

THE BIG BANG FAIR 2025

Evaluation report

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Executive summary

The Big Bang Fair 2025 welcomed more than **20,000 young people** and **2,100 educators** from **402 schools** across the UK, with **64%** of schools meeting EngineeringUK's priority school criteria¹. The Fair aimed to inspire and inform students about STEM careers through hands-on activities, interactions with STEM professionals, and engaging showcases.

This evaluation draws on survey responses from **1,547 students** across **259 schools**, exploring the Fair's impact on students' enjoyment, confidence, knowledge, motivation, interest, and perceptions of STEM careers. The survey also examined differences in experience across key demographic groups, including gender, disability status, and prior STEM engagement. A survey was also provided to educators, which will be reported on separately.

Our evaluation also incorporates feedback from educators, including a survey of **185 educators** from **95 unique schools**, looking at their experiences and The Fair's impact on their knowledge, confidence and motivation in STEM and STEM careers.

Key findings

The Big Bang Fair continues to be a powerful tool for engaging young people in STEM, with evidence that it supports EngineeringUK's strategic mission to inspire the next generation of engineers and technicians and increase the diversity and number of young people choosing engineering and technology pathways. The Fair continues to perform well in the evaluation with young people, with positive responses to questions from all demographic groups. Additionally, where it is possible to make comparisons with national benchmarks (Science Education Tracker 2023), The Fair performs well.

high levels of enjoyment:

- 88% of students enjoyed The Fair, with no significant differences by gender, ethnicity, disability, free school meal eligibility or school type
- 98% of educators rated The Big Bang Fair 2025 as excellent or good, with 72% rating it 'excellent'
- strong impact on STEM outcomes:
 - o 94% of students reported increased knowledge of what people working in STEM do
 - o **86%** were motivated to find out more about STEM jobs
 - o **84%** reported increased interest in STEM careers
 - o 79% felt more confident they could do a STEM job
 - o **78%** felt STEM jobs were suitable for someone like them

¹ EngineeringUK's priority school approach identifies schools with high proportions of students from underrepresented groups in engineering. The aim is to target programs and support to these schools to increase diversity in the engineering and technology workforce. For more detail, see https://www.tomorrowsengineers.org.uk/improving-practice/resources/engineeringuk-priority-schools-criteria/

- positive impact on priority schools and less engaged students: Students from priority schools and those with low prior STEM engagement responded positively across all outcome areas, suggesting The Fair effectively reaches underrepresented and less engaged groups
- positive impact on educators:
 - 82% agreed The Fair improved their knowledge of engineering careers (74% for technology careers)
 - 73% said The Fair made them more confident to speak to students about jobs in engineering or technology
 - 70% said The Fair made them more likely to suggest engineering and technology careers to their students

Demographic differences

- overall, responses from girls were highly positive about The Fair. While gaps were seen in gender around confidence, motivation and perception, these differences were narrower than national benchmarks²
- similarly, responses from **disabled students** were positive overall, even though they were less likely to report skill development and interest in STEM careers, and less likely to engage with certain activities. Their overall positive responses indicate The Fair's broad reach
- there were very few differences in how students from priority schools

Recommendations

- **build on momentum for less engaged students** (those with lower prior STEM engagement) by providing follow-on activities and resources to sustain interest generated at The Fair
- **explore disabled students' experiences further** and adapt evaluation tools to better capture these and ensure activities are inclusive and accessible
- **continue to improve on the good work around gender**, ensuring a breadth of activities and role models suited to girls are available at The Fair
- identify and trial additional ways for The Fair to continue its support of educators' professional development

² EngineeringUK and The Royal Society. Science Education Tracker 2023 (Wave 3). www.engineeringuk.com/set

Introduction

The Big Bang Fair aims to inspire and encourage all young people to discover exciting possibilities in STEM through showcasing surprising possibilities and connecting young people to inspiring role models in STEM.

20,379 young people and 2,103 educators from 402 schools attended The Big Bang Fair over the course of 3 days. 64% of the schools attending met EngineeringUK's priority school criteria³, increased from 53% in 2024. While the majority of educators attending The Fair were teachers, this sample also included technicians, senior leaders, careers leaders and advisors, and staff with pastoral care responsibilities.

Opportunities and activities offered at The Fair include:

- meeting and speaking with a diverse range of STEM professionals
- hands-on practicals and experiments
- exploring a variety of STEM concepts

The Fair was supported by 991 volunteers from our 67 supporters and 164 Big Bang volunteers, who were recruited to run the activities. EngineeringUK prioritises content that:

- embeds careers information and inspiration
- is relevant, engaging and designed to have impact
- promotes equity, diversity and inclusion in STEM
- highlights the opportunities in green careers

We used <u>EngineeringUK's Impact Framework</u> to build a Theory of Change and identify short-term outcomes for students attending The Fair, which centre around:

- making sure young people enjoy themselves at The Fair, to get their attention and engage them in meaningful activities
- building their capabilities, so young people feel that they have the skills to pursue a job in STEM and feel confident to do so
- presenting them with new opportunities to increase their knowledge of STEM jobs and what people working in STEM do
- motivating them, getting young people interested in STEM activities and finding out more about STEM jobs, as well as feeling interested in these and like they would suit someone like them

Based on research related to students' career pathways (for example, the Science Education Tracker [SET], 2024⁴), our Theory of Change assumes that influencing students' capabilities,

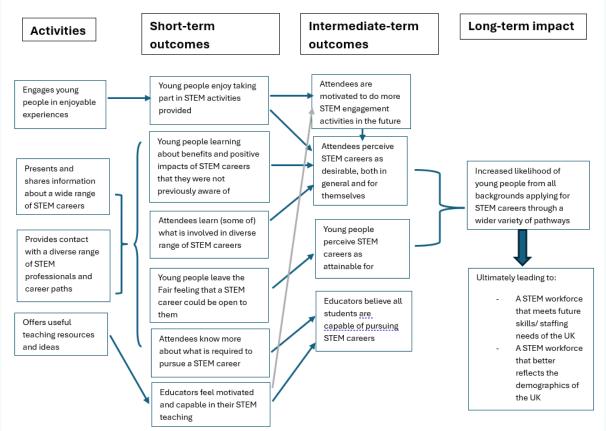
engineeringuk.com

³ EngineeringUK's priority school approach identifies schools with high proportions of students from underrepresented groups in engineering. The aim is to target programs and support to these schools to increase diversity in the engineering and technology workforce. For more detail, see https://www.tomorrowsengineers.org.uk/improving-practice/resources/engineeringuk-priority-schools-criteria/

⁴ EngineeringUK and The Royal Society. Science Education Tracker 2023 (Wave 3). www.engineeringuk.com/set

opportunities and motivation will contribute to the long-term goal of helping young people make an informed choice about pursuing a career in STEM, and more of them choosing to do so (Figure 1).

Figure 1. Theory of Change for The Big Bang Fair



However, both the COM-B and Theory of Change models acknowledge that there are individual differences in how a given activity contributes to a certain outcome, so an important component of the evaluation is exploring whether The Fair was experienced differently for different groups of students. Specifically, in the current evaluation we explored whether the impact of The Fair varied depending on students' pre-existing interest in STEM (referred to as prior STEM engagement), gender, ethnicity, free school meal eligibility, and disability status. We also explored whether students' responses varied depending on whether they were from an EngineeringUK priority school or not.

Our Theory of Change also recognises the opportunities The Fair presents for educators, as they play a critical role in shaping students' perceptions of STEM and STEM jobs. ⁵ Teachers who feel confident and informed about STEM are more likely to encourage students to explore these pathways. ⁶ The Big Bang Fair aims to strengthen this influence by:

⁵ For example, as outlined in EngineeringUK's Impact Framework and other Theories of Change focusing on improving young people's perceptions and aspirations towards STEM careers (e.g. Davenport et al., 2020).

