EngineeringUK
INSPIRING FUTURES TOGETHER

School report

What teachers know and think about routes into engineering and technology

The School Report briefing series draws on research conducted with 800 secondary and FE STEM teachers across the UK in August 2024. The purpose is to understand STEM teachers' knowledge and perception of routes into engineering and technology. It covers whether they would recommend a career in the sector and what they think the best route in is, why they would recommend different pathways, and how confident they feel advising students about these different pathways. This information can help us to understand knowledge gaps and where teachers need support to improve their awareness of the full breadth of routes into engineering.

THERE ARE MANY (vocational, technical and academic) educational routes into a career in engineering and technology.

In England the face of vocational and technical education has shifted significantly in recent years, with the introduction of T Levels and the uncertainty surrounding the future of BTECs and other vocational and technical qualifications (VTQs). The newness of some qualifications coupled with this uncertainty over legacy VTQs may have coloured teachers' opinions of these courses, although we did not specifically ask about this impact in our research.[1] Additionally, the rise of degree and higher apprenticeships across the UK has changed the landscape of this route into employment.

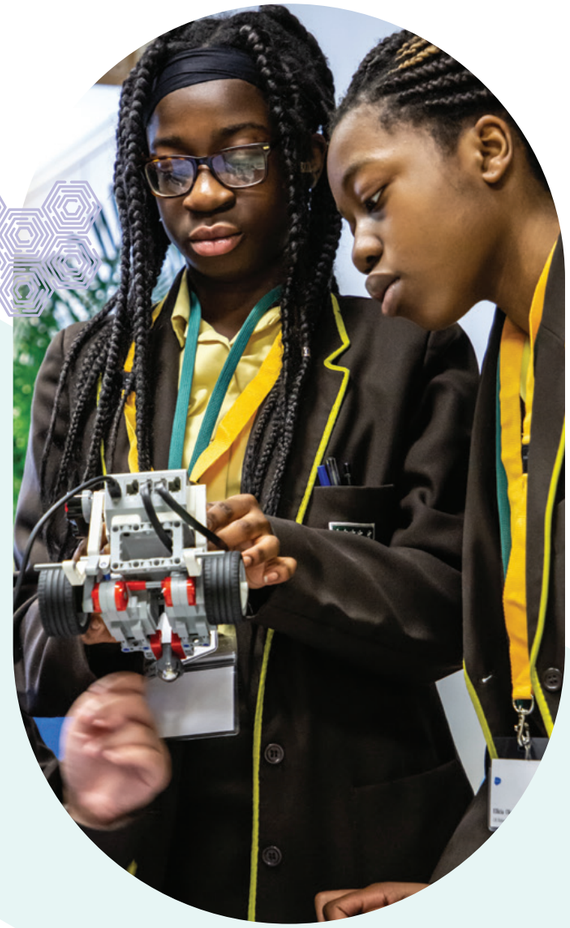
Teachers as a source of careers information

AS HIGHLIGHTED in the Science Education Tracker[2], teachers (44%) are the second largest source of careers advice for young people in years 10 to 13, after parents. Therefore, understanding teachers' knowledge and perceptions of routes into engineering and technology is important.

Three quarters of survey respondents (75%) indicated they had some involvement in elements of planning and delivery of careers provision for students at their school or college. The respondents were also asked whether they felt their subject's curriculum gave them an opportunity to link information about careers into their lessons. Encouragingly over two thirds of respondents (68%) agreed that it did. Both findings show that teachers are involved both formally and informally in supporting young people's careers knowledge.

1 While we did not directly ask about this, we know from other sources that this is an issue. One example is this letter signed by 455 headteachers, submitted to the government by a campaign group, asking for greater certainty about the future of BTECs

2 Science Education Tracker 2023, EngineeringUK and Royal Society, April 2024



Knowledge of routes into engineering

MOST RESPONDENTS (83%) said they knew which subjects their students would need to take in order to have a career in engineering and technology, and 85% would recommend this career. Teachers gave varied reasons why they would recommend engineering and tech as a career, with pay, progression and job security coming through as key themes.

