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Behavioural insights and engagement with technical education

Research report

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The Behavioural Insights Team



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Social Research

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Executive Summary

The government is reforming the technical education (TE) system in England to develop a pipeline of learners with high- and intermediate- skills. From 2020 new technical qualifications - known as T Levels - will begin to be rolled out, providing a pathway through which learners can develop the skills required for 15 specialist occupational areas.¹ Whilst these system-level reforms are expected to deliver technical qualifications that better suit employers requirements and make them easier for prospective learners to navigate, young people will require additional support to make informed choices about their post-16 options in an environment where A levels are positioned as the default choice. Table 1 sets out some of the behavioural biases likely to discourage selection of technical pathways.

Table 1: Behavioural biases in selecting technical pathways

Behavioural Problem/Bias	Potential Solution
Familiarity principle/mere-exposure effect. As greater familiarity can facilitate positive preferences, young people’s lack of exposure to TE qualifications through personal and public channels presents a challenge to uptake.	Young people must encounter regular real-life scenarios (both in and out of school) that enable them to develop experiential insights about TE throughout their time in education.
Social norms. The school environment embeds a social norm around selection of A levels, as almost everyone teaching at the institution will have gone through the academic system.	Careers events should provide exposure to other students who have experience of TE and may therefore have first-hand insight of the dilemmas faced by current students.
Friction. As careers advice provided by schools often does not equally promote all post-16 education avenues, young people and their parents have to proactively seek out information about the technical pathways available to them and the institutions that offer these qualifications. ²	Information about TE should be provided automatically within the education system, with timely prompts (e.g., through existing school communication channels) to facilitate engagement with the range of post-16 options available.

¹ Department for Education, Post-16 Skills Plan, 2016

² The Department for Education careers strategy published in December 2017, whilst this project was underway, sets out a key requirement for schools to improve access to info on TE options. This is known as the Baker Clause: Every school must ensure that there is an opportunity for a range of education and training providers to access all pupils in year 8 to year 13 for the purpose of informing them about approved technical education qualifications or apprenticeships. Every school must publish

<p>Present bias. Young people’s decisions and actions are particularly influenced by emotional and in-the-moment pressures rather than consideration of future outcomes. This may make it harder for them to appreciate the, temporally distant, employment benefits of technical options.</p>	<p>Using Labour Market Information (LMI) more consistently within career guidance, could help to convey the returns of technical options more clearly and compellingly.</p>
<p>Esteem. TE is perceived by both young people and parents as a lower-status path, in terms of the range and quality of the job opportunities available.</p>	<p>Communications about TE should seek to raise awareness of the close ties between TE and skilled employment, and the involvement of employers in designing TE. One way to do this might be using employers to relay information about the new routes.</p>
<p>Confirmation bias. As parents and young people often have negative prior assumptions about TE, they may be more inclined to absorb information that aligns with, rather than challenges, these views.</p>	<p>Embedding reflective interventions, such as purpose-for-learning exercises, within careers advice could nudge parents and young people towards a more balanced position on TE prior to reviewing new information.</p>
<p>Loss aversion. Young people may be inclined to avoid the regret of giving up a teacher or subject that they currently enjoy, by staying at the same institution.</p>	<p>By drip-feeding young people with information and experiences to help them consider how their study and personal interests might align with technical options, TE should seem like a more accessible option and less like giving something up.</p>

a policy statement setting out their arrangements for provider access and ensure that it is followed.

Introduction

The challenge

Britain's skills needs are changing, and forecasts suggest that over the next decade there will be growing need for workers to fill high- and intermediate- skill level jobs. Yet despite an anticipated 5 million and 3.6 million job openings at these respective levels,³ the UK is falling behind other OECD nations in equipping learners with these skills.⁴ As many employers already struggle to fill vacancies due to skills shortages there is a need to improve and expand training provision to avoid mounting vacancies in occupations that are critical for high productivity. Technical education (TE) provides the skills required for technician jobs in many of these skills gap occupations, such as engineering and manufacturing, energy, construction, software, and professional and business services. Despite this, the size of the post-16 TE sector and uptake of these pathways is extremely small compared to international standards.⁵

One barrier to pursuit of TE is the complexity of the current system, which offers over 700 qualifications at age 16. To address this issue, the Government is reforming the TE system, to better align qualifications with the marketplace and make them easier for prospective learners to navigate. The reforms, as set out in the Sainsbury Review,⁶ mark a shift towards a small number of clear, streamlined 'routes' with standards set by employers to take young people from age 16 into skilled occupations or help learners return to education to develop professional skills. The new system will be introduced from 2020 and offer occupational routes, known as T Levels, that enable learners to develop the skills required for their chosen profession.

The role for behavioural science

In parallel to delivering these reforms, the Department for Education (DfE) commissioned the Behavioural Insights Team (BIT) to investigate the behavioural barriers to TE uptake and explore new approaches to help build learner demand. Uptake of the new qualifications – to some extent – relies on overcoming the deep-rooted preference exhibited in the UK towards academic pathways compared to equivalent technical options.⁷ By applying evidence from the study of human decision-making and behaviour, behavioural insights can offer a more nuanced understanding of

³ Wilson, R., Beaven, R., May-Gillings, M., Hay, G., and Stevens, J. (2014). Working Futures 2012- 2022. Evidence Report 83, UK Commission for Employment and Skills, Wath-upon-Dearne.

⁴ OECD Skills Outlook 2013: First results from the survey of adult skills, Figure 0.3 (OECD 2013). Data is for England and Northern Ireland.

⁵ Report on the Independent Panel on Technical Education (2016) Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/536046/Report_of_the_Independent_Panel_on_Technical_Education.pdf

⁶ Ibid.

⁷ Kirby, P. (2015). Levels of Success: the potential of UK apprenticeships. London: Sutton Trust. Retrieved from <http://www.suttontrust.com/wp-content/uploads/2015/10/Levels-ofSuccess3.pdf>

ways to encourage prospective learners to find out more about the technical options available to them and apply to the new routes.

Across the psychological literature it is widely accepted that two systems shape our decision-making:⁸

- **System 1** (the intuitive system), which is characterised by fast, contextual and effortless processing of information; and
- **System 2** (the reflective system), which is characterised by logical, general and effortful processing.

BIT's approach recognises that in practice we mostly rely on System 1 thinking (fast, intuitive thinking) and often do not reflect on the cost and benefits of different options (which would be characteristic of System 2 thinking). It is therefore important to understand the shortcuts and rules-of-thumb (inherent in System 1) that guide real life decision-making. This is particularly relevant to the selection of post-16 pathways, as the effect of these rules-of-thumb may be heightened in the decision-making of young people. Physiological, chemical and psychological evidence indicates that the function of their reflective information processing system (System 2) is still developing over the course of adolescence and young adulthood.⁹ This suggests that they will be relatively more inclined to rely on their intuitive system (System 1) in making decisions, and relatively less likely to effectively use System 2 to interrogate the decisions which may arise. It is therefore expected that a number of behavioural and cognitive biases will influence their engagement with technical options.

Project overview

The project, which commenced in November 2015, set out to build evidence against the following research questions.

- How can we change young people's attitudes towards TE, and increase their inclination to take up these routes?
- How can we encourage parents or carers to be (a) more engaged, (b) more informed on careers guidance issues related to TE, and (c) overcome stereotypes about academic and vocational qualifications?
- How can we encourage progression through the higher levels of TE for existing learners?

The research follows BIT's T.E.S.T.S methodology set out in Table 2. By progressing through each of these stages the approach offers a structured way to design and

⁸ Kahneman, D., 2011, *Thinking, fast and slow*. Macmillan.

⁹ Sunstein, C. R., 2008, *Adolescent risk-taking and social meaning: A commentary*, *Developmental Review*, 28(1), 145-152.

evaluate interventions that apply evidence from the study of human decision-making and behaviour.

Table 2: TESTS methodology

Target	Define the problem and determine the measurable target outcomes.
Explore	Map relevant behaviours and the wider context
Solution	Consider and design the intervention(s).
Trial	Design and launch trial, evaluation, learn and adapt.
Scale	Increase adoption of effective interventions.

Target

As the project was delivered in advance of the implementation of the new T Levels, target outcomes were selected on the basis that they provided useful proxy measures for engagement and uptake. These included:

- Time spent engaging with technical education and career information
- Survey measures indicating reported interest in pursuing technical pathways
- Enrolment in research to find out more about technical pathways
- Click throughs to online information about technical pathways
- Uptake of existing higher-level technical qualifications

Explore

The following methods were used to develop insight around the extent to which young people and adults (including parents) are aware of technical pathways; the context in which choices about whether or not to pursue TE at 16 are made; and what might prompt people, of all ages, who may benefit from these routes to consider them.

- A rapid evidence review, including interviews with experts at eight government organisations with a focus on TE plus a review of the relevant literature.
- Qualitative research, including:
 - 20 semi-structured face-to-face interviews with parents of students aged 13-15 (years 9-11 in school) from four locations (London, Leeds, Oldham and Blackpool) and a mix of backgrounds.
 - Analysis of transcripts from 35 semi-structured interviews with young people aged 11-18, from eleven educational institutions, including maintained schools, academies and further education colleges. These

institutions were located across the country in; Cornwall (2), Yorkshire (4), Tyne and Wear, Staffordshire, Kent, Nottinghamshire, London.

- An omnibus survey of 2,038 adults in Great Britain completed between 17-26 January 2017 and weighted to represent the adult population (16+) of Great Britain.

Solution

In spring 2017 a workshop was held with BIT, policy and delivery leads from the DfE, The Gatsby Foundation, and The Careers Enterprise Company. The aim of this session was to share evidence from the exploratory research, identify what interventions could support the overarching objectives, prioritise interventions to trial, and determine what outcome measures might be used to assess whether an intervention has been effective.

Trials

This research set out to test the extent to which the behavioural interventions designed by DfE and BIT would support preferences towards TE. Although there are many ways to test the effectiveness of a programme, the gold standard is the randomised controlled trial (RCT). The strength of the RCT approach is that it enables the comparison of a group that has received a programme with a similar group that has not received a programme, to identify the causal effect of the programme on the outcomes of that group. This project included four RCTs (see [Table 3](#)) and in the following chapters we describe the behavioural interventions that were implemented and what was learnt through the research.

Table 3: Summary of trials

What we tested
Whether engaging in a purpose-for-learning exercise prior to receiving career and education information relevant to TE impacts comprehension, retention and attitudes.
Whether different messengers encourage parents or carers to (a) be more engaged, (b) be more informed on careers guidance issues related to TE, and (c) overcome stereotypes about academic and vocational qualifications?
How the presentation of career and educational information around TE affects comprehension, retention and attitudes. With a particular focus on the application of Labour Market Information.
Whether government communications designed using behavioural evidence can encourage progression through the levels of TE for existing learners.

Understanding the Context

To gather evidence of the behavioural factors that influence individual preferences to pursue TE, the project commenced with a rapid evidence review as well as primary qualitative and quantitative fieldwork. The aim of this exploratory research was to develop insight into the extent to which young people and adults (including parents) are aware of technical pathways; the context in which choices about whether or not to pursue TE at 16 are made; and what might prompt people, of all ages, who may benefit from these routes to consider them.

The sections below provide more detail of the research methodologies and present evidence from the primary fieldwork alongside insights from the behavioural literature, all of which underpinned the design of subsequent interventions.

Methodology

Rapid Evidence Review

To synthesise rather than replicate work that had already been done, interviews were conducted with experts from organisations that have delivered primary and secondary research into technical and vocational education. The following organisations were represented: the Department for Education (DfE); the Department for Business, Innovation and Skills (BIS)¹⁰; the UK Commission for Employment and Skills (UKCES), GO-Science, Infrastructure UK, the National Institute for Economic and Social Research (NIESR), the Education and Employers Taskforce, The Careers Enterprise Company, and the Greater London Authority Education and Skills Team.

Insights from these interviews were then combined with evidence from the economic, educational, and behavioural science literature relevant to TE and vocational education more broadly. The key focus of this work was to understand how to increase young people's interest in TE qualifications and their eventual likelihood of enrolling in one.

Qualitative interviews

To explore perceptions of TE and the factors that influence uptake of technical pathways, interviews were conducted with parents and young people. Qualitative research adds value in terms of developing in-depth insights about the views and experiences held by different individuals, and the factors that inhibit and facilitate certain choices (in this case interest in pursuing TE). It however should not be used to infer the prevalence or impact of personal views or choices.

¹⁰ This has since become the Department for Business, Energy and Industrial Strategy (BEIS)

Parents

The qualitative research included 20 semi-structured face-to-face interviews with parents of students aged 13-15 (years 9-11 in school). Participants were recruited across four locations; London, Leeds, Oldham and Blackpool, and selected to represent a mix of gender (for both parents and child), socio-economic background and employment status. The recruitment process also included a screening question to ensure the sample represented both parents with children pursuing more academic pathways, and those interested in more technical options.

Each interview was approximately 40 minutes in duration and structured to explore the following themes:

- a) Base perceptions of different post-16 options (A Levels, Higher-Level Apprenticeships, and TE) and inclination to recommend each option to young people in general and, then more specifically, to their child.
- b) Whether attitudes to TE shift when parents are provided with more information about the TE routes available and the government's vision for the future system.
- c) Career guidance for parents, specifically information related to different post-16 options.

Young people

For this project, transcripts of 35 semi-structured interviews with young people were reanalysed. The sample focused on students aged 11-18 from eleven educational institutions, including maintained schools, academies and further education colleges. The interviews were originally conducted for a qualitative research project delivered in 2016 that explored how young people navigate career information and form decisions about their future.¹¹ Participants were purposively sampled based on geographical spread, school type, age, gender, and post-school trajectory (i.e. oriented towards university or vocational options).

The original purpose of the interviews was to explore what information sources young people use to form education and career decisions, and how they engage with the information available. However, for this project, the transcripts were re-coded to generate qualitative evidence in relation to the following research questions:

- a) How can we change young people's attitudes towards TE, and increase their inclination to take up technical routes?
- b) What information do young people need, and when do they need it, to make effective decisions about TE (as opposed to alternative career paths)?

¹¹ The Behavioural Insights Team (2016) Moments of Choice Report

Given that the original research was focused on education and career decisions in general, rather than TE specifically, the findings reflect broad attitudes to post-16 provision that is alternative to A levels (such as, further education college or apprenticeships).

Quantitative Research

Part way through the project the focus was expanded to also include adult learners (19+ years), as DfE were interested to understand what would motivate people outside of the school system to use technical pathways to develop new skills. To gather evidence of how motivated adults might be to engage in TE and explore any demographic differences, an independent research organisation – TNS Global - was commissioned to collect responses to the following questions via a national online omnibus survey, OnlineBus.

- a) How likely is it that you will take on skills training or education in the next year?
- b) If likely, please specify what training.
- c) How likely are you to pursue the following training option? A two year qualification - approved by employers and education experts - in which you develop specialist technical knowledge and practical experience related to particular occupations.

A sample of 2,038 adults in Great Britain completed the online omnibus survey between 17-26th January 2017. Demographic data was collected on the following characteristics; gender, age, region, parental status, SES status. The sample was selected using quota sampling and weighted to represent the adult population of Great Britain (16+).

Findings

A summary of the key findings, combining evidence from all the primary and secondary research methods, are collated below. The focus is on three key themes; how aware and inclined to pursue (or encourage pursuit of) technical pathways potential learners and their influencers are; the context in which choices about whether or not to pursue TE are made; and what motivates people who may benefit from these routes to consider them.

Awareness of Technical Pathways

Lack of awareness about TE, among parents and young people, inhibits choice.

Of the young people and parents that we interviewed, few were knowledgeable about TE as an option available post-16. Young people struggled to reliably describe the alternative options available to them at 16, and many gave responses that demonstrate some confusion. When parents were provided with a written description¹² of a technical

¹² *Two year programme enabling the learner to develop specialist technical knowledge and practical expertise to prepare them for skilled employment. This offers a route into industries that require a high level of technical skills such as health and science, construction, social care, or engineering and manufacturing. It is primarily college-*

route none were familiar with the qualification it corresponded to, and those that guessed often assumed it was an apprenticeship. In contrast, almost all parents were well-informed about A levels and were more inclined to recommend this pathway to their child. This skew in basic understanding is also evidenced in national level data. Polling conducted by Demos confirms that only 37% of parents report that they would be confident giving their children information and advice about vocational qualifications, while 60% were confident advising on education and employment in general.¹³ Given that familiarity alone can influence how appealing something is perceived to be¹⁴, providing greater exposure information about technical options will be the first step to ensuring that A levels are not simply the default post-16 choice.

Interview Extract

Interviewer: And is this second qualification [referring to the text describing TE] one that you're familiar with? Primarily classroom-based but includes a placement in industry.

Interviewee: No, not heard of that one at all.

- *Parent of 15-year-old, London*

Interview Extract

There were some apprenticeships that I think oh yeah, I'm gonna do it. But after that I never had the time to look at it again. But I don't know – like some apprenticeships – do you like go to university as well? Oh I don't know.

- *Student, 16*

Preconceptions about TE influence interpretation of new information. Perceptions of a two-tier system in which academic options are more prestigious seem fairly ingrained among both parents and young people. Despite having little prior knowledge of technical options, parents were quick to assume that they would be most appropriate

based learning but includes a placement in industry. In addition to developing specialist skills learners will develop a common core of transferable skills relevant to all industries - literacy, numeracy, and digital. Successful completion will result in the learner receiving a qualification, approved by employers and education experts, demonstrating they meet industry standards.'

¹³ Demos (2015) *Commission on Apprenticeships Report*

¹⁴ Zajonc, Robert B. (1968). "Attitudinal Effects of Mere Exposure". *Journal of Personality and Social Psychology*. **9** (2, Pt.2): 1–27

for students who were underperforming in school and not something suitable for their own child. This was also reflected in the views of young people, with some indicating vocational options offered a 'last resort' option.

Interview Extract

So, that's probably for children that won't get – maybe know already that they might not come out with good GCSEs.

– *Parent of 13-year-old, Blackpool*

Interview Extract

Pitched at some other candidate that wouldn't necessarily be right or not get the right grades to go to university.

– *Parent of 15-year-old, London.*

Interview Extract

Interviewer: If one of your friends said to you that they wanted to do an apprenticeship or go to Further Education college, what would you say to them?

Interviewee: I would probably say do it. It's better than dropping out and doing nothing.

- *Student, 15.*

In many of the interviews with parents it was apparent that base perceptions influenced how they engaged with new information on TE. For example, it was common for parents to categorise young people as either academic or practical and anchor on this as a point of reference to determine which post-16 options might be appropriate for that child. Anchoring, a cognitive bias identified by Tversky and Kahneman, occurs when people rely too heavily on an initial piece of information when making decisions.¹⁵ Terminology such as 'practical' in relation to technical courses, seems to lock in assumptions that these qualifications may be for less able children. Part of the challenge in engaging

¹⁵ Tversky, A., and Kahneman, D. Judgment under uncertainty: Heuristics and biases. *Science*, 1974, 184, 1124-1131.

parents on the new technical routes may therefore be to get them into a more neutral mindset prior to receiving information to avoid it being used to confirm existing biases. For example, by drawing on the literature around self-persuasion,¹⁶ and encouraging parents to make their own case in favour of considering alternative post-16 options - such as TE – for their child.

The post-16 decision-making context

The post-16 'choice architecture' positions A levels as the default choice. 'Choice architecture' refers to the designed or intentional structure placed around a particular choice, which can profoundly influence the decisions people make.¹⁷ Behavioural science consistently shows that we have a strong tendency to stick with the 'default' option, which is the outcome that occurs if we do not choose otherwise.¹⁸ Below we set out evidence to suggest that within the current choice architecture, A levels (rather than TE) are positioned as the default option.

Social Norms

Evidence from behavioural science consistently shows that people are heavily influenced by what those around us do and say, known as social norms.¹⁹ The school environment embeds a social norm around selection of A levels, as '*schools are organisations that are pretty much full of people who have gone through the academic system*'.²⁰ This norm, will also be reinforced outside school, as lack of exposure to TE qualifications in friends, family, advisors and the media, is a key factor behind low awareness and take up of TE.²¹

Friction

Making the decision to pursue TE requires young people to not only select the occupational skills they wish to develop, but also to find out which institutions offer technical qualifications, as they will almost certainly not be available through their school. Young people and their parents have to proactively seek out the information they need for this, which incurs substantial additional friction. Both the literature and interviews with parents suggest that many schools provide careers advice that reflects the ethos of the schools – for example high rates of progression to university - rather than student need and do not equally promote all possible education and career avenues.²²

¹⁶ Aronson, E. 1999. The power of self-persuasion. *American Psychologist*, 54: 875-884

¹⁷ Thaler & Sunstein (2009) *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.

¹⁸ Behavioural Insights Team (2014). *EAST: Four simple ways to apply behavioural insights*.

¹⁹ *Ibid*

²⁰ Demos (2015) *Commission on Apprenticeships Report*

²¹ City & Guilds Centre for Skills Development, 2011, *New Directions: Young people's and parents' views of vocational education and careers guidance*.

²² Ofsted (2013) *Going in the right direction? Career guidance in schools from September 2012*

Interview Extract

There was plenty of pushing for the A Levels but there was very little information about anything else.

– *Parent of 15-year-old, Leeds.*

Loss Aversion

Research indicates that those who enjoy a subject and like the teacher are much more likely to choose it at a further level (both year 9, when students select their GCSE options, and year 11, when students make their post-16 choices).²³ This highlights another challenge for TE, as students may be inclined to avoid the regret of giving up something that they enjoy by staying at the same institution. This bias is known as loss aversion in the behavioural literature.²⁴ In the context of TE, this concern may be further exacerbated by the lack of trustworthy sources of information, to help young people to form more holistic judgements about technical courses, for example what the course is like and whether they will enjoy it.

Selecting Technical Pathways

Links to employment help reinforce the value of technical qualifications. When parents were presented with information about the TE reforms during the interviews, many were surprised about the range and breadth of the occupational routes available. The list of routes helped to counter an availability bias,²⁵ whereby many parents initially linked TE to the most obviously practical jobs such as construction, and therefore assumed the opportunities available were confined to a limited selection of careers. The fact that the routes included careers less typically associated with vocational education - for example journalism - seemed to make TE pathways more meaningful to many parents and helped to bolster perceptions of technical specialism. Unsurprisingly perhaps, this was particularly apparent when one of the routes corresponded to a career path their child had expressed an interest in.

²³ City & Guilds Centre for Skills Development, 2011, *New Directions: Young people's and parents' views of vocational education and careers guidance*.

²⁴ Kahneman, D. and Tversky, A. (1979), "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, 47, 263-291.

²⁵ Tversky, A., and Kahneman, D. Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 1973, 5, 207-232.

Interview Extract

But it sounds like it's got quite a lot of technical skill, and I like that it's quite broad, as well, so it's kind of for everyone really. I thought it would be more manual work, that sort of this, but it seems a bit more broad.

- *Parent of 15-year-old daughter, London*

Almost all of the parents saw employer involvement in setting TE standards as the most promising aspect of the reforms, as many indicated that employers are best-placed to know what skills will be valued in the labour market. Convincing parents of the close ties between TE and skilled employment should help leverage interest in the routes, as many parents expressed concern about the current job market being tough for young people.

Interview Extract

I'm valuing the fact that the course content is set by the end user, the employer.

- *Parent of 13- and 15-year-old, Leeds*

Evidence suggests that, for technical compared to academic education, it is much more important to provide assurances that qualifications have direct labour market value.²⁶ Young people taking general academic qualifications - such as A levels - are often focused on getting into university rather than looking beyond, which may be less the case with young people taking technical qualifications.²⁷ Young people may find this shorter-term planning more comfortable, as adolescents are particularly predisposed to focus on more immediate outcomes.²⁸ However, as both young people and parents suggest that TE will be more suited to students with clear career goals, it is important to help young people understand labour market factors as they consider whether they might benefit from TE. Further research should

²⁶ City & Guilds Centre for Skills Development, 2011, *New Directions: Young people's and parents' views of vocational education and careers guidance*.