⁶ Evidence for this has been presented from both experimental (e.g. Zhou et al., 2023) and evaluation research (e.g. STEM Learning's impact report on the STEM Ambassador programme, 2025).

- increasing teachers' knowledge of STEM careers (opportunity) and routes into them (capability)
- boosting their confidence to talk about engineering and technology jobs with students (capability)
- inspiring them to organise more STEM activities for their students and talk to their students about careers in these subjects (motivation)

In this way, The Fair aims to act as a continuing professional development (CPD) opportunity for educators and create a ripple effect for attending schools.

Method

We used a post-event approach, asking young people attending The Fair to complete a short survey towards the end of each session across the 3 days. Data were collected at a stand dedicated to the student evaluation and young people were given badges and the opportunity to participate in a prize draw for completing the survey.

The student feedback survey

The survey was done online using iPads, with members of EngineeringUK's evaluation team supporting any questions students may have.

The survey took roughly 5 minutes to complete. Most questions related to the target outcome variables were a Likert scale structure, meaning that students responded on a 5-point scale with 1 being a negative response and 5 being positive. These questions also included a 'don't know' response option. Students were also asked about the kinds of activities they did at The Fair (multiple-response question), what they liked about them (open-ended question) and what skills they used in the activities (multiple-response question). Lastly, students were asked about their previous engagement with STEM activities outside of the classroom, which school they attend, and their demographic background.

How we asked young people about engineering, technology, and science

Based on insights from cognitive testing and piloting a variety of question formats at the 2024 Big Bang Fair, we asked students about engineering, technology and science in separate questions. Analysis of these outcomes is presented in two ways: (i) how students responded to the individual questions; and (ii) total scores reflecting how they responded across all three questions. For example, if students said that The Fair made them more confident that they could do a job in engineering and in technology but not in science, their total score across the three questions would be 2. If they responded positively to all three questions, it would be 3, and so on. We applied this approach to the following outcome measures: student confidence, knowledge, motivation, interest and suitability.

Sample description

A total of 1,547 students from 259 unique schools completed the student survey, which is an 8% response rate. The sample of young people surveyed at the 2025 Big Bang Fair is smaller than that collected at the 2024 Fair as we opened the survey over an hour after the session start, so young people had additional time to explore The Fair's activities before completing the survey.

64% of the schools attending The Fair were EngineeringUK priority schools⁷, up from 53% in 2024 and 58% in 2023. Of the 1,547 students who completed the survey, 62% were from a priority school, most of which were deemed a priority school because they have significantly above average proportions of students eligible for free school meals and from UK minority ethnic backgrounds.

96% of students were from England, with large proportions of young people coming from schools based in the West (38%) and East Midlands (11%). Only 1% of students were from schools in Northern Ireland, 1% from Scotland and 2% from Wales. Most students from schools in England or Wales were in Year 7 (46%) or 8 (41%).

In terms of student demographics:

- 47% of survey respondents were female, 48% were male, and 5% identified as other
- 27% of students were Asian, 12% Black, 6% from mixed ethnic backgrounds, and 4% from other ethnic backgrounds; the remaining 51% were white
- 22% of students said that they had a disability or special educational need
- 30% were eligible for free school meals

As not all students chose to answer every question, the percentages above exclude those saying don't know, prefer not to say and that were missing.

Students were asked about the different types of STEM activities they had done outside of school before attending The Fair. Students could tick multiple activities from a list, giving a sense of their overall engagement with STEM before attending The Fair. In general, students tended to have done at least one STEM activity outside of school in the last 12 months (Table 1). Nearly two thirds of students said that they had engaged with STEM outside of school by seeing or reading something about science online (e.g. Instagram, TikTok, YouTube, news websites), which is consistent with last year. The next most popular activities were watching a programme about science (46%), reading a book about science (44%), and visiting a science museum or display (41%).

⁷ EngineeringUK's priority schools approach identifies and targets schools with high proportions of students from underrepresented groups—such as those eligible for Free School Meals, from UK minority ethnic backgrounds, with special educational needs, or in rural areas—to ensure outreach programmes more effectively support diversity in engineering and technology. For more information, see: www.tomorrowsengineers.org.uk/improving-practice/resources/engineeringuk-edi-criteria/

Table 1: Frequencies and percentages of students' STEM activities in the last 12 months

Activity	Frequency	% of total sample
Saw or read something about science online (e.g. Instagram, TikTok, YouTube, news websites)	970	63%
Read about science in a book, newspaper, or magazine	684	44%
Watched a programme or documentary about science on TV or streaming site	706	46%
Listened to a podcast or radio programme about science	385	25%
Created your own computer game, blog, website or animation	592	38%
Attended an online science talk, webinar or an online museum activity about science	274	18%
Visited a science museum or display	629	41%
Attended a science, technology, engineering or maths club	449	29%
Went to a science, technology, engineering or maths fair	326	21%
None of the above	120	8%

Only 8% of the current sample said they had not done any STEM activities outside of school in the last 12 months.

To account for this, we split students into 2 groups, one considered who had done 0 to 2 activities outside of school in the last 12 months ('low prior STEM engagement') and one who had done 3 or more activities ('high prior STEM engagement'). This resulted in a relatively even split (43% low prior STEM and 57% high prior STEM engagement), though the proportion of high STEM engaged students is greater than that recorded in 2024 (53% low prior STEM and 47% high prior STEM), and for other EngineeringUK activities, such as the 2024/25 Big Bang at School programme (66% low prior STEM and 34% high prior STEM). Taken together, these suggest that the students attending the 2025 Big Bang Fair had a relatively high pre-existing interest in STEM.

For this reason, we included the above binary variable in the regressions so we could:

- explore whether The Fair's positive influence on student outcomes extended to students not already interested in STEM
- take young people's pre-existing interest in STEM into account while exploring the impact of The Fair on different groups of students

It is worth noting that the profile of students attending The Fair from priority and non-priority schools was similar in terms of students' prior STEM engagement and gender, but proportionally more students from UK minority ethnic backgrounds and eligible for free school meals were from priority schools (Table 2). In contrast, disabled students tended to be from non-priority schools.

Table 2: Profile of students from priority and non-priority schools

Characteristic	Non- priority school	Priority school
Female students	50%	50%
UK minority ethnic students	23%	64%
Eligible for free school meals	15%	35%
Disabled students	20%	15%
Low prior STEM engagement	42%	43%

Analytic approach

We present descriptive statistics (frequencies, percentages) for each of the student outcomes. Students who selected the 'don't know' option were included in these calculations to ensure the accuracy of the percentages.

To explore whether The Fair's impact varied across student characteristics (gender, ethnicity, free school meal status, and disability status), we conducted a series of linear regressions (for Likert-scale items) and chi-square analyses (for multiple-response questions) and present statistically significant differences for each outcome in turn. Where possible, we have taken students prior STEM engagement into account (i.e., in the regressions). In addition to looking at whether there were differences related to students' individual characteristics, we explored whether the experiences of students from EngineeringUK priority schools were similar to those from schools that do not meet any of the priority school criteria. The percentages presented based on these analyses exclude students who selected 'don't know'.

Students were given the opportunity to tell us in their own words what they enjoyed about The Fair. Responses were analysed using an inductive thematic approach, looking both at the breadth and coverage of the themes uncovered as well as whether there were differences in which students mentioned certain themes.

