

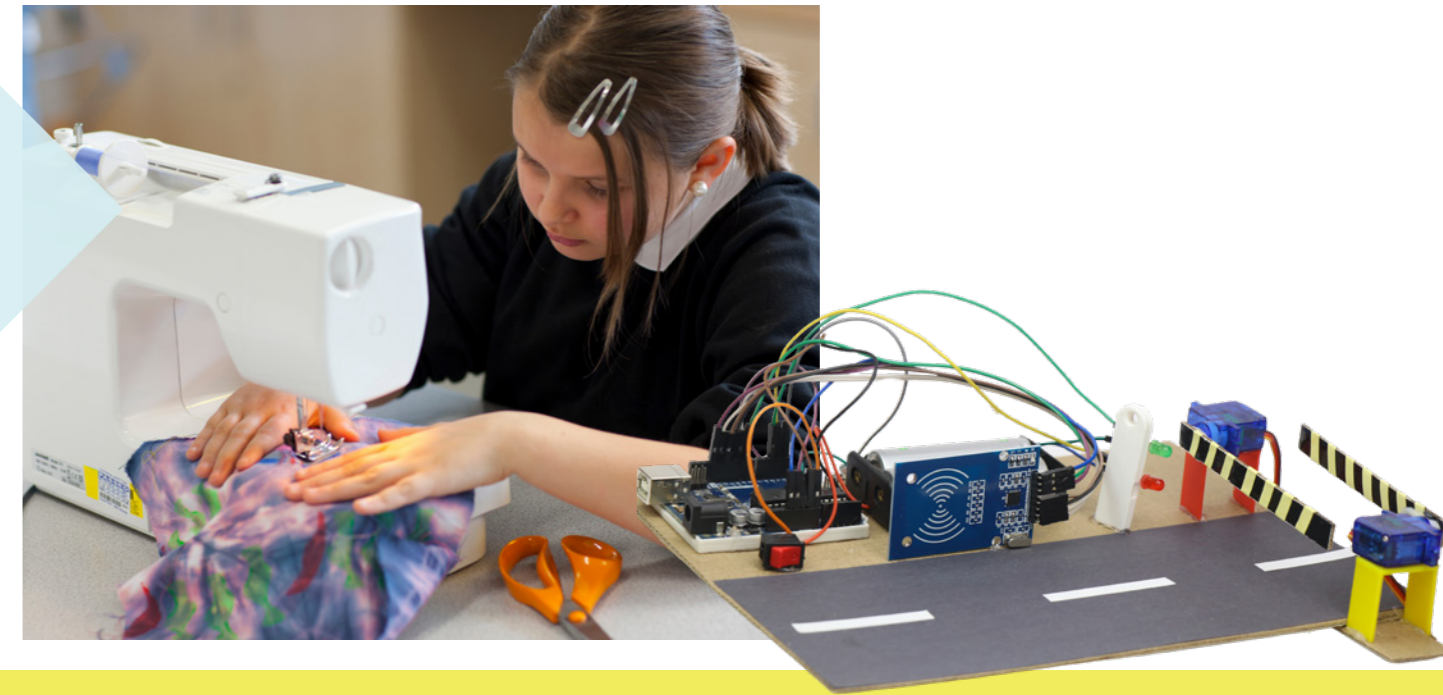
CURRICULUM REVIEW

Design & Technology Association Response



Introduction and Context

There are currently well-established and strong design and engineering qualification pathways in England. This is valuable both to industry and to learners. Industry is crying out for people with creative problem-solving skills, critical thinking, adaptability and resilience^[1]. These are the skills that will enable us to build the green and digital economy of the future. People who use design skills are 49% more productive^[2]. The UK's design industry contributes £97.4bn in GVA and is growing at twice the rate of the economy as a whole^[3] - it now needs new and diverse talent to lead us forward. Design and Technology is one of the few spaces in the school curriculum where science and creativity meet, and students get to solve real-world problems in innovative ways.



Design and Technology

Design and technology is a unique, and valuable creative and technical subject. The quality of design learning in primary schools has noticeably risen in recent years following changes to Ofsted assessment criteria. While exam entries have fallen over the last decade or more at GCSE, this regression appears to have 'bottomed out' over the last two years. This review comes at a critical time for the subject, but with careful adaptation, it can thrive once again and play its role as part of a dynamic and exciting new curriculum model that can help all students to step confidently into a fast-changing world.

Alternative GCSE and Post-16 pathways

Engineering is a valuable progression route from a D&T foundation delivered from KS1 through to KS3, with a range of vocational routes offering progression at both KS4 and KS5. Four separate design T-Levels offer appropriate sub-sector-specific pathways into design careers. Though uptake is low across these courses, these offer a valuable foundation for development. In addition, a range of T-Levels in Engineering and Manufacturing are rapidly establishing themselves.

Section 2: General views on curriculum, assessment, and qualifications pathways

10. What aspects of the current a) curriculum, b) assessment system, and c) qualification pathways are working well to support and recognise educational progress for children and young people?

KS1 and KS2

A recent survey carried out by the Design & Technology Association demonstrated that while D&T education was growing in stature and quality of delivery across the primary curriculum, the average D&T coordinator was under thirty years old, and only a tiny percentage held a degree in what could be classified as a STEM subject. Most held the role as "someone had to", and the majority were only too happy to approach the Association for guidance and assistance in organising, delivering and assessing the subject in their school.

These teachers were "out of their comfort zone", but now that they held the role, they wanted to do a good job of assisting the other teachers in their school in delivering a relevant and challenging curriculum. Most of the training provided by the Association is requested from Primary Schools.

The majority of primary teachers consider the KS1 and KS2 National curriculum content relevant and 'deliverable with guidance'; it would be a mistake to make significant changes to the content just as primary colleagues are finding their way around this. There is, however, insufficient coverage of sustainability and the need for a circular economy.

Primary teachers are generally aware of the UN Sustainability Development Goals (SDGs), which are utilised in other areas of the curriculum, including science and geography; it would be a natural progression to enhance the delivery of this aspect of the curriculum, especially at KS2.

Many primary teachers see the natural links between teaching D&T and Computer Science and are teaching across these subjects with increasing degrees of confidence. The scope for interdisciplinary work at primary level is excellent, and many primary colleagues have commented on how some of the 'trickier' concepts within maths, science, and other subjects somehow become 'less difficult' when taught through D&T.

"Half (49%) of engineering and technology businesses are experiencing difficulties in the skills available to them when trying to recruit. This is currently estimated to cost the economy £1.5bn / year in consequential reduced growth."



We strongly align with the IET's 'Engineering Kids Futures' document, mainly regarding the language used to teach D&T and the experiences offered to primary teachers. Visit: <https://bit.ly/4i2oMfc>

Our task here is not to encourage all students to become engineers, but we must recognise (backed by IMechE research and others) that the average seven-year-old does not know what career they want for themselves, but they can often tell you what they do not want to do. We need to work harder to define what an engineer is and the variance of roles that they carry out. Equally, we need to define design as a broad spectrum of creative roles and consider how future roles in the workplace will rely on creativity and innovation as much as material knowledge and making skills.

