



Rethinking D&T -
shifting design
education towards
social responsibility



Pearson

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Section 1

Design Education – a desire for change

Design and Technology (D&T) has provided decades of skills to young people as a foundation for their future lives and careers. Yet today the future of the subject itself is uncertain – at a time where global changes mean we arguably need creative problem solvers now more than ever before.

Over the past ten years, data shows a steep decline in the numbers of students studying D&T at GCSE and A level, alongside a decline in the number of skilled educators teaching D&T – despite its status as a foundational subject from primary until age 14. Our [research programme](#) which aimed to contextualise this decline, concluded with a recommendation of subject reform covering the 5-19 curriculum.

The report you are about to read is the latest contribution to a growing conversation that seeks to reconsider the role of the various qualifications that collectively identify as A level D&T. It follows extensive consultations with the design, engineering and education sectors, encompassing the views of diverse representatives from schools, examining bodies, universities and respected industry leaders across the UK.

In summer 2023, a select group of educators and professionals met for a focused discussion on the future of the D&T A level qualification, and its route into higher education - a priority issue impacting the progression of students to degree level study.

The group’s collective aim? To thoroughly consider the pathways available between secondary education and further education/employment, and understand the conditions under which awarding bodies can empower all students with better design education choices that impact their future positively.



“Who gets to design is not fair and equitable – how can the design curriculum be relevant to the diversity of our young population?”

Roundtable feedback

“I think students are very, very conscious of what’s going on in the wider world. They have more exposure than ever before to internationally news and I think they are passionately concerned with the fact that we are stewards of the planet.”

Paula-Lee Thomas,
Teacher & Head of Design



86% of students

say **being prepared** for their future in a global world is important to them

As we reflect on the results of those conversations here, it is our hope to expand the power and reach of this vital discussion more widely. After all, the potential positive impact of a strong design and engineering education sector on the UK economy is not something to be taken lightly. Instead it presents an opportunity for major social and global innovation.

Design shapes everything that we encounter. It therefore has a key role to play in shaping the lives we lead. Responsible approaches to design recognise the impact it can have across all strands of society.

Social and climate responsible approaches to design look for creative solutions to our most pressing and pivotal problems, in ways that protect every person and environment they impact. Throughout the design process, these approaches carefully consider users, resources, equity and their impact on the planet, now and for the future.

In the following pages, we bring together the latest views on what achieving reform to the D&T syllabus could unlock for the UK curriculum, and make our commitment to support these ambitions in any way we can. We also pose a crucial question for D&T today: **how might we ensure that every young person engages with design, for the benefit of their future and our society?**

Consensus on the need for change is widespread. The time to reverse the decline of design education and qualifications in our schools is now.



Section 2

A socially responsible design curriculum – the what and why

Why do we need a socially responsible design curriculum?

As we look for better ways to inhabit our changing world, and consider the challenges society faces to support real people with real problems, the importance of empathic innovation and intelligence in design becomes abundantly clear. Only by making the most of such human capabilities can the solutions we aim for truly enrich the lives of everyone.

“Society faces many challenges – economic, social, environmental – and we need problem-solvers to design solutions and engineer them into reality. Those problem-solvers need to reflect wider society not just because it’s fairer to give everyone a chance, but because the solutions we’ll reach will be better.”

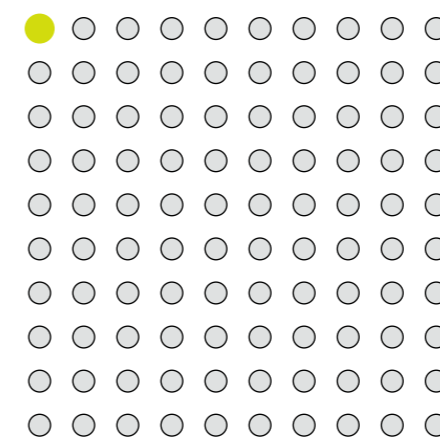
Johnny Rich, Engineering Professors’ Council

“[By] being able to collaborate, communicate with people from all different routes into design education, you’re creating a marvellous community of people that together can understand a shared language and solve problems.”