²⁷ Ibid

²⁸ Blakemore S.J., Choudhury S. (2006) Development of the adolescent brain: implications for executive function and social cognition. *J Child Psychol Psychiatry*; 47:296-312.

therefore explore how to present information about the returns of different post-16 options in a way that young people can engage with.

Interview Extract

Interviewer: Do you think beyond A Levels about what you might have to do?

Interviewee: Do something in uni obviously, but I'm not really sure because it is quite far away. Just do a couple of years in uni, get good degrees and stuff.

- *Student, 16.*

Interview Extract

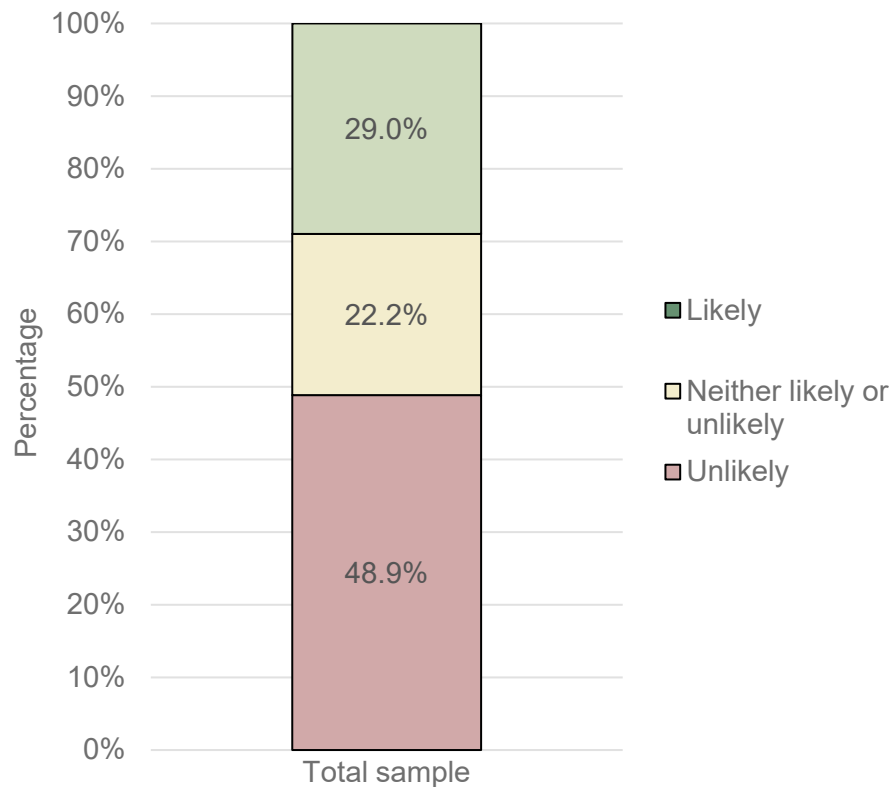
I think it would definitely suit the people that know what they want to be doing. At the end of the day, as I say, if you don't know what you want to be doing and you want to keep your options open, I wouldn't suggest this route.

- *Parent of 15-year-old, Leeds*

Motivation to pursue TE beyond school (post-19 learners)

Analysis of the omnibus data helps to reveal the distribution of reported interest of pursuing TE among the adult population. Almost a third of the population (29%) expressed interest in pursuing TE (see figure 1) on the basis of responses to the question: *How likely are you to pursue the following training option? A two-year qualification - approved by employers and education experts - in which you develop specialist technical knowledge and practical experience related to particular occupations.*

Figure 1. Reported likelihood of pursuing TE



For the same question, statistically significant differences ($p < 0.05$) were observed in relation to:

- Male and female respondents, with the former being more likely to report being 'Likely' to pursue TE (see [Figure 2](#)).
- Age-groups with older respondents being much less likely to report being 'Likely' to pursue a TE option (see [Figure 3](#))
- Age respondents stopped full-time education, with those who stopped at 16 or younger much less inclined to report that they would be likely to pursue a TE option than those who stopped after 17, who were in turn less likely than those still studying (see [Figure 4](#)).

Figure 2. Reported likelihood in pursuing TE by gender

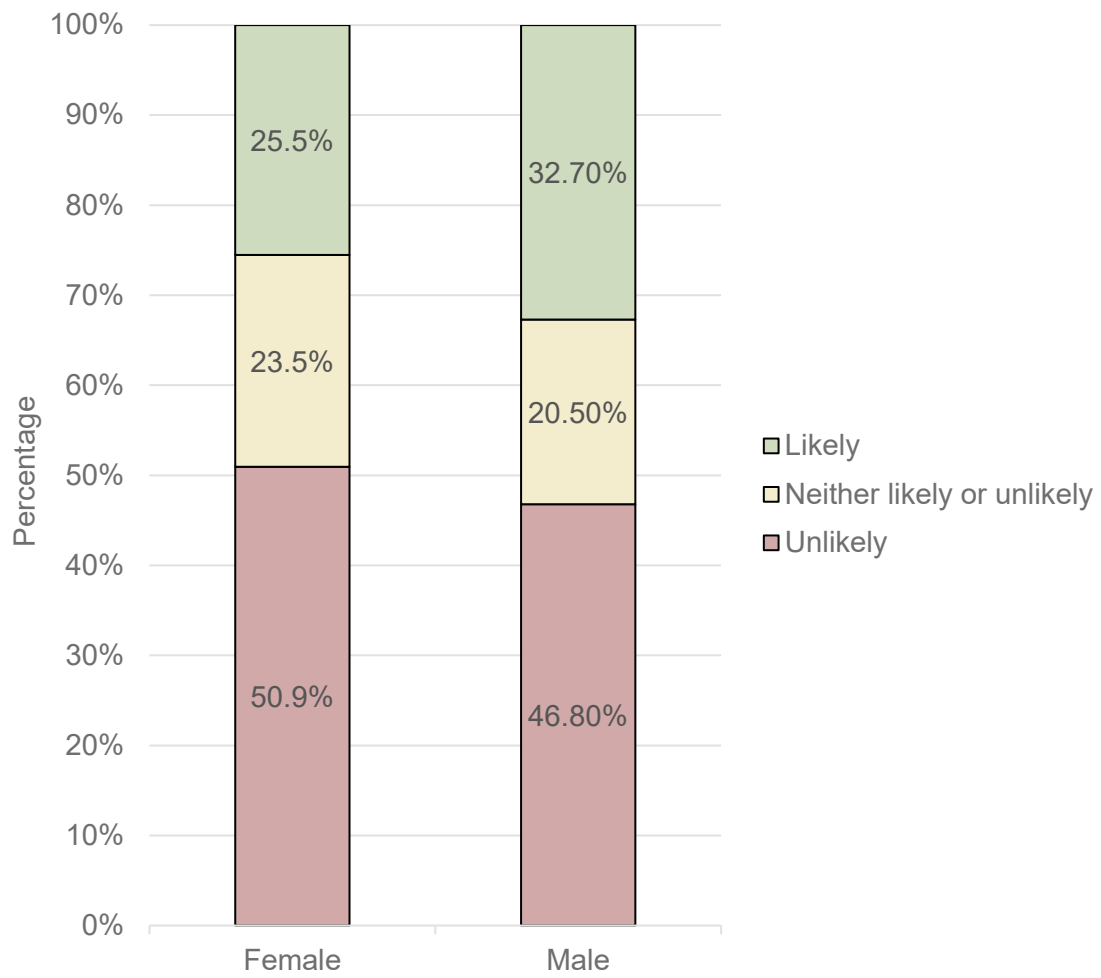


Figure 3. Reported likelihood in pursuing TE by age group

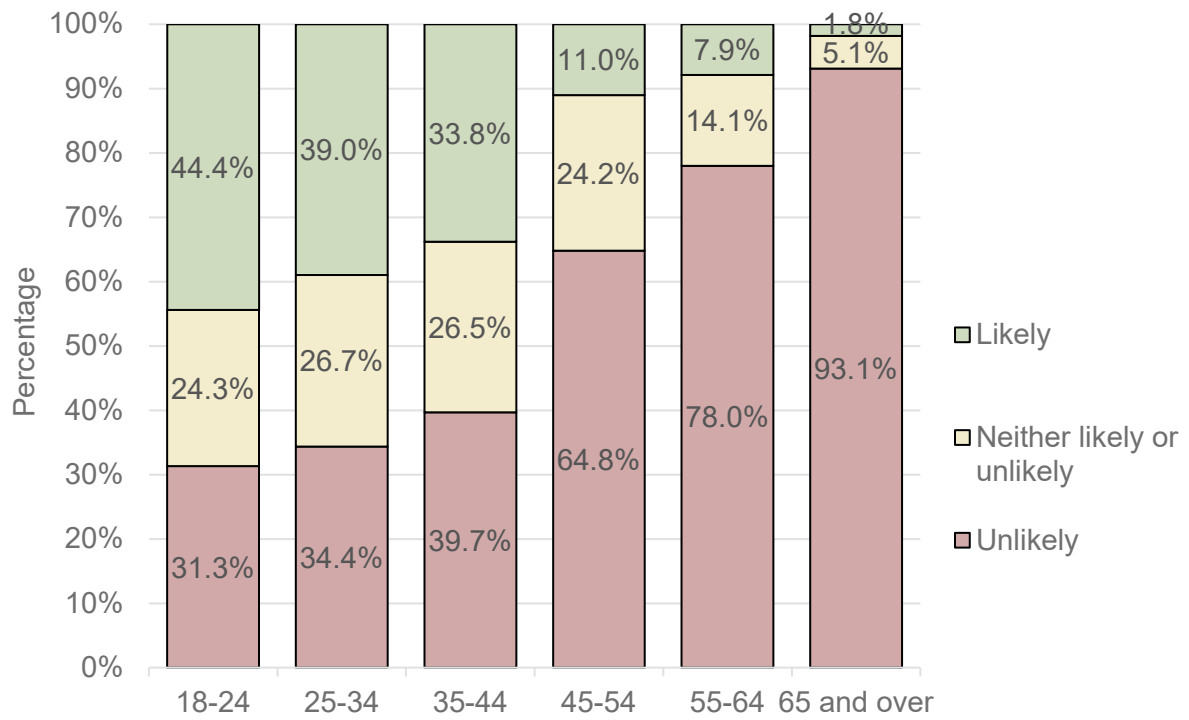
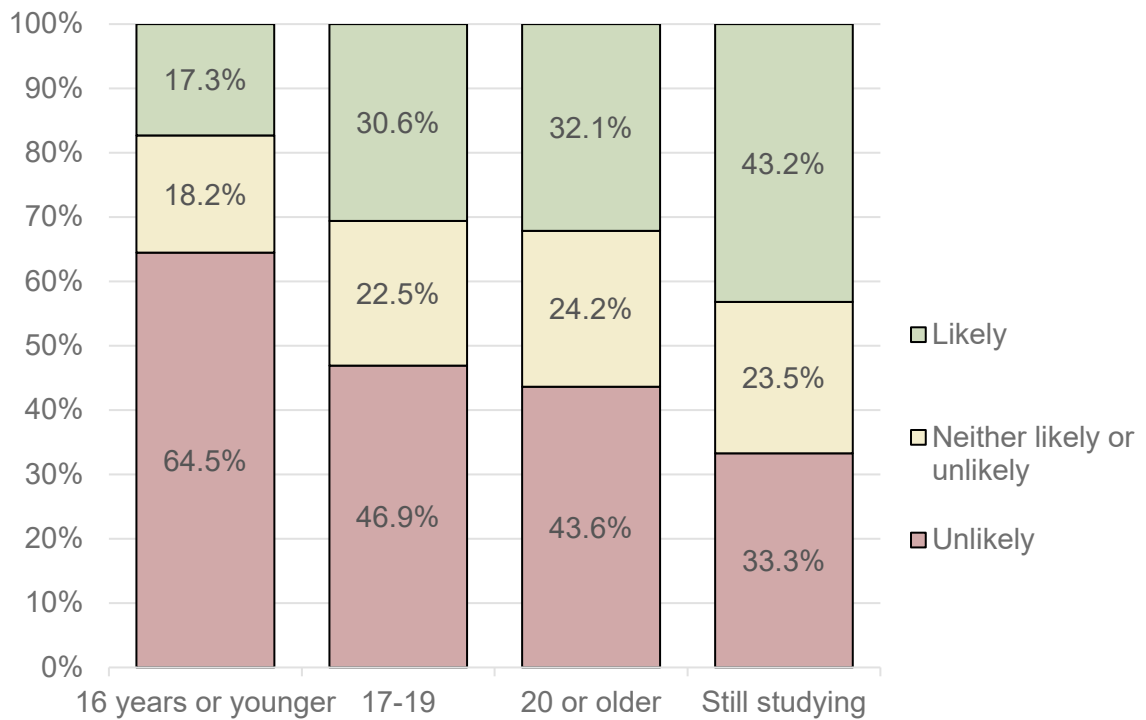


Figure 4: Reported likelihood in pursuing TE by age left full time education



What this means for the TE reforms

Raising Awareness of TE among young people, parents and guardians

Information and guidance on TE should be provided by default. The fact that parents and young people have to proactively seek out information to become well informed about TE options (unlike for A levels) drives a clear knowledge deficit that encourages status quo decision-making, which favours A levels. DfE, local bodies and educational institutions should consider exploring new ways to provide information about TE automatically within the education system and facilitate parental engagement with the options available. Although the Baker Clause should help to reinforce this,²⁹ there remains value in exploring evidence-based approaches to understand how young people and parents can engage effectively with the information provided to them by schools and employers.

Approaches to motivate young people and their parents to engage with information on TE, without instinctively ruling it out as an option could be tested as part of the careers advice process. Part of the challenge in engaging key parties on the new technical routes will be to get them to have a more balanced viewpoint prior to receiving information to avoid it being used to confirm existing biases, such as only being relevant to a limited number of lower status professions. As part of this project, drawing on the work of Yeager et al. 2014³⁰, we tested whether including a purpose-for-learning exercise within career information would encourage young people to engage more deeply with information about technical options (see [page 29](#)).

Young people need to get a sense of what the experience of taking T Levels will be like for them. As behavioural factors, such as social norms and loss aversion, currently reinforce A levels as the default choice. Young people must encounter regular real-life scenarios (both in and out of school) that enable them to develop experiential insights about TE throughout their time in education. This is an area that would benefit from further research but could involve facilitating interactions with current students and college teachers. BIT previously found that getting university students to send letters that describe the experience of university to sixth form students from disadvantaged backgrounds, increased the number of students accepting places at top universities by

²⁹ The Department for Education careers strategy published in December 2017, whilst this project was underway, sets out a key requirement for schools to improve access to info on TE options. This is known as the Baker Clause: Every school must ensure that there is an opportunity for a range of education and training providers to access all pupils in year 8 to year 13 for the purpose of informing them about approved technical education qualifications or apprenticeships. Every school must publish a policy statement setting out their arrangements for provider access and ensure that it is followed.

³⁰ Yeager, D. S., Henderson, M. D., Paunesku, D., Walton, G. M., D'Mello, S., Spitzer, B. J., & Duckworth, A. L. (2014). Boring but important: A self-transcendent purpose for learning fosters academic self-regulation. *Journal of personality and social psychology*, 107(4), 559.

34%.³¹ Providing information in this way may work with our more intuitive way of thinking (system 1) and help young people find out about TE without feeling overwhelmed with information about education and career options.

Encouraging pursuit of TE

The link to employment seems highly salient to parents and may prompt them to encourage pursuit of TE. Convincing parents of the close ties between TE and skilled employment could help to leverage interest in the routes. In the qualitative research, many parents expressed concern about the current job market being tough for young people and saw the involvement of employers in designing the qualifications and course content as reassuring. This project also tested whether using employers as messengers helps to strengthen the perceived value of TE and the links to the labour market (see [page 43](#)).

Further research should explore how to convey the returns of different post-16 options in a way that young people can process and engage with. As young people are predisposed to focus more on immediate rather than long-term benefits (known as present bias), information about the prospects of different educational routes should be provided in a way that helps them to make as informed a choice as possible. This report includes the results from a trial designed to make career information more intuitive for young people, using simplified labour market information and testimonials to help contextualise labour market outcomes (see [page 55](#)).

Further research is needed to understand the levers that might prompt post-19 learners, who could benefit from TE, to take up or progress within technical routes. In particular, interventions that help to motivate and engage harder-to-reach demographics to find out about this option. Research will need to account for the fact that this is a very broad and varied group, however the omnibus data indicates that women, older age groups, and those who left education at 16 will be harder to engage with TE and therefore may be worth focusing on. Within this project we have begun to explore what motivates older learners to commit to higher level technical qualifications, exploring levers such as sense of belonging, access to employment, and the prestige of being highly skilled (see [page 71](#)).

³¹ Sanders, M., Chande, R., and Selley, E. (2017). Encouraging People into University. Department of Education.

Raising Awareness of TE

An established model of behaviour change, the Transtheoretical Model, indicates that adopting a new behaviour requires people, in the first instance, to be aware of that behaviour as an option and then to recognise benefits to adopting the behaviour.³² The first step in promoting uptake of TE will therefore be to overcome parents' and young people's knowledge deficit around technical options.

The exploratory research suggests the three key challenges with raising awareness of technical options are:

1. Low motivation among young people to seek out information
2. Tendency for young people to narrow their search early and make quick decisions due to feeling overwhelmed
3. Tendency for information to reinforce negative preconceptions about technical options

BIT, in partnership with the DfE, designed and evaluated two online interventions targeting these barriers to raising awareness of TE effectively among both young people and parents. The interventions explore how information can be presented to foster interest, longer-term engagement, and positivity around T Levels. This section provides further detail of the design and results of these studies.

³² Prochaska, J. O. (2008) Transtheoretical model of behavior change. In *Health behavior and health education: theory, research, and practice*. John Wiley & Sons.

Trial 1: Motivating young people to engage with information about technical options (purpose-for-learning)

Summary

What we tested

Whether engaging in a purpose-for-learning exercise prior to receiving career and education information relevant to TE impacts comprehension, retention and attitudes.

What we found

The purpose-for-learning intervention produced no significant effect on behavioural measures of engagement with technical education and career information, although the analysis revealed slight positive trends across two of the primary outcome measures (proportion of time and total time spent on technical content).

However, the intervention had a positive and significant effect on attitudinal measures of engagement with technical pathways and career options.

Participants who completed the purpose-for-learning exercise were significantly:

- **More likely** to report being open to the idea of pursuing a technical college course (on average their scores were 14% higher on a 5 point self-report measure than those in the control group); and to pursue a career as a technician (on average their scores were 11% higher on a 5 point self-report measure than those in the control group).
- **Less likely** to report 'don't know' with regard to their interest in pursuing a technical course (23% decrease in don't know responses) or apprenticeship (27% decrease in don't know responses). Which indicates greater confidence in providing an informed response.

The qualitative research highlighted that young people have less exposure to technical choices, which limits their awareness of these pathways. As schools are more likely to promote academic pathways, information about TE and the career options available through these routes has to be more proactively sought out, which young people may be reluctant or unable to do. Aside from the friction involved in searching for alternative educational information to that which is provided by default, previous research

conducted by BIT shows that young people often feel overwhelmed by the amount of career information available and react by narrowing their selection at an early stage without deep consideration of the wider set of options.³³ To increase young people's awareness about TE and enable them to make informed choices, educators must find ways to motivate young people to seek out and engage more deeply with a wide set of career information that includes technical careers and pathways to secure them.³⁴ Although the introduction of the Baker Clause should help to support this, there remains an evidence gap around how the presentation and framing of technical education and careers information influences engagement with the content.

Research Aim

Previous research shows that a social-psychological intervention, termed 'purpose for learning', can successfully improve performance on learning activities by increasing the amount of time that learners voluntarily spend engaging with study materials even when presented with entertaining distractions.³⁵ The intervention works by getting participants to persuade themselves that they have a 'self-transcendent' motivation for learning, i.e. a motivation that goes beyond self-interest and relates to helping people or the world. It is based on the premise that people are more inclined to respond to their own arguments in favour of carrying out a particular behaviour, than to someone else's instruction. Given that purpose for learning interventions are designed to encourage greater focus and engagement with a task, we wanted to test whether applying this approach to career guidance could increase young people's interaction with career resources to promote TE and, as a result, their awareness and attitudes around technical options.

The focus of this trial was to investigate whether introducing a purpose for learning exercise before young people (aged 12-14 years) have the opportunity to engage with career resources that cover information about technical options, increases their engagement with the information available, their knowledge about TE and relevant careers, as well as openness towards these options.

Research Design

The intervention was evaluated via a randomised controlled trial (RCT) with 893 students across the West Midlands randomly allocated one of two tasks (see below). The tasks were delivered via an online platform during class time, to students in years 8 and 9 across the participating schools.

³³ The Behavioural Insights Team (2016) Moments of Choice Report

³⁴ Department for Education (2017). Careers strategy: making the most of everyone's skills and talents

³⁵ Yeager, D. S., Henderson, M. D., Paunesku, D., Walton, G. M., D'Mello, S., Spitzer, B. J., & Duckworth, A. L. (2014). Boring but important: A self-transcendent purpose for learning fosters academic self-regulation. *Journal of personality and social psychology*, 107(4), 559.

1. **Purpose for learning task (treatment condition, see [Appendix A](#) for full materials):** The exercise required students to complete three consecutive steps:
 - a. Answering a series of questions about how finding out about different career options could enable them to make a difference to the lives of others (to spark a self-transcendent motivation to engage with career information).
 - b. Reading descriptive statistics and quotes about how other students found it worthwhile to seek out career information (to build a social norm around the behaviour of engaging with career information).
 - c. Completing a self-reflection exercise about how learning about different career options could help them to become the person they want to be in future (the self-persuasion aspect of the task) - see [Table 4](#)
2. **Journey to school reflection task (control condition):** this exercise was similar in structure and format to the purpose for learning task but focused on questions about the student's journey to school. This exercise was included as a placebo, so that students would be unaware of their allocation to the control group.

After completing the intervention or control tasks, all students were presented with career information on technical options (see [Figure 5](#)) or alternative 'distractor' content, that included memes and word searches (see [Figure 6](#)). The briefing read out by the teacher overseeing the task, emphasised that students had the autonomy to focus on the content of their choice and could flip between the two sets of information throughout the session. We recorded the number of screens of each type of content the student viewed and how long they viewed it for. This design was based on the 'diligence task' in the original Yeager et al. study³⁶ and provided a behavioural measure of engagement. After finishing the information section (this was advised to be after 20 minutes) students were presented with a series of questions to assess their openness to pursuing technical pathways, interest in career information, and ability to retain the information they viewed (see [Table 4](#) for the full question set).

³⁶ Yeager, D. S., Henderson, M. D., Paunesku, D., Walton, G. M., D'Mello, S., Spitzer, B. J., & Duckworth, A. L. (2014). Boring but important: A self-transcendent purpose for learning fosters academic self-regulation. *Journal of personality and social psychology*, 107(4), 559.

Figure 5: Example of career information on technical options

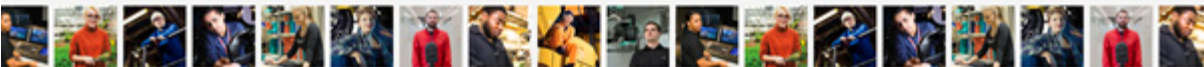
Survey Exit and clear survey

Technicians make it happen

There are currently 1.5 million people who are doing cutting edge technical work across Britain. They work in hospitals and schools. They'll be working on delicate machinery that will be sent up to the International Space Station and they'll be fine-tuning the AV system at Glastonbury music festival.

We call these people technicians. The job of one technician could be very different to the next, but what they all have in common is that their work is challenging, interesting and important.

[< Back](#) [Next >](#)
[Do something else](#)



Survey Exit and clear survey

Technicians make it happen

Victoria, Vacuum Technician

At school, Victoria struggled to concentrate and didn't know what she wanted to do - but she did know that she wanted it to be physical.

Now she helps to create near-perfect vacuum conditions, to do research into particles and the speed of light at the world's most famous centre for Nuclear Research.