KS3

In our opinion, this is where we have the most work to do as a subject. Again, the National Curriculum is not too far away from being 'fit for purpose' at this key stage. It is short in nature and, to an extent, 'open to interpretation' by teachers, which can be both a strength and a weakness. This does allow teachers to adapt and teach to local context and the available budget. Whilst introducing specific machines and technologies can enhance the curriculum offer here, offering a comprehensive KS3 curriculum on a relatively low budget is possible.

KS3 is a disproportionately short learning period compared to KS1 and KS2, where much of the foundation can be laid in terms of essential skills and knowledge, design thinking, etc. Secondary schools that work closely with feeder primary schools can see the benefit of a nine-year curriculum that better prepares students for KS4 learning, particularly the D&T GCSE.

The current NC document supports interpretation, which suits experienced teachers to adapt curriculum delivery as they see fit. Recognising that non-specialists increasingly staff this Key Stage, there is, however, an argument that these teachers require and would benefit from a more prescriptive NC document.

KS4

Teachers who responded to our 'call for evidence' to support this submission were keen to point out that at KS4, students should be able to explore the knowledge, concepts, skills and personal attributes that they developed across previous key stages, but the amount of content required to be 'digested' by students, mainly to feed the need for examination content, pretty much makes any exploratory work outside of the NEA difficult to impossible beyond the first few terms of Year 10.

Teachers have recognised this and sought alternative qualifications that allow them to provide a more inclusive and engaging curriculum for their students; hence, the large number of D&T teachers currently utilising the Art & Design GCSE 3D Option, often delivered under the guise of D&T.

A reduction in the core and materials content required to be taught at this stage would address this problem in an instant. For example, the need to study energy generation at GCSE could instead be examined within science qualifications.

The constructed demise of BTEC Nationals and other vocational qualifications has limited student choice at KS4. Engineering is the one exception here, where there is a small percentage of growth, but this qualification requires certain facilities to be in place and also requires a teacher to have confidence in this field.



The Non-Examined Assessment (NEA) was initially viewed as too complicated to deliver effectively at this Key Stage. However, our research heavily suggests that teachers and students have come to terms with the NEA's demands, and the majority now view this as a positive aspect of the KS4 assessment methodology and one that does not require change apart from the inability to give feedback to students; especially those of lower ability and SEN students.

KS5

Our interactions and research with teachers suggest much is right with the A-level content. Students are given space and freedom to explore aspects of the subject that may have been difficult at KS4 due to time limitations. The assessment balance also appears to be correct. The main problem at KS5 is that there has not been enough interaction with FE/HE colleagues, who do not all appear to understand and value our subject; this is an area of work that the D&T Association is about to delve into. At the moment, universities do not request D&T A-levels for courses as insufficient students take the subject to make this a compulsion, and students and their parents are not selecting D&T as a viable A-level option as FE/HE colleagues do not appear to require and value the qualification.

At the same time, universities across the country are adding a Foundation Year to their courses as students arrive with insufficient practical, material, machine, and process knowledge to allow a seamless transition from A-level to degree courses.

11. What aspects of the current a) curriculum, b) assessment system, and c) qualification pathways should be targeted for improvements to better support and recognise educational progress for children and young people?

KS1 and KS2

Key Stages 1 and 2 require a more detailed emphasis on sustainability and circularity. Students study these topics within other parts of their curriculum, and the practical nature of our subject makes the inclusion and development of these topics a 'no-brainer' in the primary D&T curriculum. Before we design anything, we should be considering basic sustainability questions such as "Is this really required?", "What materials should be used and avoided?" "Can this be designed to be disassembled and recycled once its natural lifespan ends?" We can bring expertise and context to the teaching of sustainability at these critical stages of educational development and, in doing so, can help alleviate climate anxiety and empower young people to help design a better world.

As mentioned in the last section, we also have an opportunity at Key Stages 1 and 2 to emphasise the importance of engineering to our lives. We are not actively seeking to turn young people into engineers of the future, but we need to work to better inform them of what an engineer is and the vast plethora of careers that are available within this sector. This work does not require a change of curriculum content but will require industry engagement and an increased emphasis on terminology and vocabulary development. CAD/CAM can and should be covered within KS2, where our trials (and those of CREATE Education and BAE Systems) have proven that this can be successfully covered with young students and adds energy, momentum and context to the KS2 curriculum.

KS3

Too often, the curriculum offered at this Key Stage is dictated by timetable constraints (usually concentrated on subject rotation), and this is allowed to dictate delivery and assessment methodologies. The curriculum can far too quickly focus on a series of making tasks, with the manufactured product becoming the main focus of attention. Students make a wooden game, a clock, a cushion cover, etc, with core content being loosely 'hung' around these making tasks. In our view, we require pedagogical change at KS3 that builds upon subject knowledge gained from our primary colleagues and ensures student progress. By introducing learning context, we can closer relate the curriculum to every student's lived experience. Giving our subject more relevance and providing a more challenging and inclusive curriculum.

The emphasis on 'making' as being the primary purpose of the subject in some schools as opposed to 'problem-solving' could make the subject appeal more to boys than girls; we believe a context-led curriculum can be more inclusive; this is something we hope to prove within our 'Inspired by Industry' work which we have just started a focused research project on looking at student engagement, progress and teacher, student and parental perceptions of the subject.



www.inspiredbyindustry.org.uk

There is also a real danger that such a simple approach to designing and making in KS3, coming after students may have experienced six or more years of quality primary D&T education, could see students effectively regressing in their skills and knowledge.

Time is another major consideration at KS3, with some schools effectively devaluing the subject by affording it 40 minutes each fortnight or less. This makes coverage of the National Curriculum nearly impossible and almost socially constructing KS4 option choices. Students receive only superficial experience within the subject, making it less likely that they will select to continue to study this at KS4.

KS4

As previously mentioned, feedback from our Curriculum Review call for evidence strongly supported reduced subject content at KS4. The majority of teachers stated that this effectively ruled out teaching any other content in a large part of Year 10 and definitely into Year 11 as students were prepared for examinations. Whilst a large and growing number of teachers are avoiding this core content by opting to teach to an Art & Design 3D GCSE syllabus, we are not calling for 100% assessment at KS4 in Design and Technology.

An increase to 60/70% NEA would be welcomed, with the other 30/40% being split across a core examination (suggested 1-hour examination to focus on material theory, processes and manufacturing that is not covered in the NEA) and perhaps the introduction of a student design-led investigation (similar to the EPQ), handing some responsibility to students to research and present in an area of design or technology that interests them.

A combination of the two would also be a viable option with some refining of the NEA criteria to assess the designing and making aspects of the creative process, which is currently presented in the written examination in a very perfunctory way.

An extensive study of the effects of the current school accountability system heavily suggests that by emphasising the importance of some subjects by including them within the EBacc, the subjects omitted have, by default, been relegated as less relevant and, therefore, less important; this includes all creative subjects, including Design and Technology.

Progress 8 exasperates this and encourages headteachers and governing bodies to work where they are measured, further harming creativity in our schools. We ask the review body to look at abolishing Progress 8 or, at the very least, adjusting how it operates to allow creative subjects to compete on equal terms with 'academic' subjects.

