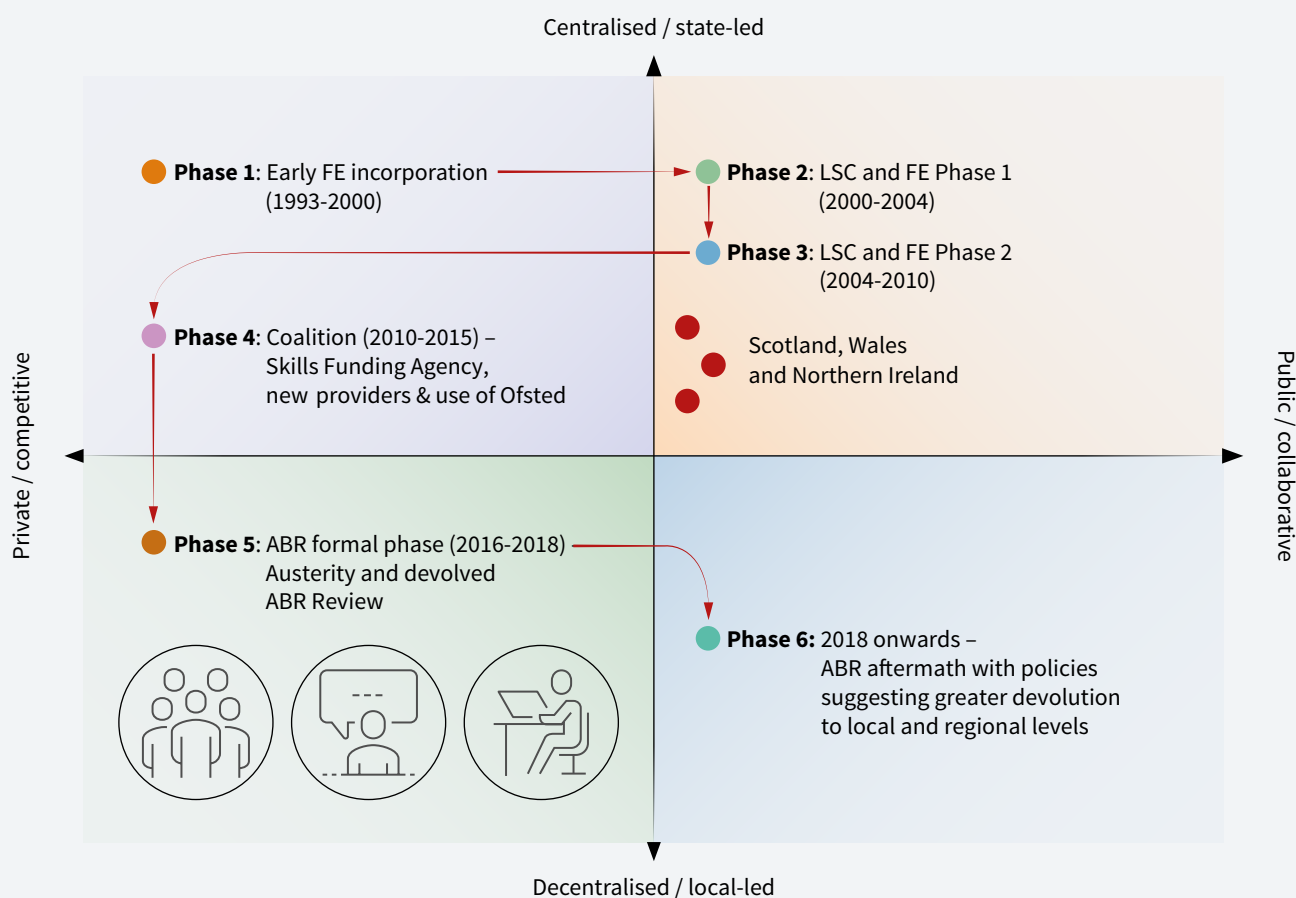
What can England learn and does it want to?

The first lesson that comes out of this comparison is that England is different from the other three nations – not only in terms of its size, but also in relation to the extensive marketisation of the FE sector. As can be seen from the diagram opposite, the smaller countries of the UK tend to be more nationally-led and more collaborative and ‘system-like’ than England.

Following Area-Based Reviews in England there is a greater policy emphasis on institutional collaboration, so there is potentially more to learn from the other countries of the UK that have travelled further down this road.

Swimming against the stream – beacons of hope from home and abroad

The Historical Trajectory of English Further Education (compared with Scotland, Wales and Northern Ireland)



Scotland, for example, is now using regional outcome agreements around skills and apprenticeships to bind different social partners together in common cause. Both Wales and Scotland are moving towards a more tertiary approach in which further and higher education are increasingly being seen as playing complementary roles in support of the FE and skills agenda. Northern Ireland's six regional colleges are beginning to collaborate around professional development and vocational specialisation.

Enduring policy learning may be based on the recognition of common problems

The main source of policy learning, however, may not just be investigating the good practice of another country, but the realisation that colleges, no matter where they are located in the UK, face relatively common problems. These include how to balance social inclusion and high level skill development; how to deal with Brexit and tackle the demands of the Fourth Industrial Revolution; how to

build strong, effective and inclusive progression pathways; and how to work with employers around local and regional priorities. None of the four countries can afford to be complacent in these fundamental areas and all have something to learn from each other.

Effective policy learning will be based, not only on these realisations, but also on bringing people into dialogue through new types of networking activities that draw together researchers, policy makers and practitioners. Unlike during the period of accelerated divergence around general education, there now appears to be a greater appetite for the continued exchanges of views on policy approaches and 'interesting' practice at the intersecting points between education providers, employers and the economy.

You can read the full report, *FE and Skills Across the Four Countries of the UK* at: <http://www.edge.co.uk/research-policy/uk-skills-report>.

Towards a twenty-first century education system: *Edge future learning*



CASE STUDY – Foundation Apprenticeships (Scotland)

Skills Development Scotland (SDS) aims to bridge the gap between education and industry. The national skills agency designs and administers bespoke apprenticeships on behalf of the Scottish Government, helping to offset the current skills shortage affecting the UK. Their Foundation Apprenticeships (FAs) for senior school pupils offer real workplace experience while still at school. Since its launch, in 2014, the FA model has been implemented by 71% of Scottish Secondary Schools, signifying a nationwide shift toward work-based learning.