Emma Dick, Middlesex University

For those working in and around the subject, Design and Technology (D&T) feels perfectly placed to empower young people to accelerate the development of creative problem-solving skills in our schools – teaching positive, sustainable approaches to address key global issues in ways that are both practical and inclusive.

In its current form, however, the subject does not give sufficient value and priority to address these opportunities. Last year, [research from the Education Policy Institute](#) (EPI) found that just 10,430 students (1.7% of those in 16-19 study) entered a D&T A level in 2020; more than half the number who took the subject in 2009. There has also been a comparable decline in the number of specialist teachers delivering D&T in the classroom.



Only 1.1% of all A level entries

in summer 2023, were for D&T subjects

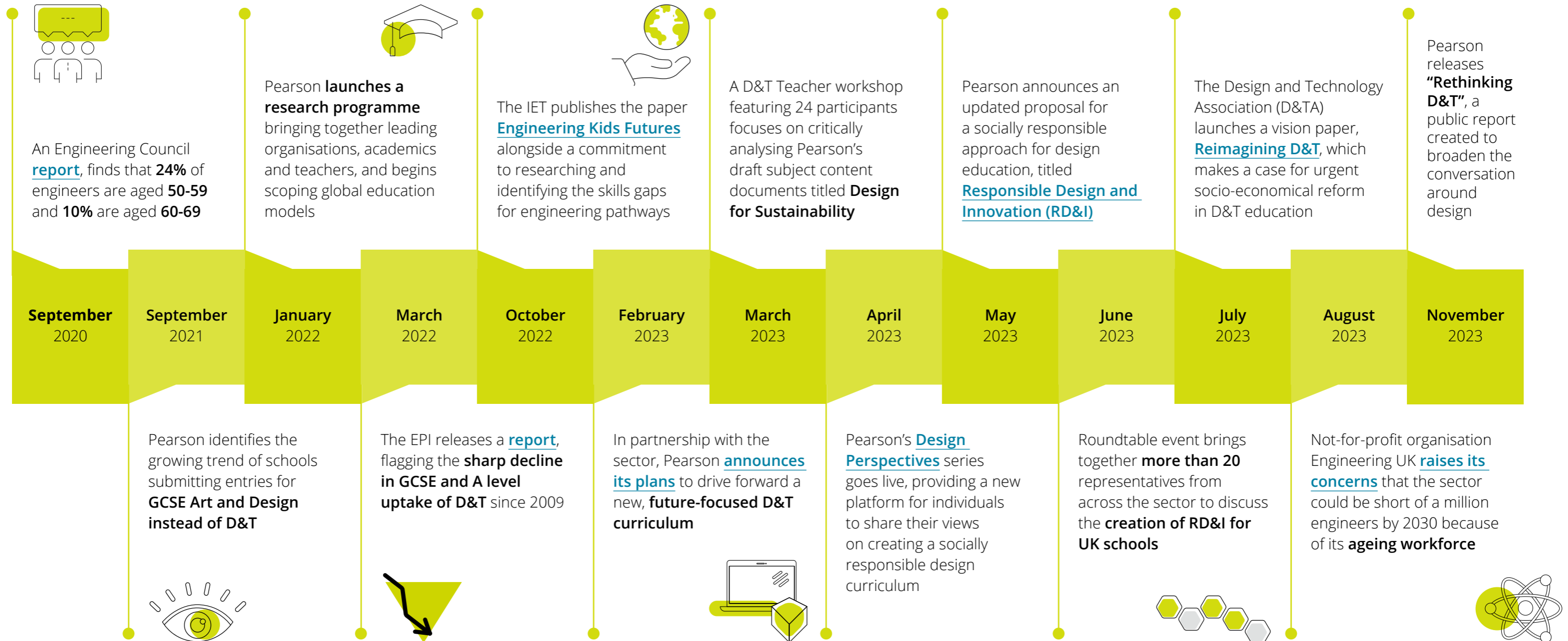
“Design is... a life skill that transcends many disciplines, which together creates very, very powerful outcomes that can change the world for the better.”