The educator feedback survey

Feedback from educators was collected mainly from the 'Teacher Hub' at The Fair, a designated space for educators to convene after entering the event. This year, EngineeringUK designed the content and space allocated to the Teacher Hub to encourage educators to explore the resources and opportunities presented across the show floor. As such, the feedback survey was completed by a slightly smaller proportion of educators than in 2024 (9% in 2025 compared with 10% in 2024).

The survey was done online using iPads, with a member of EngineeringUK's evaluation team supporting any questions educators may have. Educators could also choose to scan a QR code, to complete the survey on their own device, in their own time.

The survey took roughly 10 minutes to complete. Most questions related to the target outcome variables were a Likert scale structure, meaning that educators responded on a 5-point scale with 1

being a negative response and 5 being positive. These questions also included a 'don't know' response option. Educators were also asked:

- a multiple-response question about how we can inspire more young women into STEM careers at future Big Bang Fairs and another
- open-ended questions about what they liked about The Fair, how EngineeringUK can improve The Fair overall and for students with additional/special education needs, as well as how EngineeringUK can make The Fair more of a professional development experience for educators
- for additional information including the name of their school, which phase of education they work in, their main role and which subjects they teach

Educators were asked 3 open-ended questions about:

- what they enjoyed about The Fair
- how The Fair could be improved
- what Engineering UK could add to The Fair to improve its CPD offer for educators

Sample description

A total of 185 educators from 95 unique schools completed the feedback survey at The Big Bang Fair 2025, a response rate of 9% (which is in line with 10% of educators attending The Fair in 2024).

98% of educators surveyed worked in secondary schools, and the remaining 2% worked in primary schools (compared with 5% in primary school in the 2024 sample). 56% of the educators represented in the current sample taught at EngineeringUK priority schools, most of which meeting the criterion of having above average proportions of students eligible for free school meals and from UK minority ethnic backgrounds.

The term educators is used instead of teachers because there was a mix of job roles represented in the sample. 38% were subject teachers (a slight decrease from 45% in the 2024 sample), 94% of whom taught one or more STEM subject. As in 2024, science was by far the most common (57%), but there was also good representation for physics (22%), chemistry (22%) and biology (22%), then maths (16%). Only 9% taught design and technology, 5% computing and 3% engineering. There was a mix of subjects represented in the non-STEM educators in the sample, including English, geography, history, drama, and psychology.

Within the 2025 sample, an additional:

- 17% were Heads of Department (down from 22% in the 2024 sample)
- 4% were senior leadership team members
- 20% were technicians
- 9% in learning support roles
- 12% were either careers leads or advisors (4%) or pastoral leads (8%)

Analytic approach

For the quantitative survey items (i.e. the Likert scale questions), we present descriptive statistics (frequencies, percentages) for each of the educator outcomes. Educators who selected the 'don't know' option were included in these calculations to ensure the accuracy of the percentages. However, as the evaluation of The Big Bang Fair 2024 did not include those who selected 'don't know' in the base sample when calculating percentages, we present a second version of the 2025 percentages alongside any year-on-year comparisons so they can be interpreted more precisely.

We used chi-squares to look at whether educators' responses were related to: (i) whether they were from a priority school; and (ii) their main role (such as subject teacher, Head of Department, and so on). Correlations were also used to explore significant relations between the individual outcome measures. For example, did educators who learned about what engineers do feel more confident to suggest engineering jobs to their students as a result of attending The Fair? We report any statistically significant associations alongside the individual outcome variables below.

Comments in the open-ended responses were analysed using an inductive thematic approach, letting the responses guide the insights drawn.

Results

Impact on students

To ensure students had thoroughly participated in The Fair's activities, we asked them what kinds of things they had done so far (Table 3). In terms of what students did at The Fair:

- 86% had visited stands and exhibits
- 70% had talked to someone who works in engineering
- 62% had taken part in an interactive activity

Smaller proportions of students had watched a live show on the main stage (22%) or a careers panel (13%). Roughly one third had done some or all of The Big Bang Explore activity list (32%), which encourages young people to engage STEM professionals in conversation and seek out skill-building activities.

As seen in Table 3, there were demographic differences in what young people engaged with at The Fair. While slightly more girls spoke to someone working in STEM or took part in an interactive activity, these differences were not statistically significant. In contrast to last year, significantly more boys (34%) than girls (29%) did Big Bang Explore. Boys were also more likely to have watched a live show and the Guess Who careers panel.

Students from priority schools were more likely to have visited stands and exhibits and taken part in an interactive activity than students from non-priority schools (Table 3). This suggests that students from EngineeringUK's priority schools were particularly keen to engage with the stands and interactive activities at The Fair. Similarly, students from UK minority ethnic backgrounds

Table 3: Overview of activities done at The Fair by student characteristics, prior STEM engagement and school priority status

		Gend	der	Ethnic	city		school eals	Disa	bility	Prior S engage			school tus
Activity	Overall	Female	Male	UK minority ethnic	White	FSM	Non- FSM	Disabled	Non- disabled	Low	High	Priority school	Not a priority school
Visited stands and exhibits	86%	88%	85%	83%	88%	84%	88%	82%	88%	80%	90%	91%	83%
Talked to someone who works in STEM	70%	73%	69%	73%	69%	69%	71%	65%	72%	58%	80%	73%	69%
Watched a live show on the main stage	22%	19%	25%	25%	20%	25%	22%	25%	23%	16%	27%	22%	23%
Taken part in an interactive activity	62%	64%	60%	60%	65%	56%	65%	56%	64%	50%	70%	72%	57%
Watched a Guess Who? careers panel on the stage	13%	11%	15%	16%	11%	16%	11%	17%	13%	9%	16%	12%	14%
Done some or all of The Big Bang Explore activity list	32%	29%	34%	35%	29%	33%	32%	30%	33%	22%	39%	30%	33%

Note. Highlighted cells indicate statistically significant differences at the p < .05 level.

tended to be attracted to the live shows and careers panels taking place on stage, and the Big Bang Explore activity list.

Finally, although there were a considerable number of differences related to students' characteristics, the overall ordering of activities tended to remain consistent across groups. For example, visiting stands was by far the most recorded response for boys and girls, UK minority ethnic and white students, disabled and non-disabled students, and so on.

Did students enjoy The Big Bang Fair?

Overall, 88% of students said that they enjoyed The Big Bang Fair (33% agreed, 55% strongly agreed), which is a slight decrease from 91% in 2024 but in line with 88% in both 2022 and 2023. Encouragingly, although students who were already engaged in STEM (our high prior STEM engagement group) were more likely to say that they enjoyed The Fair (92%) than those in the low prior STEM engagement group (86%), the students who were not previously engaged in STEM were still very positive about their experience and enjoying The Fair.

Similarly positive is that there were no significant differences related to students' gender, ethnicity, free school meal eligibility, disability status or school type (priority or not a priority school) after taking students' prior engagement in STEM into account. For example, 90% of boys said they enjoyed The Fair compared with 92% of girls.

When asked what they liked about The Fair's activities, the most common responses were simply that the activities were fun (65%) and that the staff were nice or kind (52%). Proportionately more girls ticked these options as what they enjoyed compared with boys (Table 4).

Also seen in Table 4, young people particularly enjoyed activities that involved:

- learning something new or how something works (46%)
- being hands-on or interactive (43%)
- doing something with friends (43%)

Girls were more likely to say that the reason they enjoyed an activity was because they got to do it with friends (48%) compared with boys (39%). While 46% of white students said that what they enjoyed about an activity was that it was hands-on or interactive, only 41% of students from UK minority ethnic backgrounds selected this option.

In terms of subject areas, technology and AI was the most popular with young people (19%), and particularly popular amongst boys. This was followed by environment and sustainability (12%) and health and wellbeing (10%), which were similarly enjoyed by both boys and girls. Finally, while young people enjoyed activities related to energy and transport (10%) in general, this topic was again more engaging for boys.