Foundation Apprenticeships are specifically designed to complement academic studies as part of a broad and balanced route. In fifth year, students can select to enrol in a two-year apprenticeship alongside their National 5 or Higher subjects (equivalent to A-Level), rendering the academic-vocational divide obsolete. Apprentices spend at least one day per week learning practical skills at a local college or employer that have partnered with their school to deliver the programme. Currently, FA programmes have been developed in the twelve fastest growing sectors of the Scottish economy, including software development, business skills, and scientific technologies. In addition to learning industry-specific knowledge, apprentices cultivate meta-skills such as self-management. Meanwhile, where young people who have studied an FA go on to the full Modern Apprenticeship, this can accelerate their start by up to nine months – a truly no-wrong-door approach.

Upon graduation, participants leave school with both academic and industry-recognised work-based learning qualifications, enabling them to pursue a range of learning routes and career paths. “It’s about enriching the students by opening up opportunities and not closing any doors,” says Diane Greenlees, SDS Head of Foundation & Graduate Apprenticeships. All Scottish universities now accept FAs as part of their entrance criteria, including University of Edinburgh and University of Glasgow.

Skills Development Scotland believes that early exposure to the world of work helps to ease the transition from school to the workplace. Many participants have gone on to pursue their apprenticeship-area-of-interest by progressing on to a Modern Apprenticeship, getting hired for a related job, or studying it at university or college. This, in turn, strengthens Scotland’s economy, providing a “solid talent pipeline” to local employers across the largest growth sectors.

Foundation Apprenticeships are a key part of the Scottish Government’s Youth Employment Strategy and could soon be offered by every secondary school. Already, around 3000 students enrolled in the program between 2016 and 2018, and SDS has a target of achieving up to 5,000 new FA starts by the end of 2019. As new industries emerge, SDS plans to develop more apprenticeship opportunities, ensuring that FAs stay up to date and true to purpose, namely to improve both students’ and Scotland’s future prospects.

Swimming against the stream – beacons of hope from home and abroad

Diane Greenlees, Head of Foundation & Graduate Apprenticeships, SDS: *We researched the education systems of OECD countries that ranked in the top-quarter for youth productivity, such as Denmark and Finland. Finding that these countries started work-based learning much earlier than we did in Scotland, SDS designed an apprenticeship scheme that would enable young people to gain work experience in growth-sectors before leaving school. By aligning the ambitions of government, industry, schools, and students we've been able to expand the model rapidly and transform Scotland's secondary education. Different learners achieve in different learning and assessment styles and work-based learning offers a new way to excel, distinct from but equivalent to traditional academic qualifications.*

CASE STUDY – City of Glasgow College (Scotland)

City of Glasgow College is a £228 million twin site 'super college' that has transformed the skyline of the city as part of a major regeneration of the centre of Glasgow. The largest technical institution in Scotland, it offers over 2,000 programmes to meet the professional and learning needs of some 40,000 students from 130 different nationalities and delivers £47 million back into the Scottish economy each year.

The College focuses strongly on linking its students to sectors of the economy through the Industry Academy (IA), a concept designed to channel the College's curriculum and the industry experience of staff to meet the needs of learners and employers. The Model promotes cross-college activity, in collaboration with external partners, to create a focused, sector relevant skills and training curriculum that goes beyond conventional pedagogy. This curriculum model supports learners to become work-ready for their chosen area of employment and provides employers with access to a skilled workforce and a pipeline of motivated graduates who demonstrate the necessary skills and values and behaviours demanded by industry.

Currently City of Glasgow College hosts 23 Industry Academies, which will expand to 100 by 2020. Some examples of how the Industry Academy Model operates in practice are:

- **Engineering** – The EA is delivered in collaboration with the University of Strathclyde to widen access to engineering degree programmes to students who do not have the necessary qualifications for first year entry. This programme has significantly increased opportunities for students to continue to full degrees in this growth sector.



Towards a twenty-first century education system: *Edge future learning*

- **STEM** – Through the IA model the College has partnered with a wide range of institutions to host the Glasgow City STEM Regional HUB, in collaboration with Glasgow City Council, to promote STEM opportunities and training for Scotland’s developing workforce
- **Procurement** – The Procurement Academy was established to meet the needs of the Scottish Government’s Procurement People of Tomorrow programme, which aims to grow Scotland’s talent to address industry wide skills shortages. A full range of vocational pathways have been created to provide learners with a range of flexible, vocational pathways regardless of their prior qualification or experience.

Employers are involved in shaping every aspect of the Industry Academies, using them as an opportunity to share the latest practices and developments in their area with young people. This can include acting as guest speakers, co-delivering lectures, providing employability and recruitment workshops and setting live industry projects.

City of Glasgow College has been trailblazing this new approach in Scotland and has rightly been rewarded with multiple awards for the impact they have already made on the Scottish economy in general and social mobility in particular.

Paul Little, Principal and Chief Executive, City of Glasgow College, said: *Our innovative Industry Academy model equips students with industry relevant skills and provides employers with a constant pipeline of motivated technical and professional graduates. In just three years the model has delivered nearly 4,000 work experience opportunities, over 2,500 work placements, 588 guaranteed job interviews, 67 work-based learning programmes, and 116 industrial placements for staff.*

CASE STUDY – South East Regional College (SERC) (Northern Ireland)

The Northern Ireland economy is dependent upon public sector employment but has a proud tradition of innovation, from the modern pneumatic tyre (Dunlop) to the portable defibrillator (Pantridge).

Further Education is a critical part of transforming that economy and South East Regional College (SERC) in particular has started transforming the way learning is delivered and assessed. SERC is a large multi-campus College based in County Down that resulted from the merger of three colleges in 2007. It has approximately 4500 full time and 7000 part time students and delivers courses in over 40 curriculum areas.

The traditional methodology for learning and assessment has focused on lecturing and academic testing. SERC felt that this has increasingly become less suitable for the current generation of young learners living in a technologically enabled world where employers seek skills like creativity, teamwork and problem solving.

SERC developed a model for Project Based Learning (PBL) based upon research it carried out on two existing models: Conceive Design Implement and Operate (CDIO) and a model delivered by the Basque Vocational Education and Training sector.