Emma Dick,
Head of Design, Middlesex University

“In moments of transition, society has a disproportionate need for creativity and innovation. Whenever there is rapid change and uncertainty, designers, engineers and artists always come to the forefront.”

Darius Pocha,
Co-Founder, Create/Change

A call to action – the journey so far



Shaping the designers of the future

Historically, D&T at A level has been an effective qualification pathway leading to design and engineering in higher education and work, helping secondary students learn foundational skills before choosing their options for related degrees, other vocational studies, or career-based learning.

In recent times, however, taking D&T has become less valued by students, schools and further education (FE) providers when considering student progression. This shift in value has resulted in students opting for Further Maths or an additional Science rather than D&T, or choosing subjects such as Business, Psychology, Music Technology or Art Craft and Design, and a range of alternative vocational courses, despite intention to progress onto degree course study in Design or Engineering.

“Why is D&T not required by universities for courses?
Makes it a very difficult sell for departments.”

John White, Director of Sixth Form

“It’s not about creating more stuff, it’s definitely not about creating more consumer demand, but it’s about creating people who can solve problems and design systems better.”

Emma Dick, Head of Design, Middlesex University

Increasing the numbers of students taking D&T nationally would be a good first step, but in order to return the qualification to a previous facilitator qualification status for degree level progression, what students are gaining from D&T will need to become more valued. As a reaction to the current decline of D&T, we have seen first-hand how undergraduate curricula has been adapted for intakes of students with no design and technology experience. A reformed D&T at A level needs to not only meet the needs of degree-level study, but identify its USPs beyond the opportunity to design and make products.



“Studying design at school is a crucial part of our talent pipeline. The government need to act now to address the decade-long decline in students studying D&T and ensure young people in all schools can develop the skills to design for a green economy.”

Minnie Moll,
CEO, Design Council

“Everything is changing, including education, and this is a critical time to ensure that design and engineering education is purposefully equipping young people with the capabilities that they will need to shape the cities, homes, services and institutions of the future.”

Josie Warden,
Volans



Section 3

Reconsidering design education at A level

What makes a socially responsible Design A level?

Our D&T roundtable, held in the summer of 2023, featured representatives from schools, academia, qualifications and key design organisations who came together to discuss D&T at secondary level – and made D&T at A level their main focus.

When delegates were asked to build their own A level D&T syllabus, several elements resonated with the group. The most common elements that attendees wished to see embedded in the qualification were:

- > Real people and real problems
- > Validating and testing ideas
- > Ethics, inclusion and culture
- > Design thinking
- > Systems thinking
- > Digital prototyping
- > Physical prototyping

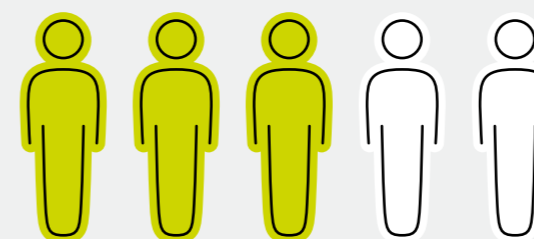
The Pearson subject content draft for a reformed A level accounts for all these elements, along with recurring themes raised by delegates as being important for schools' methods and approaches to design – namely, the value of:

- > Curiosity
- > Failure
- > Learning to learn

It is in these elements that there is a notable and fundamental change from the current A level qualification design.

In addition, environmental and social impact were recommended additions by attendees. These recommended that future A levels in D&T should be carried out in the context of the following areas:

- > Carbon net zero or net positive
- > Embodied energy and carbon footprint
- > Business/commercial strategy
- > Global responsibility and citizenship
- > Frugal innovation
- > Social justice



3 in 5 teachers

believe they have a **powerful role** to play in shaping sustainably minded citizens

“Everyone has the potential to be an agent of change.”

Jo Choukier,
Director of Design & Innovation,
The Royal Society of Arts

“We should definitely change D[&]T. We’re teaching kids for jobs that don’t exist.”