It is worth noting that disabled students tended to not engage with this question, as they endorsed many of the items significantly less often than non-disabled students, and were more likely to either not respond to the question or only select one item from the list. 45% of disabled students selected none or one of the options from the list, compared with 34% of non-disabled students.

Table 4: Frequencies and percentages of what students enjoyed about The Fair's activities

		% of	% of	% of male	Difference
What they enjoyed about The Fair's			female students		Difference
activities	Freq.	sample			
It was fun	1004	65%	68%	62%	6%p
The staff were nice/kind	803	52%	56%	49%	7%p
I got to learn something new or how something works	706	46%	48%	44%	5%p
It was interactive (for example, I got to do an experiment or answer questions)	668	43%	45%	41%	5%p
I got to do the activity with friends	662	43%	48%	39%	9%p
I got a prize, sticker or badge for participating	535	35%	37%	32%	5%p
I got to speak to someone working in engineering, technology or science	440	28%	29%	28%	1%p
I got to make or build something	310	20%	19%	21%	-2%p
It was an exciting show or demonstration	298	19%	19%	19%	-1%p
It was about technology and/or AI (like coding robots or using a TV camera)	294	19%	16%	21%	-5%p
It was about the environment and sustainability (how to protect animals and their habitats or how animals inspire us)	182	12%	12%	11%	1%p
I got to hold or learn about animals	169	11%	10%	12%	-2%p
It was about health and wellbeing (looking into your friend's eye or learning about how scientists come up with cancer treatments)	158	10%	11%	9%	1%p
It was about energy and transport (looking at an electricity grid for a town or the inside of a submarine)	151	10%	7%	11%	-4%p

Note. Highlighted cells indicate statistically significant differences at the p < .05 level.

This is not to say that disabled students did not enjoy The Fair, actually 89% of disabled students agreed with that statement compared to 90% of non-disabled students, but they were less likely to pinpoint why they enjoyed the activities.

In contrast, students in the high prior STEM engagement group were more likely to engage with this question, selecting the individual options more frequently and tending to select more than one option overall. For example, 21% of students in the low prior STEM engagement group picked one option from the list, compared with only 6% of students in the high prior STEM engagement group.

Did The Fair build students' capabilities and confidence to pursue a job in STEM? Building 'engineering skills'

New to this year's survey, we asked students whether The Fair provided young people with the opportunity to do activities that helped them develop their 'engineering skills'. We aligned our definition of 'engineering skills' with EngineeringUK's guide for careers leaders⁸ as these are highly transferable and in demand.

As seen in Figure 2, nearly three quarters of students (73%) said that they got to do things that helped them be creative at The Big Bang Fair. 60% of students also noted that The Fair had provided them with the opportunity to develop their teamworking skills as well.

Encouragingly, 77% of students selected more than one skill from the list provided, with only 3% not selecting any and 20% selecting only one. However, there were a handful of differences in how many and which skills students endorsed depending on their demographic background. For example, the proportion of disabled students that did not select any of the skills listed was double that of non-disabled students (6% and 3%, respectively). Disabled students tended to be less likely to say that The Fair had helped them develop their creativity (68%), ability to work as part of a team (53%) and ability to see things a new way (open-mindedness) (36%) compared to non-disabled students (76%, 62% and 46%, respectively).

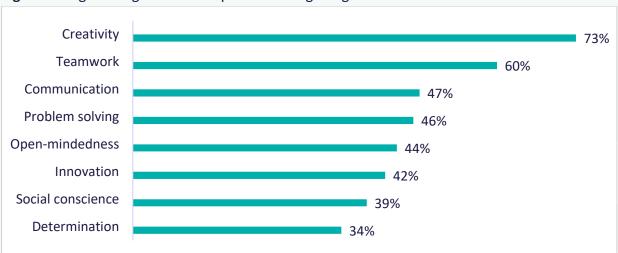


Figure 2: Engineering skills developed at The Big Bang Fair

Girls were particularly positive about The Fair offering them the opportunity to see things in a new way. 48% of girls said that The Fair helped them develop the ability to be open-minded compared to 40% of boys. Students not eligible for free school meals were also more likely to say that The Fair had provided the opportunity to learn how to be open-minded (46%) compared with those who are eligible for free school meals (39%). There were no significant differences related to students' ethnicity or whether they were from a priority school.

⁸ EUK Education (2025). Advancing STEM careers provision in schools: A guide for careers leaders. https://eukeducation.org.uk/resources/schools-resources/advancing-stem-careers-provision-in-schools/

In contrast, across all skills, students in the high prior STEM engagement group were more likely to say that they had the chance to develop that skill while at The Fair compared to students in the low prior STEM engagement group. For example, 81% of students already engaged in STEM said they had the chance to develop their creativity at The Fair, compared with 63% of students who were not already engaged in STEM.

Developing confidence

We asked students about the degree to which The Fair had improved their confidence in their ability to do a future job that involves engineering, technology or science. Based on the results of cognitive testing and piloting of these questions in 2023/24, we asked about the three fields in three separate questions and provided definitions of what jobs in each of these entail.

On the whole, students were positive about the impact of The Fair, with nearly two thirds saying that it made them more confident in their ability to do a job that involves engineering (63%), technology (67%) or science (65%). Encouragingly, more than a quarter of students said The Fair had made them a lot more confident in these subjects (26%, 28% and 29% respectively).

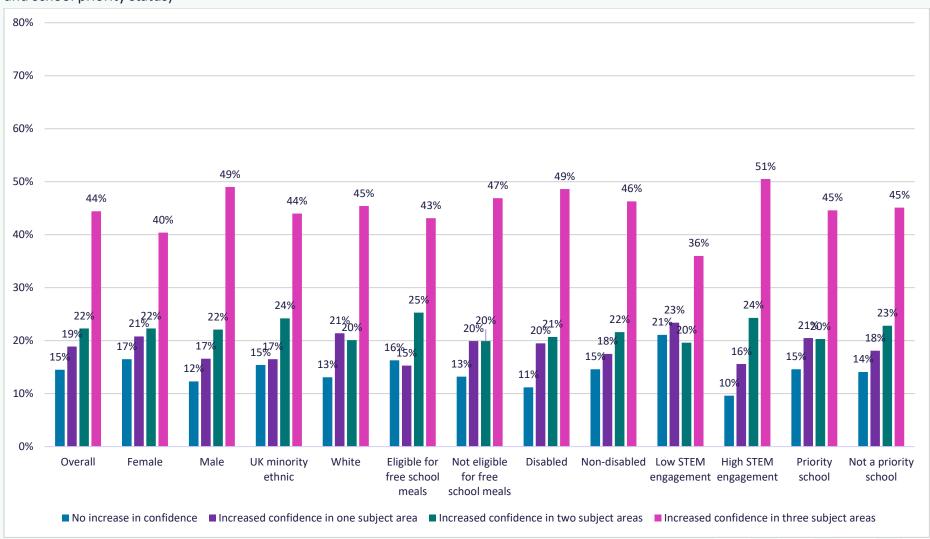
With regards to how students responded across all three questions, 44% said that The Fair had increased their confidence in all three subjects, with an additional 22% saying it had made them more confident in two subject areas and 19% saying it had positively impacted them in at least one subject (labelled as 'Overall' in Figure 3). That is 86% of students agreeing The Fair had increased their confidence in at least one of these subjects.

Figure 3 presents an overview of how students responded across all three questions overall, by demographic groups, and school type. 34% of students from UK minority ethnic backgrounds said The Fair made them a lot more confident in their ability to do a job involving science compared with 27% of white students.