[< Back](#) [Next >](#)
[Do something else](#)

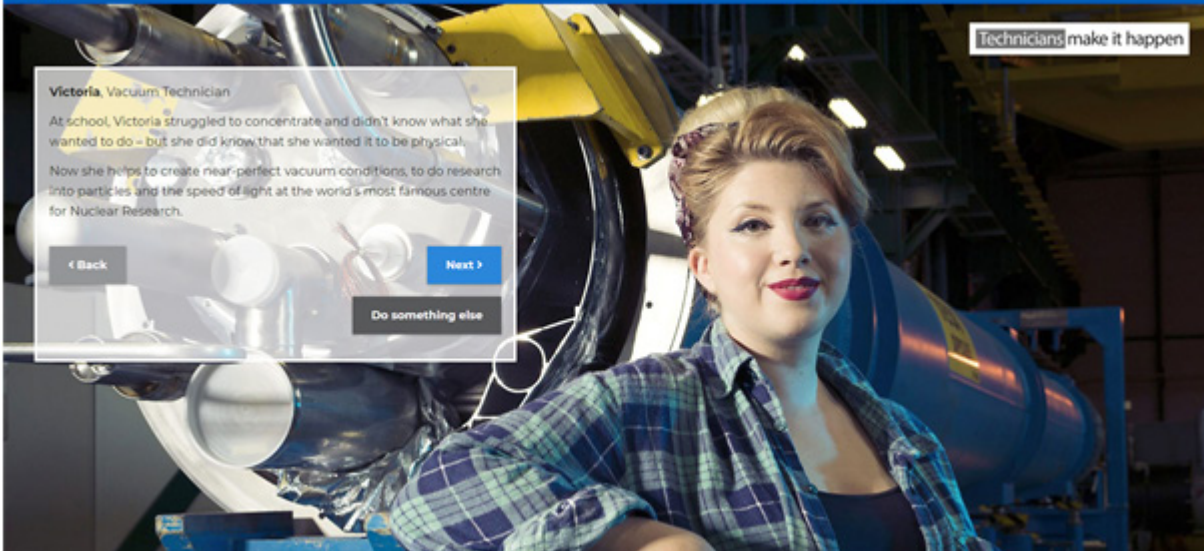


Figure 6: Example of distractor content.

Harry Potter Wordsearch

Instructions: Find the words in the grid below. Tap/click and drag to highlight the word you have found.

N	S	S	E	A	A	C	D	K	E
S	C	K	D	F	D	I	H	W	P
Y	A	O	T	F	F	T	V	A	J
T	R	O	M	E	D	L	O	V	N
S	T	R	A	W	Q	O	H	L	J
U	W	E	A	S	L	E	Y	U	F
B	N	T	D	H	J	S	L	H	L
L	W	T	E	A	L	T	P	Y	M
A	R	O	N	A	L	D	Y	B	M
W	F	P	O	K	F	H	C	A	H
E	A	W	I	Z	A	R	D	R	Y
U	G	H	M	G	P	W	H	B	V
S	R	G	R	A	N	G	E	R	T
J	S	I	E	V	T	O	Y	A	P
U	D	V	H	A	J	V	U	G	L

Albus	Potter
Granger	Ronald
Hagrid	Scar
Harry	Voldemort
Hermione	Weasley
Hoqwarts	Wizardry

Return to career information

Next >

Sample

Participants were students in years 8 and 9 across eight different participating schools in the West Midlands. The schools themselves were selected through convenience sampling, coordinated by Deirdre Hughes³⁷ an expert adviser on careers guidance who was commissioned by the DfE, and drew on existing connections with the Black Country Careers Partnership Network. Although eleven schools were initially recruited, only eight of these schools followed through to participate in the study despite various attempts to follow up with all schools.

Schools were responsible for scheduling and invigilating the sessions. Although they agreed to ask all pupils to complete the exercise, in practice only a subset of the expected number of pupils did. As we did not collect pupil-level data before the exercise, and outcome data and demographic data were collected from the exercise, the analysis only reflects those that completed the whole exercise. The implications of this are covered below.

In total 893 students completed the exercise. As 1,353 students started viewing the technical career and/or distractor content, this indicates that 460 students (34%) did not

³⁷ <https://www.gov.uk/government/people/deirdre-hughes>

click through to the final survey, which meant it was not possible to capture their outcome data. Students could access the survey section either by looking at all case study pages, or if they were told to move on by a timer. The analysis therefore needs to be interpreted as a treatment effect on the treated, for those who completed the outcome measures. We cannot say how the treatment effect generalises to those who weren't treated.

Additionally, we do not know whether completion of the survey was a random effect driven by the online platform - for example by the setting of the timer prompt - or an indication of student engagement or disengagement. It is possible that some students did not complete the survey because they exited the exercise early (a likely indication of low engagement). It is also possible that some students did not complete the survey because they spent longer on the control/treatment exercises before accessing the career or distractor content, and therefore ran out of time to complete the survey (an indication of engagement).

In the analysis, the number of students included for each outcome measure depends on the available outcome data (which is not the same for each outcome).

Outcome measures

The primary outcome measures were selected on the basis of indicating active engagement with technical career information:

1. Quantity of technical content engaged with, i.e., the number of screens that each student reviewed.
2. Time spent on case-study content, i.e., the total amount of time each student spent on the technical information screens.
3. Proportion of time spent on case-study screens, i.e., how much time they spent viewing technical information of the total time they spent on either case-study or distractor screens (as students could elect to answer the final survey questions early).

The secondary outcome measures, collected via a survey at the end of the exercise, were included to assess longer-term interest and commitment to finding out about and pursuing technical options.

Table 4: Post-intervention survey questions (Secondary Outcome Measures)

Variable	Question	Response options
Openness to technical education pathway	How likely are you, if at all, to study a technical college course with a work placement (e.g., NVQ) when you reach 16?	Not at all likely Slightly likely Somewhat likely Very likely Extremely likely Don't know
Openness to Apprenticeships pathway ³⁸	How likely are you, if at all, to do an apprenticeship when you reach 16?	Not at all likely Slightly likely Somewhat likely Very likely Extremely likely Don't know
Intention to pursue technical education	Please rank in order, from most to least likely, which of these options you intend to do when you reach 16	An apprenticeship A Levels A technical college course with a work placement (e.g., NVQ) Other
Openness to technical career options	How likely are you, if at all, to pursue a job as a technician when you are older?	Not at all likely Slightly likely Somewhat likely Very likely Extremely likely Don't know

Results

a) Engagement with TE career information

The intervention produced no significant effect on the three primary outcome variables relating to engagement with information about people employed as technicians: screens of technical information viewed, total time spent on technical content, and proportion of time spent on technical content.

In terms of the number of screens of technical career information that each student viewed, we found that 87% of students across the treatment and control arms visited all 32 pages of the technical career information content for at least 0.5 seconds. As this creates a ceiling effect, where no additional increase is likely or feasible, the results for treatment and control are fairly comparable (see [Figure 7](#)).

For the other two primary outcome measures - total time and proportion of time spent on technical content - our analysis indicates that participants who completed the purpose for learning exercise did spend more time reviewing the technical career information content, however the increase was not significant. Participants in the treatment group spent approximately 6 seconds longer reviewing the technical content in total ([Figure 8](#)), this represents a slight non-significant increase from a relatively low baseline (the mean time spent on case study and distractor content is included in Table 5.).

Table 5: Average time spent on exercise

Content	Mean seconds spent	Standard deviation
Case study	205.67	174.83
Distractor	162.17	229.84

N=893

³⁸ The career information indicated that both T Levels and apprenticeships were the most common routes into technician careers.

Figure 7: Treatment effect on engagement with technical content (out of 32 pages)

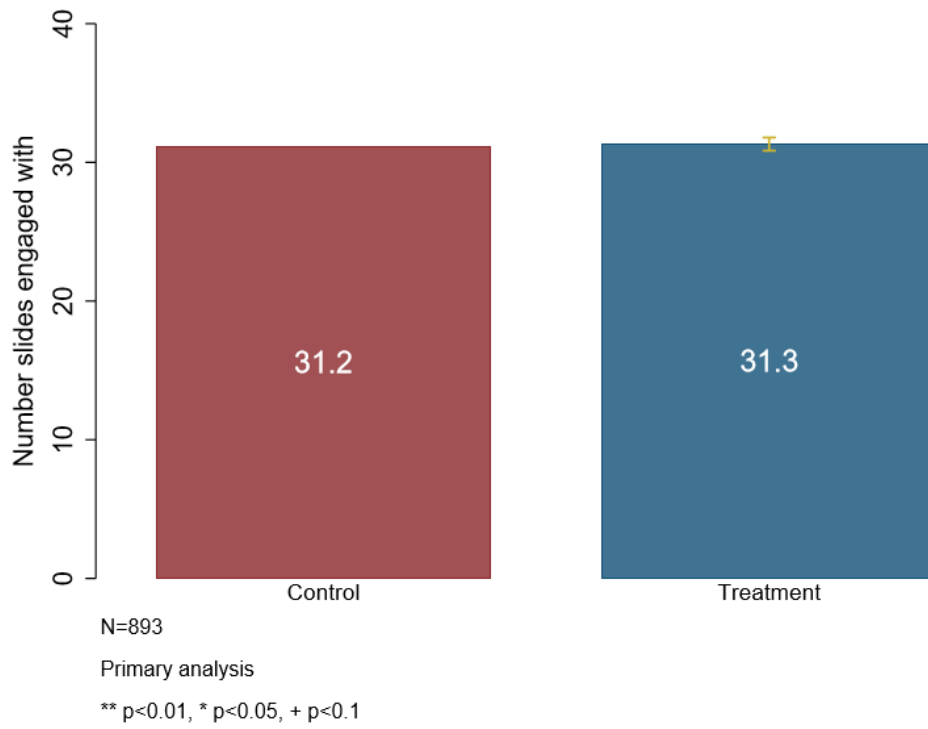


Figure 8: Treatment effect on time spent on case-study content

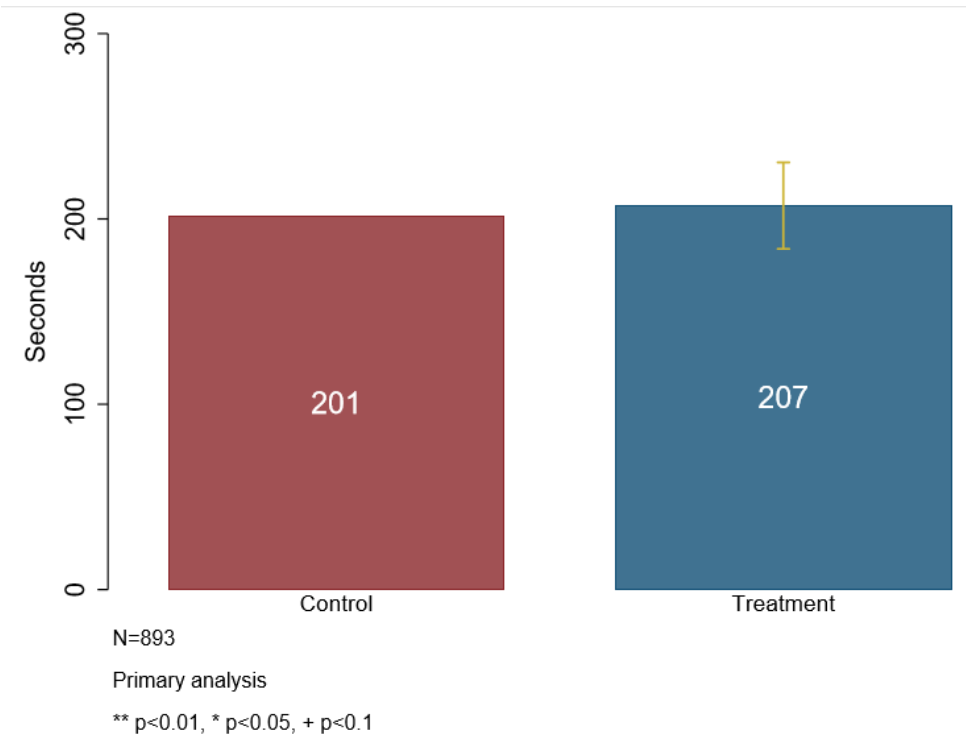
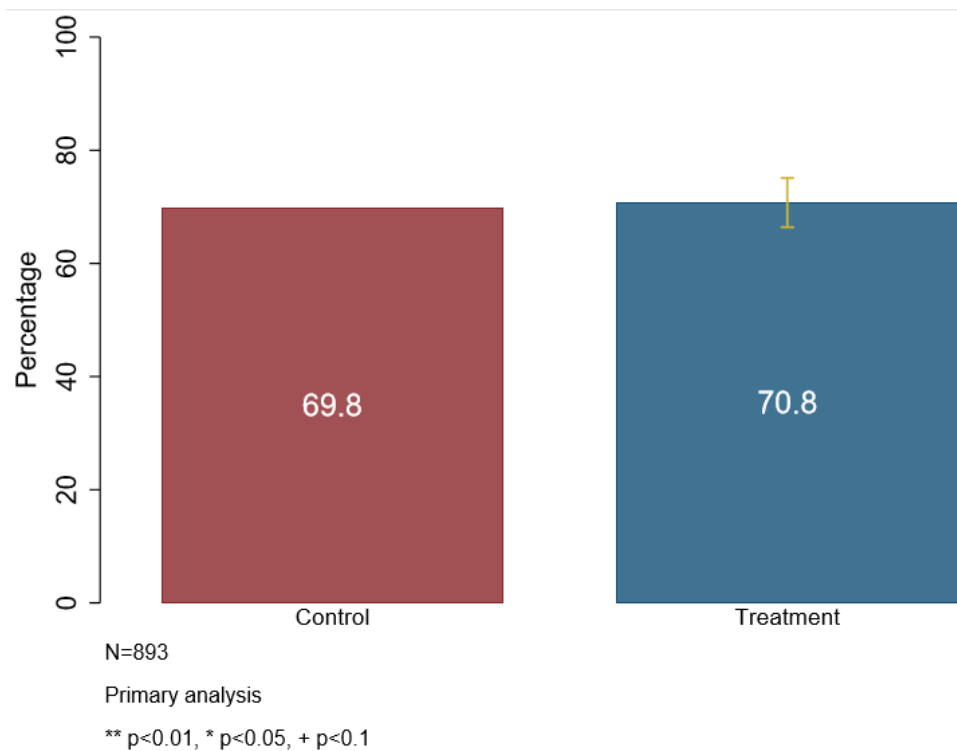


Figure 9: Treatment effect on proportion of case study screens



b) Longer-term interest in finding out about and pursuing TE

Analysis of the survey responses revealed that the intervention had a positive effect on attitudes towards TE pathways and technical career options. Participants who completed the purpose for learning exercise were significantly more likely to report being open to the idea of pursuing a technical college course (on average their scores were 14% higher on a self-report Likert scale than those in the control group, see [Figure 10](#)). They were also significantly less likely to report 'don't know' in response to whether they might pursue a technical course (23% fewer students gave this response in the treatment group) or apprenticeship (27% fewer students gave this response in the treatment group), see [Figure 11](#). This may indicate that they feel more informed about their options. See [Appendix B](#) for descriptive tables on answers to the question by treatment group.

We also found a significant increase in the number of students indicating that they might pursue a career as a technician (on average their scores were 11% higher than those in the control group, see [Figure 13](#)). These findings indicate that the intervention succeeded in raising awareness and reducing uncertainty about technical options. However, as the intervention had no significant effect on intention to study technical options when asked in relation to alternative pathways (see [Figure 14](#)) further research is needed to understand what would motivate students to prioritise technical pathways over alternative pathways.

Figure 10: Treatment effect on openness to TE

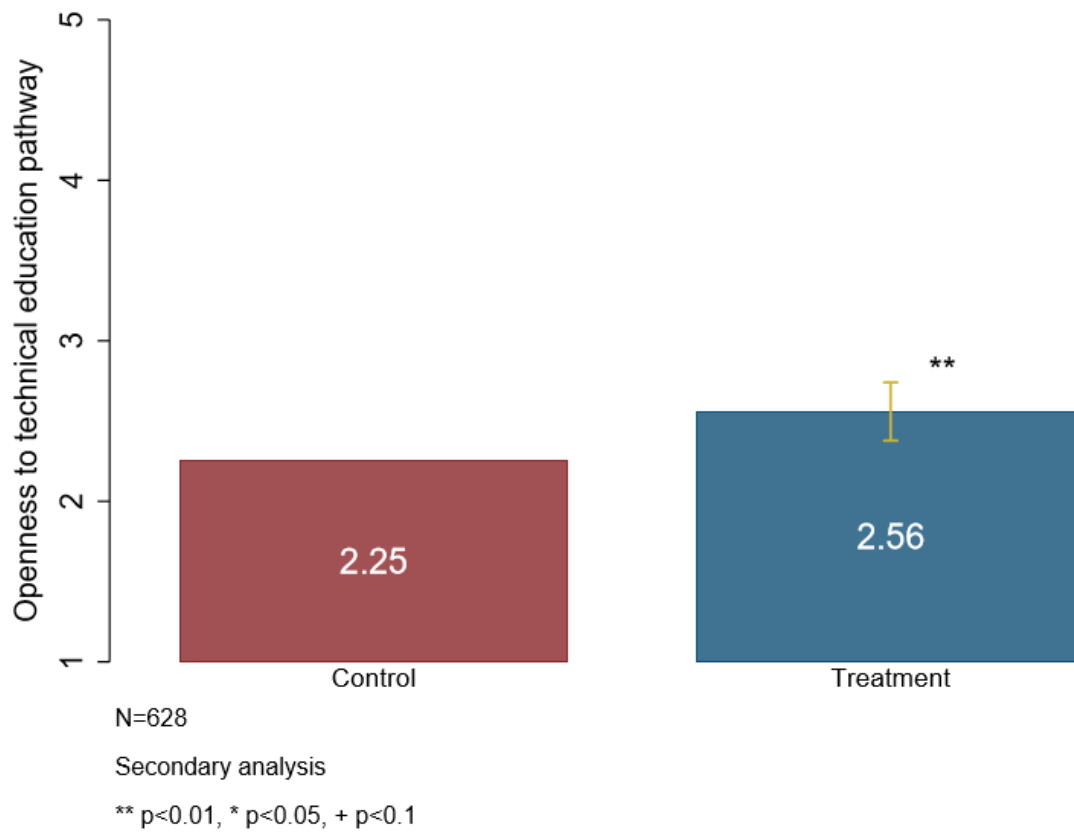


Figure 11: Treatment on reporting do not know about likelihood to pursue TE pathways

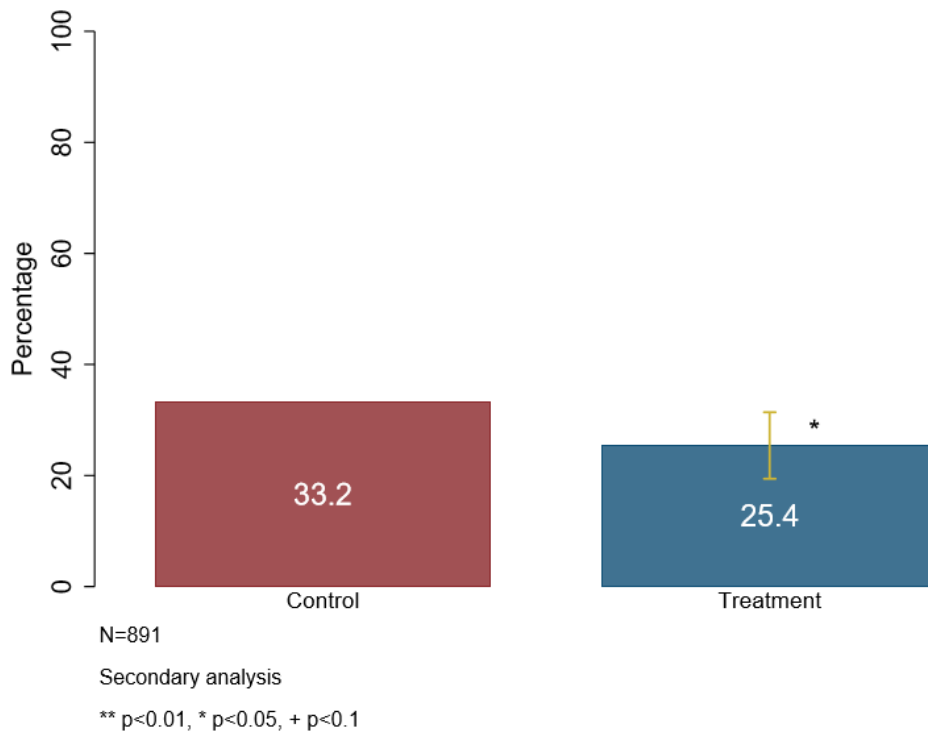


Figure 12: Treatment effect on openness to apprenticeships pathway

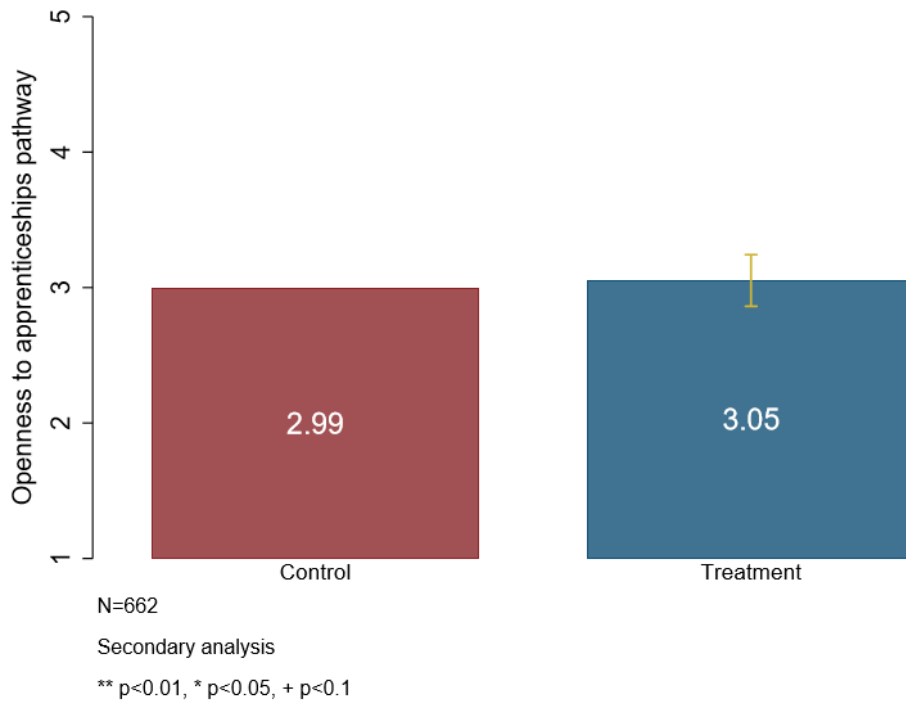


Figure 13: Treatment effect on openness to technical career options

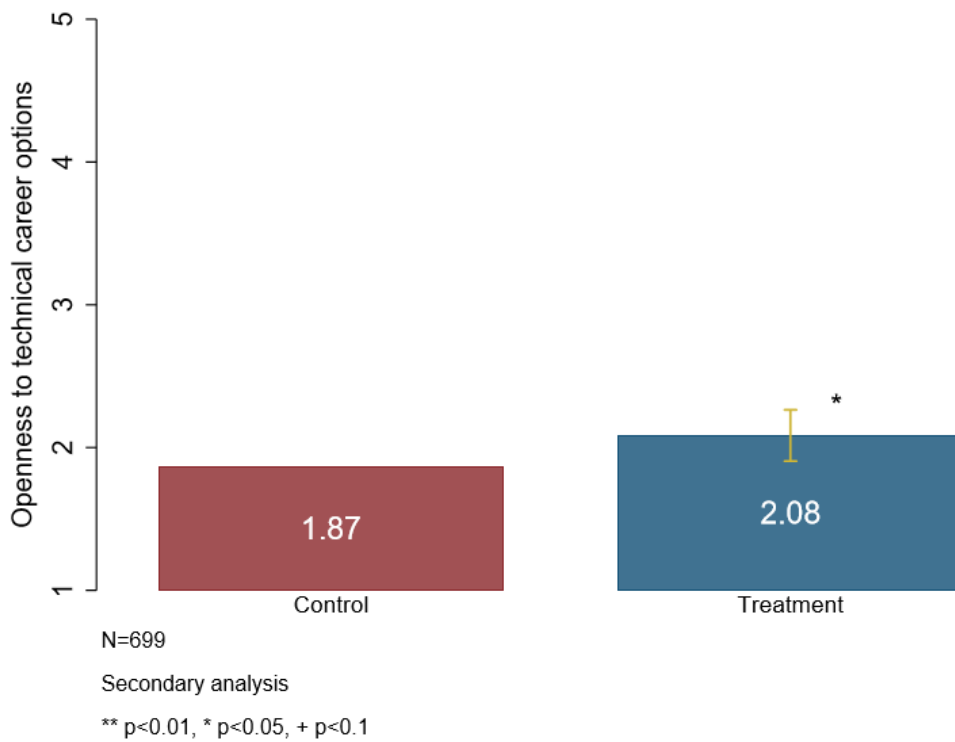
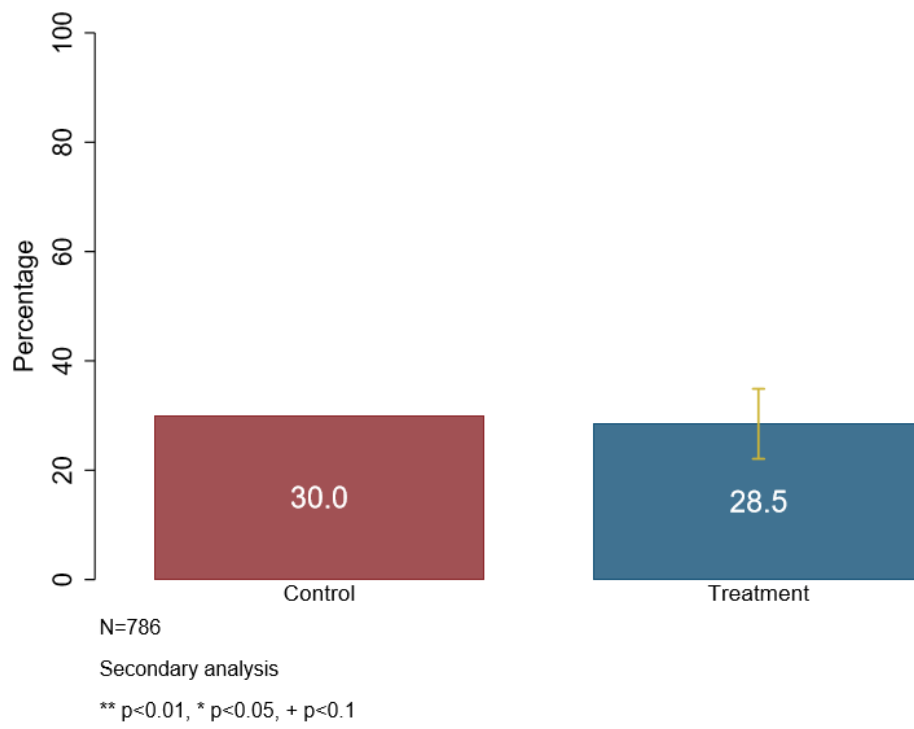