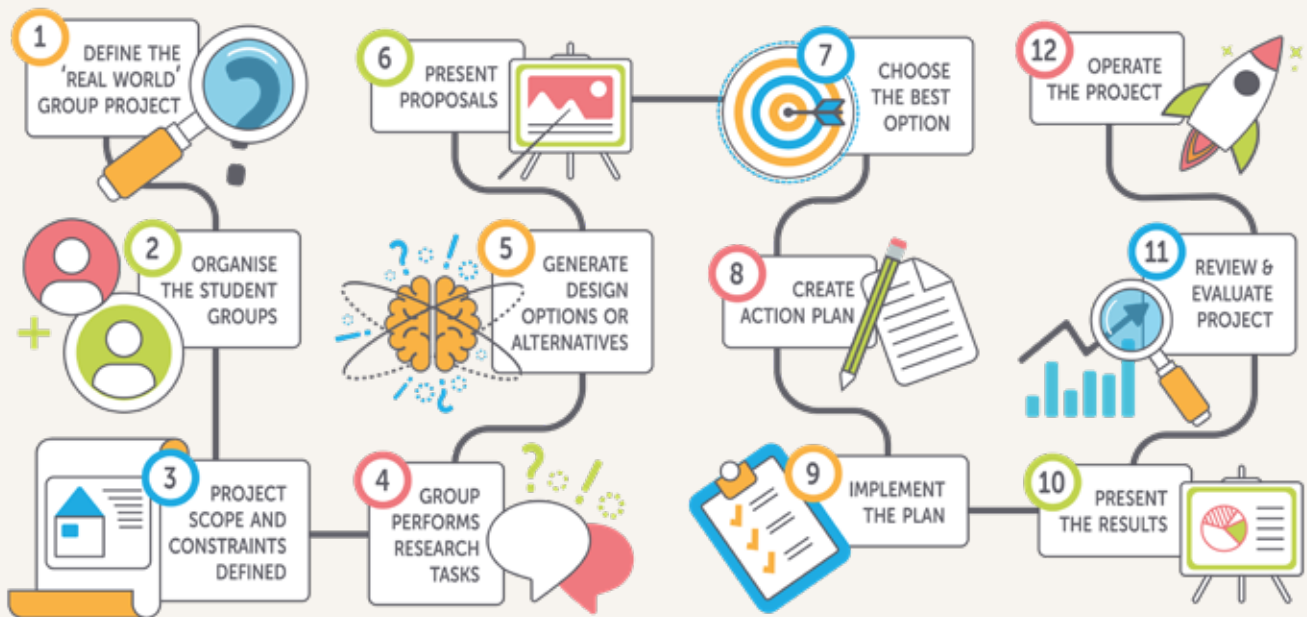
The most important element in this transformation of learning and assessment was investment in staff training in the new PBL model. Lecturers needed to develop into facilitators and this was an extremely challenging task. SERC adapted its award-winning peer mentoring model to provide PBL mentoring to staff. The PBL projects at SERC extend across vocational areas from computing to performing arts, which generates even greater innovation and creativity.

The fundamental principles of the SERC PBL model are:

- Lecturers becomes facilitators
- Real world industry projects bring the curriculum to life
- Students work in groups, learning from their peers
- Projects are open ended, with no defined ‘right answer’
- The College focuses on the skills that young people are developing

PBL mentors were recruited and trained in the new model and they delivered an intensive training programme to

Swimming against the stream – beacons of hope from home and abroad



all 300 permanent lecturers in August 2016. From that September, all full time students began to take part in PBL with exhibitions of their work in campus public spaces.

One great example of the positive impact of PBL is in the catering curriculum area. Staff have been able to place all their students in work for the first time, even those studying

at level 1. Mixed ability groups working together have proved successful in supporting weaker students. Student technical skills have been greatly enhanced as demonstrated through project working with employers and as a result, students won gold medals at a skills competition. Entrepreneurial students and staff have been involved in designing and converting a horse trailer into a pop-up restaurant.





Beacons of hope – the wider world

Across European countries, the United States and Australia there is a growing movement of schools, colleges and projects championing a more holistic and engaging form of learning. In spite of the relatively hostile policy environment here (Chapter 2), the brave English institutions that do support their pupils to develop the wider skills they need for life and work (Chapter 1) join a rich family of international examples that can support their work.

CASE STUDY – High Tech High, San Diego

High Tech High (HTH) was founded in 2000 as a small charter school in San Diego aiming to serve around 450 students, but its popularity has meant that it has expanded to become a network of fourteen schools serving more than 5,000 students across all phases of education.

Students are chosen purely through a ZIP code lottery in order to ensure equity. HTH is made up of small individual schools of around 350-450 pupils that work as autonomous units but are co-located on campuses.

Within the schools, young people are placed in vertical tutor groups allowing them to form close supportive relationships with pupils in other years and members of staff.

HTH teaches a broad and balanced curriculum, around 90% of which is delivered through Project Based Learning (PBL). Projects each last for one term and are either delivered within a particular subject or as a collaboration between two subjects. They often integrate art, drama or other creative disciplines in partnership with another subject.

Swimming against the stream – beacons of hope from home and abroad



Each project ends in a display, exhibition or showcase which is open to the whole school, parents and the local community. Many of these remain around the school, with every surface covered in colourful artwork and objects from hand-made canoes to masks to pieces of furniture.

HTH connects students to the wider world in a wide range of ways. They invite professionals into the school (e.g. a graphic designer supporting art projects), they organise interactive fieldwork experiences (e.g. working with the curator at the San Diego Maritime Museum to design an exhibition) and they organise a full-time four week internship for every student in their penultimate year at organisations from the San Diego Zoo to the Mayor's Office.

The school also breaks down the barriers between 'curricular' and 'extra-curricular' activities, from hosting meetings of local scout groups to encouraging entrepreneurship. Students were shown how to make soap in chemistry class, designed packaging in their art classroom and then spun this out as the Wicked Soap Company selling their creations to raise money for charity and school events.

Teachers are given a high degree of autonomy and support. They take part in an initial week-long training course and have regular time for CPD and planning with other teachers.

