

## Future of education conference

Our thanks to all participants who attended the *Future of education* conference, held on 29 June 2022, for sharing their views about what should be the educational priorities in the next election manifestos. This summary highlights some of the prominent recommendations proposed by delegates. Comments and recommendations reflect the views and opinions of the attendees and not necessarily those of the Royal Society.

### The Royal Society would like to thank all the organisations participating in the creation of this paper:

AQA, Barking and Dagenham College, Behavioural Insights Team, British Film Institute, Cambridge Assessment, CBI, Child Poverty Action Group, City & Guilds, Edge Foundation, Education Endowment Foundation, Engineering UK, Fair Education Alliance, Federation of Small Businesses, Gatsby Foundation, Gower College Swansea, Institute for Fiscal Studies, Institute of Engineering and Technology, Institute of Physics, MakeUK, National Literacy Trust, National Theatre, NFER, NRIC, Our Shared World, Parentkind, Pearson, Place2Be, PwC, Queen Elizabeth's Girls' School, Rethinking Assessment, Royal Academy of Engineering, Royal Geographical Society, Royal Opera House, Royal Society of Arts, Royal Society of Biology, Royal Society of Chemistry, Sixth Form Colleges Association, STEM Learning, Sutton Trust, Teach First, The Prince's Trust, UCL Institute of Education, Ufi VocTech Trust, Universities UK.

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**“Technology is transforming the future of jobs, in finance, engineering and many more areas besides. If we don't make changes to education, today's young people are not going to be prepared for the future, and the inequalities that advantage some and disadvantage others will persist [...] If we want industry to thrive, productivity to increase and to create a more equal society, we need to be smarter and better prepared for the future. The only way to do that is to get education right. At present we have a 20th Century educational system limping along in the 21st Century. It is time for an upgrade.”**

Sir Adrian Smith, President of the Royal Society.

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### Educational purpose and value

#### Reimagining what education should be for

There was clear recognition that the current education system faces a considerable number of interlocking challenges, notably in the perceived disconnection between the elevated purpose of education and how this contrasts with the narrowness of what is valued – and how the system does not properly reflect the current and future needs of young people. What is required is a system which balances knowledge, skills and dispositions and treats all individuals as equal, creating critically informed, confident, active citizens working together for a more just and sustainable world. We can initiate this process by:

- Ensuring educational institutions are safe spaces which can help develop the whole individual, in which progress is not simply measured by narrow academic attainment, but where a range of outcomes are valued, such as personal views, emotional intelligence, community awareness and concern for planetary wellbeing;
- Reforming the relationship between school inspectorates and schools to reflect this, so that inspections are collaborative, and accountability measures also reflect non-academic outcomes, such as ‘social well-being’;
- Reconceptualising the content of school league tables by looking at the overall, holistic value and impact of a school and not just academic performativity;
- Valuing all parts of school life, not just the academic side, but also extracurricular activities in which everyone can take part. This would include a review of how some of the activities can be embedded and made intra-curricular within the core school experience; and
- Embedding essential skills and competencies within and beyond the classroom so that the educational emphasis extends beyond the acquisition of content disciplinary knowledge but also the way people learn and the skills they need through their lives.

A major review is needed, underpinned by a full and frank conversation about the value and purpose of education.

## Curriculum

### Making learning broader and more balanced

England has one of the narrowest education systems in the world, with few other countries encouraging pupils to drop areas of study at an early age. As technology, AI and climate change become increasingly important in the world of work, young people need to gain a wide range of skills for the 21st century. We recommend the following reforms to the curriculum to ensure this:

- Introducing a broader and more inter-connected curriculum which encourages cross-disciplinary work between subjects. Subjects should not exist in silos, and instead young people should be given the opportunity to gain a wide remit of values, skills and attitudes throughout their education instead of the knowledge-based system that currently exists. STEM subjects should sit complementarily alongside the arts, languages and humanities, with parity of esteem between academic and technical knowledge, to provide a well-rounded understanding of society;
- Embedding a deeper understanding around global sustainability across the education of all young people. Human impact on our planet is a key policy priority for government. Climate change, biodiversity loss and energy security are the existential questions young people face. To make tangible change and to ensure a sustainable future for all, they should be provided with the knowledge and critical skills to make active and informed decisions about their futures;
- Replacing the traditional A level system with a Baccalaureate-style system to reflect the need for a broader and connected education. Following the example of most other OECD member national education systems, a new system which opens up space for innovation and does not cut off routes and areas of knowledge as the age of 16 is a credible alternative. Young people are now expected to work for longer and may switch careers several times or return to learning as an adult, meaning they need a wider base of knowledge and skills. We need a new and coherent assessment framework which links expected outcomes to the learning journey;
- Including extra-curricular activities and enrichments in the curriculum to encourage alternative ways of learning, provide challenges and promote cultural knowledge for all young people. For schools and pupils who may struggle to financially offer these opportunities, funding should be provided so all young people can experience this; and
- Implementing a more global curriculum to provide a more critical viewpoint of the world, reframing, recognising and appreciating the different cultural and historical backgrounds of both subject content and learners.