Figure 14: Treatment effect on intention to pursue TE



Applying this evidence to raise awareness of technical options

Although the purpose-for-learning intervention produced no significant effect on behavioural measures of engagement with technical education and career information, the fact that it had had a positive and significant effect on attitudinal measures of engagement with technical pathways and career options is promising. Participants who completed the purpose-for-learning exercise were significantly:

- **More likely** to report interest in pursuing a technical college course (on average their scores were 14% higher on a 5-point Likert Scale measures than those in the control group); and to pursue a career as a technician (on average their scores were 11% higher than those in the control group).
- **Less likely** to report 'don't know' with regard to their interest in pursuing a technical course (23% decrease in don't know responses) or apprenticeship (27% decrease in don't know responses). Which indicates greater confidence in providing an informed response.

These findings indicate that purpose-for-learning interventions could help to foster positivity towards technical education and career options and reduce uncertainty about options that students may be otherwise unfamiliar with. Establishing a general norm of positivity towards the new T Level options is an important step in creating an environment in which young people may consider this choice.

As the audience who received the intervention, 12 to 14-year-olds, represent a cohort that are a few years off the point at which they make their post-16 choices, it may be that early indications of openness to considering technical options shape what information they seek out and attend to as they approach the key decision point. Further research could explore the effect of repeating this type of exercise over an extended period of time, as students become increasingly able to relate the career information to the decisions that they face in real life.

Finally, the fact that there is a slight uplift in the behavioural engagement measures, although not significant, is interesting. As students across both conditions spent more time on the case study content, it may be that the classroom environment in which students completed the activity and the oversight of a teacher, inhibited them from engaging with distractor content. Although we did not find a significant result, it could still be valuable to explore the impact of purpose-for-learning exercises on engagement with career information in a more naturalistic setting, for example a student independently browsing online information with a wider set of career information to choose from and more salient distractions.

Trial 2: Engaging parents with technical options

Summary

What we tested: Whether different messengers encourage parents or carers to (a) be more engaged, (b) be more informed on careers guidance issues related to technical education, and (c) overcome stereotypes about academic and vocational qualifications?

What we found:

- Parents who received information about the TE reforms, with either the simple government or employer endorsement, were significantly more likely to consent to take part in further research to support the roll-out of TE than parents who received the control ‘placebo’ information (an increase of about 5 percentage points for both message variants). This metric was selected as a proxy indicator of positivity towards TE.
- The initial boost of the treatment messages, however, did not extend to actual survey enrolment (one week later), with comparable numbers of participants who received the two simple endorsement messages and the control message completing the second survey (approximately 40% of participants in each arm).
- The findings indicate that the government endorsement and more complex employer message (employer 2) conditions had small, but significant, positive effects on stereotypes about TE compared to the control condition (participants in these conditions gave responses that were, on average, 4% more positive than the control group).

Research shows that engaging parents or carers with the educational options available to their child influences young people’s choices,³⁹ as a parent’s endorsement or discouragement is used by young people as a meaningful signal of worth. Two factors seem key to determining a parent’s willingness to endorse a subject: perceived value of the subject and expectancy of their child succeeding.⁴⁰ As our research has taken place prior to the introduction of T Levels in 2020, we set out to test how the presentation of information on TE might influence the perceived value of the new routes among parents, and whether this led to more sustained engagement with TE information. This outcome has real-life application because reliably supporting and advising their child on

³⁹ Rozek CS, Svoboda RC, Harackiewicz JM, Hulleman CS, Hyde JS (2017) Utility-value intervention with parents increases students’ STEM preparation and career pursuit. *Proc Natl Acad Sci USA* 114:909–914.

⁴⁰ Wigfield, A., and Eccles, J.S. (2000) Expectancy–value theory of achievement motivation. *Contemporary educational psychology* 25 (1):68-81.

the full set of post-16 options requires parents to engage more deeply with information about T Levels.

Research Aim

A key finding from the qualitative research was the weight that parents placed on the involvement of employers in setting standards for TE. The exploratory research suggested that many used this to infer that T Levels would offer access to employment and labour market security. Drawing on this insight, this trial sought to empirically test whether emphasising employer involvement in establishing the new technical routes, increases parental engagement with information about technical options and helps to overcome stereotypes of TE being associated with lower status jobs, which were evident in the qualitative research. Behavioural science shows that how a message is perceived and whether or not it is acted upon can vary depending on who communicates it (known as the messenger effect).⁴¹ An online experiment using Predictiv, BIT's online testing platform, was therefore used to evaluate:

1. Whether parents are more responsive to TE information endorsed by employers (compared to government).
2. The extent to which finding out about the new technical routes helps overcome stereotypes of TE being a second-rate option in terms of learner outcomes
3. Whether engagement with TE information and reaction to the interventions. (messenger and framing) varies by demographic (income, gender, education, and place of residence).

Research Design

This study was delivered through BIT's online platform, Predictiv, which is set up to deliver bespoke online tests to assess behaviour and evaluate different ways to change it. The experiment involved two stages:

Stage 1


Participants (apart from those in the control group) received information on the TE reforms and the opportunities available to young people through the new routes. Participants were randomly allocated to one of four message variants (see [Figure 15](#)):

- TE Information with:
 - Government endorsement

⁴¹ Behavioural Insights Team (2014). EAST: Four simple ways to apply behavioural insights.

- Employer endorsement⁴²
- Employer endorsement plus a headline emphasising the value of technical skills
- Control (information not relevant to TE reforms, but similar in structure and length).

Figure 15: Intervention content: four message variants

 <p>Your child can develop technical knowledge/practical occupational expertise through new Government endorsed post-16 options.</p> <p>The UK's technical education system is undergoing a radical reform, which will open up new options to young people from 2019. Eleven routes will be introduced, providing access to occupations that require specialist technical knowledge/practical expertise.</p> <p>The selected routes are Agriculture, Environmental and Animal Care; Business and Administrative; Catering and Hospitality; Childcare and Education; Construction; Creative and Design; Digital; Engineering and Manufacturing; Hair and Beauty; Health and Science; Legal, Finance and Accounting.</p> <p>The standards for each of the courses will be set by employers to reflect the skills valued by the specific industry. Each route begins with a high-quality, two-year, college-based programme with a work placement to prepare individuals for skilled employment. However learners will be able to pursue their qualification beyond this to the highest skills levels. We will maintain a register of technical qualifications at levels 4 and 5 which meet national standards and are therefore eligible for public subsidy.</p>	 <p>Your child can develop technical knowledge/practical occupational expertise through new employer-led post-16 options.</p> <p>The UK's technical education system is undergoing a radical reform, which will open up new options to young people from 2019. Eleven routes will be introduced, providing access to occupations that require specialist technical knowledge/practical expertise.</p> <p>The selected routes are Agriculture, Environmental and Animal Care; Business and Administrative; Catering and Hospitality; Childcare and Education; Construction; Creative and Design; Digital; Engineering and Manufacturing; Hair and Beauty; Health and Science; Legal, Finance and Accounting.</p> <p>The standards for each of the courses will be set by employers to reflect the skills valued by the specific industry. Each route begins with a high-quality, two-year, college-based programme with a work placement to prepare individuals for skilled employment. However learners will be able to pursue their qualification beyond this to the highest skills levels. We will maintain a register of technical qualifications at levels 4 and 5 which meet national standards and are therefore eligible for public subsidy.</p>
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Government endorsement

It's time to find out more about Technical Education. The top reason employers give for rejecting applications from under-25 year olds is lack of relevant skills.

Your child can springboard into technical professions through new employer endorsed post-16 options.

The UK's technical education system is undergoing a radical reform, which will open up new options to young people from 2019. Eleven routes will be introduced, that provide technical training relevant to a varied range of occupations such as Human Resources, Graphic Design, Journalism, Engineering, Web Design, or Carpentry.

The standards for each of the courses will be set by employers to reflect the skills valued by the specific industry. Those involved in developing the route represent organisations such as:



Each route will involve a two-year, college-based programme and a work placement to prepare individuals for skilled employment. Beyond the two year programme learners can choose to pursue their qualification to the highest skills levels, for which public subsidies are

Employer Endorsement

Government advice for the 2018 World Cup

With less than a year to go until the 2018 FIFA World Cup in Russia, the Foreign Office launches a campaign to help fans travelling to support their team. The 'Be on the Ball' campaign gives supporters simple advice and tips to help reduce preventable problems and boost their World Cup experience. The campaign launch sees the release of the FCO's Russia 2018 travel advice, a checklist, and a Fan Survey.

The World Cup specific travel advice suggests hopeful ticket holders should apply for a FAN ID, which will give them free travel on match day, enable those with tickets to access stadiums, and will even act as their visa for the tournament. There's also advice for fans without tickets, who will need to apply for a visa to travel. Fans can sign up for email alerts so they stay up to date ahead of, and during the tournament.

The 11 point checklist gives travellers the simple steps they need to be ready for Russia – looking at healthcare, passport validity, emergency numbers and other essentials.

Employer endorsement, plus skills

Control

⁴² Three organisations were selected on the basis that the employer lead for the relevant T Level routes represents the firm. The associated routes are Health and Science; Digital; Legal, Finance and Accounting.

Once parents had reviewed the intervention or control content, they were asked whether they would be willing to take part in follow-up research one week later. This question was included as an outcome measure to assess parental support for the new routes and was used as a proxy measure for longer-term engagement on TE. The invite to take part in further research stressed that only those parents who might be considering TE as an option for their child and were willing to support the roll out of the TE routes should take part in the further research (see Figure 16).

Figure 16. Invitation to take part in second stage of research

Our research into understanding how we can encourage young people to consider the Technical Education routes is ongoing.

We are looking for a sample of parents who would consider recommending these routes to their children to answer further questions around ways to raise awareness and uptake of these new post-GCSE options.

The survey will take place next week on [*date*]. You will have access to the survey if you tick 'yes' below. Participation is entirely voluntary.

Participants also answered a series of questions regarding the career outcomes of two fictional characters pursuing new TE pathways (see Figure 17). These vignettes were designed to assess the implicit biases (or stereotypes) participants held around TE and test how information about the TE reforms and the new qualifications might influence the perceived status of technical options in terms of salary and job security. Participants were randomly allocated to receive the questions before or after the intervention content, to remove the influence of ordering effects. The analysis compared the mean scores of pre- and post- responses using a between-participant design.

Figure 17: Example vignettes to assess implicit bias around TE

Alex opted for "T Levels" at age 16 - a technical education pathway instead of pursuing A Levels. Alex chose the "Engineering & Manufacturing" pathway. Alex is now 20 years old. Please take a moment to picture their life today

Q12 What do you think is Alex's average annual income today? Take a guess!

- a) £10,000 – £19,999
- b) £20,000 - £29,999
- c) £30,000 - £39,999

d) over £40,000

Q13 Alex wants to stay in the industry but wants to change employer. How long do you think would Alex need to wait to find an employer who pays similarly?

- a) Less than 3 months
- b) Between 3-6 months
- c) Between 6-12 months
- d) There are no such employers

Stage 2:

In the follow-up survey, which participants elected to take part in during stage 1, participants were asked nine recall questions to assess how well they had retained the information featured in the treatment messages. Participants who had originally received the placebo message were asked the same questions bar one (a question about which logo was shown) given that this did not apply to their message. Recall scores from participants in the control group are treated as baseline measures of knowledge of TE (or chance of guessing the correct answer). See [Appendix C](#) for the full survey measures and instructions.

Outcome Measures

The primary outcome variables for the experiment were: consent to take part in the further research at the end of stage 1; and actual enrolment in stage 2 one week later. These measures were taken as a proxy for interest and engagement with TE. Secondary analyses focused on the extent to which respondents' beliefs about the status of TE (assessed through responses to the vignettes) shifted as a result of learning about the TE through the intervention messages. In addition, all participants that took part in stage 2 received a recall and comprehension test. This enabled us to check whether sign up was influenced by these factors.

Sample

Participants were drawn from the Predictiv user panel, which includes a representative sample of over 150,000 adults across the UK. A total of 3,301 people attempted to take Survey 1. Of them 2,015 qualified by stating that they were a parent of a child aged 11-16. Ninety participants were dropped from further analysis as they had registered as

being aged 18-24, which cast doubt on the truthfulness of their statement about having children in the required age bracket and their stated age.⁴³ The sample left for analysis consisted of 1,925 respondents. Almost two thirds of the respondents were male. The educational profile of respondents was skewed towards lower qualifications.

The majority of respondents, as expected, were aged between 25 and 54. Most participants lived in populous and relatively poorer regions of England⁴⁴ and fell into income brackets below or within the range of average incomes in the UK.⁴⁵ In the analysis, we checked for balance of gender, age, income, income of the highest earner in the household, and location using chi-squared tests. There were no significant differences on these measures between groups, meaning that it can be ruled out that differences observed between experimental groups are due to differences in groups on these measured characteristics.

Results

Outcome 1: Sustained engagement with TE information

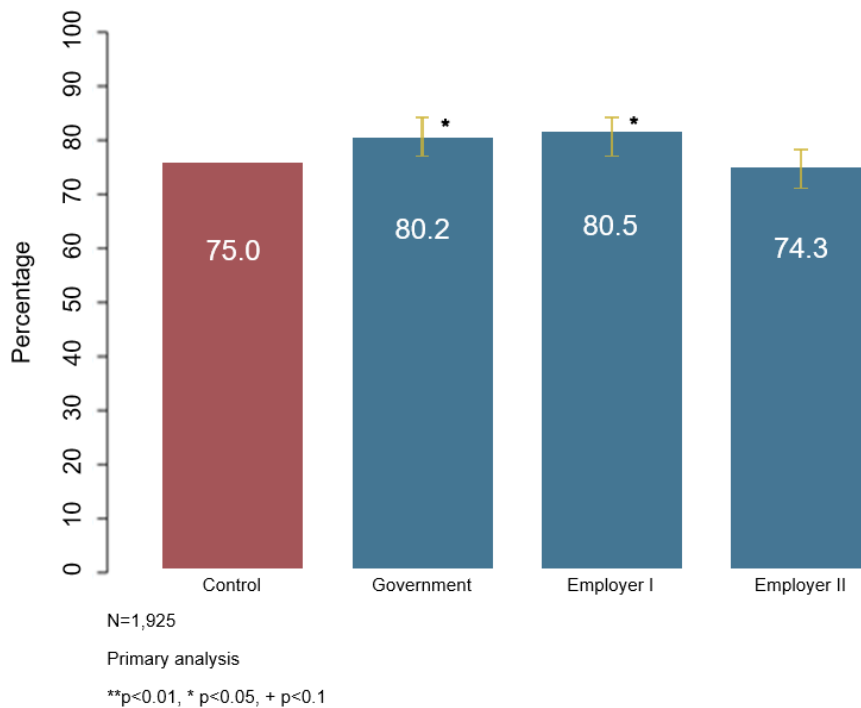
Whilst the baseline for signing up to further research at the end of stage 1 was high (75% of parents in the control condition agreed to take part), significantly more parents who received basic information about the TE reforms with either the government or employer endorsement consented to take part in the second stage - an increase of about 5 percentage points for both message variants, see [Figure 18](#). Whilst this finding does not support the hypothesis that the link to employers (rather than government) is the most effective way to foster parental engagement with TE, it does indicate that receiving information about the new technical options increases parental willingness to engage further.

⁴³ Participants would have been aged 13 at most when they became a parent. [According to the ONS](#), about 4% of births were conceived by underage women in 2006. It is thus possible that the 90 (4% of our sample) respondents claiming they have children in the required age bracket stated the truth. We therefore ran all analyses including them as a robustness check. Results did not change.

⁴⁴ East Midlands in dataset=27.3% but 8.5% of England's population; London =31.1% in dataset versus 16.1% in population; North East =23% in data but only 4.8% of England's population. All population figures are based on ONS predictions for 2017, available [here](#). OLS regressions confirmed that respondents living in these regions had lower average incomes and lower household incomes than those living in East Anglia ($p > 0.01$).

⁴⁵ [ONS \(2017\)](#). *Nowcasting household income in the UK*.

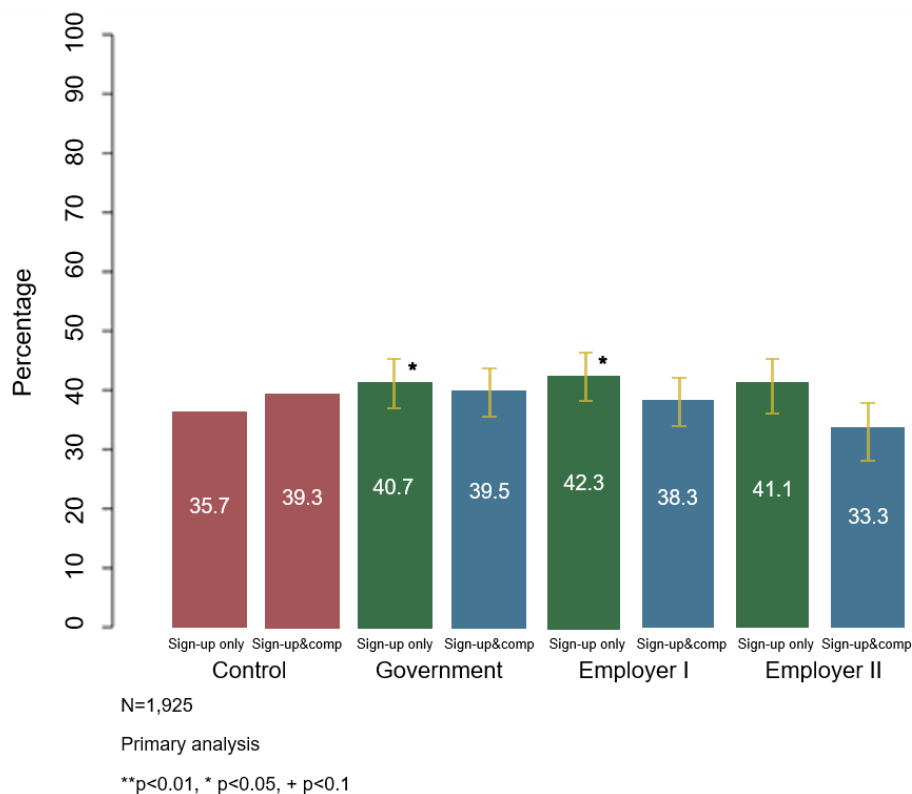
Figure 18: Initial sign up by condition



A comparison between the two employer messages revealed that the simple employer endorsement (employer 1) was more effective at increasing engagement, compared to a message with additional text about the value of skills to employers (employer 2). This may be due to specific message itself – for example parents may not see a lack of skills as a problem for their child – or it might be due to the presentation of the message which included more text in the heading and thus more friction given the additional reading required.

When, however, we tested whether the differences in engagement extended beyond immediate commitment, to actual enrolment in the second survey one week later, we found that the treatment effects did not extend to actual survey enrolment after the time lag, i.e. there were no differences between the treatment and control groups (see [Figure 19](#)). Across three conditions – Employer 1, Government 1, and the control – comparable numbers of participants, approximately 40% of participants, completed the second survey. However, comparatively fewer participants who had viewed the Employer 2 message completed the second stage of research.

Figure 19: Sign up and completion of stages 1 and 2



There are a number of reasons why differences in initial commitment may not translate to actual survey completion. Studies of behaviour often find there is a gap between self-reported intention and actual intention – as any number of physical or psychological barriers could arise between each point. In the context of this work, the discrepancy could indicate that some messengers immediately stoke interest but cannot overcome the hassle involved in taking Survey 2. If this is the case, increasing demand for TE is not just about changing attitudes but also supporting parents to follow up on commitments that relate to their child pursuing TE (e.g. attending a College Open Day). An alternative explanation might be in part driven by the nature of panel surveys and online experiments, as participants are often fairly active and take part in most surveys they qualify for. This would inflate the completion rate for respondents whose interest failed to increase after having been presented with treatment messages.

Those who completed the second survey, a week later, answered 9 questions that tested how well they could recall information about TE (or – in the case of the control group - their base knowledge of TE). Recall has been shown to be a good proxy for engagement with content.^{46 47 48} Although it was not possible to assess the effect of

⁴⁶ McDaniel, M. A., Waddill, P. J., Finstad, K., Bourg, T. (2000). The effects of text-based interest on attention and recall. *Journal of Educational Psychology*, 92(3), pp. 492-502.

⁴⁷ Faber, R. J., & Storey, M. C. (1984). Recall of Information from Political Advertising. *Journal of Advertising*, 13(3), 39–44.

⁴⁸ Schiefele, U. (1991). Interest, Learning, and Motivation. *Educational Psychologist*, 26(3–4), 299–323.

treatment on recall, given the attrition between stage 1 and stage 2,⁴⁹ we conducted exploratory analysis to assess whether those who received information about TE demonstrated better knowledge of the reforms. Average recall was low (mean=2.93 out of a minimum of 1 and a maximum score of 10). It is not possible to directly estimate the effect of treatment on recall because only those who completed the second survey answered these questions; therefore, the differences in completion rate mean that it is unclear whether differences in recall are due to filtering out less engaged people or due to the effect of messages (on the same kinds of people). However, our exploratory analysis, discussed in [Appendix D](#), suggests that the control group – who had not seen information about TE - performed significantly worse than the treatment groups. This confirms, as understood from the qualitative research, that base knowledge about TE is low, but that parents can retain this information even after a gap.