Students who were already interested in STEM were more likely to say that The Fair made them more confident that they could do a future job in engineering, technology, science, or all three of these. For example, just over half of the students in the high STEM engagement group (51%) said it made them more confident across all three subject areas compared with 36% of students in the low STEM engagement group.

Similarly, there were significant differences in how girls responded to these questions, both individually and in the summed scores across all 3 subject areas. These mirrored gender differences reported in evaluations of our other EngineeringUK programmes and within the SET sample, showing significant differences in confidence in engineering and technology, but not science. Nearly two thirds of girls said The Fair increased their confidence in their ability to do a job in engineering (60%) or technology (66%) compared with three quarters of boys (74% and 75%, respectively). In contrast, 70% of girls and 68% of boys said The Fair improved their confidence in their ability to do a job involving science.

Figure 3: Students' increased confidence in their ability to do a job in engineering, technology and science (overall, by student characteristic and school priority status)



While important to recognise these significant differences, it is equally important to note:

- despite being lower than boys, girls were very positive overall, especially when considering the questions are measuring change in students' confidence and not their current confidence levels
- responses in general were very positive across all groups, with the majority responding positively to all three questions regardless of their demographic background or school priority status (Figure 3)
- there were very few statistically significant differences in how The Fair influenced young people's confidence across the other demographic characteristics or whether they were from a priority school, and where there were differences, they were in favour of the underrepresented group

Did The Fair improve students' knowledge of what people working in STEM do?

Students were very positive about how much they learned about what people working in engineering (84%), technology (85%) and science do (81%) (Table 5, Figure 4). 7 out of 10 students (70%) said that since arriving at The Big Bang Fair, they had learned about what people working in all three of 3 subject areas do. Across the three questions, only 5% of students said they hadn't learned about what people working in any of these subject areas do. An additional 19% responded positively on two of these questions, and 6% on one.

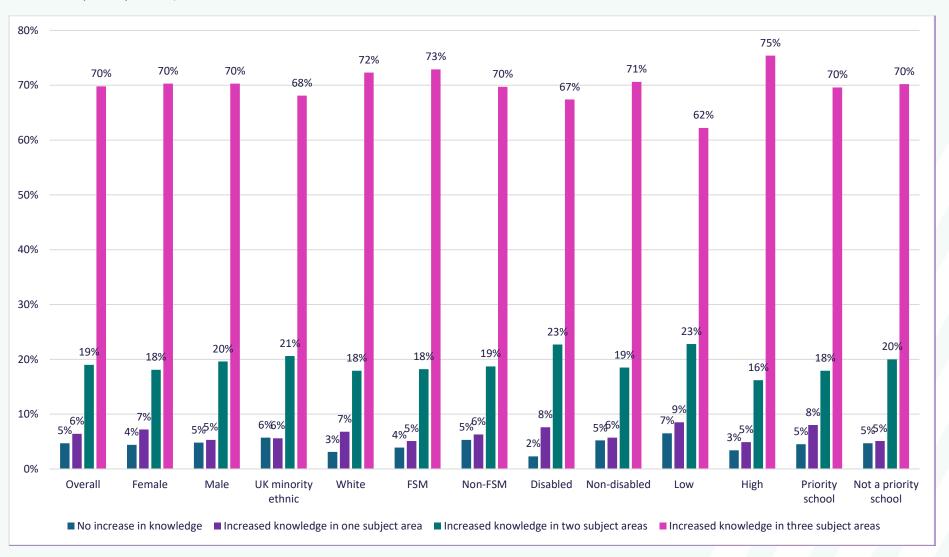
Table 5: How much The Fair changed students' knowledge of what people working in engineering, technology or science do

Response option	Engineering	Technology	Science
I know a lot more	35%	40%	40%
I know a bit more	49%	45%	42%
My knowledge has not changed	12%	12%	14%
Don't know	4%	3%	5%

Students already interested in STEM were more positive on the individual questions and more likely to have responded positively on all 3 questions overall. However, as seen in Figure 4, 62% of students who were not previously engaged in STEM said that they learned about what people working in all three of these subject areas do. This suggests that the impact of The Fair on students' knowledge of what people working in these subjects do was not limited to those already keen to learn about jobs in STEM.

As seen in Figure 4, there were very few differences related to student demographics. Girls were less likely than boys to say that they had learned a lot more about what people working in engineering do (30% compared with 43%, respectively). However, there were no

Figure 4: Students' increased knowledge of what people working in engineering, technology and science do (overall, by student characteristic and school priority status)



significant differences in how much they learned about what people working in technology or science do, or in their total scores across the three questions. For example, 70% of girls and boys alike said that they had learned about what people working in all three of these subject areas do.

Encouragingly, students in priority schools were more likely to say 'I know a lot more' about engineering (39%) and science (44%) compared with students in non-priority schools (32% and 37%, respectively). Instead, students in non-priority schools were more likely to say 'I know a bit more' (56% and 46%) compared with 50% and 43% of non-priority school students.

Did The Fair motivate students to do more STEM activities and find out more about jobs in STEM?

Roughly 7 out of 10 students agreed or strongly agreed that The Fair made them want to:

- do more STEM activities (71%)
- find out more about jobs in engineering (69%)
- find out more about jobs in technology (73%)
- find out more about jobs in science (70%)

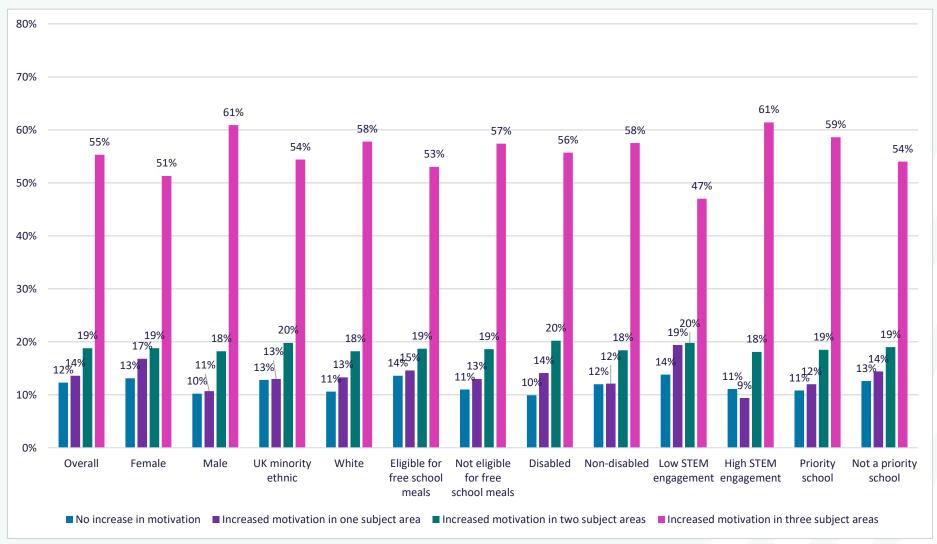
Very positively, across the individual subject areas, nearly half of the sample said that The Fair made them want to find out more about jobs in all three of these subject areas (55%). As seen in Figure 5, 88% of students responded positively to at least one of the questions.

In terms of gender differences, 51% of girls and 61% of boys said that The Fair had motivated them to find out more about jobs in engineering, technology and science. Boys were also more likely to say that The Fair had motivated them to find out more about jobs in engineering (80%) and technology (80%) compared with girls (67% and 74%).