Our world has changed rapidly since the introduction of the national curriculum in England in 1988 – the content and ways of learning have not. A new, competency-based curriculum is essential for ensuring that our young people are fully prepared for the changing world of work and our industry compete with other across the world.

## Assessment

### Replacing high-stakes, knowledge-heavy examinations with continuous assessment and broader criteria

The current model of a small number of high-stakes examinations focused on a knowledge-heavy curriculum neither fits the needs of society in the present nor in the future. This style of learning means revision and exam practice occupy precious time in the curriculum which could be better utilised in allowing students to explore subjects to a greater depth or learn transferable life skills. More careful consideration should be given to justifying the assessment content and style, and this should be clearly communicated with students. We recommend the following:

- Replacing high-stakes exams with more regular and continuous assessments that provide more scope for learning, mistakes and resits. Success should be conceptualised and measured on a continuum, rather than few, smaller exams at the end of a course;
- Utilising a range of assessment techniques which also assess the transferable skills, competencies and dispositions required by young people so they can become valuable members of society. Measuring skills such as teamwork, communication, and resilience rather than just focusing on knowledge retention, the education system can create well-rounded, well-functioning, happy, healthy young people;
- Elucidating what is being assessed and why to students. Explaining the importance and broader contextual significance of material being taught can actively engage students in their own learning and make content more directly relatable and translatable;
- Including digital and AI driven assessment methods to help personalise learning assessment and identify areas of conceptual challenge for each student, while allowing teachers to focus on addressing these. Technology must be integrated into the system, and there must be a mindset shift from policymakers to embrace new ways of assessment; and
- Ensuring parity of esteem between academic and vocational pathways, both in how they are regarded by schools and other educational institutions and how they are funded and facilitated. This will allow students maximum choice whilst simultaneously providing a diverse range of skills and training for employers and society.

To enact these changes, the style, scope and structure of education needs to be reformed to provide a more holistic approach to learning and a system which encourages healthy growth and development of young people as a part of their education.

### **Post-16 and Further Education**

#### **Promoting and encouraging alternative pathways**

Post-16 education is a key priority for the government. As the Post-16 and Skills Bill passed through Parliament in 2022, a strong further education system will prove essential in achieving the levelling-up agenda. To strengthen the sector, we recommend:

- Encouraging a closer working relationship between further and higher education. There should be less delineation between the two sectors, as highlighted by the recent issues with some universities not accepting T Levels as entry qualifications. Universities should have an accompanying ability to admit undergraduates based on their post-16 qualifications;
- Promoting wider breadth in post-16 education, which would allow for more scope to change pathways. There needs to be widespread support from subject bodies and wider communities to ensure that young people are fully prepared with the necessary skills to enter the labour market;
- Fostering better links between industry and post-16 providers. Post-16 education needs to be relevant to the changing world around us and provide young people on all courses with experience working in the outside world. Employers and industry should be consulted on which knowledge, interests and transferable skills are missing in the workforce;
- Increasing funding for colleges to allow a wider range of courses and qualifications to be taught across all regions. While a wide range of Level 3 qualifications are available, post-16 providers are limited on the number of courses they can teach due to funding restraints, with the options available to individual students in their local area tending to narrow in recent years; and
- Engaging with teachers, parents, and employers fully on the design, content and delivery of new qualifications so that they are promoted as equally as other academic pathways. Currently, vocational, and technical qualifications are culturally not perceived as valuable compared to traditional academic routes such as A levels. More engagement should be done with relevant groups to counter this belief.

Post-16 education has undergone many transformations in the past decade. It is key that any future reform considers lessons learnt from past attempts and understands what worked and what didn't work in previous interventions before implementing new ones.