Food and Nutrition has already effectively separated from Design and Technology at KS4, and with increasing numbers taking the subject, it is proving to be a popular option.

At the Design & Technology Association, we support the need for all students, irrespective of race, gender, disability, or socioeconomic background, to receive a sound education in cooking, food and Nutrition. We have no desire for the subject to break away from Design and Technology, but at the same time, we do hear food-trained teachers who want the subject to stand alone at KS3.

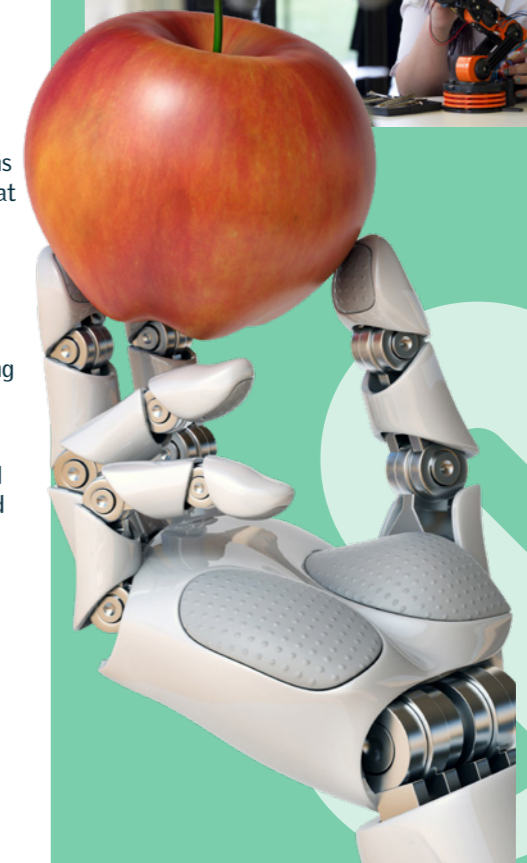
The workforce appears to be split, with many Food and Nutrition teachers feeling 'at home' within D&T and wishing to stay as part of the wider team. We worry about the reduced number of specialists in the field and their ability to teach this in every school should the area break away from D&T.

We welcome a debate and deeper conversation here, focusing on ensuring all students nationally receive a high standard of education in this area. Teachers are finding it challenging to cover Cooking, Food and Nutrition in an already tight timetable. They are frustrated that it is only there to KS4 with no progression to KS5 within the D&T GCSE.

KS5

As previously mentioned, we need to initiate deeper conversations with HE/FE and employers to determine the subject's true value at Key Stage 5. Anecdotally, it appears that where students receive a high-quality offer at KS5, it is valued by all concerned. We must find ways to make the subject available to more students in more schools nationally. There is currently a significant step-up for students from KS4 to KS5 as they are asked to take more responsibility for their learning and development at KS5, following what, for many, is a very guided pathway at KS4.

The IGCSE, for example, requires students to define their design contexts from an initial investigation in the same way they would at an A-level. The KS3 contextual approaches we have introduced also encourage this individual decision-making approach, leaving the GCSE as a more restrictive option sandwiched between the two key stages. Some of the suggestions made for the KS4 assessment would, we feel, help to broach this gap in knowledge, skills and the ability to lead one's own learning and, in doing so, assist progression to FE/HE and work-based learning.



12. In the current curriculum, assessment system and qualification pathways, are there any barriers to improving attainment, progress, access or participation (class ceilings) for learners experiencing socioeconomic disadvantage?

We must recognise that we still live in a country where your postcode at birth is the most significant factor likely to determine your educational progress and outcomes. Design and Technology education can and should be an inclusive experience for all and can assist students who might otherwise struggle with traditional 'academic' subjects to achieve more than they first thought possible and break through any 'glass ceilings'.

Sadly, in recent years, the schools and Trusts most likely to drop D&T from their curriculum offer are in some of the country's most socioeconomically challenged areas. This effectively blocks progression routes for our young people and makes it less likely that they will consider a career in design, engineering, manufacturing or other related fields. This is easily addressed, and we welcome the announcement that all schools are expected to deliver all National Curriculum subjects; however, it must be recognised that we have a long-standing teacher recruitment crisis that could seriously hinder progress in this area.

13. In the current curriculum, assessment system and qualification pathways are there any barriers to improving attainment, progress, access or participation which may disproportionately impact pupils based on other characteristics (e.g. disability, sexual orientation, gender, race, religion or belief etc.)

Gender and race are still significant issues for our subject to consider.

Depending on school circumstances, we still have a subject that often appeals more to young men at KS4 and above than young women. Yet, the assessment methodologies tend to lean towards a female audience, with girls frequently achieving the highest GCSE and A-level grades percentage-wise.

It isn't easy to directly prove a correlation, but it is challenging to identify role models of colour in many of the sectors that naturally result from a design and technology education (Engineering and Design, for example). These role models have been proven essential in encouraging young people to see a route for themselves in these fields. Some of the recent NEA contexts set have been ambiguous, which can alienate lower-ability students who cannot hope to respond to a context they do not fully understand.



14. In the current curriculum, assessment system and qualification pathways, are there any barriers in continuing to improve attainment, progress, access or participation for learners with SEND?

The current assessment system, with its heavy emphasis on content retention and written examination, does play to an 'academic' audience and challenges neuro-diverse students who are often drawn to the practical and very visual aspects of our subject. Subtle changes to the assessment methodologies used would tackle this, allowing students to gain more recognition for their NEA work and encouraging self-direction and study.

Much of the designing and making 'knowledge', which currently constitutes 50% of the written examination, could be more effectively assessed through the NEA, where the process has been experienced rather than just studied.

There's also an opportunity to provide further support for schools regarding HOW to access the curriculum for SEND provisions, especially SLD schools. Our contact with teachers suggests that students can access the examination content, but teachers are too often uncertain of how much support and guidance they are permitted to offer without breaching awarding organisation regulations.

15. In the current curriculum, assessment system and qualification pathways, are there any enablers that support attainment, progress, access or participation for the groups listed above? (e.g. socioeconomically disadvantaged young people, pupils with SEND, pupils who are otherwise vulnerable, and young people with protected characteristics.)