Students in the high STEM engagement group were more positive in how they responded to each question as well as across all three questions. For example, 79% of students in the high STEM engagement group said that The Fair made them want to do more STEM activities in the future compared with 69% of students in the low STEM engagement group. Similarly, 77% of students in the high STEM engagement group said The Fair made them want to know more about engineering jobs compared with 67% of students in the low STEM engagement group. However, again, the responses from the low STEM engagement group were very positive in terms of wanting to do more STEM activities, across all three questions about wanting to find out more about STEM jobs (67% for engineering, 73% for technology and 68% for science), and in their total scores across these questions (Figure 5). Taken together, these findings support the interpretation that The Fair is effective in motivating students who are not already interested in STEM.

Additional support for this interpretation is the lack of significant differences related to students' ethnicity, free school meal status, and disability status (Figure 5). In other words, students were similarly motivated by The Fair regardless of whether they were from a UK minority ethnic background, eligible for free school meals or disabled.

Figure 5: Students' increased motivation to find out more about jobs in engineering, technology and science (overall, by student characteristic and school priority status)



Did The Fair increase students' interest in STEM jobs and perception of STEM as suitable for someone like them?

Interest in STEM jobs

Roughly two thirds of students said that The Fair made them a bit or a lot more interested in a future job in engineering (69%), technology (67%) or science (64%) (Table 6), with nearly half of students responding positively on all three of these questions (47%) (Figure 6). 85% of students responded positively in at least one subject area.

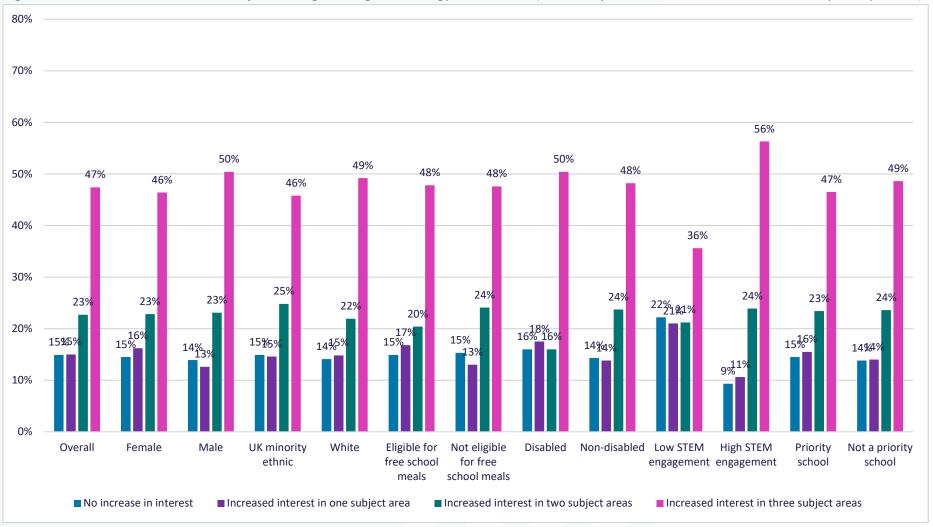
Table 6: How much The Fair changed students' interest in a future job in engineering, technology or science

Response option	Engineering	Technology	Science
I am a lot more interested	30%	30%	30%
I am a little more interested	39%	37%	35%
My interest has not changed	20%	22%	25%
I am a bit less interested	4%	5%	5%
I am a lot less interested	5%	3%	3%
Don't know	3%	3%	3%

Boys and students who were more engaged in STEM responded more positively than girls and students who were less engaged in STEM (Figure 6). For example, 70% of girls said The Fair made them more interested in a future job in engineering compared with 74% of boys.

There were also two key differences related to students' disability status, with disabled students tending to be less positive about the impact The Fair had on their interest in engineering (68%) and technology jobs (67%) compared with non-disabled students (72% and 71%, respectively). However, while statistically significant, it is important to recall that both percentages are positive overall, and as seen in Figure 6, the proportions of disabled students saying their interest had increased in at least one of these subject areas (84%) was very similar to non-disabled students (86%).

Figure 6: Students' increased interest jobs in engineering, technology and science (overall, by student characteristic and school priority status)



Perceived suitability

Although 'suitable for someone like me' could be interpreted in different ways, previous testing of this phrasing showed that young people understood the statement to mean a job that aligns with their interests, skills and what they enjoy doing or studying. Overall, this question offers an insight into The Fair's effectiveness at promoting STEM careers to all students, whatever their background or identity.

More than half of all students either agreed or strongly agreed that The Fair had shown them that jobs in engineering (54%), technology (61%) or science (58%) would be suitable for someone like them. 81% of students agreed with at least one of these statements, with 35% of the sample agreeing with all three.

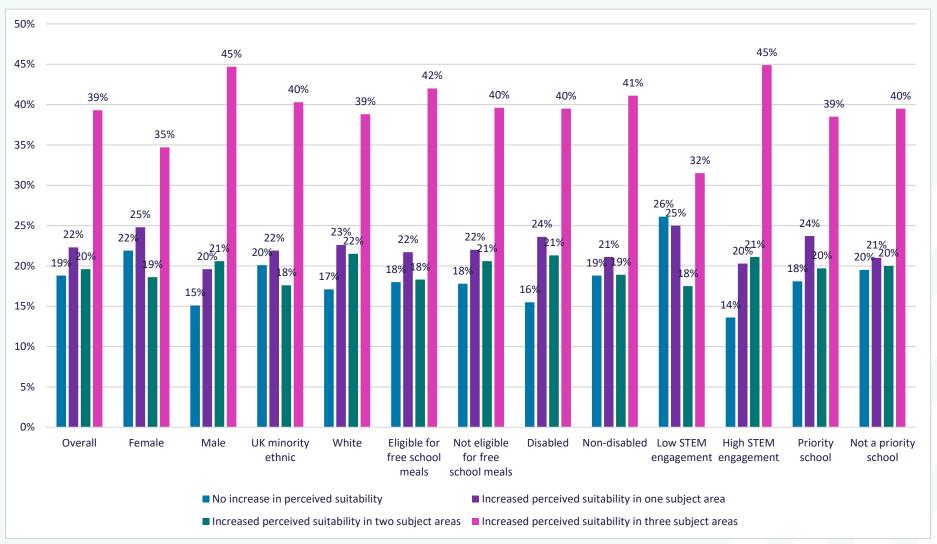
As seen in Figure 7, there were no significant differences in how suitable young people felt STEM jobs were for someone like them related to their ethnicity, free school meal eligibility or disability status. This is very positive as in SET, there were significant differences in how much students felt STEM jobs were suited to someone like them for a range of demographic factors. This indicates The Fair is effective at showing all young people that they could have a career in STEM. Students from priority schools were similarly positive in their responses to students from non-priority schools, with roughly 8 out of 10 students from both of these groups agreeing with at least one of the questions.

In contrast, the familiar pattern of gender differences and differences related to students' existing interest in STEM was present for this outcome as well. For example:

- 49% of girls said The Fair showed them that a job in engineering was suitable for someone like them compared with 67% of boys
- 61% of girls said The Fair showed them that a job in technology was suitable for someone like them compared with 70% of boys
- 78% of girls responded positively on at least one of these questions compared with 85% of boys
- just over half of the students in the low STEM engagement group said The Fair showed them that a job in engineering (52%), technology (57%) or science (54%) was suitable for someone like them compared with 62%, 70% and 70% of students in the high STEM engagement group (respectively)

However, again within SET, the gender differences were more pronounced and less positive overall. For example, in the SET sample, only 16% of girls felt a job in engineering was suitable for someone like them compared with 44% of boys, a gap of 28%p. In the current sample, the gap is only 18%p and the proportions are considerably higher for both boys and girls, suggesting that The Fair helps narrow existing gaps in students' perceptions of themselves in engineering careers.

Figure 7: Students' increased perceived suitability of jobs in engineering, technology and science being for someone like them (overall, by student characteristic and school priority status)



Impact on educators

What did educators think of their experience of The Big Bang Fair?