Outcome 2: Reduced stereotypes about TE

The trial also aimed to explore whether providing parents with information about the format of the newly reformed TE system would help to challenge stereotypes they might hold about TE being associated with low status roles.⁵⁰ Within both the control and treatment conditions, participants were presented with vignettes, hypothetical examples of people pursuing technical roles, to test for implicit bias. Participants were then asked questions to assess their expectations around job security and salary for these cases and scored according to the positivity of their response. The average was taken to derive an overall ‘stereotyping score’ per participant, ranging from one to five, one being the most negative and five the most positive stereotype.

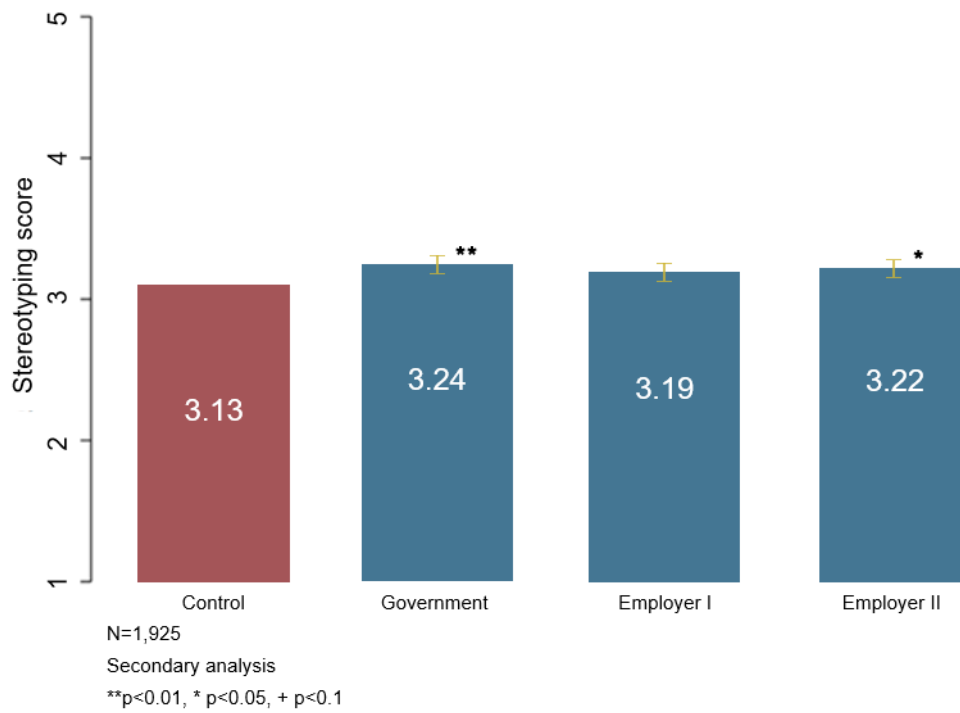
Responses to the vignette questions were used as a proxy, to indicate stereotypes about TE. We found that participants, on the whole, were more positive than negative. The control group for example, who received no information about TE, gave an average score of 3.13. With regard to the influence of the treatment condition on stereotypes, the findings indicate that the government endorsement and more complex employer message (employer 2) conditions had small, but significant positive effects on stereotypes about TE compared to the control condition (participants in these conditions gave responses that were, on average, 4% more positive than the control group), [see Figure 20](#). Whilst the simple employer message was associated with more positive responses to the stereotype questions, this effect did not reach significance. These findings indicate that familiarity with the newly designed technical education system

⁴⁹ We would need to test recall among those that did not consent to follow up or in fact follow up, to rule out that differences in recall were not driven by differences across these populations.

⁵⁰ A stereotype in this report is defined as a belief or mental image of TE held by the respondent. Stereotypes can be explicit, i.e. known to exist to the person holding them, or implicit, i.e. applied without conscious decisions in situations that require quick, decisive action.

could help slightly to dilute negative perceptions about TE being linked to lower status outcomes and professions.

Figure 20: Responses to stereotype questions (increases represent greater positivity on a scale of 1 to 5)



Applying this evidence to raise awareness of technical options

As T Levels are introduced nationally, a key challenge will be to address the current knowledge deficit that parents have about technical options, so that they are able to provide informed and balanced advice to their children as they approach the post-16 decision point. DfE, local authorities and educational institutions should consider the following behavioural factors in communications and career advice relating to the new routes:

- **Messenger effects.** The findings from this study suggest that the endorsement of authoritative messengers, specifically employers and government, could trigger initial interest in finding out about technical options. Parents who received information about the TE reforms, with either the simple government or employer endorsement, were significantly more likely to consent to take part in further research to support the roll-out of TE than parents who received the control information (an increase of about 5 percentage points for both message variants). This metric was selected as a proxy indicator of positivity towards TE. This suggests that there could be value in further exploring the impact of messenger effects as educational information about the new routes is provided to parents in a real-life context. Further research should explore which messengers are most effective in fostering perceptions of quality and prestige around these new educational options.
- **Intention-action gap.** The findings show that the brief communications and accompanying endorsement was not sufficient for parents to sustain interest over a period of time, indicated by enrolment in the second study two weeks later. Behavioural literature shows that even when there is a desire to follow a course of action, people often struggle to follow up on their best intentions due to psychological or physical barriers - the intention-action gap.⁵¹ This suggests that a one-off communication about TE will not be enough to facilitate sustained engagement, parents may need prompting to engage with information about TE in advance of key decision points. One way to achieve this could be use of text messages to remind parents to review TE information in advance of career events.
- **Reducing friction.** We found that providing basic information about T Levels provides a slight boost to perceptions around the employment outcomes associated with these routes (in terms of job security and salary). As parents currently have to proactively seek out information on TE options,

effort should be made to reduce the hassle factor of this process. DfE, local bodies, and educational institutions should explore new ways to provide information about TE automatically within the education system and facilitate parental engagement with the options available.

⁵¹ Fishbein, M. and Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading: MA: Addison-Wesley

Trial 3: Encouraging Pursuit of TE

Summary: Using Labour Market Information (LMI) within Career Guidance

What we tested

How the presentation of career and educational information around TE affects comprehension, retention, and attitudes. There was a particular focus on the application of Labour Market Information.

What we found:

The analysis reveals that young people who received basic information + LMI (treatment 1) were significantly more likely to indicate that:

- They would pursue a technical route if there was one for their chosen career (a 4% increase in reported likelihood assessed on a five-point scale).
- Pursuing TE would help them to get a job more easily, compared to alternative post-16 pathways (a 5% increase in reported likelihood on the five-point scale) and, to an even greater extent, that pursuing TE would help them to secure their dream job (a 10% increase).

In comparison, where young people received LMI that was contextualised via an individual's personal experiences (rather than just basic information) they seemed more positively inclined to:

- Suggest that someone in their social network would benefit from considering T Levels (10% more young people gave a positive response to this question), and to report themselves to be similar to the person who they thought should consider T Levels, although the results did not reach significance at the conventional level ($p < 0.05$).
- Indicate that they thought a technical route would be more enjoyable than an academic one (a 5% increase in reported likelihood assessed on a five-point scale), although the results did not reach significance at the conventional level ($p < 0.05$).

Both treatment arms also improved young people's ability to reliably recall information about the careers they saw and the technical route into them.

Raising awareness of TE is essential if young people are to make informed decisions about which educational paths best support their future ambitions. However, greater familiarity with TE is only part of the challenge, given that the choice architecture in which young people are making decisions about their post-16 pathway currently makes TE less accessible and normalised than alternative academic options (see [page 20](#) for more detail). This makes it harder for young people to find out what their future might look like should they opt for TE. In this section we set out the results from two studies that test how framing the outcomes and benefits of TE can influence engagement and uptake.

The qualitative fieldwork conducted as part of this project reveals there is a persistent view that TE is most appropriate for less capable students or only applicable to a few - typically less prestigious professions such as construction. In contrast, academic options are considered to open up more opportunities and offer a better safety net to fall back on, even amongst young people who were interested in pursuing technical paths. Yet labour market data suggests that - for some technical courses at least - these perceptions do not align with employment trends, as technician skills are in high demand among employers.⁵²

LMI - information about the salary levels and demand for different pathways and professions - is not consistently used within careers education in schools despite being encouraged through the Gatsby benchmarks.⁵³ ⁵⁴ Therefore, young people may not naturally encounter information that challenges any negative beliefs they have about TE. Furthermore, there is no evidence to suggest how meaningful this information would be to young people, and whether or not it would help them to establish more realistic expectations around the post-16 options available. Evidence from neuroscience reveals that, compared to adults, young people's decisions and actions are particularly influenced by emotional and in-the-moment pressures rather than consideration of future outcomes (known as present bias).⁵⁵ ⁵⁶ It is therefore unclear whether information about longer-term career outcomes that can be achieved through TE would provide meaningful context to secondary school age students.

Research aim

The focus of this research was to test whether the availability of LMI, and the framing of that information, influences how young people react to TE as an entry route to a particular career. Evidence suggests that adolescents have the ability to incorporate

⁵² Jagger, N., Signala, M., and Sumption, F. (2010) SET based Technicians: Lessons from the UK and European Labour Force Survey, Institute for Employment Studies

⁵³ The Department for Education (2017) Informed Choice: how data and tools are used to make career decisions, Research report.

⁵⁴ <https://www.careersandenterprise.co.uk/schools-colleges/understand-gatsby-benchmarks>

⁵⁵ Blakemore S.J., and Choudhury S. (2006) Development of the adolescent brain: implications for executive function and social cognition. *J Child Psychol Psychiatry*;47:296–312.

⁵⁶ Loewenstein, G., and Elster, J. (Eds.). (1992). *Choice over time*. New York: Russell Sage Foundation.

external information into their career decision-making when it is linked to a clear value proposition.⁵⁷ The aim of this trial was therefore to test whether the existence of LMI in career information, provides this value proposition and influences the perceived worth of TE as a route into a particular job.

Alongside LMI presented in a more conventional format, the trial tested how young people react to the same information contextualised via a personal testimonial, as BIT's *Moments of Choice* research⁵⁸ highlights that career guidance focused on 'cold' information (such as earnings potential and employment rates) interests young people but does not enable them to develop a picture of what that job would be like for them. The aim was therefore to explore whether the way in which LMI was framed would impact upon young people's application and retention of information about technical options.

Research design

This trial was designed as an online experiment targeted at young people aged 12-16 years. The experiment included an online survey which provided participants with information about three different careers - Graphic Design, Sports Therapy and Civil Engineering Technician - with the style of information varying based on which intervention condition they were randomly allocated to. The three conditions were as follows:

- **Control.** Participants received basic information about a job and the TE pathway into that job.
- **Treatment 1.** Participants received the same information as the control condition but with the addition of LMI (covering salary expectations, average working hours, and employer demand).
- **Treatment 2.** Participants received the same information as treatment 1 that has been contextualised via a learner testimonial.

For examples of the content for each intervention arm see [Figure 21](#). Once participants had read through the information for all three careers, they were set a series of follow-up questions to assess: attention to the task, comprehension, and attitudes to TE. See [Appendix E](#) for the full survey.

⁵⁷ Blakemore S.J., and Choudhury S. (2006) Development of the adolescent brain: implications for executive function and social cognition. *Journal of Child Psychology and Psychiatry*;47:296–312.

⁵⁸ The Behavioural Insights Team (2016) *Moments of Choice Report*

Figure 21: Example intervention materials






Graphic Designer

What does a Graphic Designer do? The role is creative, involving the design of websites, packaging, adverts and even 3D exhibits. Day-to-day activities include drafting and presenting ideas; producing designs using specialist software; and working with photographers, printers and manufacturers. You have the option to work within a company or be self-employed.

What skills will I need? As well as strong IT and drawing skills you will need to be creative, good at communicating, and able to find practical solutions to problems. You will need a portfolio of work to demonstrate your creativity.

What educational qualifications can I take to develop these skills? After your GCSE's you could take either A-Levels or an equivalent course focused on technical skills such as drawing techniques and processes. The technical option would involve a two year college-based course and a work placement, and provide a more direct route into skilled employment (from 2020 these will be known as T-levels). Both A-levels and T-levels can also lead on to higher level qualifications, in the form of a degree or diploma in graphic design or illustration, fine art or another subject relevant to Graphic Design.

What can I expect once I complete my studies in Graphic Design?

 Average Pay	£30,160 per year (around £4,000 more than UK average)
 Hours	40 per week (slightly more than UK average)
 Employer demand	Demand for Graphic Designer is expected to grow by 5.3% over the next 6 years (slightly less than UK average)



I'm James and I've been working as an in-house Graphic Designer for the past four years. My job is very creative and allows me to work on lots of different projects. Since I started I have been involved in designing external websites, packaging, adverts and even a 3D exhibit. Day-to-day I might be drafting and presenting ideas; using specialist software to produce designs; or working with photographers, printers and manufacturers.

When I finished my GCSEs I went to college to do the technical equivalent of A-levels - a two year course and a work placement at a local design firm (soon this sort of course will be called 'T-levels'). I then did a technical diploma (a bit like a degree) before starting work. I could have taken the more traditional path of A-levels and a degree, like some of my colleagues, but I wanted to focus on the technical skills like drawing techniques and processes, which employers often look for. Technical routes can be a more direct route into employment. As a Graphic Designer you need to have strong IT and drawing skills, an ability to find practical solutions to problems and be good at communicating with clients and other professionals.

I earn **£30,160 per year**, which is around **£4,000 more than the UK average**, and I usually work around **40 hours per week**, which is slightly more than some my friends in other professions. More and more employers are looking to employ Graphic Designers too, so demand is expected to grow by **5.3% over the next few years**. That's a little less than for other jobs, but I feel happy with my prospects.

Outcome measures

The primary analysis sought to evaluate whether the inclusion of LMI and its framing affected attitudes towards TE, assessed through the questions set out below. Some of these measures are deliberately indirect, seeking the young person's opinion about people in their network rather than themselves, which can be more effective at eliciting truthful responses and revealing smaller changes in openness.

- Can you think of anyone at school who you think should consider T Levels at 16?
- Why do you think this person should consider T Levels? / What sort of person do you think should consider T Levels?
- How similar would you say you are to the person you described?
- Do you think you would pursue a technical route if there was one available for your chosen career?

A further three questions (included as secondary analysis) explore perceptions and attitudes to specific aspects of TE. These assess opinions regarding softer benefits, such as enjoyment, alongside harder benefits, such as entry to employment.

- Which do you think you would enjoy more; a technical route or an academic one?
- Which do you think would help you get a job more easily once you finished studying; a technical route or an academic one?
- Which do you think would help you get your dream job when you're older; a technical route or an academic one?

We also wanted to determine whether the way in which information about TE was presented influenced participants' openness to this option compared to other post-16 choices. To explore this, participants were randomly allocated to answer the following question either pre- or post- viewing the career information, with the analysis conducted between-participants.

- How likely do you think you are to consider, or not consider, the following study options when you reach 16?
 - a) A Levels
 - b) Technical college course with a work placement e.g. NVQ
 - c) Apprenticeship

The survey also included measures to assess comprehension and retention. Comprehension was asked about to test whether students understood the material they were shown. This was measured by the following questions:

- In which job would you expect to receive the highest pay?
- Which job is likely to have the best job prospects in the next few years?

Students were then given a comprehension score out of 2, with a score of 1 for each correct answer.

Students were also asked a retention question to test their recall of the content. This question was:

- How long would you have to study at college as part of the new technical qualifications?

Coded as 1 if they answered correctly, 0 if they did not.

Finally, students were asked simple questions to test whether they had been paying attention. These questions were:

- Which of the following jobs were you shown information about? (please select 3)
- What will the new technical qualifications be called?

A binary attention indicator was then created, coded as 1 if the students answered both questions correctly, 0 if they answered one or both questions incorrectly. All analysis was re-run with those who answered incorrectly excluded, to check it did not substantially change the findings.

Sample

The data consists of 2,004 survey responses from children aged 12-16 and one of their parents or guardians, gathered from an existing online panel. The total number of responses per question however varies across the outcome measures, this is a result of removing participants who reported 'don't know' to that question from the analysis. A survey provider, Onepoll, was commissioned to contact parents of school age children on their panel and ask them if they have children aged from 12-16, and whether they would be able to participate in the survey. Adults were asked to complete a short survey asking some basic demographic questions, including whether they had children, and what ages their children were. If they reported having children between the ages of 12 and 16 who were attending secondary school in years 7 to 11, they were asked to get their child to complete the remainder of the survey (bar one final question on school type at the end of the survey), and the joint response of them and their child was included in the sample. Those who did not meet the criteria of having a child in the 12-16 age bracket were asked no further questions and their data was not sent to BIT. It was not possible to target young people based on any additional demographics, but participants were drawn from across England.

Results

Table 6 summarises the results for each of the outcome measures. Further information breaking down the findings is available in [Appendix F](#). The analysis reveals significant

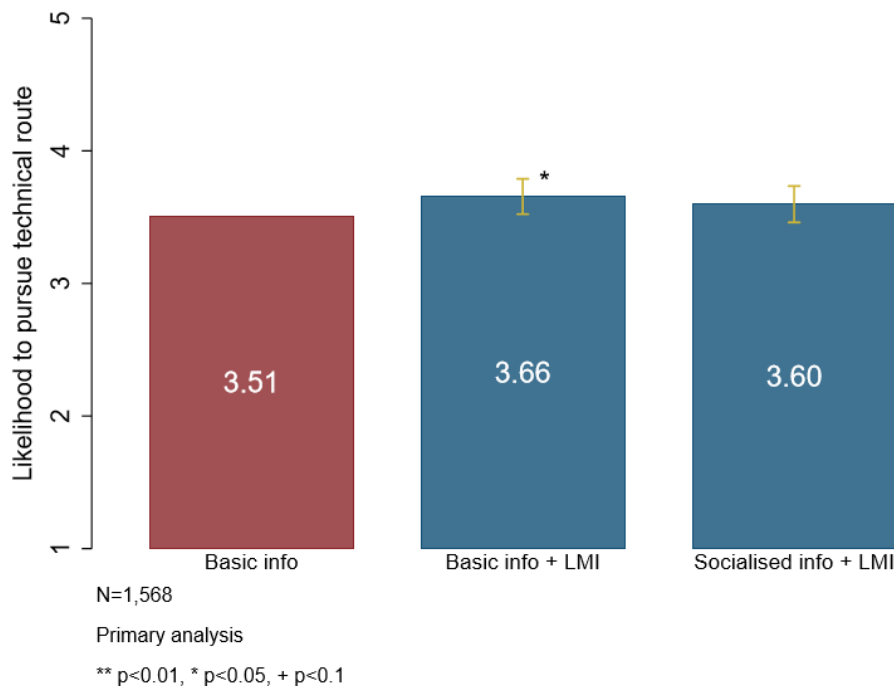
positive effects in five of the seven measures for at least one of the treatment arms. We also found positive effects, though not statistically significant at conventional levels, ($p < 0.05$) for the socialised information + LMI arm on the other two outcomes.

Table 6: Impact of Labour Market Information (LMI) on Outcomes

Outcome measure	Basic info + LMI (compared to control)	Socialised info + LMI (compared to control)
Would pursue a technical route (Figure 22)	Significant positive effect	No significant effect
Would help get a job (Figure 23)	Significant positive effect	Positive effect, not statistically significant at conventional levels ($p < 0.05$)
Would help get dream job (Figure 24)	Significant positive effect	No significant effect
Peer should consider (Figure 25)	No significant effect	Significant positive effect
Similarity to peer (Figure 26)	No significant effect	Positive effect, not statistically significant at conventional levels ($p < 0.05$)
Would enjoy technical route (Figure 27)	No significant effect	Positive effect, not statistically significant at conventional levels ($p < 0.05$)
Comprehension (Figure 28)	Significant positive effect	Significant positive effect

The analysis reveals that provision of basic information + LMI (treatment 1) led to a significant and positive increase in young people’s self-reported likelihood of pursuing a technical route if there was one for their chosen career (a 4% increase in reported likelihood as assessed on a five-point scale). Although the socialised information + LMI (treatment 2) resulted in an increase in the same direction, this shift was not statistically significant (see [Figure 22](#)). This finding indicates that LMI, presented in a simple format, signals to young people that they can achieve beneficial outcomes through pursuit of TE. This may be because the LMI was more prominent and easier to engage with in this format.

Figure 22: Likelihood of pursuing a technical route



Provision of basic information + LMI (treatment 1) also led to a significant upwards shift in the number of young people who indicated that pursuing TE would help them to get a job more easily, compared to alternative post-16 pathways. Responses from young people in this condition were 5% higher on the five-point scale (see [Figure 23](#)). It also significantly increased the proportion of young people reporting that TE would help them to secure their dream job to an even greater extent, young people’s responses were 10% higher ([Figure 24](#)). This suggests that providing LMI in a simple format helps to make the employment benefits of TE more tangible to young people, and fosters a perception that technical pathways provide access to jobs that they consider prestigious (i.e. their dream job). Even though LMI focuses on prospects that are fairly distant temporally for a secondary school age student, it appears to be meaningful to young people as they assess the value of different education and career pathways.

Figure 23: Young people reporting that a technical route will help them to get a job more easily

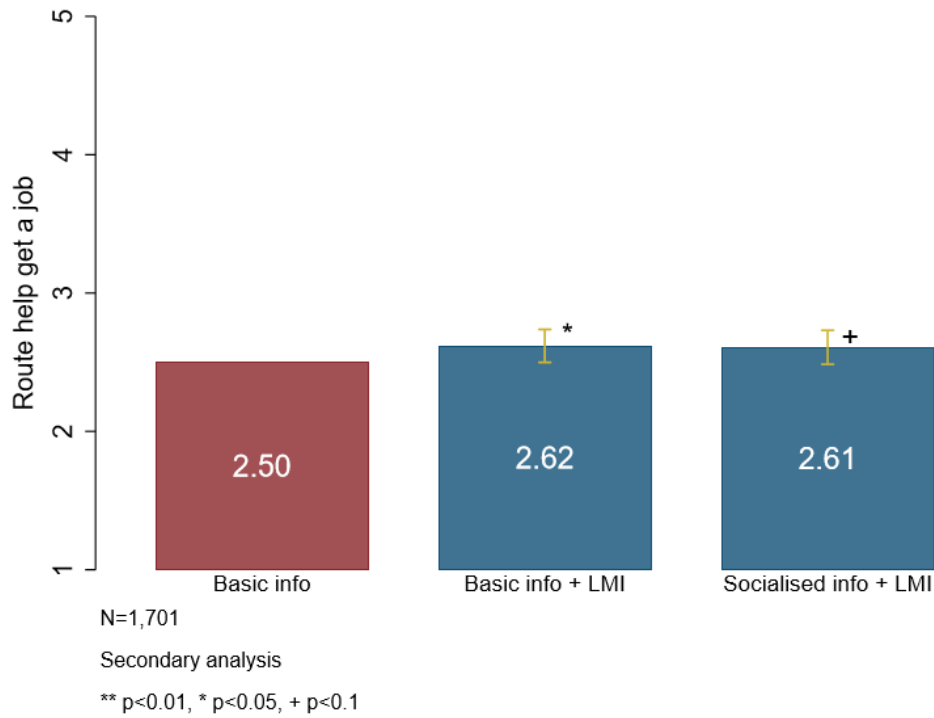
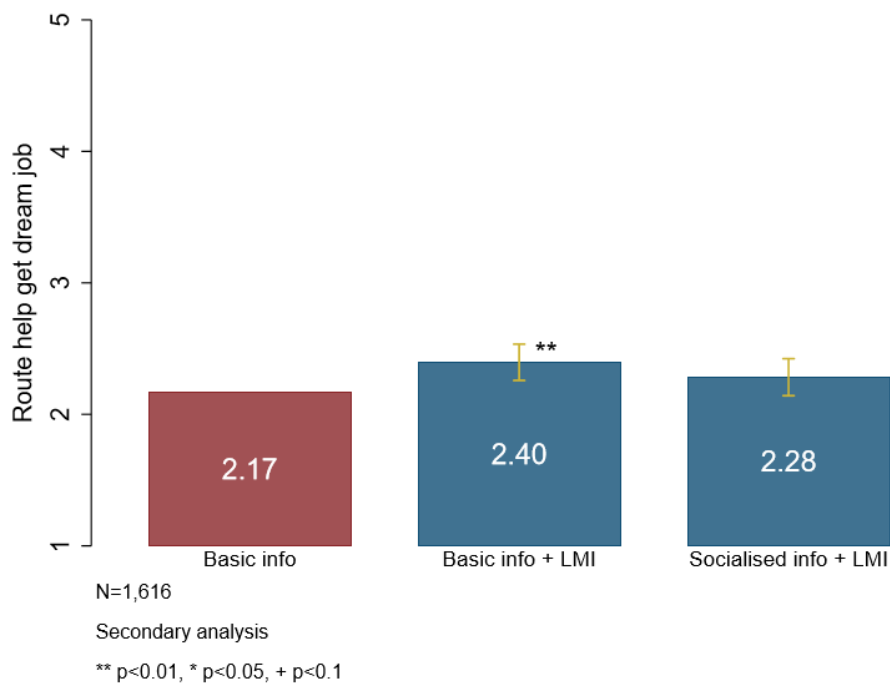


Figure 24: Young people reporting that a technical route will help them to get their dream job



The socialised + LMI communication (Treatment 2) led to a 10% increase in the number of young people who suggested that someone in their social network would benefit from considering T Levels (see [Figure 25](#)), whilst there was no effect for the basic information + LMI. We also found that the socialised + LMI arm, was more likely to lead to the young person reporting to be similar to the person who they thought should consider T Levels, although the results did not reach significance at the conventional level ($p < 0.1$) (see [Figure 26](#)). In addition, there was an increased likelihood that they thought a technical route would be more enjoyable than an academic one (see [Figure 27](#)). This suggests that providing LMI in a format that is contextualised by an individual's experience, helps young people relate the content more to their day-to-day experiences and is more likely to influence their perceptions of the softer benefits to TE, such as enjoyment. As young people currently have limited exposure to information that helps them to understand what the experience of pursuing TE will be like, more contextualised career information could help to make this option more relatable.