Sasha Powell,
Design & Technology Teacher

“In terms of the context of what is being taught and learnt, this can provide a better grounding for students.”

George Robert Bedford,
Design & Technology Teacher

The Pearson D&T Roundtable, June 2023

In summer 2023, over 20 representatives from the education, design and engineering sectors came together in Central London to discuss the possible features of a socially responsible design curriculum for A level as a route to higher education – the latest step in Pearson’s ongoing series of D&T-focused Roundtables.

The event included participants from secondary schools and more than 10 leading universities, plus representatives from OCR, the Design & Technology Association, the Design Council, the Engineering Professors’ Council, the Royal Academy of Engineering and the Royal Society of Arts. The outcomes of the roundtable not only inform much of this report, but will provide a platform for more detailed discussions with the sector around policy and the evolution of D&T in secondary.

“Design is all around us, and most of us have an active role in it even if we may not recognise that. Whatever industry we work in, we all design mindsets, practices, products, services, infrastructure and policy that shape our world in some way; now and for the generations to come.”

Jo Choukier,
Director of Design & Innovation,
The Royal Society of Arts

“Real people/problems [are] at the heart of what this should be about.”

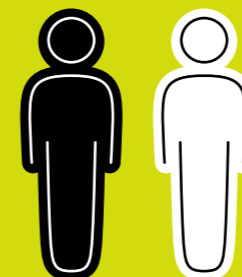
Roundtable feedback

What’s on your radar?

To arrive at a user-centred solution to the challenge of D&T decline, we employed design thinking methodologies and tools from industry to build collaborative solutions, which included “What’s on your radar” and “Build your own” activities.

Key observations and questions emerged, including:

- Students’ need for future-proof skills – to be flexible and adaptive
- Teachers feel isolated; the subject is isolated in schools; schools are isolated from the industry
- The HE progression pathway needs to be in place for changes at A level to succeed in their ambitions
- Internationally, there is a move towards towards problem and project-based learning
- Let’s look at what we want, not how it is produced
- Q: Is the spectrum of design too broad?
- Q: Is the word ‘technology’ the issue?
- Q: Could students be problem-solving in their communities?
- Q: How can we help students deal with uncertainty, and risk-taking?
- Q: Is D&T its own subject, or does it feed into others such as PSHE?



Around 50%

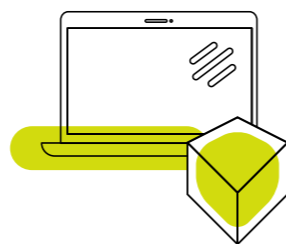
of secondary teachers and leaders believe that **modernising D&T** will benefit the wider school curriculum

What does this look like in practice?

Translating the sector's priorities into a tangible, deliverable reformed D&T A level (and indeed, GCSE) requires both a rethink to approaches around the teaching of the current syllabus, and the preparation of leading solutions that can be integrated into the newly-reshaped, and purposeful qualification pathway.

The external support and guidance needed to help make this happen are already available within the sector. Roundtable delegates referenced the importance of support and direction from global frameworks such as the [United Nations Sustainable Development Goals](#) for example, as well as through bodies that focus specifically on crucial considerations such as carbon-related issues.

The sector has an abundance of knowledge, skills, connections and resources at its fingertips; many feel it is now time to bring these together and pass that support on to schools, students and teachers.



"Process and testing [are] very important – having a go."

"Students should have the opportunity to be free in their thinking."

"Retaining curiosity and inspiring teachers."

"To intervene we need to know about materials, manufacture, etc., linked up with systems thinking and design thinking."

"Architecture needs to come into D&T for the future, rather than Art and Design."

"Developing an adaptive mindset – not just fixated on the now, [but] resilience, agency, iterative design approach, global citizenship."

"If D&T was labelled as a subject that would be most suitable for going into industry, this would be the ideal situation."

Why designing and engineering with purpose is essential for Gen Alpha

"Gen Alpha are the first generation to be born entirely in the 21st century. Aged from 13 down, with the youngest of their generation yet to be born, they are all younger than Twitter and many are younger than the Paris Agreement.

