

Science, Innovation and Technology Committee

Oral evidence: Innovation showcase, HC 523

Tuesday 25 March 2025

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Members present: Chi Onwurah (Chair); Emily Darlington; Dr Allison Gardner; Steve Race; Adam Thompson; Martin Wrigley.

Question 11

Witnesses

I: Robert Coles, Deputy CEO, Education South West; Claire Plumb, Headteacher, South Devon UTC; and Will Bent, Lead for Engineering, South Devon UTC.

Examination of witnesses

Witnesses: Robert Coles, Claire Plumb and Will Bent.

Chair: Welcome to today's session of the Science, Innovation and Technology Committee and our innovation showcase. The Committee wants to understand how the UK supports innovators and what more can be done. To inform our work, each member of the Committee is selecting an innovator to share their story before our main evidence session. Martin has brought in today's innovators.

Q11 Martin Wrigley: Thank you, Chair. Like you, I trained as an engineer rather than as a scientist. We have heard a lot from some very good research scientists and some good organisations that look into and promote research science, but that is not the only place from which innovation comes. Innovation is about all sorts of areas, and the most unexpected things come out of unusual places. Who would have thought that the world wide web would come out of particle physics?

I recently went and looked at the university technical college in Newton Abbot and was extremely impressed with the way they are looking at the world of bringing youngsters into technology and innovation in a very different way. I wanted to bring them here today to showcase what can be done to innovate in education in technology and bring more people into that space.

A good example of somebody who did not have the advantage of a university technical college is my nephew. My nephew flunked his exams, didn't like school and wasn't particularly a star academically. He is now working with a university spin-off, developing and building quantum computers. Who would have thought it? The routes to innovation can be very different and very interesting. I was very impressed with what they have done with the university technical college, and I will let them have their time to talk about it. Thank you very much for coming.

Claire Plumb: Thank you for the introduction. I am the proud headteacher of South Devon UTC, Claire Plumb, and a member of the UTC programme. We provide young people with a contemporary, industry-focused curriculum, focused on a vocational education with an emphasis on technical skills. This high-quality education will prepare our young people for creating in key economic sectors; for example, engineering, digital technologies or healthcare. In doing so, we, UTCs as a group, are an important component in the Government's mission to kick-start economic growth.

Locally, South Devon UTC is in Newton Abbot, but we sit within the UTC programme, which is a national programme, and Education South West, which is a local unit of schools. The programme of the UTC is led by the Baker Dearing trust. South Devon UTC was built to meet the specific needs of our local area in Newton Abbot and in south Devon and beyond, by creating a pipeline of highly skilled vocational workers for local



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industries, addressing the local skills gap and offering young people an alternative pathway to education, which combines academic learning with practical, innovative, industry-related skills. The aim was, and still is, to boost the local economy and the careers of students, because that is what I am passionate about as their headteacher, by providing the education they need to thrive in our workforce. Teaching employability skills, the core of what we do, is crucial for our students to succeed. Therefore, our skills go beyond the academic in the classroom. It is great for us to be able to give that because then they have the workplace behaviours they will need to be able to succeed going forward. We teach that explicitly in our institution, in our setting, which then benefits, of course, industry partners and organisations.

We have three specialisms. We provide engineering, digital and healthcare sciences. This blend of educational, academic, technical education is what we call the innovation where we are perhaps different from other local schools in ESW. It places a strong emphasis on practical learning. That is the key we need to address you guys on, so you can see—you were lucky enough to be able to meet some students first hand—what they are doing. In a second, my colleague Will, who is the lead for engineering, will give you some examples of how that makes a difference, not only to individuals but to the industry we serve in terms of our finished product.

We have a number of disadvantaged students in the UTC, well above the national average compared with other English secondary schools, but at the UTC and Education South West, we truly believe our core value is equity for all students. It is a cornerstone for our educational philosophy, whatever their disadvantage, their background or their ability or where they are and where they live. What we want to do, through that equity, is to be able to provide them with the best opportunity to live great lives and fulfil their potential.

I now hand over to Mr Bent, or Will.