Figure 25: Ability to think of someone who should consider T Levels.

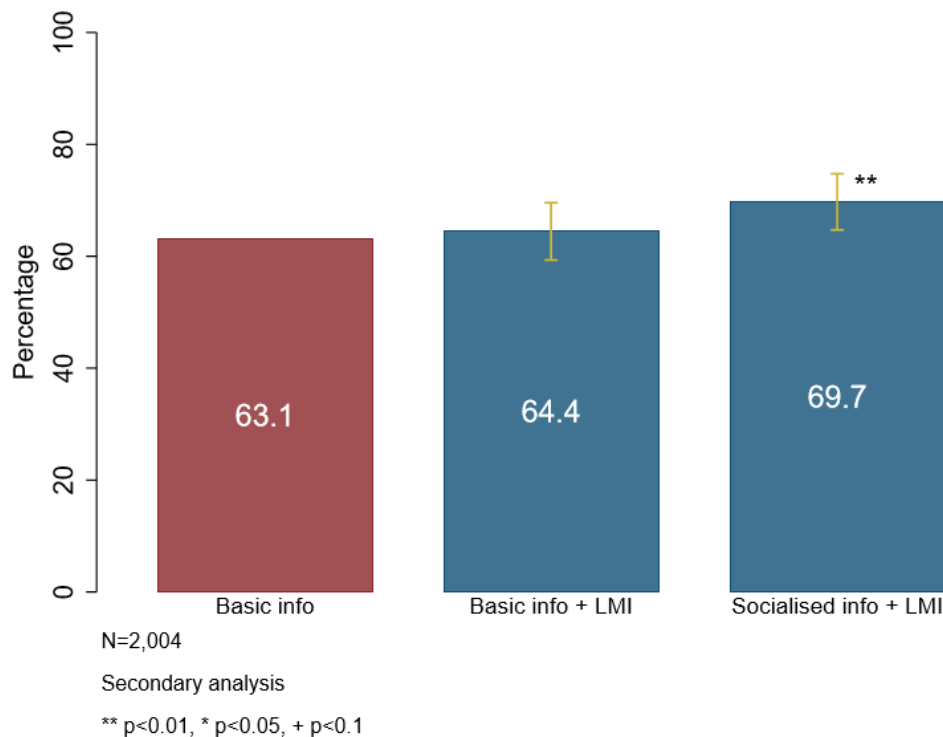


Figure 26: Indication of perceived similarity to peer

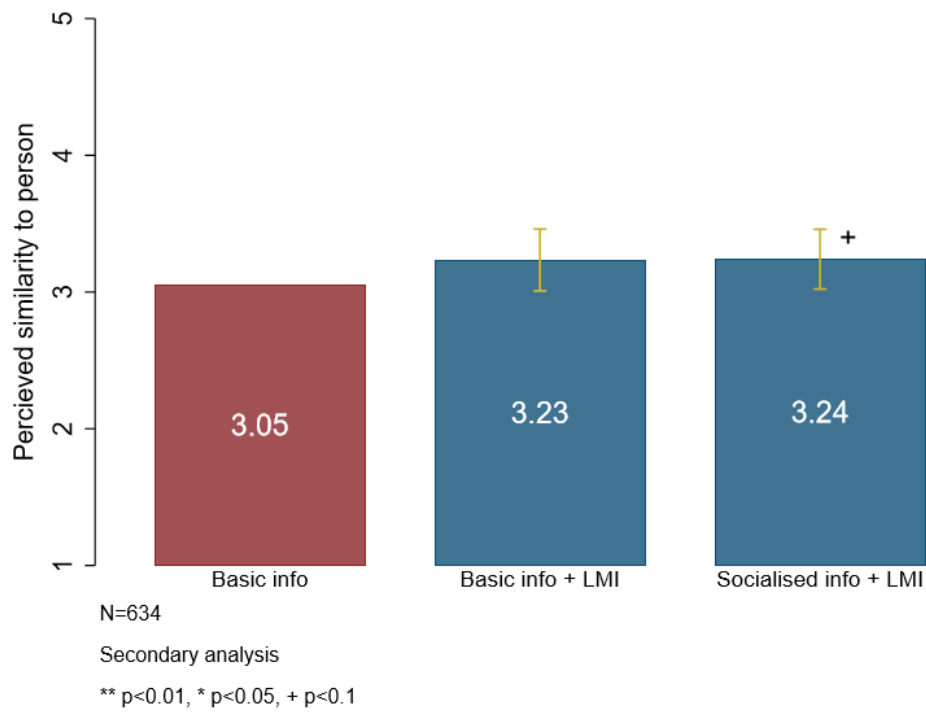
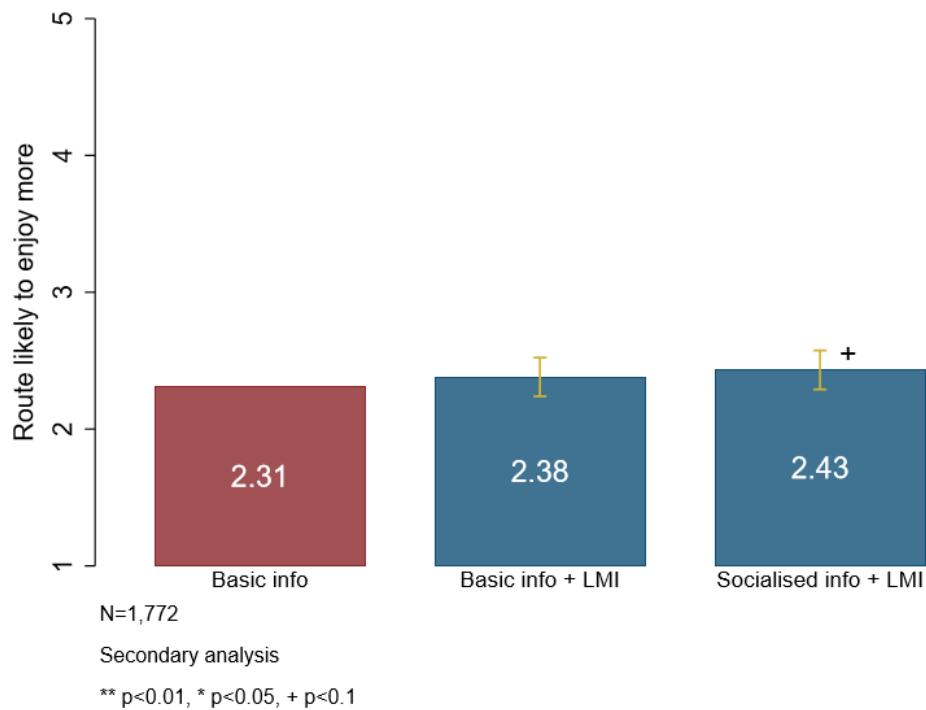


Figure 27: Reported likelihood of enjoying a technical route more than an academic route



As in practice young people must choose between different post-16 options, a question was included to explore whether the LMI content would influence young people's attitudes towards TE in relation to other post-16 options. [Table 7](#) below provides the results of exploratory analysis on whether respondents who were asked before the intervention (the 'pre' group) reported different likelihoods of pursuing three different study options (A Levels, a technical college course with a work placement e.g. NVQ, or an apprenticeship), compared to those who were asked after whichever intervention they received (the "post" group). We can see that in the control group, there were no statistically significant differences between the pre and post groups, suggesting that providing basic information makes no difference on the self-reported likelihood of pursuing either of the three options. In the basic information + LMI group, respondents reported they were less likely to study A Levels in the post group, but this was not significant at conventional levels ($p = 0.870$). In the socialised info + LMI group, respondents reported they were statistically significantly less likely to study A Levels ($p < 0.01$), but more likely to study apprenticeships ($p = < 0.01$) in the post group. Respondents were also more likely to report being likely to study a technical course, but this was not statistically significant at conventional levels ($p = 0.065$). This suggests that LMI in both formats, could shift participants away from A levels as a default choice to some extent.

Table 7: Differences in likelihood to study different options

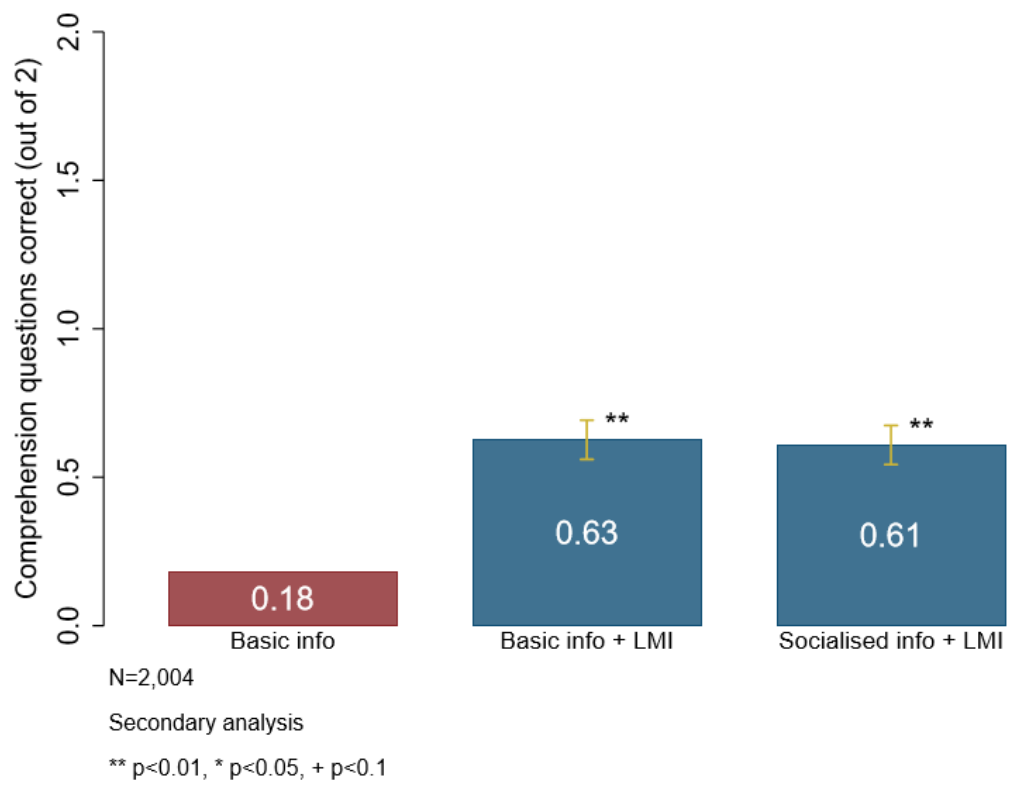
Group	Outcome (likelihood to study)	Pre mean	Post mean	Mean difference	t	Pre N	Post N	Total N
Control	A Levels	3.426	3.257	-0.169	(1.264)	333	303	636
	Technical course	2.123	2.225	0.102	(-0.857)	341	298	639
	Apprenticeship	2.128	2.020	-0.108	(0.941)	335	298	633
Basic info + LMI	A Levels	3.512	3.281	-0.231+	(1.714)	334	302	636
	Technical course	2.083	2.136	0.0524	(-0.438)	324	302	626
	Apprenticeship	1.945	2.116	0.170	(-1.481)	328	303	631
Socialised info + LMI	A Levels	3.561	3.091	-0.469**	(3.488)	289	361	650
	Technical course	2.070	2.294	0.225+	(-1.846)	287	360	647

	Apprenticeship	1.826	2.198	0.371**	(-3.250)	288	359	647
Total	A Levels	3.497	3.203	-0.294**	(-3.804)	956	966	1922
	Technical course	2.093	2.223	0.129+	(1.874)	952	960	1912
	Apprenticeship	1.974	2.117	0.143*	2.160	951	960	1911

** p<0.01, * p<0.05, + p<0.1

Finally, both treatment arms also improved young people's ability to reliably recall information about the careers they saw and the technical route into them (see [Figure 28](#)). In total 952 did not correctly answer both attention questions so were removed from the analysis, which left 1,052 participants in the sample. Participants in both treatment arms were approximately three times more likely to answer the comprehension questions correctly. This is particularly interesting, as the content for both treatment groups was longer than that in the control, which suggests accurate recall would place greater strain on working memory and therefore be more challenging. This suggests that the upwards shift in accurate responding is likely to be due to participants engaging more deeply with the content available, which could indicate a general interest in viewing LMI.

Figure 28. Proportion of comprehension questions answered correctly



Applying this evidence to encourage pursuit of technical options

Findings from this study provide an early indication that LMI serves as a meaningful metric to young people as they assess the value of different education and career pathways. This suggests that LMI should be used more frequently in career information to help young people make informed choices about the outcomes associated with different post-16 pathways. Our findings indicate that the format in which LMI is presented influences how young people respond to the information.

Receiving basic information about a job that is accessible through TE, accompanied by LMI (treatment 1), resulted in young people giving more positive responses regarding the career outcomes associated with TE. Young people who received this information were more likely to indicate that:

- They would pursue a technical route if there was one for their chosen career (a 4% increase in reported likelihood assessed on a five-point scale).
- Pursuing TE would help them to get a job more easily, compared to alternative post-16 pathways (a 5% increase in reported likelihood on the five-point scale) and, to an even greater extent, that pursuing TE would help them to secure their dream job (a 10% increase).

In comparison, young people who received LMI contextualised via an individual's personal experiences were more likely to report softer benefits to TE by:

- Reporting that someone in their social network would benefit from considering T Levels (10% more young people gave a positive response to this question), and to report themselves to be similar to the person who they thought should consider T Levels, although the results did not reach significance at the conventional level ($p < 0.05$).
- Indicating that they thought a technical route would be more enjoyable than an academic one (a 5% increase in reported likelihood assessed on a five-point scale), although the results did not reach significance at the conventional level ($p < 0.05$).

These findings suggest that providing simple 'factual' LMI, to communicate the salary expectations and job demand, for occupations associated with the new TE routes could help to boost the perceived prestige of technical pathways. In addition, providing LMI contextualised by someone's experiences could help to make this technical options more relatable and help to foster a sense of what the experience of pursuing TE might be like.

Both treatment arms also improved young people's ability to reliably recall information about the careers they saw and the technical route into them. As the

message content in both these conditions was longer than that in the control, the upwards shift in accurate responding seems to be due to participants engaging more deeply with the content available.

Trial 4: Progression

Summary

What we tested:

Whether government communications designed using behavioural evidence can encourage progression through the levels of TE for existing learners.

Specifically, we tested four motivational email messages to students, focused on either:

- Funding: Highlighting available funding with the email subject line, “Get funding to progress onto a higher-level technical qualification”
- External motivation: Highlighting the utility value (i.e., personal value) of further study with the email subject line, “Get ahead in the job market by taking a higher-level technical qualification”
- Value of specialism: Highlighting the attainment value (i.e., societal value) with the email subject line, “Represent the [student’s sector] to the highest level, the country needs your skills”
- Social belonging: Highlighting the intrinsic value (i.e., enjoyment) of further study with the email subject line, “Continue to learn with like-minded people by taking a higher-level technical qualification”

What we found:

No evidence was found that any of the four treatment arms had a significant impact on enrolment in level 4 or 5 qualifications. However, we saw some weak evidence that the value of specialism message outperformed other messages in terms of click-through rates to information about higher level courses. The specialism message showed a slight positive impact on click-throughs compared to the belonging and funding messages.

Our qualitative research revealed that friction (or effort) can be a key barrier to students pursuing technical courses. This is because it can be hard to learn about the different

technical qualifications available and also about which courses are provided locally. Recent research by the Department for Education also identified the following barriers to learners pursuing higher-level technical courses:⁵⁹

- The complexity of the choice architecture around higher level technical qualifications makes it hard for potential learners to navigate.
- A ‘degree or bust’ mentality among some learners, based on a widespread perception that university provision as the best option beyond L3 and lack of familiarity with technical choices.
- Low awareness of eligibility for financial support for higher level technical qualifications, due to complex funding rules.

This intervention aimed to tackle the above barriers to enrolling on a higher level technical qualification. It also aimed to increase the perceived benefits of further study. Much research has been done on the Expectancy-Value theory of achievement motivation. This suggests that learner expectations for success and the extent to which they value a learning opportunity, work in combination to predict educational choices.⁶⁰

⁶¹ ⁶² Expectations of success are defined as how well an individual thinks they will do on a task. Task value has multiple components including; attainment value (how a task is related to one’s identity), intrinsic value (enjoyment of the task), utility value (perceived usefulness of the task) and cost (what involvement in a task means in terms of overriding other activities).

There is reliable evidence to show that interventions which reinforce task value – by emphasising why certain educational choices may be useful to learners – can help drive particular educational choices. Researchers in the US tested the impact of issuing communications about the usefulness of STEM to parents of high school children on uptake of STEM subjects. The intervention involved posting two brochures to parents over the course of the academic year and sending a link to a website. The results show that students, whose parents were in the experimental group, took nearly one semester

⁵⁹ <https://www.gov.uk/government/news/level-4-5-technical-education-to-be-reviewed>

⁶⁰ Eccles-Parsons, J., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motivation* (pp. 75–146). San Francisco, CA: Freeman

⁶¹ Simpkins, S. D., Davis-Kean, P. E., & Eccles, J. S. (2006). Math and science motivation: A longitudinal examination of the links between choices and beliefs. *Developmental Psychology*, 42, 70–83. doi: 10.1037/0012-1649.42.1.70

⁶² Updegraff, K. A., Eccles, J. S., Barber, B. L., & O’Brien, K. M. (1996). Course enrollment as self-regulatory behavior: Who takes optional high school math courses? *Learning and Individual Differences*, 8, 239–259. doi:10.1016/S1041-6080(96)90016-3

more of science and mathematics in the last two years of high school, compared to the control group.⁶³

This trial explored four potential drivers of progression into higher level technical courses, all of which have a strong body of evidence behind them:

- a) **Reinforcing learner expectancy that they can access and succeed through higher level technical qualifications by:**
 - Reducing the friction involved in finding out about qualifications and funding options - building on the E.A.S.T principle of making it easy.⁶⁴ BIT have demonstrated the impact of simplifying email communications in a trial to encourage employers to find out about the apprenticeship levy and how they could hire an apprentice.⁶⁵ Emails issued within this trial include links that signpost recipients to information about the available financial support, and how they can access personalised career advice.
 - Reinforcing learner capability of enrolling and succeeding through higher technical qualifications by emphasising that they have already started the journey of specialising in their particular sector. This draws on the endowed progress effect - which is based on research that shows that emphasising the progress one has already made towards a goal increase likelihood of task completion.⁶⁶
- b) **Reinforcing the value of progression to the learner's circumstance, to overcome present bias by making the longer-term benefits of progression more salient at the time of decision-making, for example 'you could earn about £5 more per hour by continuing your studies through to level 4 or above'.**

In addition to the core content, this trial tested whether different behavioural levers add weight to the perceived value of taking a higher-level technical qualification and impact learner engagement (measured through actual enrolment and whether or not the learner follows up on the information in the email - tracked through click-throughs). A message corresponding to each lever was included within the email subject line and the

⁶³ Harackiewicz JM, Rozek CR, Hulleman CS, Hyde JS. Helping parents motivate adolescents in mathematics and science: An experimental test. *Psychological Science*. 2012;43:899–906

⁶⁴http://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf

⁶⁵ <http://www.behaviouralinsights.co.uk/uncategorized/behavioural-insights-to-boost-apprenticeships/>

⁶⁶ Nunes, Joseph C., and Xavier Drèze (2006), "The Endowed Progress Effect: How Artificial Advancement Increases Effort," *Journal of Consumer Research*, 32 (4), 504-12.

header to the core content. These levers broadly map onto the task value factors listed above and are designed around the following principles.

- **Social belonging (links to intrinsic value):** This refers to the sense of belonging that students have in their classroom or learning community, the extent to which they feel part of a wider learning community and are comfortable engaging in the learning opportunities on offer.⁶⁷ In the education literature, particularly out of the USA, there has been lots of attention focused on the issue of why students from disadvantaged backgrounds are more likely to drop out of education, and may underachieve compared to their peers. One avenue for explaining this is the lower sense of belonging experienced by these students.⁶⁸ BIT have demonstrated that messages which emphasise social belonging are effective in encouraging students (albeit in this context university students at King's College London) to take part in learning activities such as using an online platform to support their studies.
- **External motivation/prestige (links to utility value):** Models of adult learning suggest that adults are more life-centred (or problem-centred) in their orientation to learning. This suggests that they are motivated to learn if they can see how what they will learn will be applied in their lives and how it will also make their lives better e.g. enable them to do a task more effectively or to apply for a better job.⁶⁹ Given DfE evidence of a 'degree or bust' mentality and the ambition to create 'parity of esteem' between academic and technical options, we want to explore whether emphasising the extrinsic value of technical qualifications to employers helps reinforce the utility and status of technical choices.
- **Value of specialism (links to attainment value):** Evidence suggests that being able to construct a positive self-identity around work and the value of your specialism helps to reinforce the value of a professional path.⁷⁰ Therefore, learners may be motivated to acquire further skill as it links to their self-

⁶⁷ Snipes, J., Fancsali, C., & Stoker, G. (2012). Student academic mindset interventions: A review of the current landscape. Report released by the Stupski Foundation.

⁶⁸ Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science*, 331(6023), 1447-1451.

⁶⁹ Knowles, M. S. (1973). *The adult learner. A neglected species*. Houston, TX: Gulf Publishing.

⁷⁰ Duemmler, K. & Caprani, I. (2016) Identity strategies in light of a low prestige occupation: the case of retail apprentices. *Journal of Education and Work*.

perception of being an expert. Furthermore, our identities are strongly linked to self-efficacy (Bandura, 1977) which is closely tied to persistence.

- **Financial support (links to cost):** This is an informational lever which we included based on DfE interest in testing the extent to which the availability of financial support influences learner decisions to progress to a higher-level qualification.

Research aim

The purpose of this trial was to evaluate the effectiveness of a series of behaviourally informed emails encouraging students on level 3 courses to subsequently enrol onto a level 4 or 5 qualification.