"They are growing up on a planet which has around one third of the mammals, birds, amphibians, reptiles and fish than the world that my generation entered, and in a society which has very likely failed to limit global warming to 1.5C. Yet they are also digital natives, with access to unrivalled information, connections and ideas at their fingertips, and have a deep-seated environmental and social consciousness.

"Everything is changing, including education, and this is a critical time to ensure that design and engineering education is purposefully equipping these young people with the capabilities that they will need to shape the cities, homes, services and institutions of the future."

Blog excerpt from Josie Warden, Volans, Why designing and engineering with purpose is essential for Gen Alpha,
Pearson Design Perspectives, May 2023



Considering D&T at GCSE

While the specific focus of this report is the envisaging of a reformed design A level – and the pathways this can generate beyond secondary education – our consultations also include consideration of D&T at GCSE. As a core route to A level, and an early gateway to further learning in design and engineering, it's vital we consider the ways in which students conceive of their post-16 options before they arrive there; as well as how A level reforms might filter down to impact other D&T qualifications within the curriculum.

In early 2023, we set out our revised proposal for Responsible Design and Innovation and how this would be achieved in the curriculum and through qualifications. Read more about this and how you can get involved at go.pearson.com/thefutureofdesign



Section 4

A pathway for change

“With a new future-proofed curriculum, there’s a real opportunity to demonstrate the value of design education to school leaders, parents, pupils and employers.”

Nick Birch, Head of Educational Licensing, Affinity

Changes in design and engineering degree curriculums are already underway post secondary school study. Any reform in schools would need to create an appropriate pathway for every student who wishes to take a route towards design.

The 2020 edition of the [Accreditation of Higher Education Programmes](#) (AHEP) for example, requires all HE providers to update engineering degree curriculums for assessment by 2024. As a result, universities across the country are adopting a greater focus on social responsibility and climate change, shifting away from traditional learning and methods that are less likely to support graduates in the workforce, and towards more digital and tech-focused approaches.

“The goal is [an] inclusive economy and sustainable society for all”

Scott Atkinson, Education Programmes Manager,
Royal Academy of Engineering

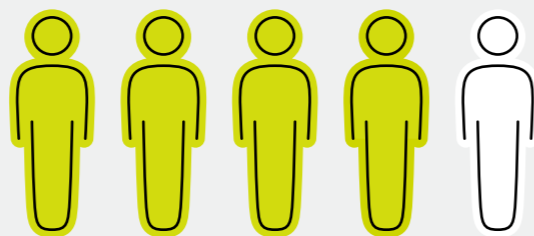
It is important to understand what is needed from the current D&T qualifications to retain purpose and value as a subject for students to study, and also to prepare for the next iteration of the qualification in the medium or long term, where there can be a more fundamental shift in the balance of the course content away from the processes and approaches of making, and towards the responsible purpose of design for planet-centred creative problem solving.

“[A] thriving economy [is] only enabled through a thriving society, which is necessary to support a thriving environment”

Jo Choukier,
Director of Design & Innovation,
The Royal Society of Arts

“Teachers [are] feeling isolated, [the] subject [is] isolated in schools, schools [are] isolated from industry”

Roundtable feedback



4 in 5 teachers

say **time pressures** (a crammed curriculum) are expected to be the biggest challenge to delivering environmental education in schools

The reduction in national entries, trained teacher shortages, and a lack of investment in the subject in the current financial climate for schools, means D&T is unlikely to achieve a recovery from its present decline unless it makes a supported break from its current trajectory.

Interestingly, other subjects have been growing and/or strengthening in value in recent years – as evidenced by the rising numbers of students taking Business and Economics qualifications, who then use these subjects as qualifications to progress on to degree-level study in a wide range of subject areas, including Design and Engineering.

“Design skills will be crucial to building a green and digital economy. All young people deserve the opportunity to gain a great design education.”

