

# Evaluation of Attainment Raising Pilot Activities 2023

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**inspiring  
choices**

York & North Yorkshire

**York St John University**

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## 1. Context

Academic attainment – defined as meeting the expected or higher standard in a subject (Department for Education; DfE, 2023) – is key to supporting students’ access to higher education (Office for Students; OfS, 2022).

Unfortunately, academic attainment is not equal amongst students, with disadvantaged students (e.g., students from households with lower incomes) often attaining lower grades than their peers.

Only one-third of disadvantaged students, for example, attain the GCSE grades necessary for higher education entry, compared to two-thirds of their advantaged peers (Department for Business, Innovation and Skills, 2015).

Where disadvantaged students achieve the same levels of attainment as their advantaged peers, at age 16, though, they are equally likely to move into higher education (OfS, 2022).

Noting this disparity, John Blake, the 2022 OfS Director for Fair Access and Participation, expanded school-university partnership activity to include raising attainment for students from disadvantaged and underrepresented groups, early on in their education (pre-GCSE).

Against this backdrop, throughout 2023, Inspiring Choices – the York and North Yorkshire Uni Connect partnership – delivered pilot activities aimed at raising attainment in target state secondary schools with a long-term view to increase access and success in higher education among students from disadvantaged and underrepresented groups.

**“When disadvantaged students achieve the same levels of attainment as their advantaged peers at age 16, they are almost equally likely to go to higher education.” (OfS, 2022)**

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## 2. Aims and scope

The mission of Inspiring Choices is to empower, build capacity and skills, and tackle barriers for young people from disadvantaged and underrepresented groups in York and North Yorkshire so to increase access to and success in higher education.

Here we report on the pilot attainment raising activities devised and delivered by Inspiring Choices in 2023.

We seek to examine: (1) the extent to which attainment may have been raised by the pilot activities and (2) what lessons can be learnt from these pilot activities (e.g., strengths and challenges of designs).

## 3. Pilot activities

Inspiring Choices devised five attainment raising pilot activities, of which activities 1 – 4 (see Table 1) were delivered in 2023 and form the focus of our report.



**Table 1 – Characteristics of the attainment raising pilot activities**

Activity name	Activity description	Participants	Evaluation type	Evaluation method	Evaluation strength
<b>1. Drama workshop</b>	One-day drama workshop at the students' school.	N = 14 KS4 (Year 10) and N = 2 post-16 (Year 12) students from one target state secondary school: 'Crossroads' <sup>1</sup> .	Pre-test.  Post-test/partial Pre-test.  Qualitative.	Predicted GCSE grade and last actual school drama class grade received.  Quantitative student survey post workshop with inclusion of some pre workshop focused questions.  Qualitative teacher feedback post workshop and receipt of actual year end drama grades.	Mixed-methods Empirical Weak
<b>2. Podcast (English) project</b>	Two, two-hour lessons at the students' school followed by a one-day visit, including recording a podcast, at York St John University.	i) N = 10 KS4 (Year 10) 'low confidence' students from one target state secondary school: 'Greenwood'.  ii) N = 13 KS4 (Year 10) 'low confidence' students from one target state secondary school: 'Newton'.	Pre/Post-test.  Qualitative.	Predicted versus actual English grades <sup>2</sup> .  Student focus group post recording of the podcast <sup>3</sup> .	Mixed-methods Empirical Weak

<sup>1</sup> Please note pseudonyms have been assigned to protect the anonymity of the schools, students, and teachers involved.

<sup>2</sup> For Greenwood and Holy Oaks only.

<sup>3</sup> For Greenwood and Newton only.

Activity name	Activity description	Participants	Evaluation type	Evaluation method	Evaluation strength
		<p>iii) N = 7 KS4 (Year 10) 'low confidence' students from one target state secondary school: 'Holy Oaks'.</p> <p>iv) N = 10 KS4 (Year 10) 'low confidence' students from one target state secondary school: 'South Bay'.</p>			
<b>3. 'MyTutor' tutoring</b>	Ten sessions of 1-2-1 MyTutor tutoring in Mathematics or English delivered online at a time agreed with the student, student's family, and school.	<p>i) N = 12 (n = 6 Mathematics tutees; n = 6 English tutees) KS4 (Year 11) students from one target state secondary school: Greenwood.</p> <p>ii) N = 12 English tutees, KS4 (Year 11) students from one target state secondary school: 'East Bridge'.</p>	<p>Pre/Post-test.</p> <p>Qualitative.</p>	<p>Predicted versus actual grades in subject (Mathematics or English).</p> <p>Qualitative teacher survey post receipt of actual Mathematics or English grades.</p>	<p>Mixed-methods</p> <p>Empirical</p> <p>Weak</p>
<b>4. STEM (Science, Technology, Engineering, and Mathematics) conference</b>	One-day annual STEM conference with practical workshops at the National Railway Museum, York.	N = 86 KS3 (Year 9) students from four target state secondary schools: Crossroads, n = 13; East Bridge, n = 28; 'Yew Tree', n = 24; 'Ridgeway', n = 21.	<p>Pre/Post-test.</p> <p>Pre/Post-test and Qualitative.</p>	<p>Predicted versus actual grades in Science and Mathematics <sup>4</sup>.</p> <p>Quantitative/ qualitative student survey pre and post conference day.</p>	<p>Mixed-methods</p> <p>Empirical</p> <p>Weak</p>
<b>5. History visit <sup>5</sup></b>	Two, two-hour lessons at the students' school followed by a one-day museum visit, including a source analysis task, and a subsequent one-day visit to York St John University.	A purposeful sample of KS4 (Year 10) 'low achieving' and 'high achieving' students versus an equivalent comparison group of non-participants, from one target state secondary school.	Quasi-experimental with Pre/Post-test.	Student quantitative survey pre and post museum visit for participants versus pre and post usual class for non-participants.	Causal