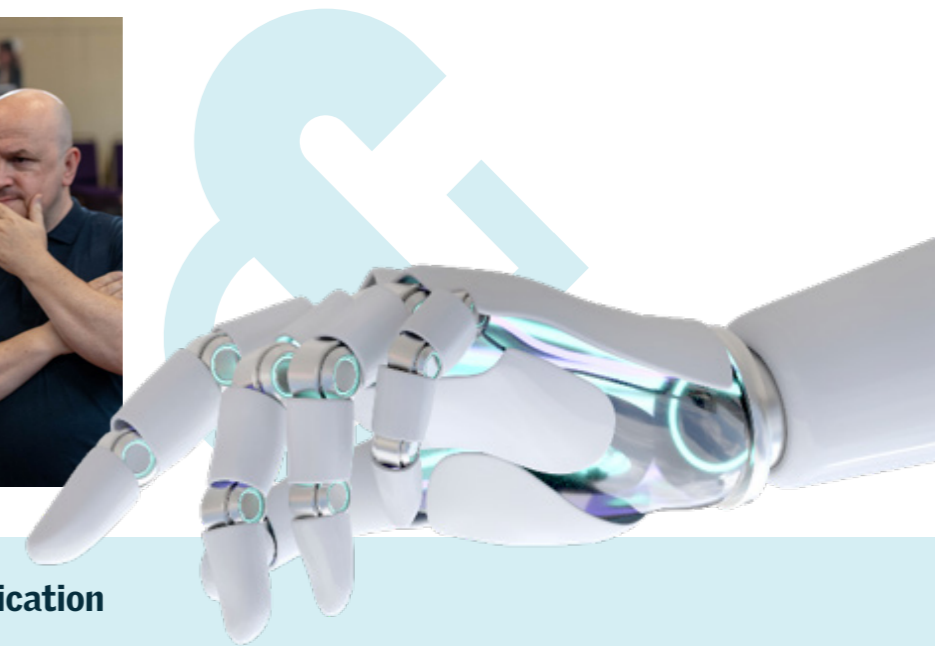
Our subject is often described as a 'sanctuary' for students who may find traditional 'academic' subjects more difficult to achieve within. One neuro-diverse student recently summed this up in conversation by stating,

"I do my very best work when my hands and head are both engaged in a task. This seems to settle my 'busy' brain and allows me to achieve what I am capable of."

It would also appear that our subject's applied nature makes knowledge transference from other subject areas easier for students; this is particularly noticeable in mathematics and physics, where complex concepts become easier when applied to a practical task.

Design thinking, problem-solving, critical thinking and creativity are skills in demand now and in the future across a wide range of industries and job roles. Undoubtedly, we are the subject in the best position to deliver these valuable skills.

The Non-Examined Assessment (NEA) is an enabler for students who, through this work, often seize the opportunity to demonstrate the knowledge and skills they have developed in the subject. A greater emphasis on the NEA and less on the need for written examinations would further enhance access for a broader groups of students.



Section 5: Curriculum and qualification content

22. Are there particular curriculum or qualifications subjects* where: a) there is too much content; not enough content; or content is missing; b) the content is out-of-date; c) the content is unhelpfully sequenced (for example to support good curriculum design or pedagogy); d) there is a need for greater flexibility (for example to provide the space for teachers to develop and adapt content)? Please provide detail on specific key stages where appropriate.

**This includes both qualifications where the government sets content nationally, and anywhere the content is currently set by awarding organisations.*

At KS4, the Design and Technology curriculum was 'loaded' with content on the last curriculum review, much of this at a relatively late stage of its development.

The only reason for adding such a disproportionate amount of content that we understand from dialogue with those involved in the discussions at the time and looking at the syllabus logically is to provide content which can be examined with a traditional written examination. A strange mismatch of content exists here as knowledge across a range of the previous subject specialisms was combined into one document.

Students undoubtedly require a body of knowledge to design solutions to often complex problems. As previously stated, we do not believe an assessment system offering 100% NEA assessment would suit our subject (although we believe the NEA percentage should rise to a minimum of 60%).

There is a need to slim down the current knowledge content students require for written examinations as it dictates delivery in schools. It essentially means teaching anything other than exam content and technique alongside the NEA development is the only learning that takes place in Year 11.

Teachers are also being forced into pre-guessing what may and may not come up in written examinations, as it is almost impossible to cover all the content required with sufficient breadth and depth. Learning less content but in greater depth would significantly enhance student learning and progress.

The amount and range of theory to be covered at GCSE is greater than that of the A-level (where there is a greater depth of the same knowledge), which is counterproductive and means students are burnt out from the cognitive overload of theory and less likely to want to progress to A-level to experience it all again.

Our subject requires and promotes innovation and experimentation. Students need sufficient time to explore ideas and possible solutions, create prototypes, and, quite frankly, fail quickly, learn, and try again.

The current requirements to know a vast body of knowledge at KS4 inhibit student exploration and encourage solutions to be 'process-led'; this is easily rectified.

It is a constant battle for our subject to keep up with the rapid pace of change in the outside world; this is a challenge for teachers who are constantly having to learn new skills, knowledge and processes, often in their own time, to ensure that learning is engaging and relevant for their students, and also for examination boards who because of lags in the system, are often setting questions and tasks that are no longer accurate as progress has moved content on.

AI is a good example, but one could provide examples across our subject, from smart materials to coding, virtual and augmented reality, 3D printing, etc. Less emphasis on learning 'facts' would leave more room for exploration and experimentation.

At KS3, the vast majority of teachers that we meet and speak with agree that pedagogy does need to change and develop, but, in the same breath, they tell us how difficult it is to find sufficient time and space to analyse the curriculum content, vision what is required to allow their students to thrive within the subject, and to then plan a new curriculum that develops students' knowledge, skills and the personal attributes necessary for them to tackle higher order learning confidently.

We need to provide time and space for teachers to 'get off the delivery treadmill' and really think about what is required and how this might be delivered in their school and department. To some extent, the National Curriculum and the GCSE need to factor in creative work in a greater range of disciplines, which were less prolific when it was last written. These could include UI and UX design, gaming and immersive experiences, virtual architectures and more.

27. In which ways do the current qualification pathways and content at 16-19 support pupils to have the skills and knowledge they need for future study, life and work, and what could we change to better support this?

There is more space and room at KS5 for students to investigate core aspects of Design and Technology knowledge, develop key skills, and experiment. Students who choose to study the subject at KS5 have often realised they enjoy the creative mindset that the subject not only encourages but requires. To quote one sixth-form student, *"What I love about D&T is there often isn't a 'correct' answer; when I ask my teacher a question, she often comes back at me with another question. At first, this was frustrating, but I now realise she encourages me to explore and find out for myself."*

The content load at KS5 is arguably less than that of KS4, which, in our opinion, proves that KS4 needs adjustment. Students and teachers who have fed back to us are generally happy with the course structure and content set out at KS5, although some have noted that some content is already seriously dated by the time it reaches examination papers.

The outcomes from KS5 need to be better aligned with the requirements of FE/HE and employers. We are currently caught in a 'doom loop' where not enough students are studying the subject to make it a requirement for next-stage learning, and not enough students are selecting the subject at A-level as next-stage institutions are not vocalising their support for the subject. Only dialogue and lateral thinking will allow us to solve this conundrum.

Section 6: A broad and balanced curriculum

31. To what extent do the current curriculum (at primary and secondary) and qualifications pathways (at secondary and 16-19) ensure that pupils and learners are able to develop creative skills and have access to creative subjects?

Creativity has been the almost accidental victim of the EBacc and Progress 8. Very few people I have met believe that the last government set out to purposefully damage creativity in our schools, but by openly proclaiming that some subjects were more important than others, almost all the creative subjects were, by default, 'demoted' in stature. Creativity remains one of the most important and requested skills for the future workforce.

Ofsted's insistence on a broad and balanced curriculum at primary schools has assisted the growth of Design & Technology at this level. This growth now needs to be further developed as we seek to support primary colleagues to grow confidence in delivering our subject.