Matilda Agace, Design Council

Our continued conversations across the sector – as well as our experience as the UK’s largest awarding organisation – tell us that, in order for D&T to remain valued within the national curriculum, any reforms to the D&T progression pathway in UK schools must be:

- > Accessible for all students
- > Easy to communicate to all stakeholders
- > Appropriately sequenced from primary education through to secondary qualification choices
- > Favourable to the retention of A level D&T

At the same time, in order for the qualification to be recognisable and appealing to ever greater numbers of schools and diverse students, D&T at A level needs to engage them with:

- > A distinctive academic offer
- > A set of USPs that attract students, teachers, academic recruiters and employers
- > Framed once more as a subject that is essential to driving the UK economy forward



40% of schools

say being **prepared for their future in a global world** is important to them



Spotlight on schools

Qualification reform, including A level D&T, may be a significant distance away for the national curriculum. Even with the opportunity to reform the qualification, there is no guarantee that the subject will ever return to the entry numbers and value it once held to the design and engineering sectors.

Yet a focus on meeting student needs now remains important – so what can schools do to help the transition towards more socially responsible D&T for every student?

Phil Holton, Senior Qualification Manager at Pearson, shares his recommendations for educators following the summer 2023 consultation:

- Make the most of existing curricular opportunities to collaborate with Product and Industrial Design programmes, demonstrating D&T's real-world applications across careers.
- Access curriculum resources, such as:
 - » [Ellen MacArthur Foundation](#)
 - » [James Dyson Foundation](#)
 - » [RSA](#)
 - » [STEM Learning UK](#)
 - » [RAEng](#)
 - » [IET](#)

- Ask your A level awarding organisation what support and free training they can provide to help your teachers offer more responsible professional practice and delivery in D&T – and to expand the breadth of D&T pathways available in your school. Visit the [Pearson Qualifications website](#) for a wide range of ideas and vocational options.
- If A Level D&T is no longer viable at a school or college, or the qualification is no longer supporting student progression, a centre could offer a Project Qualification to retain access to D&T, which is an independently-led, project-based alternative that can provide students with the opportunity to continue to design and make through the Artefact pathway, without the framework of course content.
- Get in touch with the Pearson Edexcel D&T team at teachingdesignandtechnology@pearson.com for news of ongoing D&T related testing and trialling, the chance to explore updated qualification models and assessment methods, and to register your interest in getting involved. Your feedback and validation could be vital as we collectively reconsider the role of D&T today.



50% fewer trained
D&T teachers

in state schools between 2011 and 2020

"We are the people that teach the subject at ground level every day so we see what the students need, and I think it's so important that we are part of this process."

Emily Barnett,
Teacher & Head of Design
and Innovation



Section 5

Our pledge

“As head of sixth form, we see pockets of wonderful work [in D&T]”
John White, Director of Sixth Form

We are thrilled to see that further research and discussion is taking place across the UK and internationally, as organisations like the Design Council strive to influence policy on behalf of the wider community.

Pearson is committed to maintaining the call for change, and will continue, alongside others, to support the delivery of future reform in design. As we work towards this with teachers, learners, experts, parents, policy-makers and more, four core questions will be our primary focal points for cross-sector discussion.

How might we support teachers to align the priorities of D&T towards social responsibility, while maintaining the important USPs of a practical subject?
From resources to professional development and initial teacher training programmes – what is available and valuable for the future of the subject, and how can we at Pearson enable educators to invest their time and effort into the right opportunities for curriculum innovation?

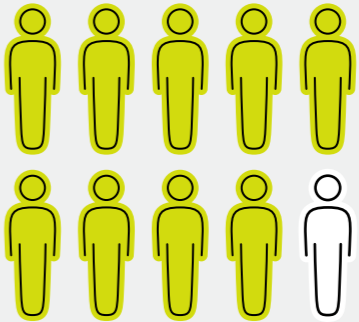
How might we help schools shape their learning spaces to provide rich, engaging and future-proof learning environments?
Supporting teachers to deliver the wide array of content and learning experiences included in our current GCSE and A Level qualifications, in effective and impactful ways, whilst their schools consider and implement a transition away from legacy manufacturing and towards the industry and HE priorities of designing, creative prototyping and digital solutions.