<sup>4</sup> All schools provided predicted Science and Mathematics grades. Only Crossroads shared achieved Science grades.

<sup>5</sup> Due to circumstances beyond Inspiring Choices' control, the history visit pilot activity has been postponed indefinitely.

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## 3.1. Drama workshop

### Background and aims

The drama workshop was devised by Inspiring Choices with input from Drama students at York St John University, with aims to: (i) encourage attainment and progress in drama, (ii) inspire students to continue through educational pathways (i.e., into university), and (iii) increase study, personal, and social skills, broadly.

### Pilot activity undertaken

One state secondary school, 'Crossroads', participated in the drama workshop pilot activity. Crossroads is identified by Inspiring Choices as a target school for outreach and attainment activity. Participants were a mix of 14 KS4 (Year 10) and two post-16 (Year 12)<sup>6</sup> drama students who took part in a one-day drama workshop at their school during the summer term, 2023 (see Table 1).

### Evaluation activity undertaken

We used three data collection and evaluation methods: (1) predicted GCSE grade and last actual school drama class grade received (Pre-test); (2) quantitative student survey post drama workshop with inclusion of some pre-workshop focused questions (Post-test/partial Pre-test; see Appendix A); (3) Qualitative teacher feedback post workshop and receipt of actual year end drama grades (Qualitative; see Appendix B).

**A paired samples t-test compares the means of two measures taken from the same group of people. Here, it assesses for statistically significant differences between predicted GCSE grades and last actual school drama class grades received. Statistical significance signals a difference in the scores that exceeds chance ( $p < .05$ ). We also quantified the difference as an effect size that signals the difference between scores in units of standard deviation (Cohen's d).**

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<sup>6</sup> As the target population for attainment raising is pre-16 (GCSE), the Year 12 quantitative data was not included or interpreted.



## Results

### Grades attained

Table 2 outlines the predicted GCSE drama grade and last actual school drama class grade received by the Year 10 drama workshop students.

**Table 2 – Drama workshop participant grade profiles**

ID	Year Group	Predicted GCSE drama grade	Last actual school drama class grade received
1	10	5	5
2	10	4	4
3	10	8	8
4	10	7	6
5	10	4	4
6	10	8	8
7	10	7	7
8	10	7	6
9	10	4	4
10	10	7	7
11	10	5	5
12	10	6	6
13	10	5	5
14	10	7	7
		<b>M = 6.00 SD = 1.47</b>	<b>M = 5.86 SD = 1.41</b>

A paired samples t-test showed no statistically significant difference in the last actual grades and predicted GCSE grades of the Year 10 drama workshop students:  $t(13) = -1.47$ ,  $p = .17$ ,  $d = -0.39$ . No other grades were made available by Crossroads for comparison and so learning gain (i.e., actual year end minus predicted year end grades) could not be examined.

### Quantitative student survey

A quantitative survey was designed to capture and quantify student perceptions of their grade prediction, attainment, future academic intentions, and key study, personal, and social skills (see Appendix A).

Students responded to quantitative survey questions on a **5-point scale**:

1 = strongly disagree or extremely unlikely.

5 = strongly agree or extremely likely.

## Student perceptions of grade prediction, attainment, and future academic intentions

Table 3 outlines the Year 10 drama workshop students' perceptions of being able to achieve their predicted GCSE drama grade (**grade prediction**), satisfaction with school drama class assessment results (**attainment**), and likelihood of applying to move into higher education after having attended the drama workshop as well as likelihood of applying to study drama in higher education, before and after having attended the drama workshop (**future academic intentions**).

