

That's my future in the test tube, Sir

INSIDE STORY

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RIGSBY WADESON, 16, spends his Thursdays in a state-of-the-art laboratory producing enzymes used to detect minute quantities of DNA. For a student who left his last secondary school with a single GCSE in drama, he has come a long way.

Wadeson is not, however, working in the lab of a top biotech company. He is a student at Liverpool Life Sciences university technology college (UTC), the first school in the country to specialise in teaching bioscience and healthcare to students aged 14 to 19.

His project will help the college become self-sufficient in all the biological materials it uses in experiments. Eventually, he would like to sell the materials to other local schools and museums.

"I have always loved science but the college has given me a new way to explore it," said Wadeson. "I am now working hard and getting great results."

The Liverpool UTC is no ordinary school. Housed in a converted Victorian warehouse near the historic Albert Dock, it has a cinema and gym as well as three industry-standard "innovation" labs where youngsters work on projects usually associated with PhD students. Each lab cost about £300,000 to equip, five times the typical outfit for one in a secondary school.

Students, who work a full 9 to 5 day, also have access to a health-care suite copied from the NHS, with fully functioning hospital beds and a dummy patient that displays life signs and symptoms.

The college, still in its first year, is one of a growing band of UTCs aiming to tackle Britain's acute skills shortage. The colleges, which can take students at both 14 and 16, are sponsored by a university and

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link up with local businesses to give students a mix of academic and vocational education.

The life sciences sector in Liverpool produces almost 10% of the city's economic output and provides work for more than 6,000 people, but local employers, such as Novartis and Unilever, say school leavers and graduates still lack the core lab skills they need.

It is a long-standing complaint, but UTCs give employers the chance to do something about it. Businesses collaborate with the colleges to shape the curriculum, designing lab-based projects that students can work on alongside traditional GCSEs and A-levels.

At Liverpool, Unilever helped design a "bio-prospecting" project in which 16-year-olds screened plants, fungi and bacteria for novel pharmaceuticals. Croda, the specialty chemicals supplier, collaborated on a synthetic biology project to engineer new molecules.

For employers, it is a chance to spot talent early and offer such students a job when they leave without having to train them. But there is no obligation — about 70% of students from the Liverpool UTC are likely to go to university, with 20% expected to apply for a higher apprenticeship scheme and only 10% going straight to work.

Whichever route they choose, students should have a head start when they eventually hit the job market. "If one of our students wants to become a doctor, they still have to get four grade As at A-level and go to university," said the principal, Phil Lloyd. "We are not offering a shortcut, but we do help students understand what universities and employers are looking for and give them an edge."

He dismisses fears that UTCs will create a two-tier education system, with vocational schools seen as inferior to purely academic ones. "We have had students choose to come to us at 14 from top local grammar schools because they love science and wanted more practical experience. This September, we expect to have intake from local private schools too."

Even David Cameron is a fan, saying he would like to see a UTC in every single major town. Yet



Rigsby Wadeson, 16, and Sarah Linkman, 18, make an enzyme at the Liverpool UTC. Backers say the colleges appeal to students turned off by conventional schooling and can fill the skills gap

critics say the colleges have fragmented Britain's education system further, confusing students and parents. And is asking students to specialise as young as 14 really the way to bridge the skills gap?

Lord Baker, a former Tory education minister and the mastermind behind UTCs, is convinced that specialising early is the way forward. He may have invented the national curriculum, but he no longer believes that sticking to it rigidly after the first three years is best.

He points to Austria, which allows students to decide between vocational and general education at 14 and has one of Europe's lowest rates of young people not in education, employment or training.

"I am increasingly convinced that 14 is the critical age at which children should choose," Baker said. "At that age, we find some youngsters know what their interests are but start getting disengaged from school. UTCs are the first time they have really con-

ected. But we do give them a general education so they can go back to normal sixth-form college if they want to."

His view was echoed by many of the students who had joined the Liverpool UTC at 14. They said they had started to go "off track" at their previous schools because there had been too little practical training.

Louis Keegan, 14, wants to be a facial surgeon after seeing his father, who left school with no qualifications, retrain in healthcare.

"I would love a career in medicine, and the UTC will help me get there," he said. "In my old school I was getting off track, going into sport. This is a science school with great partners and has helped me get back to what I want to do."

Employers, too, think UTCs will help Britain close the gap with northern and central European rivals who have put more resources into vocational training.

Neil Murray, chief executive of Redx Pharma, a Cheshire biotech

firm that sits on the board of the Liverpool UTC, said: "We have a chronic skills gap in terms of vocationally trained lab staff — a problem you don't find in central Europe. Even the PhD students we are coming through university lack the skills we need."

He thinks UTCs will redress the balance. "If UTC students go on to get degrees, giving them a high level of theory overlaid with practical skills, they are going to be like gold dust," he said.

All offer GCSEs in at least English, maths and science combined with a foreign language and a humanities subject, plus technical qualifications. At 16, students can take A-levels or BTECs. Most at Liverpool have taken just A-levels or a combination of both.

There have been teething troubles, with some UTCs struggling to attract students. Last year the Central Bedfordshire UTC was only 30% full and the Black Country UTC in Walsall just 36% full.

Baker insists this is usually only a problem in the first year, and not always then. Liverpool met its target of 200 students in its first year. It will take the same number in September but expects applications to be double that.

Unions have criticised the relentless focus on employers, but business groups say that it does not go far enough.

"An education system with employers at its core is best placed to improve our country's prospects," said Adam Marshall, policy chief at the British Chambers of Commerce, adding: "We would like to see careers advice included as early as primary school."

Another challenge is to make sure universities are ready for a new generation of students with industry-level skills. "If schools are going to deliver kids with a higher calibre of skills, the university sector has to step up to the mark and make sure that is not lost when they study for a degree," said Murray at Leeds.

"I hope UTCs will finally rid us of this notion that bright pupils do not need a vocational education."