The aim was to learn how best to support people who may otherwise not progress beyond a level 3 qualification to do so. Developing evidence as to the levers that work in this context is important for social mobility, as level 4 qualifications (and above) are associated with improved career outcomes – such as increased salary and reduced risk of unemployment.⁷¹ Furthermore, supporting learners to achieve higher level technical skills is important for the UK labour market, as there is growing demand for skills at this level.

Research design

The trial was a five-arm individually randomised controlled trial, including one control group and four distinct treatment arms.

Learners allocated to any of the treatment groups received four emails between December 2017 and August 2018, those allocated to the control group received no emails. Each treatment email had core content focused on removing friction (i.e., simplifying enrolment in higher level courses) and reinforcing the expectancy-utility of higher-level technical qualifications.

The emails would ideally have directed learners to registration pages for higher level courses, making it easy for them to sign up. However, it proved challenging to signpost all students to meaningful actions to help them enrol for new courses. As such, the emails instead included links to government information on funding for higher level

⁷¹ https://www.aat.org.uk/sites/default/files/assets/University_Report_AAT_and_CEBR_February_2013.pdf

courses. This did not make it as easy for students to sign up to new courses as was initially hoped and may have affected the strength of findings, as it meant that students in both control and treatment groups faced difficulty in enrolling on course (the trial outcome).

An overview of the core messaging for the emails is detailed below:

Timing	Core content
<p>Early December 2017</p>	<p>Dear [Insert name],</p> <p style="text-align: center;">[TREATMENT HEADER MESSAGE]</p> <p>You have already started to become a specialist in [sector], but you could earn about £5 per hour more by continuing your studies through to the next stage (level 4 or above). There are a range of higher level technical qualifications available to you which focus on the skills you need to progress your career. These are shorter than 3 year degree programmes and focus on developing the skills needed in the industry.</p> <p>You may be able to access a learner loan to cover the cost of courses and support your progression to higher level technical education. Find out how you can access this funding: https://www.gov.uk/advanced-learner-loan</p> <p>To receive personalised advice about the options available contact an advisor from the National Careers Service, and speak to your College about what you could do next. Alongside technical qualifications, they can also advise on other options such as university and apprenticeships.</p> <p>[DfE sign off]</p> <p>Please note, we are unable to respond to messages to this inbox.</p>
<p>February 2018</p>	<p>The core message emphasised the number of students who study level 4 and 5 technical qualifications and the flexibility of study options.</p>
<p>June 2018</p>	<p>The core message emphasised that employers value level 4 and 5 qualifications and encouraged learners to take a survey to think about their next learning steps.</p>

October 2018	The core message coincided with A-level results and reinforced the benefits of level 4 and 5 study, plus how many students go onto take these qualifications.
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The four treatment conditions were: social belonging; external motivation/prestige; value of specialism; financial support. The successive emails that learners received over the course of the trial corresponded to the lever they were initially allocated to. The subject lines and email headers that were developed for the first email are detailed in Table 8.

Table 8: Subject lines and email headers

Treatment arm	Subject line	Email header
Funding	Get funding to progress onto a higher-level technical qualification	Don't let finance be a barrier to progressing in [sector]. This email provides further information about how you can access support to enrol on a higher-level qualification.
External motivation/ prestige (links to utility value)	Get ahead in the job market by taking a higher-level technical qualification	Employers are on the lookout for higher level skills. More than 7 in 10 businesses expect to have more jobs for people skilled at higher levels over the coming years. Make sure you have the specialist knowledge to succeed in [sector] by enrolling on a higher-level qualification.
Social belonging (links to intrinsic value)	Continue to learn with like-minded people by taking a higher-level technical qualification	Train alongside thousands of other learners committed to developing higher level skills in [sector]. Develop your skills and stay part of this learning community, by enrolling on a higher-level qualification.
Value of specialism	Represent the [sector] to the	1. [for Health, public services, and care] Think about where your skills can take you. In a few

<p>(links to attainment value)</p>	<p>highest level, the country needs your skills</p>	<p>years' time you could be providing higher level expertise in Health, Public Services and Care as a lead practitioner, technician, or manager in the sector.</p> <p>2. [for Business, administration, and law] Think about where your skills can take you, in a few years' time you could be providing higher level expertise in Business, Administration and Law with a job such as School business manager, Barrister's clerk, HR or financial advisor.</p> <p>3. [for Engineering and Manufacturing technologies] Think about where your skills can take you. In a few years' time you could be providing higher level expertise in the Engineering and Manufacturing sector with a job such as design engineer, product development manager, technical service manager or nuclear technician.</p> <p>4. [for ICT] Think about where your skills can take you, in a few years' time you could be providing higher level expertise in the Digital sector with a job such as software developer, web designer, data analyst or network engineer?</p>
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Outcome measures

The primary outcome was enrolling into level 4 or 5 courses (specifically for the four course areas that students were currently in, as wider data was not available). The secondary outcome measures were click-through rates to the links provided in the first email and in the second email. As the control group did not receive regular emails, we only measured click-through rates for the four treatment arms and compared them against each other. We used click-through rates on the first email to gauge the impact of the novelty of the message and click-through rates on the last email to gauge sustained engagement.

Table 9: Outcome measures

Outcome Measures	Data to be collected	Point of Collection
Primary: Number of learners that enrol on a level 4 or 5 qualifications in key subjects	Learning status (recorded in the Individual Learner Record or HESA)	Collected in November 2019
Secondary: Proportion of learners who click through to the links provided in the first email (treatment arms only)	Number of click throughs (mailchimp data)	Collected two weeks after the email is issued.
Secondary: Proportion of learners who click through to the links provided in the last email (treatment arms only)	Number of click throughs (mailchimp data)	Collected two weeks after the email is issued.

There were two changes to our outcomes measures after we had drafted our original trial protocol. We initially planned to measure progression onto any level 4 or 5 course. However, this wider data was not available and, as such, a narrower outcome was used: enrolling into level 4 or 5 qualifications on the four specific subject areas on which students were already studying at level 3. Additionally, secondary outcome measures were not specified in detail in the trial protocol and were defined after we received the data (though before analysis was conducted).

Sample

Our sample was 11,417 level 3 learners, 19 years or older, who consented to be contacted by email and provided their email address within their Individual Learner Record (ILR), and had been on the following courses at the point of randomisation:

- Business, Administration and Law
- Engineering and Manufacturing Technologies
- Health, Public Services and Care
- Information and Communication Technology

We focused on students in the above level 3 qualifications because the existing higher-level provision (level 4 or 5) most closely related to the new technical pathways, to be introduced from 2020.

The sample was stratified on age, planned end of course, and course subject.

A number of unforeseen challenges arose in identifying individuals and merging data. The randomisation was done using the 'Learner Reference Number' but on inspection when combining data for the analysis, it became apparent that this had been done in error. The student's Learner Reference Number identified an individual uniquely within a given institution, but not across different institutions, instead the 'Unique Learner Number' (or ULN) should have been used. Initially, we randomised 11,472 observations, which related to 11,417 individuals. Of these:

- 12 individuals were randomised more than once, and received multiple sets of emails, more often than not, from different treatment groups. As such these were excluded from the analysis, leaving us with 11,405 individuals.
- In the secondary outcome data, the appropriate ID (ULN) was not in the data set, as such we had to use email-address instead. Two email addresses present in

the click-through data, but not in the original analytical sample. These were excluded from the analysis.

Following the above randomisation issues, we conducted a balance check and observed balance between treatment groups across age, planned end of course, and course subject.

Results

We observed no significant effect on our primary outcome measure (enrolment onto level 4 or 5 courses within the four specified subject areas). This means that there was no evidence that our messages increased the percentage of students enrolling onto level 4 or 5 courses in their chosen subject areas.

On our secondary measures - email click-through rates - we did find some positive evidence for the Specialism messages (about representing the sector to the highest level) in comparison to the other messages. On the first email, we saw that this message had a positive and weakly significant difference ($p < 0.1$) in click-through rates compared to the Social Belonging email (about continuing to study with like-minded individuals) - though we observed no significant differences between the other treatment messages. For the final email, we also found that the Specialism email significantly outperformed the Funding and Social Belonging emails, though we did not observe a significant difference from External Motivation.

[Table 10](#), below, provides the main results of the analysis. Column 1 provides the results of the main regression specified in the Analysis section above - treatment assignment on whether enrolments on level 4 or 5 courses in key subjects. Column 2 adds covariates as specified.

In Columns 1 and 2, we observe no significant effect of the treatment on the outcome. We also do not observe any significant differences between the arms. Adjustments for multiple comparisons were not done as the results were already non-significant.

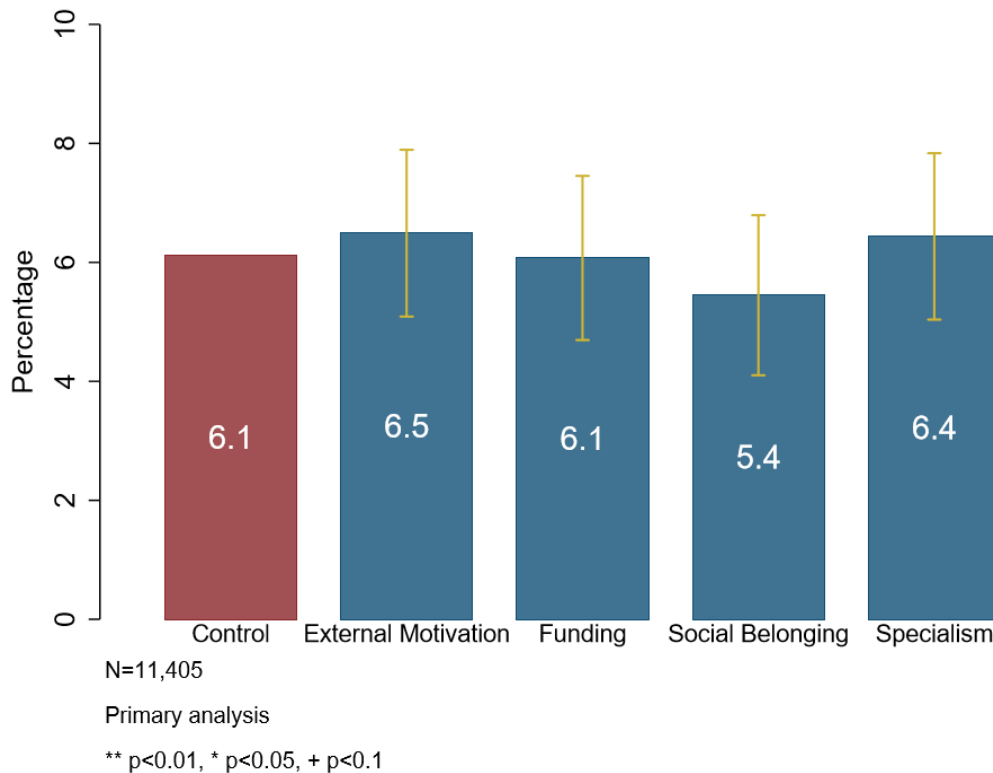
Table 10: Effects of treatments on primary outcome: whether or not students enrolled in level 4 or 5 courses in key subjects

	(1)	(2)
	Enrolled on level 4 or 5 in key subjects?	Enrolled on level 4 or 5 in key subjects?
External Motivation	0.004 (0.007)	0.004 (0.007)
Funding	-0.000 (0.007)	-0.000 (0.007)
Social Belonging	-0.007 (0.007)	-0.007 (0.007)
Specialism	0.003 (0.007)	0.003 (0.007)
Engineering and Manufacturing Technologies		0.052** (0.008)
Information and Communication Technology		0.023+ (0.013)
Business Administration and Law		0.033** (0.005)
Age		-0.001** (0.0002)
Planned end date of course		-0.00003** (0.00001)
Constant	0.061** (0.005)	0.725** (0.233)
Control group mean	0.061	0.061
Observations	11405	11405

+ p<0.10; * p<0.05; ** p<0.01; standard errors in parentheses

Primary Analysis Graphs

Figure 29. Percentage of people who enrolled in level 4 or 5 courses in key subjects



Secondary Analysis Findings

Since the control group did not receive regular emails, click-through rates can only be compared for the four different arms of the treatment. The Specialism email had a positive and weakly significant difference from Social Belonging for click-through rates on the first email ($p<0.1$). We did not observe any significant differences between the other treatments.

For the final email, we find that the Specialism email significantly outperforms the Funding and Social Belonging emails, but we do not observe a significant difference from External Motivation.

The click-through rates for both emails are presented in the [Figure 29](#) and [Figure 30](#).

Tables 11 and 12, below, provide the results of the secondary analysis on email click through rates.

Table 11: Effects of treatments on first email click-through rates

	External Motivation	Funding	Social Belonging	Specialism
External Motivation				
Funding	Not significant			
Social Belonging	Not significant	Not significant		
Specialism	Not significant	Not significant	Specialism+ (p=0.054)	

+ p<0.10; * p<0.05; ** p<0.01; where significant, the condition in the box is the highest performing

Note: The control group are not included as they did not receive emails.

Table 12: Effects of treatments on last email click-through rates

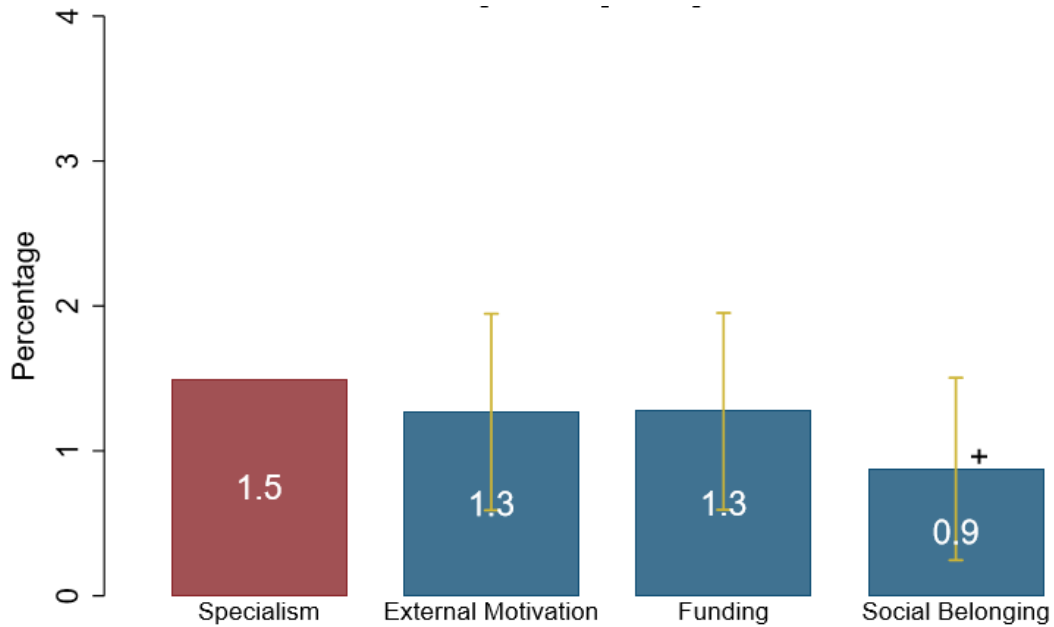
	External Motivation	Funding	Social Belonging	Specialism
External Motivation				
Funding	Not significant			
Social Belonging	Not significant	Not significant		
Specialism	Not significant	Specialism** (p=0.005)	Specialism* (p=0.037)	

+ p<0.10; * p<0.05; ** p<0.01; where significant, the condition in the box is the highest performing

Note: The control group are not included as they did not receive emails.

Secondary Analysis Graphs

Figure 30. Percentage of people who click through first email



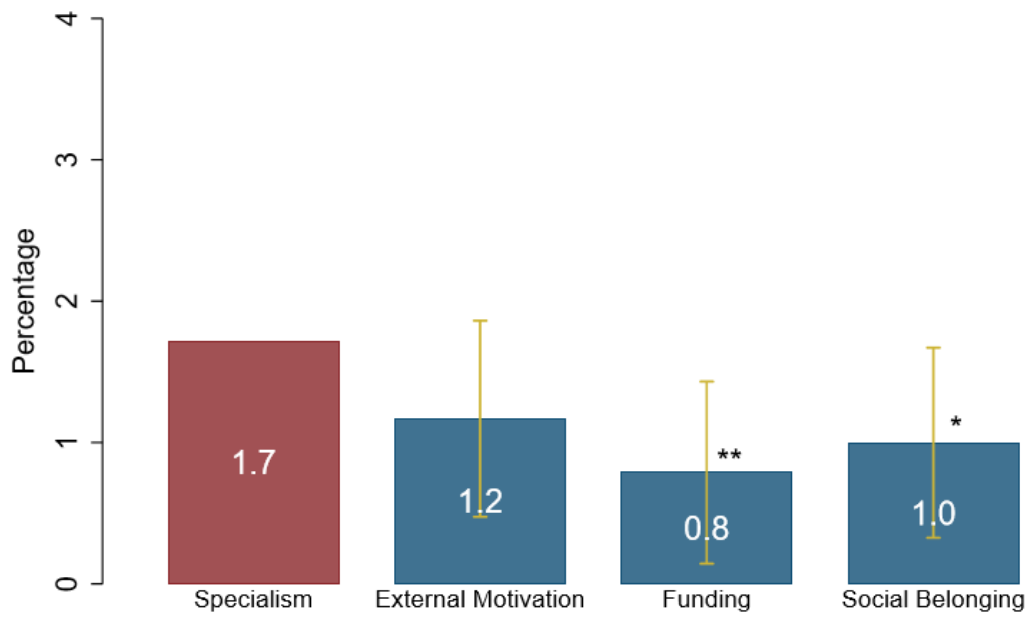
N=9,114

Secondary analysis

** p<0.01, * p<0.05, + p<0.1

Note: The control group are not included as they did not receive emails.

Figure 31. Percentage of people who click through last email



N=9,114

Secondary analysis

** p<0.01, * p<0.05, + p<0.1

Applying this evidence to encourage pursuit of technical options

The trial found no evidence that behaviourally informed emails increased rates of progression to higher level technical qualifications. This may be partly because the emails did not meaningfully reduce barriers to further study - such as the complexity of navigating the system - which had been the initial aim. It proved difficult to simplify the process for pursuing further study, while the technical education system was still in flux (specifically because we were unable to send students email links for applying to courses, as many courses were in flux). Future initiatives should continue to seek means of simplifying the technical education system and decisions within it, based on a large body of evidence suggesting this is a key driver of further study.

However, our trial did find weak evidence of promise for messages about the value of specialism, such as “represent the [sector] to the highest level - the country needs your skills.” Messages about the value of specialism drove significantly higher click-through rates to information about funding for higher level technical courses compared to either messages focused on belonging (i.e., continue studying with like-minded individuals) or - in one instance - messages about funding (i.e., there is funding available).

Policy makers, careers advisors, and educators should consider using - and further testing - similar messages (about representing your sector/the country needing your skills) in future communications to encourage students to progress to higher level technical qualifications.

Discussion

The four randomised controlled trials in this report tested a series of messages and activities designed to boost interest in TE with more than 2,000 young people and their parents. Given the limited prior evidence in this space, the results provide a meaningful contribution to our understanding of how best to promote TE.

Across the trials, we observed a number of significant and positive effects, which point to several promising ideas for increasing demand for TE (with some limitations, described below). The trials also produced a number of null results, which may be due because our sample sizes were too small to detect smaller effective sizes, or may be because certain interventions are not effective in their current form. In several cases, implementation difficulties relating to either the intervention’s content or the trial design (or both) may have contributed to these null results; therefore, there is scope to refine and retest these interventions in future.

Below we summarise the trial results before discussing the implications and limitations in more detail.

Trial	Results
<p><u>Prompting reflection on the purpose of career education.</u></p> <p>Does engaging in a purpose-for-learning exercise prior to receiving career and education information relevant to TE impact comprehension, retention and attitudes?</p>	<ul style="list-style-type: none"> • <i>No significant effect</i> on behavioural measures of engagement (proportion of time and total time spent on technical content). • <i>Positive and significant effect</i> on attitudinal measures of engagement. Participants who completed the purpose-for-learning exercise were: <ul style="list-style-type: none"> ○ 14% more likely to be opened to pursuing a technical course, and 11% more likely to be open to a technical career (in terms of mean scores on a Likert scale of 1 to 5). ○ Significantly less likely to report ‘don’t know’ on interest in a technical course or apprenticeship (a reduction of 23% and 27% respectively), suggesting participants felt better informed.

<p><u>Government/employer endorsements for TE.</u> Do different messengers encourage parents or carers to (a) be more engaged, (b) be more informed on careers guidance issues related to TE, and (c) overcome stereotypes about academic and vocational qualifications?</p>	<ul style="list-style-type: none"> • <i>Positive significant effect</i> of both the simple government and simple employer endorsement on parents' consent to take part in future research to support the roll-out of TE, compared to the control. <ul style="list-style-type: none"> ○ A 5-percentage point increase in consent to take part in research about TE (a proxy indicator for positivity towards TE) for both message variants. • <i>No significant effect</i> on survey enrolment one week later (a proxy indicator for greater positivity towards TE). • <i>Small but significant</i> impact of the simple government endorsement and more complex employer message (employer 2) on stereotypes about TE compared to the control condition. <ul style="list-style-type: none"> ○ Participants in these conditions gave responses that were, on average, 4% more positive than the control group.
<p><u>Labour market information on TE.</u> Does labour market information relating to TE pathways - and how it is presented - affect time comprehension, retention and attitudes to TE?</p>	<p>Compared to young people who received only basic information, those who received basic information plus labour market information (LMI) were significantly more likely to indicate that:</p> <ul style="list-style-type: none"> • They would pursue a technical route if there was one for their chosen career (4% increase). • Pursuing TE would help them to get a job more easily, compared to alternative post-16 pathways (5% increase).

	<ul style="list-style-type: none"> • Pursuing TE would help them to secure their dream job (10% increase). <p>In comparison, young people who received contextualised LMI were significantly more likely to:</p> <ul style="list-style-type: none"> • Suggest that someone in their social network would benefit from T-levels (10% more young people gave a positive response). • Indicate that they thought a technical route would be more enjoyable (5% increase in reported likelihood). <p>Both treatment arms also improved young people’s ability to reliably recall information about the careers they saw and the technical route into them.</p>
<p><u>Messages to encourage further study.</u> Do government communications designed using behavioural science encourage progression through the levels of TE for existing learners?</p>	<ul style="list-style-type: none"> • <i>No significant effect</i> of any of the four arms on progression into higher level technical qualifications. • <i>Small positive and significant effect</i> in terms of click-through rates for the specialism message compared to the belonging or funding messages: <ul style="list-style-type: none"> ○ A 0.6 percentage point increase in click-through rates (from 0.9% to 1.5%) for the specialism message compared to the belonging message in the first email. ○ A similar increase in click-through rates on the second email for the specialism message compared to belonging and a doubling in

	click-throughs compared to the funding message.
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- **Trial 1. Purpose-for-learning exercises.** The results of the first trial indicate that purpose-for-learning exercises (i.e., prompts to reflect on the benefit of career education) can motivate young people to explore a wider set of study options. Studies have shown that young people often feel overwhelmed by the amount of career information available and react by narrowing their selection quickly, without deep consideration of their options. To encourage deeper engagement with career information, this intervention asked participants to write about why it is important to learn about careers (with a focus on societal benefits - so-called 'self-transcendent' motivation). Young people who took this exercise engaged for slightly longer with technical career information, but this difference did not reach significance ($p < 0.05$). We did, however, find a significant positive effect on attitudinal measures of interest in technical routes - young people who took the exercise were 14% more likely to express openness to technical careers (and we saw positive trends on other outcome measures). This finding replicates several successful applications of the purpose-for-learning activity in other contexts and provides new evidence of its effectiveness at boosting engagement with technical career information.
- **Trial 2. Government and employer endorsements.** The findings from this trial suggest that the endorsement of authoritative messengers, specifically employers and government, could trigger initial interest in finding out about technical options. Parents who received information about the TE reforms, with either the simple government or employer endorsement, were significantly more likely to consent to take part in further research to support the roll-out of TE than parents who received the control information (an increase of about 5 percentage points for both message variants). This metric was selected as a proxy for positivity towards TE but should be interpreted with some caution as it is not a perfect indicator. Still, this suggests there could be value in further exploring the impact of messenger effects as information about the new routes is provided to parents in a real-life context. Further research should explore which messengers are most effective in fostering perceptions of quality and prestige around these new educational options.