Why teachers would recommend a career in engineering

"Access to multitude of jobs and opportunities. Variety of experiences and directions engineering can be taken down – software, mechanical, electronics"

"Because it's in demand, it's interesting and it's rewarding"

"Career progression and good pay"

"Excellent university and apprenticeship schemes in the region"

T Levels and teacher awareness

AS A RECENT addition to the VTQ landscape in England, it is important to get a sense of awareness of T Levels among the teachers surveyed and whether they are offered in their school.

Uptake of T Levels has been slow since their introduction, not helped by the pandemic, uncertainty around the future of BTECs, and a shortage of industry placements. However, despite the slow uptake, there have been noticeable increases in delivery year-on-year. A total of 162 education institutions had T Level results in 2022 (the first year of results), 367 are offering T Levels in 2024/25, and this is due to rise to 399 in the next academic year.[3]

Awareness of T Levels among respondents in England was high, at 89%. As a relatively new education pathway this is encouraging. However, the number of teachers who said that their school offers a T Level is only 11%, roughly in line with the picture nationally. There is still some way to go before T Levels become a viable option for many young people.

3 The T Levels provider list 2025 to 2026 academic year details those providers planning to offer or continue to deliver T Levels

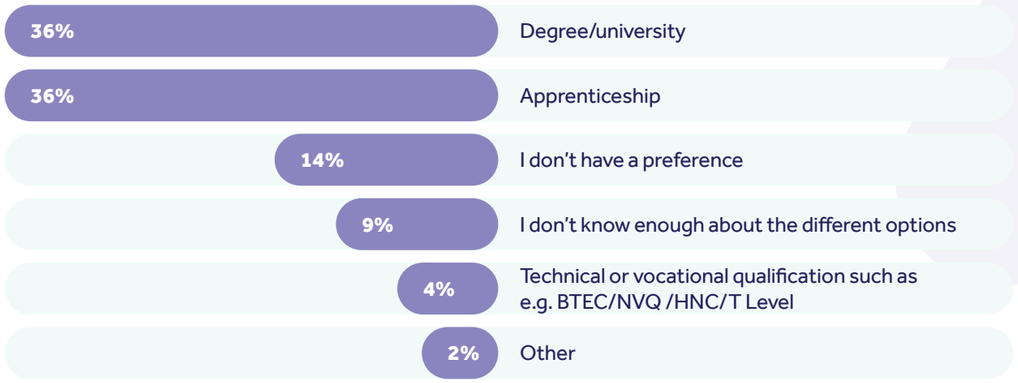
Pathways into engineering

THERE ARE many educational routes into engineering and technology careers. As teachers are a key source of careers advice for young people, it is important to understand which pathways teachers would recommend to their students as well as why.

There was an even split between degree/university and apprenticeships as a route teachers would recommend to their students. Just over a third of respondents (36%) selected each of these options and a further 14% said they didn't have a preference. This shows that teachers recognise that there are different routes into engineering and hopefully hold the university and apprenticeship routes in equal esteem. It is encouraging to see this, as previous EngineeringUK research has shown that young people recall predominantly hearing about academic pathways at school[4]. However, this also highlights a disconnect between what teachers think and what young people report is communicated to them.

Interestingly only 4% of teachers indicated they would recommend another technical or vocational pathway, such as a BTEC or a T Level. This may be because of the level of these qualifications (equivalent to A levels) or because of lower levels of knowledge among teachers about these routes.

What do you think is the best route into engineering?



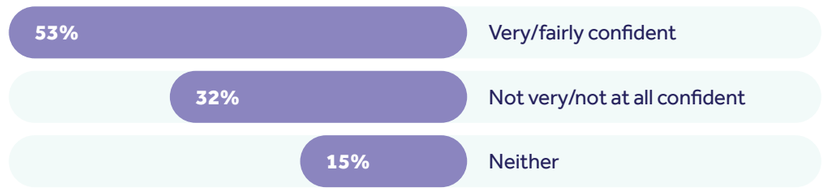
4 Fit for the future: Growing and sustaining engineering and technology apprenticeships for young people, EngineeringUK, January 2023

Confidence advising students in vocational pathways

JUST OVER half of respondents (53%) indicated they were confident in advising young people into vocational or technical pathways into engineering.