Too many secondary schools, for reasons ranging from teacher shortages to fiscal restraints, have stopped delivering Design and Technology at KS3. It is now something of a postcode lottery as to whether D&T is offered on the KS3 curriculum, with many of the schools dropping the subject in trusts that operate in some of the most socioeconomically challenged towns and cities in the country.

At the same time as we see this demise in our subject in the state sector, we see growth in the private sector, with one parent stating, "With the money I am paying per term, this is not an after-school club, but an entitlement for my son's education." This disparity of opportunity cannot be correct and is one we do not accept.

We also have a current situation where geography dictates students' opportunities in our subject. The EPI 2022 report 'A Spotlight on Design & Technology Education in England' pointed out with some degree of clarity how D&T GCSE entry has declined most in some of the most socioeconomically challenged areas of the country.

At KS4, we have statistics that suggest the subject has reached the bottom of its decline after over a decade of falls in student GCSE numbers. At the same time, what is hidden in these numbers are the students (and parents) who think they are studying Design & Technology, but their examination is actually in Art & Design. Teachers are 'drifting' towards the Art & Design qualification to avoid the heavy core content in D&T and because the 100% coursework assessment provides a freedom that, in many cases, liberates' curriculum delivery. This is a situation that must be resolved.

The demise of BTECs and other vocational qualifications at KS4 (Design, Engineer, Construct being an example) as progress 8 points were removed from some qualifications in 2017 has seen the vocational offer for students rapidly diminish. T Levels offer a fantastic vocational pathway for academically astute students but are at least as difficult as A-levels. Our current system lacks creative opportunities for all students at KS4, with this inevitably following into KS5. Progress 8 provides the major obstacle to progress here and must be rethought.

As suggested, creative subjects, including D&T at KS5, suffer from a lack of opportunity and growth at KS4, which carries over to post-16 learning. Urgent conversations are required to better connect learning pathways from post-16 to next-stage learning, be that FE/HE or employer-led training.

32. Do you have any explanations for the trends outlined in the analysis and/or suggestions to address any that might be of concern?

Design and technology at GCSE and A-level have been in decline for well over a decade. I would say that at least part of our demise is due to wilful neglect. In 2009, we had over 15,000 specialist teachers in our secondary schools; we now estimate this number to be around 6,300. Yet, aside from re-introducing the training bursary (completely removed in recent times), there has been no initiative to recruit more teachers for our subject.

It almost feels like our subject has been allowed to slowly decline to current levels. To make matters worse, SKE courses were axed at the start of last year, placing further barriers to fresh talent entering D&T. We have seen a decline in SCITT numbers for D&T trainees ourselves, with one of our providers reporting no one signing up for the subject this year.

That said, we must acknowledge that general dissatisfaction with the revised curriculum offer introduced in 2017 saw many D&T teachers desperately cling to what they know and feel comfortable with. A 'fixation' on making and the end product has remained in more than a few schools, with teachers able to focus on GCSE performance relatively late in the day and still produce acceptable or good results.

These teachers often received no support to transition from the old curriculum offer to what must be acknowledged as a very different and far more complex one to deliver. Pressure for results on Progress 8 remained throughout, so teachers did what they were good at and found ways to perform. Any changes suggested by this review must learn from this experience; we need to support teachers to transition from where they are now to any new requirements.

Our KS3 is now taught in many schools by non-specialist teachers. Expertise, where it exists in schools, is pointed towards examination groups; some would say understandably so. We have devised training modules to assist non-specialists in growing their confidence and effectively delivering KS3, but few headteachers appear to have the budget and/or desire to purchase this learning for their staff.

It is not too late to save D&T, but we must act now. We must have dedicated schemes funded by the DfE to recruit new teachers for our subject. The Association has a range of ideas on how this could be achieved that we would love to share.

SKE courses should be reinstated urgently, and we need to consider how we support teachers in adapting to new pedagogies as exemplified by our 'Inspired by Industry' resources, made free at source to all teachers.

33. To what extent and how do pupils benefit from being able to take vocational or applied qualifications in secondary schools alongside more academically focused GCSEs?

We all learn differently, and the 'academic' route of learning for learning's sake does not fit all. For many students, the vocational nature of some work adds relevance and context and makes them want to find out more.

That said, it is a mistake, I feel, to label subjects as being either 'academic' or 'vocational' or, worse still, to subscribe to the myth that vocational learning is for the academically less able and other, more able students should follow an academic route. Students should be encouraged to spread their learning across these qualifications where it suits their needs.

'Design, Engineer, Construct' is an example of a carefully designed vocational course focusing on the built environment and related industries. There is no valid reason why students of all abilities should not study this course alongside more 'academic' options.

34. To what extent does the current pre-16 vocational offer equip pupils with the necessary knowledge and skills and prepare them for further study options, including 16-19 technical pathways and/or A-levels? Could the pre-16 vocational offer be improved?

The pre-sixteen vocational offer has been slowly but systematically dismantled and will need careful resurrection. A high-quality Design & Technology foundation up to the end of KS3 should prepare young people to:

a) Leave the subject at this stage as well-informed future consumers, aware of what constitutes good design and a 'well-made' product, mindful of the need to consider the environment first with all design, ensure workers making the product experience a safe and fair environment and that materials, processes and end of life considerations are all possible before a purchase is made.

These young people will be good problem solvers, able to break any problem down into its component parts and develop reasoned solutions. They will be confident in their use of technology and will be disconcerting users of all available technologies to assist their lives.

b) Students should have the option to continue to study Design and Technology at GCSE. Sadly, too many students are currently denied this option nationally.

c) Students should be able to use their Key Stage 1,2 and 3 foundation to build to a vocational specialism at KS4, engineering being an excellent example of an alternative but aligned GCSE course.



Section 7: Assessment and accountability

36. Are there any changes that could be made to improve efficacy without having a negative impact on pupils' learning or the wider education system?

We have been looking into RM's 'Comparative Assessment' system, which appears to offer an accurate but time-saving methodology for both primary and secondary use. This comes with the added advantage that it is easy to compare data sets across local and national data, drilling down into the system to obtain trends and patterns that can then be followed up. We are told the Irish government is currently running trials of this system and feel it is a solution that the panel should investigate further.

39. Is the volume of assessment required for GCSEs right for the purposes set out above? Are there any changes that could be made without having a negative impact on either pupils' learning or the wider education system?

In recent years, there has been a lack of trust in teacher judgement and professionalism, resulting in the written examination being the only truly trusted assessment tool valued by the DfE and other decision-making bodies. Is it a sensible and equitable concept to have all Year 11 students sit over thirty hours of examinations not once but at least twice a school year?

Some learning can be accurately assessed using other methodologies, and this review is the opportunity to trust the profession again and assess in ways that better suit the subject and the students studying that subject. In Design & Technology, for example, students are assessed in the NEA and are often assessed on the same or similar concepts within a written examination. We can see no reason why the NEA should not carry a higher weighting and then assess the students' core knowledge and design and making knowledge using a slimmed content and a shortened written examination focusing on materials and manufacturing theory. Again, the option for more able students to undertake a personal research project in an area they are interested in would be welcomed.