### **Digital and education technologies**

#### **Bringing education into the 21st century**

Digital and education technologies are transforming our education system. Good use of technology in schools can improve education for pupils, support teachers and staff, as well as improving efficiencies. Schools across the UK spend around £900 million a year on EdTech, but research found that 44% of teachers didn't believe that today's classrooms were set up to facilitate modern learning. EdTech can help improve teaching and learning but wider changes across the system are needed to support meaningful change. We can encourage this by:

- Ensuring all schools have access to high-speed internet. Thousands of schools still struggle with sub-par connectivity, exacerbating the equality gap. The pandemic has highlighted the value of reliable and fast internet in supporting high-quality education. From better access to teaching resources and embracing cloud services to boosting one-to-one device rollouts, high-speed internet is crucial;
- Developing AI tools to help teachers. Whilst technology is not a silver bullet, AI could help to reduce teachers' workload by automating tasks such as plagiarism detection or feedback. AI could have a particularly crucial role to play in assessment, for example formative assessment tools that mark homework automatically and without teacher input and on-screen assessment;
- Encouraging proper accreditation of education technology, which can help to identify what works and to ensure that claims of efficacy are evidence based;
- Incorporating digital skills into the curriculum so children taught how to use internet and social media safely, identify misinformation etc. to help students get 'digital badges'; and
- Considering sustainability: Technology can not only help give students knowledge and skills for net zero, but also help schools themselves become more sustainable institutions. The sector will also need to consider the full life cycle of the technology that it uses educating students about the importance of repair, reuse, recycle.

There is near universal agreement on the need to better harness the potential of EdTech to improve educational quality and delivery, but it is also important it is not seen as a panacea for all systemic problems. A mindset shift from policy makers is also required.

## Teaching

### Creating the conditions that enable teachers to be effective in educating young people

Teaching is a challenging profession at the best of times. In recent years, teachers have faced significantly increased burdens for many reasons, including COVID, poor terms and conditions, and overbearing workloads. Decreased support for social services has meant that teachers have become the de facto safety net for everything. Teacher retention and recruitment, particularly in the sciences, are very low, and teachers often feel they are 'rote-robots', and lack the agency and chance to be creative. We can remedy this situation by:

- Embedding high-quality, collaborative, meaningful subject-specific CPD which values teachers, through which they can stay relevant, take risks and build creative confidence. This training should not only encompass development in subject knowledge, but also critical professional reflection and understanding of inequalities;
- Supporting teacher mental health and investing in wellbeing, with every school maintaining a pastoral programme for staff;
- Diversifying the teaching workforce, especially amongst senior leadership;
- Reducing the time teachers spend on unnecessary administrative activity and marking (eg test score spreadsheets, so that their skills and knowledge are used most effectively, for example finding time to build relations with students; and
- Improving the lifelong professional experience of teachers and lecturers. Provide clear progression pathways which could include professional accreditation and more developed connections with their wider subject communities, so that the teaching profession remains aspirational.

To enable this, the education system requires a well-funded 15-year strategy shaped by educational actors across the board – as opposed to its current status as a 'political football' passed from parliament to parliament.

## Greater fairness

### Reforming the system so that all young people can experience a high-quality education

Closing the disadvantage gap and promoting social mobility are key drivers to achieve equity within education. As the attainment gap between more advantaged students and their less well-served peers continues to grow, action needs to be taken now to ensure that all young people, whatever their background, have access to a fair, well-rounded, high-quality education. We recommend the following to achieve this:

- Extending pupil premium funding to cover both the early years and post-16, to ensure that all pupils across the school system are supported, no matter their age. Pupil premium funding should also be increased for those who are in persistent poverty and should rise in line with inflation;
- Providing pupils who are eligible for free school meals with access to food during school holidays and half terms to ensure they continue to have a healthy diet. Support should also be given to help families with the cost of school uniforms, to help young people partake in extra-curricular activities and go on trips and join clubs, especially as the cost-of-living crisis continues;
- Embedding mental health and wellbeing into the curriculum, with young people taught ways to cope and self-regulate their emotions. Teachers should not be expected to be mental health professionals, but instead training and support should be provided in schools where needed. A better relationship between schools, local authorities and CAMHS will encourage a more joined-up approach to wellbeing;
- Providing young people with careers guidance and advice early on in their education. Hearing from speakers from non-traditional backgrounds and careers advisers who can provide information on alternative pathways through education can encourage all young people to develop passions and careers and promote equality of opportunity; and
- Starting university and college outreach at an earlier age, to make pupils from all backgrounds and parts of the country aware of the better routes available to them through both higher education and alternative pathways such as apprenticeships and vocational learning.

A long-term, strategic plan needs to be implemented in education to improve outcomes for all, with more effective and implementable guidance and training provided to both teachers and pupils. Those from the most disadvantaged background must be better supported with government funding.

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