The results of this approach are clear – 98% of HTH students reach the achievement level required for Higher Education, more than 50% higher than the state average (43%).

Isaac Jones, Director of HTH Media Arts says: *When introducing a model like we have at High Tech High, it is important to work with the most enthusiastic teachers first and to organise a showcase or exhibition early on. This will help to demonstrate the power of project based learning, bringing parents and other teachers on board. We put a lot of effort into organising the internships that we offer to all of our students, but these are what sets them apart as they apply for college or their first job.*

Towards a twenty-first century education system: *Edge future learning*



People use the term ‘Project Based Learning’ in many different ways and, like any educational approach, the technique only works where it is delivered effectively. What we wanted to do at Buck was create a clear set of principles that underpin gold standard PBL, from developing an effective driving question to presenting a finished product to an authentic audience.

So far more than 80,000 teachers from all 50 states in the US as well as the UK and Europe have been trained in the approach.

Brandon Wiley, Chief Programme Officer, Buck Institute of Education

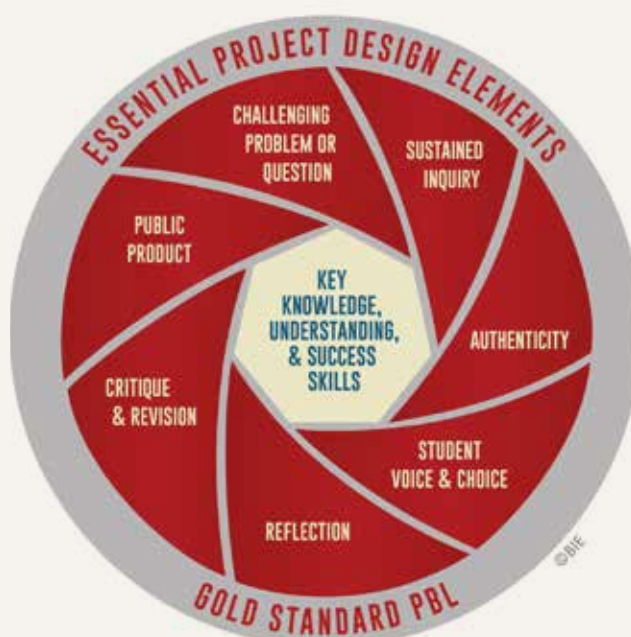
CASE STUDY – Buck Institute of Education (BIE), San Francisco

Based just outside San Francisco, the Buck Institute are one of the world’s leading organisations **designing and promoting Project Based Learning (PBL)** as a technique to engage young people, raise attainment and develop the skills that employers are looking for.

As with any educational approach, BIE saw different schools and organisations delivering PBL in different ways

and to varying degrees of success, so they went about developing a **gold standard for PBL** which encapsulates the key elements of high quality project design and PBL delivery.

The BIE framework touches on **many of the points highlighted in our other case studies**, from the challenging and thoughtful driving questions at XP School to the amazing public products created and displayed at High Tech High. You can find out more at www.bie.org.



Swimming against the stream – beacons of hope from home and abroad



Teachers can sometimes be wary of taking a PBL approach as it can appear unstructured or the concept can seem daunting. When I was trained in the Buck model, it helped to bring a clear structure which I can use to support teachers as they develop highly effective projects.

As a former teacher myself, I know that this approach can transform teaching and learning, giving students more freedom and placing teachers in the role of coaches and facilitators. This can help young people develop exactly the skills that employers are looking for.

Helen Beardmore, Education Delivery Manager, Edge Future Learning

CASE STUDY – Technical and Professional Education in Finland

Formal schooling starts later in Finland than the UK at age 7 and young people transfer at the age 13 to lower secondary school (*yläkoulu*), where class sizes are small and the curriculum is very broad including art, music, cooking, carpentry and textiles.

The atmosphere within schools is very relaxed and informal. Homework is minimal to allow plenty of time for extra-curricular activities, many of which, like music, are subsidised. During the first years of comprehensive school, grading is limited to verbal assessments rather than formal grades and there are no high-stakes tests.

After lower secondary school, young people enter a twin-track system, choosing between an academic track (*lukio*) or a vocational track (*ammattikoulu*), however there is movement between the tracks and it is possible to blend learning between the two. Vocational education is by no means seen as a second choice – over 40% of students select it, a rise of 10% over the last decade.

The curriculum is very flexible, based on 4,000 individual skills modules that can be combined into different qualifications that offer breadth as well as depth. All vocational courses include at least six months of learning on the job as well as core employability skills. Assessment is via public demonstrations of competency which are



Edge future learning

sat equally by young students and adults working in the sector who want to certificate the skills they have gained.

Teachers in Finland in general are highly valued, both in terms of pay, which is well above the OECD average, but equally importantly in terms of the level of autonomy in the classroom. Vocational teachers are the most highly prized, with a Masters degree in their field and at least three years work experience, they are paid more than traditional subject teachers.

Although there is a considerable degree of freedom in how teachers teach, project based learning is seen as so important that in 2016 the National Curriculum Framework was updated to mandate that it should be available for students aged 7-16 and it is also very common in Colleges like Tredu in Tampere where students are expected to work on real-world projects with employers as part of their studies.

Like many other areas of policy in Finland, education is underpinned by a focus on ‘foresight’ – the National Agency for Education organises a series of facilitated workshops bringing together leading employers and experts across each of nine industry areas. Together they understand how technology and business practices are changing and develop plans to update places planning and the curriculum to ensure that industry receives the skilled workforce it needs.