The Fair was rated extremely highly by educators in 2025, with 98% saying it was excellent or good, compared with 95% in 2024. The majority were very positive about their experience with 72% rating it as 'excellent' and 26% rating it as 'good'. The remaining options of very poor, poor and neutral each had one or two educator(s) select these options.

Educators thought The Fair:

- engaged their students (95% including 'don't know', or 96% excluding 'don't know' compared with 99% in 2024)
- had clear links to the curriculum (90% including 'don't know', or 92% excluding 'don't know' compared with 94% in 2024)
- was accessible to students of all abilities (92% including 'don't know', or 93% excluding 'don't know' compared with 96% in 2024)
- highlighted a wide variety of careers (96% including 'don't know', 96% excluding 'don't know' and 96% in 2024)
- highlighted solutions to climate change (91% including 'don't know', 93% excluding 'don't know' compared with 90% in 2024)
- was relevant to students lives and interests (90%, or 93% excluding 'don't know', new question for 2025)

Educators were also very positive about the activities at The Fair, saying these were clearly linked to the skills needed to do a STEM career (90%) and to a range of STEM careers (96%).

From a teacher perspective it was refreshing to be able to see careers in action so that our students can see how much is on offer out there. I also thought the level of interaction was excellent this year and all our students came back enthused about jobs they had not even thought about. The exhibitors communicated really well the shows were fantastic again our students were just really excited about learning about STEM alongside medical and environmental needs.

 Senior leadership team member from a nonpriority school

As seen in the quote above, the themes identified in the qualitative data echoed the quantitative results. Educators liked that The Fair:

- was an interactive, immersive and hands-on experience for their students (56 responses,
 29% of total sample), using words like "hands-on" and "practical"
- offered students the opportunity to engage with a variety of companies, exhibitors and industries (47 responses, 25% of the total sample)

- was inclusive, accessible and able to break down stereotypes about STEM, engaging students from different backgrounds and with varying needs (46 responses, 25% of the total sample)
- provided valuable insights into future STEM careers, with many stands linking activities to real-world applications (28 responses, 15% of the total sample)
- was well organised, with knowledgeable, supportive and friendly staff and volunteers, and a well-designed layout (spacing of stands and exhibitions) (26 responses, 14% of the total sample)

Educators from schools with above average proportions of students eligible for free school meals and from UK minority ethnic backgrounds were particularly positive in their comments, especially in terms of how engaging The Fair was for their students and the representation of different industry professionals at The Fair.

It's my first visit to the Big Bang and I'm utterly impressed. There is a huge variety of opportunities for our Y7 and Y8 students to think 'outside of the box', experience STEM in action and to have their eyes opened to future opportunities - which, up to now, they had probably never even been aware of. I love the emphasis on the future - we often struggle to get across to our students the sheer number of future opportunities available to them - but being able to see hear, touch and experience STEM for themselves has brought home to them just how exciting their futures can be if they follow a STEM pathway. Super job - thanks to the stall holders and the organisers alike.

- Technician from a priority school

Gives children the independence to seek out the things that interest them in a safe and controlled environment. Enthusiasm of stall leaders makes asking questions accessible to all.

Subject teacher from a priority school

There were a variety of companies and career paths shown. Engaging activities for our young people and also opportunities for teachers.

Subject teacher from a priority school

The feedback also suggested that educators not only valued the content, but the delivery and atmosphere, which is critical for future programme design. These themes reflect a strong alignment with EngineeringUK's mission to increase representation in STEM by making events inclusive and accessible, support career awareness through industry engagement and enhance learning environments via interactive and practical experiences.

Did The Fair increase educators' knowledge?

Nearly three quarters of educators agreed that The Fair had improved their knowledge of engineering careers (82%) (a new question for this year) and what technicians do (74% including 'don't know', or 77% excluding 'don't know' which is down from 79% in 2024). 1 in 10 educators felt they already knew a lot about engineering careers (10%). In contrast, 18% of educators said

they were already informed about what technicians do. Taken together, these findings suggest that The Fair has its biggest impact on educators' knowledge of engineering careers because this is where there is more room for improvement.

Finally, 85% of educators said that The Fair improved their knowledge of STEM activities to do with their students, with an additional 9% feeling that they were already knowledgeable in this area.

Did The Fair increase educators' confidence to discuss engineering and technology careers and non-degree routes?

Educators were mostly positive about the impact of The Fair on their confidence, with roughly three quarters saying it made them more confident to speak to students about engineering and technology careers (both 73%). It is worth noting that quite a few educators said that there had been no change in their confidence after attending The Fair because they were already confident to speak to students about engineering (16%) and technology careers (18%) (see Table 7).

Table 7: Educators responses to changes in confidence after attending The Big Bang Fair

Response option	Engineering careers (base = 165)	Technology careers (base = 165)
Don't know	4	2
No change - The Fair has had no impact	4	3
No change – I was already confident	16	18
Yes – but less confident	4	4
Yes - a little more confident	39	39
Yes - a lot more confident	34	34

71% of educators said that The Fair made them feel more confident to speak to students about non-degree routes, which is an increase from last year where 61% agreed with this statement. An additional 16% said that their confidence had not changed because they were already confident in this area. 13% of educators were either unsure (7%) or felt The Fair had not had an impact on them (6%).

Did The Fair motivate educators to plan more STEM activities and discuss STEM careers with their students?

The proportions of educators saying that The Fair had made them more likely to plan additional engineering (77%) and technology activities (78%) for their students were very positive.

The large range of exhibitors, the many hands-on activities for the students and the great resources for teachers. Students actively engaged, supervised by enthusiastic and knowledgeable

staff. Great conversations with exhibitors, I learnt so much about both science careers and other opportunities for my students

- Subject teacher from a non-priority school

7 out of 10 educators also said that The Fair made them more likely to suggest careers in engineering (70%) and technology (70%) to their students. It is worth noting that 22% and 21% of educators felt they were already likely to do this for engineering and technology careers (respectively). In other words, 9 out of 10 educators left The Fair motivated to suggest engineering and technology careers to their students, with some feeling motivated when they arrived and most feeling motivated because of attending the event.

Did The Fair offer opportunities for educators to engage in continuing professional development (CPD)?

We asked educators about how much The Fair had shown them ways to:

- organise more hands-on STEM activities for more of my students
- positively promote STEM careers to my students
- provide tangible and diverse examples of real jobs to students
- highlight solutions to environmental problems to my students
- access new STEM teaching and learning resources
- inspire different students about engineering and technology in ways that appeal to them

For the most part, educators felt that The Fair had helped them develop their professional skills (Figure 8). They were particularly positive about The Fair showing them diverse examples of real jobs (69%) and how to promote STEM careers to students (65%).

When offered the opportunity to tell us more about how we can make The Fair more beneficial for educators, there was a strong demand for more dedicated space for teachers (50 responses, 27% of the total sample). For example, a bigger teacher area with more activities and teachers' resources (such as take-away lesson material and curriculum-linked content). Educators valued the chance to network with companies, industry professionals and other educators, but also wanted more follow-up activities (such as outreach activities, company visits to schools and ongoing engagement with industry partners) (10 responses, 5% of total sample). Many also suggested offering free CPD workshops and training sessions (10 responses, 5% of the total sample) or similar events at a regional level (4 responses, 2% of the total sample).

Take it nationwide so schools unable to travel far could also benefit from the experience. And enable the experience to reach a wider student community.