Additionally, the findings from this trial suggest that the brief communications and accompanying endorsement were not sufficient to have an enduring effect on parents as there was no impact on enrolment in the second study, two weeks later. The behavioural literature shows that, even when there is a desire to pursue a course of action, people often struggle to follow up on their best intentions due to psychological or physical barriers - the 'intention-action gap'. This suggests that a one-off communication about TE will not be enough to

facilitate a step-change in engagement; instead, a sustained approach may be required, in which parents are prompted to engage with information about TE in advance of key decision points. One way to achieve this could be use of text messages to remind parents to review TE information in advance of career events.

This trial also suggests that providing basic information about T Levels to parents confers a boost to perceptions around the employment outcomes associated with these routes (in terms of job security and salary). As parents currently have to proactively seek out information on TE options, efforts should be made to reduce the hassle factor of this process. DfE, local bodies, and educational institutions should explore new ways to provide information about TE automatically within the education system and facilitate parental engagement with the options available.

- **Trial 3. Labour market information.** The third trial suggests that labour market information (LMI), such as careers and salaries, can increase positive attitudes to TE among young people. Two versions of LMI were presented - one simple version and one version including stories about individuals in technical careers with a prompt to consider friends who could be suited to a technical career. In both cases, young people who received the LMI were more likely to recall key information than those who read about technical careers without LMI. More specifically, those young people who viewed the simple LMI (without stories) were significantly more likely to express positive attitudes about TE (by between 4% and 10% depending on the exact measure). Meanwhile, young people who received contextualised LMI (including stories and a prompt to consider friends who would be suited to a technical career) were more likely to think a technical route would be enjoyable (by 5%). However, contextualised LMI appeared to have a less positive impact on other more direct measures of demand for technical courses/careers. This may be because the contextualised messages were longer and therefore the key information was less easy for young people to absorb.

Future trials could explore whether shorter and more direct versions of contextualised LMI (i.e., LMI plus stories) have a more positive impact on young people's attitudes. Future efforts should also consider when and how to provide LMI to young people to boost their chances of learning key points about career options.

- **Trial 4. Behaviourally informed emails.** The fourth trial found no evidence that behaviourally informed emails increased rates of progression to higher level technical qualifications. This may be partly because the emails did not meaningfully reduce barriers to further study - such as the complexity of navigating

the application system - which had been the initial aim. It proved difficult to simplify the process for pursuing further study while the technical education system was still in flux. Future initiatives should continue to seek means of simplifying the technical education system and decisions within it, based on a large body of evidence suggesting this is a key driver of further study.

However, this trial did find weak evidence that messages about the value of specialism (e.g., “support your sector at the highest level, the country needs your skills”) outperformed two other messages - on belonging and funding. The specialism messages received significantly higher click-through rates than the other two, suggesting that appealing to specialism may be an effective motivator for young people. Further trials should seek to explore this finding in more detail.

Across all four trials, there are two clear limitations in terms of generalisability:

1. As the trials were run while technical qualifications were under review, it is possible that the effectiveness of certain interventions may change as greater clarity emerges on the nature of new technical courses. For this reason, further testing once the new T levels are fully established could be informative.
2. Since all four trials tested messages and activities in an online environment, it is unclear if the same approaches would be effective when used during in-person career discussions with teachers, careers advisors or others.

However, given the low cost and ease of implementation, plus the relative lack of other evidence on what works, we would recommend that organisations and individuals involved in promoting TE should consider using the most promising messages from these trials, both in the context of online and in-person engagement.

Specifically, we recommend that all those involved in promoting TE consider using the following messages, which have shown evidence of promise:

- Concise labour market information (i.e., information on typical careers and salaries) linked to technical education.
- Prompts for young people to reflect on the value of learning about careers to encourage deeper engagement with career information (ideally through structured ‘purpose-for-learning’ activities, see [Appendix A](#)).
- Endorsements from both government and employers for new technical qualifications, plus emphasis on both groups’ involvement in developing the qualifications.
- Emphasis on the value of specialism and appeals to individuals’ desire to represent their sector/support their country, as a means of motivating progression into higher level technical study.

Below, we outline how government can seek to build on these insights, and the broader findings from the qualitative research, to design an effective strategy for promoting technical education.

Recommendations

When T Levels are introduced nationally, a key challenge will be to address the current knowledge deficit that young people - and their parents and teachers - have about technical options, to enable young people to make informed decisions based on accurate and balanced information. The results of the four trials, plus the broader qualitative research, show that behavioural insights can help increase engagement with information about technical education among not just young people, but also their parents.

Specifically, we recommend that the following behavioural principles should be used to boost interest in TE:

- **Change the default of academic study:** Government should find ways to promote technical education throughout school years so that both vocational and academic routes are equally familiar and seen as equally viable routes. In practice, this might mean weighting elements of the system in favour of vocational education to counteract the current primacy of the academic route.
- **Reduce friction:** Government should seek to simplify the process by which young people learn about technical qualifications, find local courses, and apply to these, as research shows that complexity and effort are significant barriers to action.
- **Use the messenger effect:** Government should use trusted messengers to endorse the new T Levels, such as government itself or employers, as people tend to trust a message more when they also trust the source (as supported by the second trial in this study).
- **Frame career education carefully:** Government and career education organisations should take pains to engage young people with career information by appealing to their identity and prompting them to think about the impact they want to have on the world. This can put people into more positive and open frame of mind, increasing engagement with information (as demonstrated by the first trial in this study).

To apply the above principles in practice, we recommend that Government undertake the following actions to boost uptake of the new technical qualifications:

1. **Create a website to help young people and parents learn about TE qualifications and local provision.** There is currently no central hub through which young people can find out about the range of local opportunities which are

open to them. Instead, they must refer to individual college websites, introducing off-putting friction into the search process. To help young people compare qualifications, the website could use labour market information (found to be an effective driver of interest in TE in the third trial in this study). The website could also help young people compare institutions and understand the college experience, via testimonials from current students and facilitating interactions with young people and teachers. This same information could also be included in an above-the-line communications campaign.

2. **Prompt employers to publicly commit to offering placements and jobs to learners with new technical qualifications.** The fact that prestigious industry leaders have been involved in designing the new routes is seen by parents as a signal of labour market value (as per the promising result of the second trial in this study). Government should emphasise employers' involvement when promoting the new routes. This approach could include asking employers to encourage each other to publicly commit to offering opportunities to T level students. Behavioural studies show that we are more likely to act if we have made a public commitment to do so.
3. **Encourage teachers to undertake training about the new technical qualifications.** Most teachers have undertaken academic pathways so they are less familiar with technical options and less inclined to advocate this path. Government should encourage teachers to enrol in professional development to learn about local TE provision - testing behavioural approaches to boost uptake.
4. **Boost familiarity with T levels throughout secondary school:** Provide guidance on technical options by default throughout secondary school and help learners picture the T-level experience (e.g., via testimonials) - so that technical options feel just as familiar as A levels.
5. **Promote the T levels heavily in the months before their launch:** The months before the introduction of T levels (in July 2020) represent a critical time to help young people explore the new post-16 options and make informed decisions. There is some concern about promoting TE at this stage, given that places from 2020 will be limited. Our view, however, is that high demand could in fact signal the prestige and desirability of technical options.

Finally, we recommend continued research into interventions that boost demand for TE, including research into what engages teachers with TE. Ongoing learning and system improvements will ensure the success of the new technical pathways.

Appendix A: Purpose for learning exercise for treatment condition (Trial 1)

Section 1 of 2. Making the world a better place

*

Everyone thinks that the world could be improved somehow. For example, by responding to climate change or treating disease.

Question 1. Can you think of any ways to make the world a better place?

In the space below, write a few sentences that answer this question. This should take you about 5 minutes. Don't worry about spelling or grammar, just getting your ideas across.

Everything you write will be kept anonymous. This means no-one will know it was you that wrote it.

ⓘ This question is mandatory

*

Question 2: How likely are you, if at all, to look into jobs or careers where you could make a difference to people's lives?

Your answer will be kept anonymous. This means no-one will know it was you that wrote it.

📌 Choose one of the following answers

📌 This question is mandatory

- Not at all likely
- Slightly likely
- Somewhat likely
- Very likely
- Extremely likely
- Prefer not to say

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*

Question 3. How could learning about different education and career choices help you be the kind of person you want to be?

[You could think about some benefits of finding out about options you might initially not have considered]

In the space below, write a few sentences that answer this question. This should take you about 5 minutes. Don't worry about spelling, punctuation or grammar. Just focus on getting your ideas across.

Everything you write will be kept anonymous. This means no-one will know it was you that wrote it.

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Section 2 of 4. The person you want to be

Thank you. Next we would like to learn more about what kind of person you want to be and how career information could help you achieve this.

Here are some responses that other students gave to a survey about the education and career choices they made at 16:

- 9 in 10 students said it was important for young people to find out about a wide range of different careers
- 8 in 10 students used career information when making their decision about what to do after year 11
- 9 in 10 students were satisfied with the course or courses they had chosen

Take a moment to think about the type of person you want to be in future and what positive impact you want to have on the people around you and on society. Don't worry if you're still not sure.

Please click through to the next page.

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As it's more interesting to hear about people's experiences in their own words, you might be interested to read about the experiences of students who have explored education options that helped them develop technical skills. You will soon have a chance to read more about these options.

"Sometimes I even take part in projects that change the world."

"It's really rewarding to be able to help improve someone's way of life."

"I've always been hands on, but after gaining experience within a few different departments, I found working a varied role whilst helping people was the most enjoyable and rewarding for me."

You will soon have a chance to share your own thoughts about career information.

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Section 3 of 4. Information on education and career options.

Now you will can read some information about some education and career options that you might wish to consider.

If you would prefer, you can also use the time to read alternative content. You can go back and forth between the career information and alternative activities.

Feel free to spend the next 20 minutes the class looking at whichever materials you are most interested in (no-one will know how you chose to spend your time) but please do not distract your classmates.

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Appendix B: Surveys responses by trial arm (Trial 1)

Table 13: Distribution of scores – Openness to TE (relates to Figure 10)

Category	Control	Treatment
Extremely likely	11 (3.5%)	21 (6.8%)
Very likely	41 (12.9%)	50 (16.1%)
Somewhat likely	80 (25.2%)	86 (27.7%)
Slightly likely	71 (22.3%)	83 (26.7%)
Not at all likely	115 (36.2%)	70 (22.6%)
Total	318	310

Table 14: Distribution of scores – Openness to apprenticeships pathway (relates to Figure 12)

Category	Control	Treatment
Extremely likely	45 (13.4%)	54 (16.5%)
Very likely	68 (20.3%)	69 (21.1%)
Somewhat likely	103 (30.8%)	89 (27.2%)
Slightly likely	77 (23.0%)	73 (22.3%)
Not at all likely	42 (12.5%)	42 (12.8%)
Total	335	327

Table 15: Distribution of scores – Openness to technical career options (relates to Figure 13)

Category	Control	Treatment
Extremely likely	19 (5.3%)	18 (5.3%)
Very likely	28 (7.8%)	34 (10.0%)
Somewhat likely	44 (12.2%)	58 (17.2%)
Slightly likely	65 (18.0%)	73 (21.6%)
Not at all likely	205 (56.8%)	155 (45.9%)
Total	361	338

Appendix C: Parent Surveys (Trial 2)

Survey One

Screeners questions

Q1. Are you a parent or carer of children aged 0-19?

- a. Yes
- b. No

Q2. Please indicate the age categories of your children. Select Multiple. [ROUTED FOR Q1==a]

- a. younger than 11 years old
- b. 15-16 years old
- c. older than 16 years

1. Introduction [ROUTED FOR SCREENER: Q1 == a AND (Q2 == a OR Q2 ==b)]

Thank you for signing up to this survey. This survey will take approximately 10 minutes to complete.

2. Demographic questions [RANDOMISED]

Q3. Where does your family currently live?

- a. South East England
- b. London
- c. North West England
- d. East of England
- e. West Midlands

- f. South West England
- g. Yorkshire and the Humber
- h. East Midlands
- i. North East England

Q4a. How many children aged 11-16 do you have?

Q4b. What type of school does your child who is aged 11-16 attend? [REPEAT FOR EACH CHILD AS INDICATED AT Q4a.]

- a. State school
- b. Independent school
- c. Grammar school

Q5. What is the annual income of the highest earning person in your household?

- a. under £10,000
- b. £10,000 - £20,999
- c. £21,000 - £30,999
- d. £31,000 - £39,999
- e. £41,000 - £50,000
- f. over £50,000

2. Stereotype questions [RANDOMISED]

Q6. Scenario A:

Sam opted for “T Levels” at age 16 - a technical education instead of pursuing A Levels. Sam chose the RANDOMISE [“Health & Science”, “Creative & Design”] pathway. Sam is now 20 years old. Please take a moment to picture Sam’s life today:

Q6_1. What do you think is Sam’s average annual income today? Take a guess!

- a. under £10,000
- b. £10,000 - £20,999
- c. £21,000 - £30,999
- d. £31,000 - £39,999
- e. £41,000 - £50,000

f. over £50,000

Q6_2. Sam wants to stay in the industry but wants to change employer. How long do you think would Sam need to wait to find an employer who pays similarly?

- a. There are no such employers
- b. At least 1 year
- c. Between 6-12 months
- d. Between 3-6 months
- e. Less than 3 months

Q6_3. To what extent do you agree or disagree with the following statements? Think of your child who is now aged 11-16.					
	Strongly disagree	Disagree	Neither	Agree	Strongly agree
a. I would recommend a similar career plan for my child					
b. Sam's career is high status					
c. Sam's career choices would be a poor fit for my child					
d. I would look for alternatives to technical education options for my child					

Q7. Scenario B:

Jo opted for "T LevelsT Levels" at age 16 - a technical education instead of pursuing A Levels. Jo chose the RANDOMISE ["Digital", "Engineering & Manufacturing"] pathway. Jo is now 20 years old. Please take a moment to picture Jo's life today:

Q7_1. What do you think is Jo's average annual income today? Take a guess!

g. under £10,000

- h. £10,000 - £20,999
- i. £21,000 - £30,999
- j. £31,000 - £39,999
- k. £41,000 - £50,000
- l. over £50,000

Q7_2. Jo wants to stay in the industry but wants to change employer. How long do you think would Jo need to wait to find an employer who pays similarly?

- f. There are no such employers
- g. At least 1 year
- h. Between 6-12 months
- i. Between 3-6 months
- j. Less than 3 months

Q7_3. To what extent do you agree or disagree with the following statements? Think of your child who is now aged 11-16.					
	Strongly disagree	Disagree	Neither	Agree	Strongly agree
a. I would recommend a similar career plan for my child					
b. Jo's career is high status					
c. Jo's career choices would be a poor fit for my child					
d. I would look for alternatives to technical education options for my child					

3. Messenger

Thank you for answering these questions! You will next see some information about Technical Education.

[See Appendix 2 for wireframes].

4. Sign-up question

Q8. Having read this information, would you like to take part in another survey (£0.05)?

We are looking for a sample of parents who are open to the idea of their child pursuing Technical Education to take part in further research.

We would welcome your input to help expand the availability of Technical Education in the UK. The survey will take place next week [INSERT DATES]. You will have access to the survey if you tick 'yes' below.

Deciding not to take part in the follow-up survey will not affect your compensation or rating as a participant in any way. Participation is entirely voluntary.

- a. Yes
- b. No

Comprehension questions

Please take a moment to think about the letter you have been shown and remember the letter's content.

Q9. Who wrote the letter that you were just shown? [RANDOMISE ORDER OF ANSWER OPTIONS]

- a. HMRC
- b. The government
- c. NHS
- d. Accenture
- e. Barclays
- f. HSBC
- g. Nuffield Trust

Q10. How many years does of college education does the technical education programme involve? [DROPDOWN MENU]

ANSWER OPTIONS RANGE: 1-5 years

Q11. Who sets the standards for these technical education programmes?
[RANDOMISE ORDER OF ANSWER OPTIONS]

- a. Government
- b. Regulators
- c. Employers
- d. The EU
- e. International bodies

6.Demographic questions / Stereotype questions [RANDOMISED]

THANK YOU!

Appendix D: Exploratory analysis of recall data (Trial 2)

We measured recall by asking participants to answer a series of questions about the messages they had seen which were then scored and rescaled to produce a total ranging from a minimum of 1 and a maximum of 10.

It should be noted that the effect of treatment on recall cannot be estimated directly since only those who completed the second survey answered recall question (so the sample characteristics are not likely to be comparable across trial arms). Therefore, a Heckman correction was applied to account for selection bias in the second survey.

All treatment messengers improved recall compared to the placebo (see table below). Further comparisons suggest that having received any of the two employer messages is highly correlated with dropout. Those who received employer message I were more likely to complete Survey Two while those who received employer message II were less likely to follow through. While this characteristic means we cannot conduct further comparisons to assess the differential effect of messengers on recall, it suggests that employer message I was more encouraging than employer message II.

	Recall
Government	0.829*** (0.167)
Employer 1	0.383* (0.192)
Employer 2	0.794** (0.265)
Non-selection hazard	-6.101** (2.066)
Constant	10.394*** (1.977)
Observations	725

+ p<0.10; * p<0.05; ** p<0.01; standard errors in parentheses

Appendix E: LMI survey (Trial 3)

We are going to give you information about three different careers. But first, we would like to understand a little bit more about you and any plans you might have for what you want to study over the next few years.

1. How would you describe your study plans for when you are 16?

I have no idea what I want to study when I'm 16			I know exactly what I want to study when I'm 16	
1	2	3	4	5

2. How likely do you think you are to consider, or not consider, the following study options when you reach 16?

	Definitely won't consider it	Probably won't consider it	Might consider it	Probably would consider it	Definitely would consider it	Don't know
A Levels						
Technical college course with a work placement						
Apprenticeship						

-----Career information-----

Text and questions after the task

Recall and comprehension

These questions are about the jobs you were shown information about.

3. Which of the following jobs were you shown information about? (please select

Graphic designer

Sports therapist

Civil engineering technician

Masseuse

Beautician

Train driver

4. What will the new technical qualifications be called?

Tech-quals

T Levels

Tecchies

TOQs

---- new page ----

5. In which job would you expect to receive the highest pay?

Graphic designer

Sports therapist

Civil engineering technician

6. Which job is likely to have the best job prospects in the next few years?

Graphic designer

Sports therapist

Civil engineering technician

7. How long would you have to study at college as part of the new technical qualifications?

6 months

1 year

2 years

3 years

---- new page ----

Attitudes to technical routes

From 2020 there are going to be new options available to study at 16, called T LevelsT Levels. There will be 13 routes in total, each offering a route into industries that require technical expertise such as digital or healthcare industries.

8. Can you think of anyone at school who you think should consider T Levels at 16?

a. yes

b. no

<<logic: if Q1="yes">>

9. Why do you think this person should consider T LevelsT Levels?

c. _____ open text _____

<<logic: if Q1="yes">>

10. How similar would you say you are to the person you described?

Not at all similar			Very similar	
1	2	3	4	5

<<logic: if Q1="no">>

11. What sort of person do you think should consider T LevelsT Levels?

d. _____ open text _____

<<logic: if Q1="no">>

12. How similar would you say you are to the person you described?

Not at all similar			Very similar		
1	2	3	4	5	

---- new page ----

13. Do you think you would pursue a technical route if there was one available for your chosen career?

Definitely not			Definitely		
1	2	3	4	5	

14. How likely do you think you are to consider, or not consider, the following study options when you reach 16?

	Definite ly won't conside r it	Probabl y won't conside r it	Might conside r it	Probabl y would conside r it	Definite ly would conside r it	Don't know
--	---	---------------------------------------	--------------------------	---------------------------------------	--	---------------

A Levels						
College course with a work placement						
Apprenticeship						

15. Which do you think you would enjoy more; a technical route or an academic one?

I would enjoy a technical route much more

I would enjoy a technical route a bit more

I would enjoy both equally

I would enjoy an academic route much more

I would enjoy an academic route a bit more

16. Which do you think would help you get a job more easily once you finished studying; a technical route or an academic one?

A technical route would make it much easier to get a job

A technical route would make it a bit easier to get a job

They would give me equal chances of getting a job

An academic route would make it a bit easier to get a job

An academic route would make it much easier to get a job

17. Which do you think would help you get your dream job when you're older; a technical route or an academic one?

A technical route would make it much easier to get my dream job

A technical route would make it a bit easier to get my dream job

They would give me equal chances of getting my dream job

An academic route would make it a bit easier to get my dream job

An academic route would make it much easier to get my dream job

About you

18. Do you intend to continue studying after the age of 18?

Yes

No

Don't know

19. Does your school have a sixth-form?

Yes

No

Don't know

Gender, age, ethnicity

Appendix F: Survey responses by trial arm (Trial 3)

Table 16: Distribution of scores – Likelihood of pursuing technical route (relates to Figure 22)

Score	Basic info	Basic info + LMI	Socialised info + LMI
5	118 (22.3%)	124 (23.9%)	126 (24.2%)
4	166 (31.3%)	177 (34.2%)	169 (32.5%)
3	147 (27.7%)	151 (29.2%)	149 (28.7%)
2	65 (12.3%)	44 (8.5%)	43 (8.3%)
1	34 (6.4%)	22 (4.3%)	33 (6.4%)
Total	530	518	520

Table 17: Distribution of scores – Likelihood of technical route helping to get job more easily (relates to Figure 23)

Category	Basic info	Basic info + LMI	Socialised info + LMI
A technical route would make it much easier to get a job	111 (20.11%)	120 (21.1%)	134 (23.1%)
A technical route would make it a bit easier to get a job	147 (26.6%)	181 (31.9%)	187 (32.2%)
They would give me equal chances of getting a job	225 (40.8%)	213 (37.5%)	190 (32.7%)
An academic route would make it a bit easier to get a job	44 (8.0%)	33 (5.8%)	37 (6.4%)
An academic route would make it much easier to get a job	25 (4.5%)	21 (3.7%)	33 (5.7%)
Total	552	568	581

Table 18: Distribution of scores – Likelihood of technical route helping to get dream job (relates to Figure 24)

Category	Basic info	Basic info + LMI	Socialised info + LMI
A technical route would make it much easier to get my dream job	73 (13.8%)	105 (19.4%)	98 (18.1%)

A technical route would make it a bit easier to get my dream job	127 (23.9%)	152 (28.0%)	141 (26.0%)
They would give me equal chances of getting my dream job	202 (38.0%)	180 (33.2%)	179 (33.0%)
An academic route would make it a bit easier to get my dream job	73 (13.8%)	55 (10.2%)	64 (11.8%)
An academic route would make it much easier to get my dream job	56 (10.6%)	50 (9.2%)	61 (11.2%)
Total	531	542	543

Table 19: Distribution of scores – Indication of perceived similarity to peer (relates to Figure 26)

Score	Basic info	Basic info + LMI	Socialised info + LMI
5 (Very similar)	20 (9.6%)	29 (14.2%)	30 (13.6%)
4	64 (30.6%)	66 (32.3%)	69 (31.2%)
3	59 (28.2%)	47 (23.0%)	68 (30.8%)
2	39 (18.7%)	45 (22.1%)	33 (14.9%)
1 (Not at all similar)	27 (12.9%)	17 (8.3%)	21 (9.5%)
Total	209	204	221

Table 20: Distribution of scores – Likelihood of enjoying a technical route more than academic route (relates to Figure 27)

Category	Basic info	Basic info + LMI	Socialised info + LMI
I would enjoy a technical route much more	114 (19.6%)	128 (21.7%)	140 (23.3%)
I would enjoy a technical route a bit more	146 (25.1%)	146 (24.8%)	163 (27.1%)
I would enjoy both equally	206 (35.4%)	207 (35.1%)	190 (31.6%)
I would enjoy an academic route a bit more	36 (6.2%)	34 (5.8%)	29 (4.8%)
I would enjoy an academic route much more	80 (13.8%)	74 (12.6%)	79 (13.1%)
Total	582	589	601



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