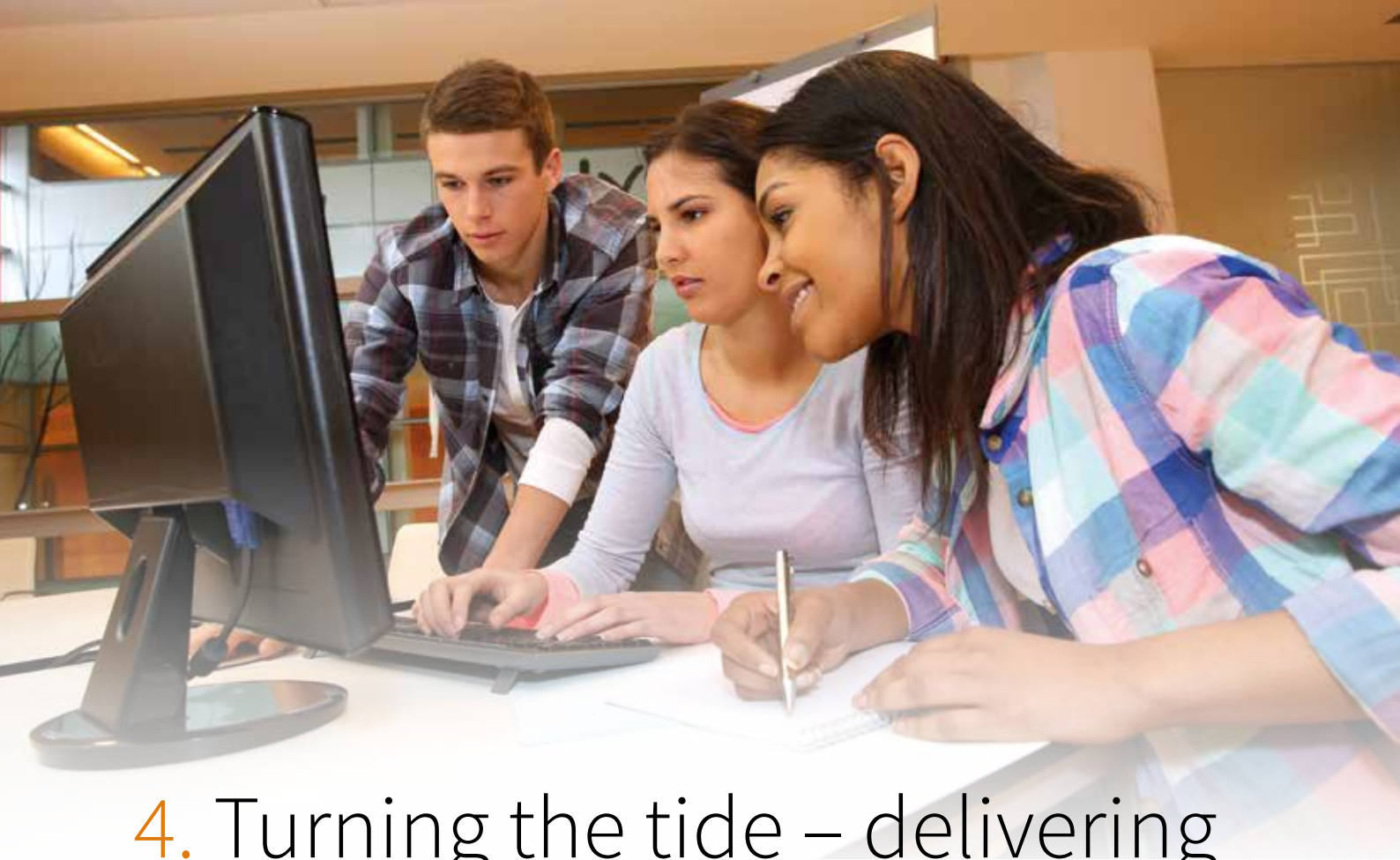
Helena Koskinen, Director of Education Export, Tampere Vocational College, Tredu: *We have two customers – the student and industry – and we have to make sure that each gets what they need. National qualification requirements are drawn up in co-operation with employers’ organisations, trade unions, the Trade Union of Education and student unions. However, while the National Agency sets the overall curriculum and assessment, we have a huge degree of freedom to teach in a personalised way. There is no point in people being taught the same thing twice, things they have earlier already studied. Students here work closely with employers throughout their courses, working on real world projects that bring the curriculum to life.*

CONCLUSION

In this Chapter, we have argued that:

- **Even in spite of the very restrictive policy environment (Chapter 2), there are exemplary schools, colleges and projects in England that are successfully helping students to develop the holistic and relevant skills that they need for life and work (Chapter 1).**
- **The wider United Kingdom presents a helpful policy laboratory for education, with the four nations sharing similar culture and labour market but pursuing quite different policy trajectories.**
- **Scotland, Wales and Northern Ireland provide important lessons for England including the importance of institutional collaboration, the integration of much more relevant pedagogies like project based learning, a blended curriculum and much more profound employer engagement.**
- **Looking to the wider world, many of these same themes underpin leading practice in schools, colleges and projects in Europe, the United States and further afield. There are many highly effective lessons to be learned from these for practice here in England.**

It is very clear that the English system is taking a unique trajectory compared to other leading nations. While other countries are focusing on developing young people holistically with the flexibility, resilience and rounded skills needed for the future, our system continues to focus primarily on teaching a narrow range of pupils a narrow range of subjects through a narrow range of approaches. Only a few brave and enlightened institutions are going above and beyond this. In the final Chapter we will set out how we will support and foster the growth of these approaches so that they can become the norm within our education system.



4. Turning the tide – delivering our plan for future learning

It is absolutely clear that the current thrust of education policy (Chapter 2) is not only failing to support the development of the skills and attributes that young people really need (Chapter 1) but in many cases actively pulling in a different direction. However, we should be heartened by the large and growing number of enlightened schools, colleges and projects (Chapter 3) that are **focusing much more holistically through an engaging and relevant curriculum connected to the real world**. They join colleagues in many other countries as part of a global movement towards teaching that can truly help young people to prepare for work and life in the future.

We want to ensure that England can be at the forefront of that movement, not just through excellent isolated examples but as part of a **concerted effort in every school and college to prepare young people for real life, not just for the next test**. We are fighting at three levels, each of which is essential if we are to truly turn the tide – philosophically, theoretically and practically.

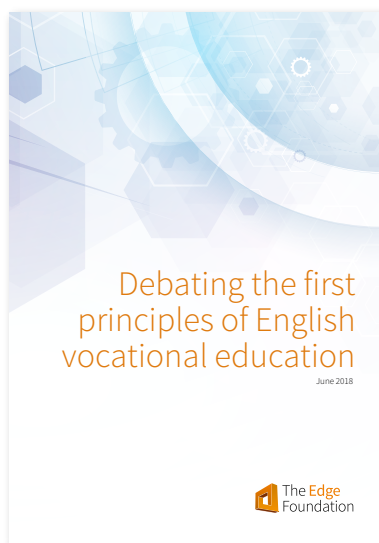
Towards a twenty-first century education system: *Edge future learning*

Philosophically – agreeing the principles of vocational education

Within the world of academic education, a **huge amount of debate and work has taken place over recent decades** to look at underlying questions about its purpose, the way in which knowledge and information is structured, the means of teaching and assessing and the role of education in society. This has been **much less the case for vocational education.**

Society and the educational establishment have tended to view this as secondary to academic education and to jump straight into practical delivery rather than taking time to consider the underlying principles.