How might we accelerate progress towards an equitable, inclusive and accessible study of D&T in secondary schools across the country?
Learning from higher education and curricula models across the globe, how can current and reformed qualifications reposition the balance and status of responsibility to ensure students prioritise equity, inclusion and accessibility through their decision-making?

How might we repair the progression pathways for degree-level design and engineering through the subject of D&T?
What role can awarding bodies take in bridging the relationship between secondary and higher education, ensuring students’ work in D&T A level and other Level 3 qualifications holds value and purpose for progression to HE courses, vocational routes, and employment?

We look forward to sharing a full range of considered responses and expert views around these focal points in the weeks and months ahead, as we strive for long-lasting change to meet the needs of every student in D&T.

To keep up to date with our work in this space visit go.pearson.com/thefutureofdesign



91% of students

agree that it’s **important to look after the planet, nature and animals**

A vision for the future: socially responsible design in education

A core ambition for those seeking to reimagine D&T in a holistic way is to ensure that every young person can realise a career using design, or within the design and engineering sectors, irrespective of their background or ability. To this end, our vision today reimagines Design and Technology (D&T) as a new subject called Responsible Design and Innovation.

Responsible Design and Innovation (RD&I) develops the human capabilities needed to create solutions to the most important problems facing society now and in the future.

This is achieved through the study of inclusive user and climate-centred design approaches which build empathic intelligence and responsibility, to be able to purposefully utilise the materials and processes around us and focus on real people with real problems, to realise both digital and physical solutions.

RD&I provides opportunities for students to realise their creative potential, by drawing together disparate bodies of knowledge, existing and emerging technology and societal changes, in innovative ways.

It builds the persistence and resilience needed to solve problems that enrich the lives of everyone, and help to shape a more equitable future.



Reports of interest

[Pearson and the Future of Design Education](#), Pearson, 2023

[School Report 2023](#), Pearson, 2023

[A Spotlight on Design and Technology Study in England](#) – Trends in subject take up and the teacher workforce, Sam Tuckett, Education Policy Institute, 2022

[Mapping the UK's Engineering Workforce](#), The Engineering Council, 2020

[Reimagining D&T](#) – Supporting and rebuilding design, innovation, and creativity in schools, Design & Technology Association, 2022

[Times of Crisis, Times of Change](#) – Global Sustainable Development Report, United Nations, 2023

Thank you to our Roundtable 2023 attendees

Hena Ali – London College of Communication, UAL

Scott Atkinson – The Royal Academy of Engineering

Ryan Ball – Design & Technology Association

HildaRuth Beaumont – Educational Consultant

Kay Bond – TEDI-London, IED

Liz Bull – OCR

Jo Choukeir – The Royal Society of Arts

Emma Dick – Middlesex University

Timothy Ferris – Cranfield University

Nick Golsby – Coventry University

Ji Han – University of Exeter

Bernard Hay – Design Council

Charlotte Hogben – Middlesex University

Claire Lucas – King's College London

Cheryl Pilliner-Reeves – TEDI-London

Johnny Rich – Engineering Professors' Council, Push

Jodie Ruffle – Middlesex University

Stephen Sadler – The Academy of Contemporary Music

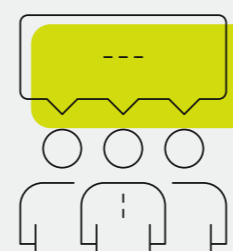
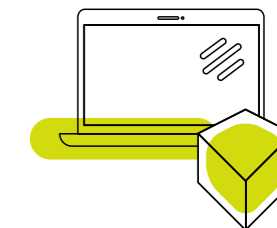
David Swann – Sheffield Hallam University

Jon Taylor – Cranleigh School

John White – Bedford Modern School

Garrath T. Wilson – Loughborough University

Evren Alibaba and Phil Holton - Pearson



Join the conversation

If you are involved in design engineering or sustainable education, find out how to get involved, visit go.pearson.com/thefutureofdesign or email teachingdesignandtechnology@pearson.com.