Will Bent: Thank you. At South Devon UTC, our engineering programme comprises three vocational strands. We teach 14 to 18-year-olds. That is our broad scope. We focus on design, manufacture and electronic systems. They are the three key areas that we spoke to our local employers about in the area. They all said that that is what we want to be looking at; they are the key strands. That is how we developed our curriculum and that is what we do up to the age of 16.

We then have a BTEC level 3, A-level equivalent, programme. That looks to broaden further the experiences of the students so they continue with the skills that they develop at key stage 4. What we look to do is get students at the BTEC level to strive for what we call industry standard competencies. They could almost go straight into industry and develop their skills even further to be able to produce some things at that level. I will go on to that in a minute. For the moment, they enter our college at



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the age of 14. We try very much to get them working on machines. They come in to open events and go, "Yes, they're the machines I want to work on." We try to get them working on those machines as early as possible and with a level of independence.

For our students, that level of independence is the thing that is forefront in my mind, and is our passion. They come in; we get them on those machines. We get them working safely, independently and competently so that they can start producing work pieces to the high-level tolerances that you would expect to see in a workplace. Wait until you see the example I have on the table here.

When they get to sixth form, they study further electronics. We look at doing electronics and mathematical engineering principles. We develop further computer-aided design, 3D printing and manufacturing, and further depth in the use of the machines that they produce the work pieces on, and which you can see in the examples I am showing you now. They produced these using lathes and milling machines in the workshop. We give them really tight tolerances; they have to try to get them within 0.1 of a millimetre, and only when they do that can they move on to the more complex machines.

I desperately want to talk about a load of our students and showcase where they have gone on to, but as we are a bit tight for time I will focus on two or three, if I may. A few years ago, we had a lad, Harry, who started with us in 2015 when the college opened. He is now 25 and the drawings I am holding up are the sorts of things he is doing now in industry. He produces these drawings. They used to outsource all their computer-aided design work but it now all goes through Harry.

What happened with him is that he came to us and said, "I can't see when I'm ever going to use this in my job. I can't see where I'm going to use it." My colleague worked with him tirelessly and went, "You know, you might find yourself working on it," and these are the sorts of things he is doing now. He started working at a power plant, redesigned an ash chute for the power plant and it is now being used across the country. Those are some of the things we cover.

Another student, Noah, left us a couple of years ago. Noah tried to make one of the little hammers that I am showing you. When I talk about tight tolerances, it took Noah seven attempts to make one of these. He was so angry with himself at the time because he just could not get one bit right. It is only when they get to that point that we allow them to start using the machines. When they have that base understanding, they can move on to the machines and they can start producing things like this. The handle of this little toffee hammer—it is a really cute little thing—he produced on a lathe using a number of techniques.

Noah now, only two years later, is producing things like the one I am holding up; they are pieces of surgical equipment, obviously high-end, with really tight tolerances. This is an ultrasonic scalpel; post operation, it



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cauterises the tissue. That is what it does. He is now producing the whole shafts. It comes apart; one bit comes apart from the main bit and is single use, so, as you can see, this goes in and that basically gets thrown away.

Robert Coles: It was a challenge getting it through security.

Will Bent: It was a bit of a challenge getting through security, but we got there.

Robert Coles: The point we want to stress in the things we are showing you is that this is about curriculum innovation. The UTC network, which has been around now for over 10 years, provides a technical education at 14 for young people who do not always thrive in truly academic situations. That curriculum is constantly being squeezed both in curriculum freedoms being taken away over time and in the funding that enables us to work with sometimes very highly disadvantaged children and young people, often giving them fresh starts to be able to thrive in environments to produce and go out into the workplace.

We talk negatively about young people not necessarily having the workplace skills they need, but we feel that what we are doing at South Devon UTC and across the UTC network—a really small sector in the education framework—is powerful work, setting young people up, ready to go out, ready for employment and to thrive in the world. We feel very proud. Thank you for allowing us to come and talk about the work that we do. It doesn't get seen very often.

Chair: Thank you very much. That has been fascinating. Thank you, Martin, for bringing the UTC here today. This Committee is absolutely passionate about STEM skills and them being accessible to people—to young people and people of all backgrounds. The work you are doing to inspire and equip young people to go into STEM plays exactly into what this Committee feels passionately about. Thank you for sharing that with us today.