This results in two challenges to the system. The first is that there is **no consensus around what vocational education is for** and so answers can vary widely – from



vocational education as an elite route to professional careers, to vocational education as second chance provision for disengaged young people. The second is that this fuels the state of **constant revolution in the skills system** that has been highlighted so well in reports like City and Guilds' *Sense and Instability*,³² a direct contrast to the approach taken in established and successful systems of vocational education and training internationally.

We wanted to kick start a **real debate about the underlying principles and philosophy of English vocational education** so that we can move away from instability towards a more settled and focused vision. We were overwhelmed by responses to an initial consultation document that we published in early 2018 and followed this with a major debate and a report bringing together input from leading academics, practitioners and businesses.³³





Key messages from the big debate

(March 2018)

Chris Winch, *Professor of Educational Philosophy and Policy, Kings College London*

Despite involving a very wide and diverse group of thinkers, there has been surprisingly little dissent in the debate so far about the problems that face English vocational education and what its direction of travel should be.

In terms of the aims of English vocational education there has been general agreement that it does not have to have one single aim and that multiple and complementary aims are desirable. Preparation for working life is considered to be essential and many contributors have emphasised that today's young people need to prepare for a career that might span multiple occupations, including in newly emerging industries. There is also broad agreement that there should be a citizenship element to vocational education, preparing young people to be productive and valuable citizens in the workplace and in their wider lives.

Concern has been expressed about the relative absence of careers guidance and education in the schooling system, the 'gravitational pull' of the Higher Education sector and the influence it exerts on post-school options.

Many contributors to the debate so far have set out what they see as crucial and effective elements of successful pedagogy and this is another area of strong consensus. They point to the need for a broad and balanced curriculum with clear connections to the real world, which develops young people holistically – head, heart and hand. Many feel strongly that this same approach should break down the so-called 'vocational-academic divide' and form the basis for a single rounded approach to education.

The overall mood of the debate so far has been very positive. Despite broad agreement no-one underestimates the challenges faced by those who wish to improve the sense of direction and underlying principles of the English education system. The need to involve broader groups of policy makers (from all parties), trade unionists and employers in working for such improvements is also clear - a small band of enthusiasts on their own cannot do it. This debate was the first important step on an exciting wider journey to create an underpinning philosophical framework for English vocational education.

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We will continue to champion and facilitate this discussion, holding a second big debate in November 2018, which will be followed by a further report in 2019, beginning to provide a stable philosophical foundation for work in this area.

Theoretically – Developing a framework for future learning

Over the last two years we have visited, spent time in and evaluated around twenty of the world's leading education models that are successfully developing the skills that young people really need – some of these are featured as

our beacons of hope (Chapter 3). Each is of course unique, but the **vast majority share some common principles and practice that are making learning relevant to students and supporting them to move on to excellent destinations.**

We are working with leading researchers from the National Foundation for Educational Research, the Institute of Education at UCL and Oxford University's SKOPE Research Centre amongst others to independently analyse and understand leading innovative models and to distil down the key ingredients that underpin all of their excellent work. Some of the key ingredients that are emerging so far are:

1. A broad and balanced curriculum
2. Lessons taught through a real world lens
3. Rich employer and community engagement
4. Teachers with greater flexibility and more support
5. A strong focus on student wellbeing
6. Rigorous preparation for college and career
7. Visionary leadership and communication

Over the next year we will hone and develop this list with our team of researchers to develop a detailed and effective theoretical model that incorporates lessons and practice from the world's leading organisations. This framework will be able to be used and adapted by any school or college to underpin future learning in their institution. We will publish this framework in 2019.

Practically – Making change a reality on the ground

The Fourth Industrial Revolution is gathering pace and we are impatient for change to ensure that young people are getting the skills they need for the future. That is why, **in tandem with developing the philosophical foundation and developing the theoretical model, we are piloting key elements of delivery on the ground.**

As part of the development of Edge Future Learning, we have developed three programmes to begin to put into practice some of the lessons from leading schools and colleges.



Turning the tide – delivering our plan for future learning

EDGE FUTURE LEARNING

– Teacher Externships

Many teachers follow a classic career path of going to school and university themselves then back to school as part of the teaching profession. That may give them expertise in the craft of teaching, but it does not always give them the opportunity for wider life and career experience that can help bring their subject to life and enable them to offer real and relevant career insights to their students.

Building on the excellent practice from Nashville, Tennessee outlined in *Our Plan for 14-19 Education*, we developed and delivered a programme of teacher externships in Nottingham, Derby and the North East of England during 2017-18. These offered teachers the opportunity to get out of their classrooms and spend time in local businesses like Nottingham City Homes and Capital One, meeting a wide range of individuals fulfilling different roles in the business. Teachers then took this learning back to their schools, running projects for their pupils to help them to understand how that business works and the range of opportunities available there.



Give Yourself the Edge

Evaluation Report

Vanessa Dodd
Jill Hanson



derby.ac.uk

The programme was independently evaluated by Derby University.³⁴ This showed that 80% of teachers reported that they had gained a valuable insight into the world of work and 75% felt more confident about offering careers advice. One headteacher noted: *I had a straightforward career path of school-uni-school and I didn't really know what the outside world of work was like. The externship gave me an opportunity to learn.*

Another teacher agreed saying: *You do your studies, get your qualification and enter teaching. I had no idea about other routes like apprenticeships.*

The evaluation also found that students benefited strongly from the approach with 84% reporting they had learned a lot about local jobs and employers.

To find out more about our programme of teacher externships visit: <http://www.edge.co.uk/edge-future-learning/our-offer/teacher-externships>.