- Educator from a priority school

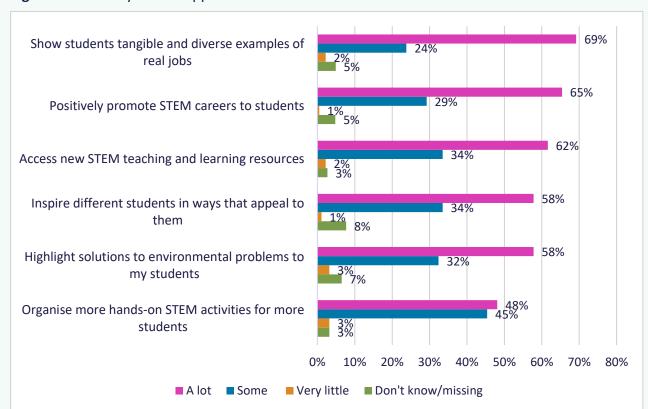


Figure 8: Summary of CPD opportunities for educators at The Fair

In summary, educators were keen for more dedicated professional development opportunities (especially free and hands-on CPD), greater access to resources and lesson materials and stronger networking and outreach in partnership with the industry. The trends especially reflect a desire for The Fair to empower teachers as advocates for STEM, not just event chaperones, and to support their ongoing professional growth and classroom impact.

What factors influenced educators' experience of The Fair and its impact?

There were no significant differences in how educators from priority schools responded to The Fair, with both them and educators from non-priority schools responding positively across all outcomes. However, when asked how EngineeringUK might improve future iterations of The Big Bang Fair, there were a couple of key differences in how educators responded. For example, educators from schools with above average proportions of students eligible for FSMs and from UK minority ethnic backgrounds were more likely to mention logistical improvements, suggestions for crowd management and signposting. They also showed a clear support for regional expansion or hybrid/virtual options to make The Fair more accessible to schools that are unable to travel due to cost or distance.

There was only one significant difference in how educators' different roles related to their experience of The Fair. Subject teachers and Heads of Department were more positive about the impact of The Fair on their knowledge of STEM activities to do with their students (40% and 48% saying they learned a lot about these) compared with technicians (19%). There were no significant differences in how Heads of Department, subject teachers or technicians responded across any of the other outcomes.

Conclusion

The Big Bang Fair 2025 successfully engaged a diverse group of students, with strong evidence that it positively influenced their enjoyment, confidence, knowledge, motivation, and interest in STEM careers (Table 8). Particularly encouraging is The Fair's impact on students from priority schools and those with low prior STEM engagement, suggesting that it is reaching and inspiring young people who may not otherwise have access to STEM opportunities.

Table 8: Summary of students' responses across key outcomes

Total positive responses across all three subject areas (engineering, technology and science)	Increased confidence in ability to do a STEM job	Increased knowledge of what people working in STEM do	Motivated to find out more about STEM jobs	Increased interest in STEM jobs	Improved perceptions of STEM jobs as suitable for someone like them
0	15%	5%	12%	15%	19%
1	19%	6%	14%	15%	22%
2	22%	19%	19%	23%	20%
3	44%	70%	55%	47%	39%
At least one subject area	86%	95%	88%	85%	81%

While there were significant gaps in how girls and boys experienced and responded to The Fair's activities, on the whole, girls were very positive, saying that The Fair:

- made them feel more confident in their ability to do a job in engineering (60%, vs 74% of boys) and technology (66%, vs 75% of boys), as well as across all 3 subject areas (40%, vs 49% of boys)
- increased their knowledge of what people working in engineering do (30% of girls 'strongly agreed,' vs 43% of boys)
- motivated them to find out more about engineering jobs (67%, vs 80% of boys) and technology jobs (74%, vs 80% of boys) as well as across all 3 subject areas (51%, vs 61% of boys)
- increased interest in engineering (70%, vs 74% of boys), as well as across all 3 subject areas (46%, vs 50% of boys)
- improved their sense of belonging and perceived suitability of jobs in engineering (49%, vs 67% of boys) and technology (61%, vs 70% of boys) for someone like them

The gender differences reported here likely reflect broader systemic patterns in STEM engagement and identity, as seen in the SET:

- 34% of girls in Year 7 to 13 believed they definitely or probably could become an engineer in the future, compared with 58% of boys
- only 16% of girls agreed that engineering was a suitable career for someone like them,
 compared with 44% of boys
- 29% of girls were interested in an engineering career, compared with 63% of boys

Without pre-event measures of participants' perceived capabilities and motivation, we cannot tell for certain whether The Fair helps narrow existing gaps. However, there are key differences between gender gaps reported at the national level and in our current sample that suggest The Fair is effective in narrowing these: (i) the gender gaps recorded here are substantially narrower than those reported at the national level; (ii) overall percentages for female students are very positive across all outcomes; and (iii) the gender differences described here take existing differences in students' prior STEM engagement into account.

There were also gaps in the experiences of disabled and non-disabled students, with disabled students being less likely to:

- engage with stands, take part in interactive activities or speak to a STEM professional
- be enthusiastic about what they enjoyed about The Fair, only selecting one option or none
- say they developed their creativity, teamwork and open-mindedness skills at The Fair
- say that The Fair had made them more interested in a future job in engineering (68% vs 72%) or technology (67% vs 71%)

However, as with that recorded for girls and students with low prior STEM engagement, the overall proportions of disabled students responding positively across the individual outcome variables suggests that the positive impact of The Fair extended to disabled and non-disabled students alike.

With regards to educators, their responses were consistently positive and encouraging. The Fair represented a useful and well-appreciated opportunity for educators to learn more about STEM, STEM careers and STEM activities they can do with their students. It helped to build educators' knowledge of STEM and STEM careers and motivated them to talk about these with their students. This positive impact was relatively consistent across educators' roles and regardless of whether they were from an EngineeringUK priority school, suggesting that The Fair presents opportunities for different groups of staff alike. There were a handful of outcome measures that educators rated slightly lower than recorded in the 2024 evaluation (such as whether the content had clear links to the curriculum and whether it was accessible to students of all abilities). These differences potentially reflect changes made to the Teacher Hub in 2025, as we wanted to encourage more educators to explore the show floor, and this resulted in a slightly reduced response rate this year.

Recommendations

Build on momentum for students with low prior STEM engagement

Follow-on activities for Big Bang Explore and activities such as the Meet The Future You quiz are an opportunity for EngineeringUK to sustain students' interest in STEM generated at The Fair. We can also encourage this amongst The Fair's supporters through our existing content objectives (a guidance document for designing inclusive and accessible activities) and our programme development guide.

Explore the experiences of disabled students in more detail

It is unclear in the current analysis whether the differences in how disabled students responded on questions related to what they did at The Fair and increased interest in STEM jobs were genuine differences in their experiences or in how they understood and responded to the question. As part of our work for 2025/26, the evaluation team is exploring how existing feedback surveys should be adapted for different groups of disabled students.

Continue to improve on the good work around gender

The analysis of the responses by gender showed significant differences in many areas, with girls reporting lower confidence, motivation and perception. However, these gaps are much narrower than national benchmarks (as seen in SET 2023). Girls were also more positive than boys on some metrics, for example that The Fair had helped them develop their ability to be open-minded. These all come together to indicate that The Fair is having a positive impact on girls' perceptions of engineering and technology, and its suitability as a career for them. The EngineeringUK team should, working with supporters, continue to ensure there are activities suited to girls, and appropriate role models available at The Fair.

Identify and trial additional avenues for The Fair to continue its support for educators' CPD

There was a clear appreciation of the CPD opportunities currently offered by The Fair and, when prompted, educators described a variety of ways EngineeringUK could continue to enhance what's offered. For example, follow-up information that signposts additional CPD opportunities for educators, lesson plans and curriculum-linked content, follow-on activities for students, and lists of local employers that offer outreach in their area.

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