While it is positive that the majority feel confident, nearly half therefore do not feel confident in advising young people about these routes. This could be due to the numerous different options within vocational and technical pathways, or that teachers are more personally familiar with traditional academic routes. We know anecdotally from teachers that they are most aware of apprenticeships and degrees and are therefore not as confident in discussing other vocational pathways. This can mean that young people are presented with a binary option.

How confident would you feel advising your students about vocational or technical pathways into engineering?



Reasons for recommending vocational pathways into engineering

IT IS INTERESTING to understand why a teacher might recommend a specific pathway into engineering, with practical learning at the heart of recommending a vocational pathway. Over half would recommend a vocational pathway to students who prefer to learn by doing than by classroom-based learning (54%), with 52% saying that engineering is a practical activity well suited to on-the-job learning.

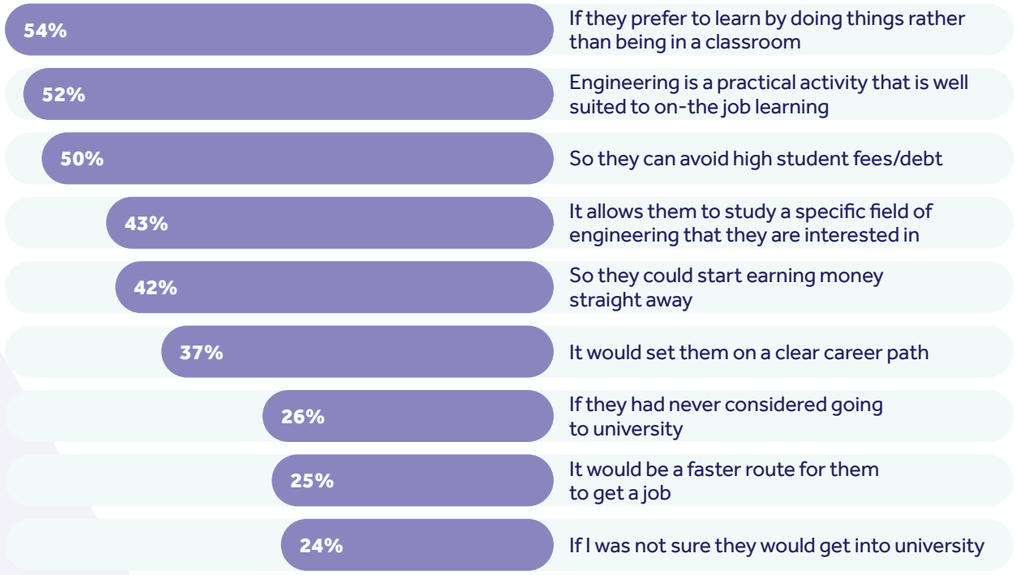
Half of teachers (50%) cited avoiding student fees and debt. This is obviously highly beneficial to learners, and there has been a large increase in Level 6 apprenticeships since their introduction[5] which can allow young people to obtain a degree while they work and without accumulating student debt.

Interestingly teachers also felt that a vocational route into engineering allows for more focused learning and for students to take a more defined pathway. Just over two fifths of respondents (43%) said it would allow students to study a specific field of engineering they are interested in, and just over a third (37%) that it would set them on a clear career path.

Around a quarter of respondents (24%) indicated that they would recommend if they felt their student would not get into university.