41. Are there particular GCSE subjects where changes could be made to the qualification content and/or assessment that would be beneficial for pupils' learning?

At GCSE in Design & Technology, we need to give more credence to the NEA and its ability to capture and accurately measure the knowledge, skills and personal attributes acquired by students to respond to the context set by the Awarding bodies. The current 50:50 split between NEA and written examinations is imbalanced and inequitable. The NEA can easily cover 60/70% of the marks awarded here with only minor adjustments to the assessment methodologies. The other 30/40% can be used to assess students' knowledge of the specialist materials content (which we have already indicated needs to be slimmed down). This to be achieved through a one-hour or 90-minute examination.

We also like the idea of high-ability students aiming for top grades (6 and above) being given the option to select a topic that interests them and then delve deep into learning in this area. Assessment here could be through a written piece (maximum word count), a presentation, and perhaps a prototype if deemed suitable (similar to the EPQ award).

42. Are there ways in which we could support improvement in pupil progress and outcomes at key stage 3?

As mentioned in previous sections, we believe KS3 is where we must concentrate most on improving student progress and outcomes. Too often, the curriculum in schools is dictated by the constraints set by a rotational curriculum model that moves students every six/seven weeks to a new classroom, a new material and often a new teacher. We concentrate too heavily on the end product, with all students making similar items without real context or need. **Why?**

Making is an integral element of our subject and should never be underestimated, but it cannot and should not be the sole purpose of learning to make a clock, a game, a cushion, etc. Instead, we need to focus on a five - or seven-year plan at secondary level, identify the knowledge, skills, and attributes that we want our young people to demonstrate and leave us with, and then work back to how best to deliver these logically and cohesively, ensuring progress along the route. This learning can be a mix of focused making tasks, design tasks and context-driven problem-solving.

We have been working on a system to deliver learning and a different style of pedagogy at KS3 for over two years. Our 'Inspired by Industry' work has now been downloaded almost three thousand times across twelve units, with another eight learning contexts to be added before year-end.

These units all include industry content and video and are free to all teachers. These are supported by a range of units with focused skills or technical tasks and investigate and evaluate activities that teachers can incorporate into their curriculum. We will release further units next year, but we now need to concentrate on assisting teachers in developing new ways of working with younger students through low-cost CPD and a coaching programme designed to support this work in schools.

44. To what extent, and in what ways, does the accountability system influence curriculum and assessment decisions in schools and colleges?

The EBacc sought to elevate the importance of what the last government considered core subjects. I don't believe there was any intent to downgrade any creative subject, but that is precisely what has happened. By making some subjects more important, you automatically and accidentally make others less so.



Progress 8 has exasperated this by forcing headteachers and governing bodies to concentrate on delivering subjects that might not be best for all students but will achieve maximum Progress 8 scores for their school. The result has seen dramatic drops in entry for creative GCSEs and a narrowing of curriculum delivery, which, in our opinion, fails to offer a 'whole education' that is both broad and balanced. Every student has at least one subject that they deem themselves to be strong within; if that is an EBacc subject, great, crack on and deliver, but for many that subject that they love, the highlight of their learning week is drama, is music, is PE, is Design & Technology. All students should have the right to explore their abilities and work hard in a subject they love. That right has been taken away from too many by Progress 8; it is divisive and has to go.

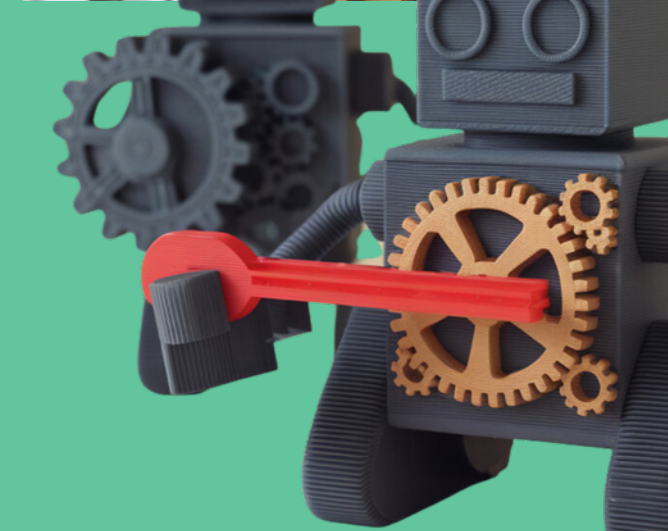
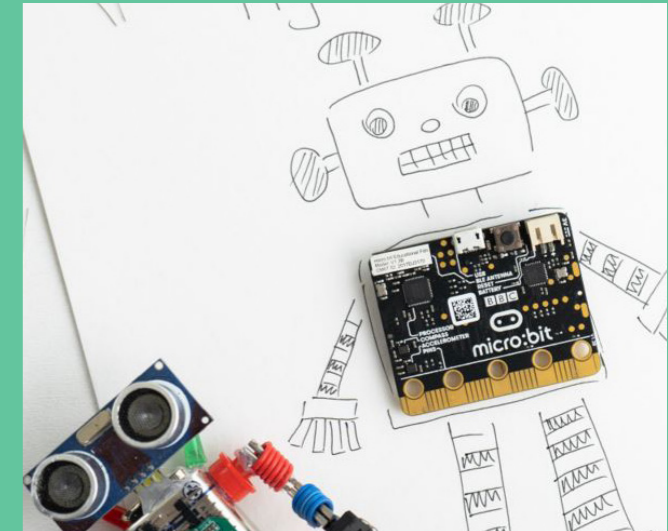
45. How well does the current accountability system support and recognise progress for all pupils and learners? What works well, and what could be improved?

GCSEs work. Employers and parents generally understand them, and most students see the need to be measured against a national standard. The assessment methodologies used to measure progress must recognise that we are working with young, developing humans, not attainment machines. Over thirty hours of written examination in about four weeks borders on mental abuse and is not necessary; we have the technologies and the knowledge to gain more accurate measurements of progress in a far more humane manner.

A-levels are different purely on mathematical terms. A maximum of four subjects and usually two examinations per subject make these more manageable, more so still when progress can be measured through an NEA or other teacher-assessed student output.

46. Should there be any changes to the current accountability system in order to better support progress and incentivise inclusion for young people with SEND and/or from socioeconomically disadvantaged backgrounds? If so, what should those changes be?

Please see our response to question 45.



Section 8: Qualification pathways 16-19

48. Are there particular changes that could be made to the following programmes and qualifications, and/or their assessment that would be beneficial to learners: a) AS/A-level qualifications b) T Level and T Level Foundation Year programmes c) Other applied or vocational qualifications at level 3 d) Other applied or vocational qualifications at level 2 and below

Continuity and learning progression are the key concepts here. We need to integrate better what is happening in schools and colleges nationally with next-stage learning, including HE/FE, apprenticeships, and work with learning programmes built in.

T-Levels are a step in the right direction vocationally, and all of the UTCs I have been privileged to visit in the last couple of years serve their students and parents admirably. A-levels also work well and generally link successfully to university, college and apprenticeship courses.