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EDGE FUTURE LEARNING – Curriculum Resources

Many teachers are keen to be able to bring the power of real world relevance into their classrooms but because of the pressures on them simply don't have the time to explore this. Yet at the same time, schools tell us that Gatsby Benchmark 4, bringing careers into the curriculum is by far the hardest to deliver.

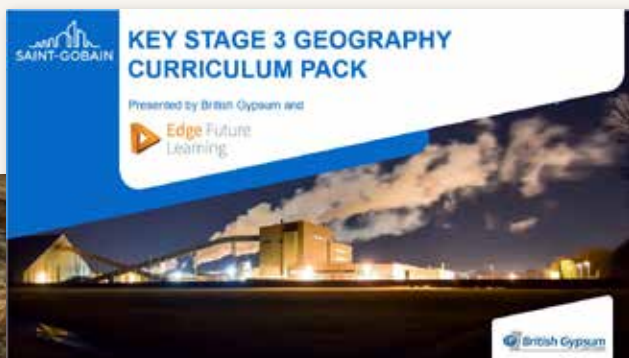
As part of Edge Future Learning, we are working with leading employers to develop curriculum resources that bring their industry to life for teachers to use or adapt. As an example, we have been working with British Gypsum, a mining and manufacturing company based in the East Midlands that produces much of the plaster used in the UK. They are keen to help young people understand the breadth of careers in their industry – from scientists to engineers to planners.

With the Key Stage 3 Geography curriculum, young people are required to understand mining and the extraction of minerals, the use of natural resources and how human processes interact with landscapes and environments. This links closely to the Science

curriculum too which looks at the composition of the earth and rock cycle.

Rather than teach these in a dry and disconnected way, we have worked with British Gypsum to develop a highly engaging curriculum project that can be taught over half a term, encouraging students to consider a wide range of human and physical factors to decide where to place the next gypsum quarry. This gives them an understanding of place, the physical, human and economic factors at stake in the decision making process. Equally importantly they develop the real skills that employers require such as developing an argument, communicating with others and working in a team.

We are already working with a National Park on the development of curriculum resources and developing plans in the creative and digital sectors. We will continue to extend this work and provide high quality teaching resources which link the curriculum directly with the world of work by using the business as the context for students learning. You can find out more at: <http://www.edge.co.uk/edge-future-learning/our-offer/curriculum-development>.



Turning the tide – delivering our plan for future learning

EDGE FUTURE LEARNING – Career Events

It is essential that young people meet professionals from a wide range of industries and with an experience of different career paths while at school to inspire them and help them to think about their future journey. Edge has been working with partners at Inspiring the Future over the last two years to deliver career events in schools that introduce pupils to professionals who have experience of vocational education and different routes to success.

Over the second year of the programme, we introduced more than 15,000 students in primary and secondary schools across the country to volunteer professionals who have shared their experience and insight. In one event in March at the National Theatre, young people had the opportunity to meet teams working on areas from lighting and sound to the stage structures and costumes, looking at each profession through a STEM skills lens.

You can find out more about our programme of career events at: <http://www.edge.co.uk/edge-future-learning/our-offer/careers-events>

We also want to bring all of this learning together, working with schools and colleges to develop a fully integrated model that draws on all of the world leading approaches being delivered by our partners (Chapter 3).

FARNBOROUGH ACADEMY, Nottingham

Edge introduced school leaders in Nottingham to the fantastic progress made in Nashville’s education system over the last decade through making the curriculum relevant and involving employers in all aspects of delivery. There is more information on the Nashville model in *Our Plan for 14-19 Education*.³⁵

Inspired by what they saw, The Farnborough Academy developed rich partnerships with local businesses including British Gypsum, Crowne Plaza Hotels, Nottingham Trent University and East Midlands Airport. The school uses these to support a programme called the ‘Farnborough 10’ which matches ten young people to each of these employers to develop a deep connection over the course of Year 10. This includes a series of visits to the employer to build their employability skills, grow



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their confidence and get an insight into all aspects of their work.

For instance, ten students spent the year working with the nearby East Midlands Airport and developed their skills through a series of activities, starting with a speed networking event in which pupils got to interview a range of employers from the airport including a pilot, security officer, customs officer and ground staff. The airport has also helped to develop curriculum-based challenges, such as pupils working in teams to develop proposals for the most lucrative use of empty retail space, presenting their ideas to senior staff from the airport.

Their experience was so positive on both sides that the Airport offered all ten of the pupils a business mentor to support them through Year 11 as they prepare for their GCSEs and make decisions about their future.

Clare Watson, Deputy Head at Farnborough: *The project has been transformational for our pupils. We have seen the children grow in confidence before our eyes and importantly develop key employability skills such as leadership, teamwork and resilience. It's enabled our pupils to look at the wider world of work and interact with employees from different sectors of the airport. There has been significant impact on each individual child from improving attendance, reducing negative incidents in school and raising aspirations for the future.*

Demi-Mai, Year 10 pupil: *It's given me a greater insight into how a large organisation works and I was able to link this to how a school is kind of like a business where the teachers support the pupils to be successful. I used to be easily distracted and thought I was always right but the project has helped me develop my listening skills and have more respect for other people's opinions. It's also helped me with my confidence and speaking to new people.*

Colleen Hempson from East Midlands Airport: *The airport is committed to raising aspirations, spending time in schools supporting activities like mock interviews and careers fairs. However, this opportunity to work more intensively with a group of students has been eye-opening and it's great to see the students grow both in confidence and abilities.*



EDGE FUTURE LEARNING HUB, North East

The Edge Foundation has built a close partnership with a US charity, Ford Next Generation Learning (NGL), which has successfully developed and shared an education model bringing relevance and real world learning to classrooms in almost forty US school districts. The results are clear. In Nashville, the proportion of young people graduating from high school has risen by more than 24 percentage points in the last decade. On the other side of the country in Coachella Valley, a control trial showed a 15 percentage point increase in graduation rates where young people had access to this approach.

We are working with Ford NGL to bring their expertise to the UK for the first time and to combine it with all of the lessons and experiences from our leading partners to create a flexible approach built on the strongest evidence base and adapted to our context.

We have developed strong partnerships to support the development of the North East Hub – with the North East LEP, City and Guilds, the CBI and the North East Collaborative Outreach Programme.