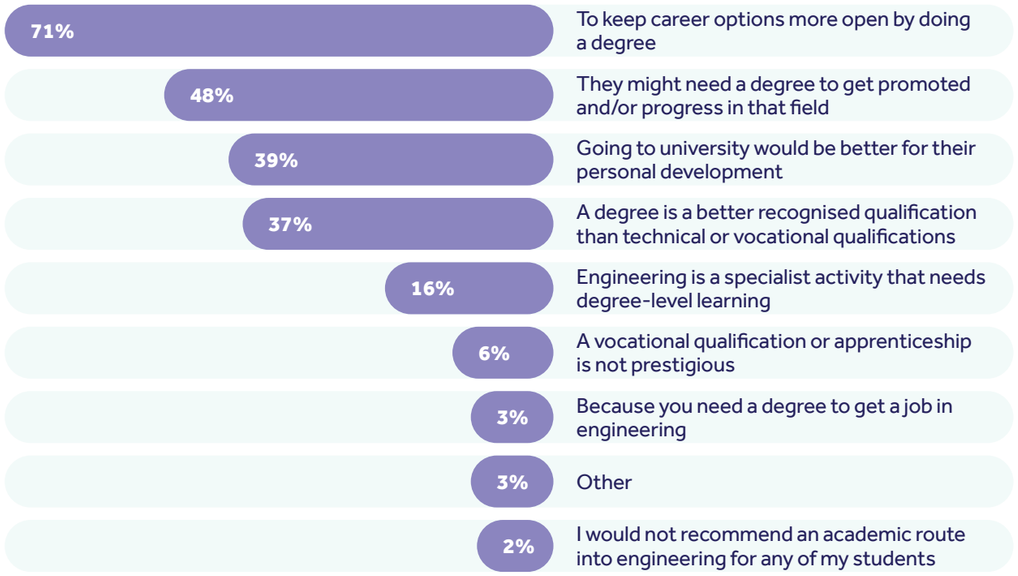
5 Apprenticeship pathways into engineering 2023/24, EngineeringUK, November 2024

If you were to recommend a vocational route into engineering for a given student, why would you consider recommending this route?



Reasons for recommending academic pathways into engineering

If you were to recommend an academic route into engineering for a given student, why would you consider recommending this route?



WHEN LOOKING at why a teacher would recommend an academic route into engineering, it is interesting to see a contrast with the reasons given for recommending a vocational pathway.

71% of respondents said they would recommend a degree route for their students to keep their career options open. This contrasts with the more specific and focused benefits highlighted by teachers for vocational pathway. The effect of this can be seen in other EngineeringUK research – while the majority of engineering graduates go on to work in an engineering and tech role (68%), just under a third do not (32%)[6]. Other reasons for recommending academic routes include the perception that degrees are better than VTQs. Just under a half of respondents (48%) said students might need a degree to be promoted and to progress, over a third (37%) felt a degree is a better recognised qualification than a technical or vocational one, and 6% said that VTQs are not prestigious.

6 Graduate outcomes – engineering and technology, EngineeringUK, March 2024

Conclusion

THERE ARE clearly some encouraging findings from teachers around their knowledge, perceptions and the reasons they'd recommend routes into engineering and technology. Teachers are involved in careers advice at their schools and feel they can link careers into their teaching. Respondents also clearly think engineering and technology is a good career and would recommend it to their students. The even split in recommending apprenticeships and university as the best route into engineering and technology is also encouraging. Perhaps the rise in higher level apprenticeships has shaped their standing in teachers minds making them a more viable alternative to university.

Despite high awareness, the low numbers of respondents in England who work at a school offering a T Level is disappointing, but not surprising. As a relatively new qualification with a difficult roll out, it will be interesting to see if this increases as a viable pathway into engineering and technology for more young people over the next few years. More needs to be done to support teachers to improve their confidence informing young people about vocational and technical routes into engineering.

BTECs have an uncertain future, even if the defunding of many of these subjects has been paused, which could impact on the percieved viability as a route. There are still some underlying parity of esteem perceptions which need to be addressed, in order for vocational and technical pathways to be seen as equal to a purely academic pathway.

Recommendations for government and organisations working in the STEM careers arena

- **Greater clarity around the future of existing and new qualifications and pathways, including BTECs. This would allow teachers greater certainty about recomending these routes.**
- **More support for teachers on understanding the vocational and technical pathways into engineering and technology, particularly routes other than apprenticeships. This should also include understanding of how different qualifications interact with and feed into each other.**
- **Look to raise parity of esteem between vocational and technical and academic routes in the minds of all teachers.**

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