The problem, as we can see, is that A-levels and T Levels are both academic Level 3 courses that will suit the needs of many students, but not all. Many students mature and develop a little later. Others may struggle with traditional academic learning or, because of SEND, may need to learn in different ways and at a slower pace. The offer to these students has undoubtedly shrunk in recent years and needs to be urgently addressed.

49. How can we improve learners' understanding of how the different programmes and qualifications on offer will prepare them for university, employment (including apprenticeships) and/or further technical study?

We need to start explaining not just 'what' students need to learn but also 'why' they need to understand this (whatever 'this' may be). Careers advice has improved, but the best career advice



comes through the curriculum. Work delivered in unison with universities and employers gives students insight into a world they may have no concept of and might just spark their curiosity to want to know more.

51. Are there additional skills, subjects, or experiences that all learners should develop or study during 16-19 education, regardless of their chosen programmes and qualifications, to support them to be prepared for life and work?

We need to send students from mainstream education ready to confidently take their place in a fast-changing world. Knowledge is indeed power, but alongside this knowledge, we need to boost student confidence. The first stage is helping them love the image that looks back at them from the mirror each morning.

High levels of oracy are essential skillsets in the modern world, as are empathy, respect, teamwork, and the ability to take the initiative when required. Knowledge itself is of little use unless you possess the confidence, courage and know-how to put this acquired knowledge into practice.

Section 9: Other issues on which we would welcome views

52. How can the curriculum, assessment and wraparound support better enable transitions between key stages to ensure continuous learning and support attainment?

There is so much that could be written here, but we will concentrate our efforts on the transition from KS4 to KS5 in our response. The current system at KS4 is one of knowledge acquisition, examination and, in many cases, rote learning. Students are not always encouraged to take responsibility for their own development and learning and rely heavily on teacher guidance and support. Bright students can coast effortlessly through KS4, just concentrating on cramming knowledge where time is running out and can still do well.

They then go away on summer vacation and are supposed to return as autonomous, self-motivated and curious learners. Many do not successfully navigate the first term and end up picking up the pieces and, where they are fortunate, retaking a year, sometimes changing courses along the way. Where they are unfortunate and unsupported, these students can easily fall out of education.

The solution here is to adjust KS4 GCSEs to encourage students to take more ownership and autonomy for their learning. We are also looking at the support for a nine-year curriculum, which would see a clearer path from KS1 to the end of KS3, which all schools will be obliged to deliver through the National Curriculum.

Teachers of each 'sector' rarely know what the other is doing in terms of D&T at the moment, which results in a jarring transition between primary and secondary. Some students experiencing D&T for the first time in Year 7, while others may feel they have regressed when experiencing basic project work after studying more advanced concepts in KS2. A clearer structure is needed to show content and coverage; this will help provide a better understanding of design learning across the key stages.

Many private schools have offered this for some time, and it is undoubtedly a contributing factor to the quality of work produced and success at examination level. We are already seeing trusts and academies whose provisions cover both primary and secondary schools taking this approach, with Outwood Academy's new CEO stating they will 'look at secondary through a primary lens'.

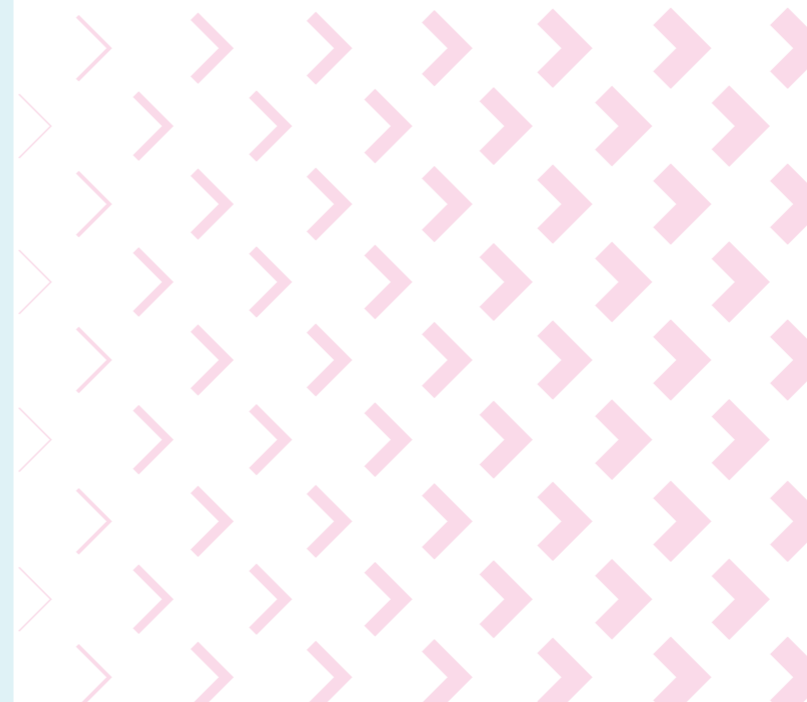
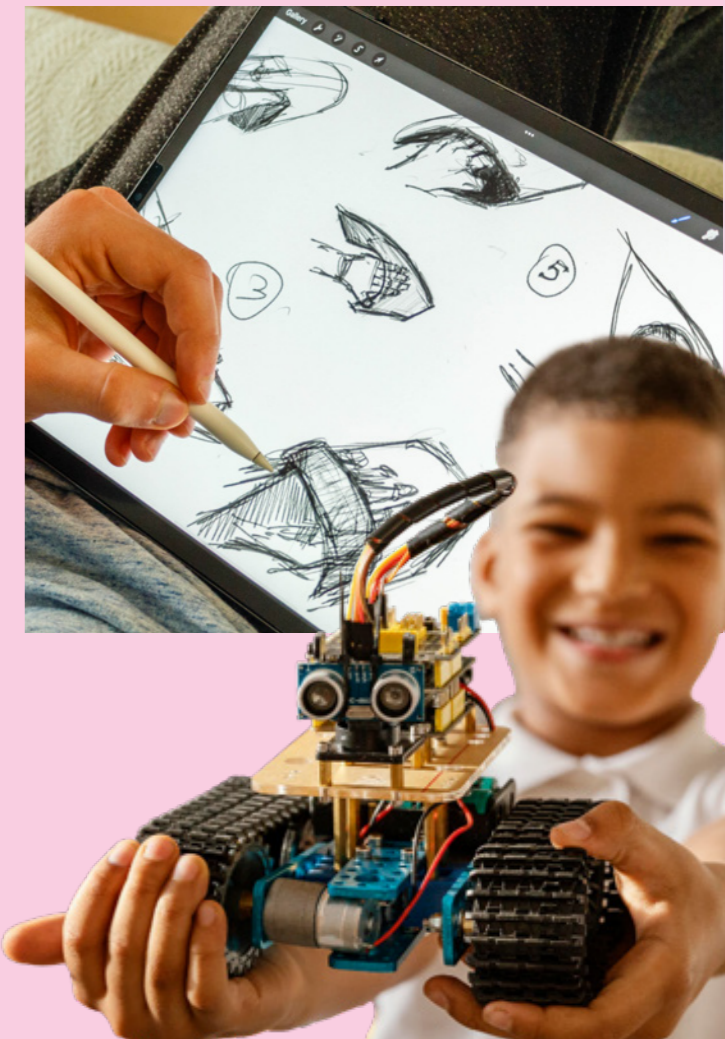
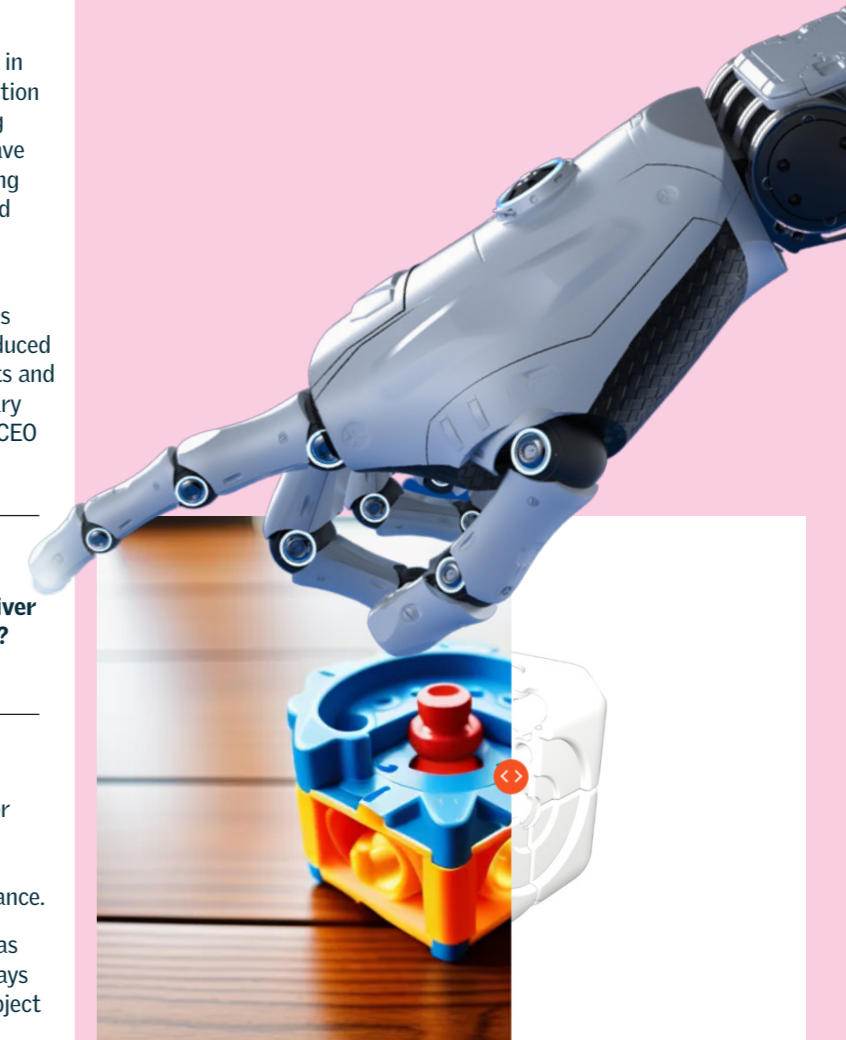
53 How could technology be used to improve how we deliver the curriculum, assessment and qualifications in England?