Turning the tide – delivering our plan for future learning



In school districts across the US, thousands of students are benefiting from the Ford Next Generation Learning (Ford NGL) approach which breaks down traditional curriculum boundaries and makes the curriculum relevant to real life and work. Students see the value and rationale in their school work and this leaves them more motivated, more focused and better prepared for college, career and life.

We are so excited to be working with the Edge Foundation and partners in the UK to create our first Ford NGL community outside of the US. This is an opportunity for all schools in the UK to benefit from tried and tested approaches that can help to raise young people's aspirations and outcomes.

Cheryl Carrier, Executive Director, Ford Next Generation Learning



We have been working closely with schools in the North East to lead the way in delivering the Gatsby benchmarks of good careers guidance over the last three years, but we were looking for a way to help them to go further.

We wanted to help schools to support their students to develop the skills that employers here in the North East tell us they need, like teamwork and problem solving. We also wanted to help them to find ways to integrate relevance to the real world into the curriculum to motivate all pupils.

So we immediately saw the appeal of working with Edge to draw on the best models from around the world to develop a Future Learning hub here in the North East to benefit all of our schools and, in time, to share what we have learned with others around the country.

Michelle Rainbow, Skills Director, North East LEP

Together, we are working intensively with three schools – Excelsior Academy in Newcastle, Churchill Community College and Norham High School in North Tyneside. Each of the schools has an Industry Alignment Manager whose role is to connect the school to their local community and employers and to help teachers to develop projects that bring their curriculum to life by teaching through the lens of a local industry.

Working with Ford Next Generation Learning, the schools are going through a process of facilitated workshops that bring together for the first time school leaders, teachers, pupils, parents, governors, businesses and community organisations to plan the future development of the school.

That planning is already paying off as the schools develop and deliver engaging projects. At Norham High School,

Towards a twenty-first century education system: *Edge future learning*



pupils have been understanding science through the lens of preparing for the Great North Run, working with the millionth runner to have taken part in this landmark local event. Meanwhile at nearby Churchill Community College, employer partners are bringing the curriculum to life in areas as diverse as textiles and robotics.

Over the next year we will continue to develop the Hub in partnership with the lead schools and the North East LEP, continuing to refine the model and beginning to extend the approach into new schools and colleges. This will provide a strong base for these approaches to continue to grow more widely across the UK



At Excelsior we have always made a huge effort to be closely connected to our local community, but like most schools decision making and planning mainly took place at SMT meetings.

What this process has already allowed us to do is truly bring that community to the table. It has been inspirational to see pupils and parents working with employers and community groups to discuss what skills and attributes ‘graduates’ from our school really need.

That has informed the development of teams jointly chaired by a member of staff and an external partner to help us plan and deliver the changes we want to see in order to deliver a rich and engaging curriculum.

Claire Goodwill, Principal of Milburn School, Excelsior Academy



We developed a project for Year 3 pupils with Virgin Trains that focused on the driving question ‘how can we ensure everyone has access to sustainable energy?’

Working in teams and with staff from Virgin, they made solar powered boats and cars. This helped them to understand solar power, light and Thomas Edison. It required them to budget so that their prototype could turn a profit for Virgin. Equally importantly, it gave them an opportunity to work in teams, to develop and communicate a presentation, to work with real employers and to understand the relevance of what they have been learning to the real world.

The teachers involved have noticed a real difference in their pupils from this one project, while we have developed a sustainable partnership with Virgin (and now LNER) to work with us on other curriculum projects.

Hannah Cummins, Industry Alignment Manager, Excelsior Academy

CONCLUSION

In this Chapter, we have set out our current work and our plan to go further:

- **Leading the debate around the principles of vocational education to create a strong and consensual basis for future developments.**
- **Developing and publishing a model bringing together all of the evidence and examples that we have looked at to create common principles and practice that are making learning relevant to students and supporting them to move on to excellent sustainable destinations.**
- **Working with individual schools to take action to make their curriculum and approach more relevant to the world of work through teacher externships, innovative curriculum projects and career events.**
- **Creating a hub in the North East of England to put all of this learning into practice – developing, refining and then spreading these approaches across the region and beyond.**

Towards a twenty-first century education system: *Edge future learning*

CONCLUSION

We are facing an **unprecedented period of economic and social change** as demographics continue to cause the skills gap to widen, the fourth industrial revolution makes widespread changes to the labour market and Brexit restricts the supply of skilled workers from abroad.

Employers are absolutely clear about the skills and behaviours they need in their future workforce to make the most of the opportunities available and minimise the risks of these changes. They are looking for rounded and resilient individuals with excellent team working and problem solving skills. They value experience and real contact with the world of work far more highly than paper qualifications. **Metaskills are the currency of future employment.**

The government's suite of education policies aim to tackle the **challenges of Twenty-First Century education by turning the clock back to the Nineteenth Century** – a narrow knowledge-focused academic curriculum taught in a traditional manner to prepare young people for exams based on rote learning. This is at odds with giving young people the broad skills they need for future life and work before the age of 16, while post-16 apprenticeship numbers have fallen fast and T-levels are narrowly defined and lagging in delivery.

Despite this, **there are beacons of hope in our system** – schools, colleges and projects from XP in Doncaster to Plymouth School of Creative Arts that are pushing back and focusing holistically on developing well rounded and resilient young people. These approaches are growing quickly in Scotland, Wales and Northern Ireland where more freedom and greater collaboration are helping them to flourish. They join a family of leading approaches from across the world, using real world context and interactive projects to bring the curriculum to life.

As more and more schools and colleges join this approach, we are already beginning to turn the tide of the education system. Edge will continue to lead this revolution at three levels:

- We will to inspire and manage a real debate about the **underlying principles and philosophy of English education**, creating the philosophical underpinnings for long term change.
- We will develop and publish a **framework for Future Learning** based on a strong evidence base and deep learning from the world's leading models.
- We will continue to **deliver real change on the ground** – through high quality teacher externships, interactive curriculum projects and careers events, and through the development of our first Hub in the North East of England.

Now is the time to act. The economy is crying out for a workforce capable of delivering twenty-first century skills and our current education system has proven itself inadequate to the task. Fundamental change is necessary. We have all of the evidence and tools we need to deliver it.

We look forward to working with you to do so.

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