AI can play a transformational role in assisting teachers in efficiently preparing differentiated and challenging lessons for young people. We should not, however, assume that as many teachers are young professionals, they will pick the skillsets required to get the best from this tool without help and guidance.

No matter how efficient the AI is, the responses will only be as accurate as the inputs fed to the machine, and these will always need checking for accuracy and relevance, which requires subject knowledge.

This should, however, make the job 'more manageable' and allow teachers to spend more time mastering the art of teaching and improving pedagogy.

I have recently been intrigued by the RM Comparative Judgement assessment tool^[4]. This tool appears to offer solutions that are more accurate than more 'traditional' assessment formats and allow comparisons across student groups, schools, Trusts, etc. Professor Richard Kimbell is an expert in this field, having helped develop it over the last 20 years. I sincerely hope the review team will take the time to look into this.



Closing Remarks

We know that not everyone will agree with what we have suggested; that is the nature of debate. I do think transparency is important in such matters, as without this, rumours start and quickly grow, often to the detriment of the subject.

The suggestions made have been gathered over several years as we have consulted with teachers to produce our research, starting with the EPI document **'A Spotlight on Design & Technology Study in England'**, which provided an independent review of the issues facing the subject collating data and in our view, providing a baseline for regrowth.

We then issued two papers resulting from national tours to meet and debate with teachers, the latest being our **'Reimagining D&T'** report issued last year. We have since worked closely with the Design Council, NSEAD and other organisations to produce the **'Blueprint for Renewal Design & Technology Education'**. In addition, we worked closely with the IET to help their document **'Engineering Kids' Futures'**.

In addition to the above, we were delighted to receive such a solid return to our public call for what teachers thought we should include in our curriculum response, with over 200 teachers providing what ranged from short bullet points to carefully drafted full written responses from departments, schools and Trusts. I can assure you that these were all read, and consensus views were included in our response to the review panel.

My first stance is always to collaborate. What one can achieve working alone can often be magnified ten times when working and representing a view alongside others. Moving to the next phase of the review, our strength is that we have worked closely with other organisations to present a collaborative vision, with support from other professional organisations and industry/business leaders.

Rest assured that our subject is valued, and we are working with partners as committed as ourselves to the renewed growth of the subject.

Finally, what is important now is that we come together as a community. Looking back in history to similar times when change was imminent, our community has too often allowed itself to become divided as some entrenched themselves in ideology, believing that 'their way was the only way forward'.

We must continue to talk, debate and disagree as we seek to rebuild the subject we love and value. This curriculum review presents a once-in-a-generation opportunity to reimagine and reshape our subject; let's grab it enthusiastically.



Tony Ryan
Chief Executive Officer

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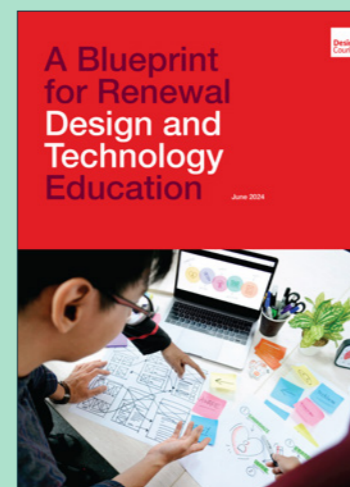
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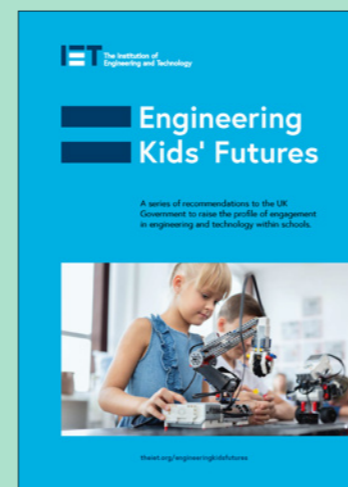
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