**Table 3 – Drama workshop participant perceptions and intentions**

ID	Perception of predicted GCSE grade achievement	Satisfaction with drama assessment results	Likelihood of applying to higher education		
			Post workshop	Pre workshop	Post workshop
1	4	3	5	5	5
2	4	4	2	3	4
3	5	5	1	3	3
4	3	—	4	2	3
5	4	4	1	2	2
6	4	4	4	5	5
7	—	—	2	2	2
8	4	3	3	1	4
9	4	4	2	1	3
10	4	4	5	1	—
11	4	4	3	1	4
12	—	4	3	2	4
13	2	3	3	1	1
14	4	3	4	5	5
	M = 3.83 SD = 0.72	M = 3.75 SD = 0.62	M = 3.00 SD = 1.30	M = 2.43 SD = 1.56	M = 3.46 SD = 1.27

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As shown in Table 3, the Year 10 drama workshop students mostly agreed that they could achieve their predicted GCSE drama grade ( $M = 3.83$ ;  $SD = 0.72$ ), were mostly satisfied with their school assessment results in drama ( $M = 3.75$ ;  $SD = 0.62$ ), but were neither likely nor unlikely to apply to move into higher education ( $M = 3.00$ ;  $SD = 1.30$ ).

The likelihood of applying to study drama in higher education was significantly different, however, before versus after the workshop:  $t(12) = -2.80$ ,  $p = .02$ ,  $d = -0.78$ , with the pre drama workshop likelihood lower than the post drama workshop likelihood.

The **likelihood of applying to study drama in higher education** was **higher post workshop** than pre workshop.

## Student perceptions of their key study, personal, and social skills

Students' perceptions of key study, personal, and social skills were considered here as intermediate outcomes that may provide richer insight into the impact of the drama workshop.

**Intermediate outcomes** are “the behaviour, attitude, knowledge, or skill that an intervention aims to influence and can act as proxy measures for attainment” (TASO, 2022).

Two broad categories of intermediate outcomes, known to be positively associated with attainment outcomes, were considered, and quantified using validated measures:

1. Self-perceptions in the form of academic self-efficacy:
  - i. **Academic self-efficacy** concerns “students' confidence in their own ability and skills necessary to perform well academically in higher education” (TASO, 2023).
2. Cognitive and metacognitive outcomes in the form of confidence with five key skills (Bray et al., 2020):
  - i. **Collaboration**: working on projects or solving problems together and working effectively, respectfully, and assuming responsibility for task completion in teams to accomplish shared goals.
  - ii. **Communication**: organising thoughts, data, and findings and sharing these effectively through a variety of means.

- iii. **Creativity and innovation:** solving complex problems or tasks based on analysis and synthesis of information, and combining and presenting the results in new and original ways.
- iv. **Self-direction:** taking responsibility for one’s own learning and for reviewing work and responding to feedback.
- v. **Critical Thinking:** analysis of complex problems, questions, and evaluating information and using appropriate evidence to draw conclusions.

Table 4 outlines the means and reliability estimates (Cronbach’s Alpha,  $\alpha$ ) for the Year 10 drama workshop participants’ academic self-efficacy and confidence with key skills, post drama workshop. On average, participants neither agreed nor disagreed with possessing academic self-efficacy and, with respect to key skills, they were most confident in their ability to collaborate and least confident in their communication.

**Table 4 – Means and reliability estimates for drama workshop participants’ perceptions of academic self-efficacy and confidence with key skills**

	M	SD	$\alpha$
1. Academic Self-Efficacy	3.33	0.89	.79
2. Collaboration	4.36	0.46	.67
3. Communication	3.74	0.72	.72
4. Creativity	4.00	0.43	.42 <sup>^</sup>
5. Self-direction	3.88	0.58	.47 <sup>^</sup>
6. Critical thinking	3.69	0.59	.08 <sup>^</sup>

Note. <sup>^</sup>Internal consistency reliability is usually considered acceptable if the estimate is 0.70 or higher, with a lower threshold of 0.60 for scales with few items, and so these three subscales were not carried forward and have not been further interpreted.

A **bivariate correlation** is used to determine whether two variables are related to one another, as well as the strength and direction of their relationship. Here they provide an exploration of relations between pre and post workshop data.

Table 5 shows the bivariate correlations between future academic intentions (i.e., likelihood of applying to move into higher education after having attended the drama workshop and likelihood of applying to study drama in higher education, before and after having attended the drama workshop), academic self-efficacy, and confidence with key skills

for the Year 10 drama workshop participants. As a note of caution when interpreting the bivariate correlations, because the sample size is small, the estimates of effects are likely imprecise and prone to bias.

Significant positive bivariate correlations were found between:

- Likelihood of applying to higher education (post workshop) and likelihood of studying drama in higher education (post workshop).
- Pre workshop and post workshop likelihood of studying drama in higher education.
- Likelihood of applying to higher education (post workshop) and academic self-efficacy (post workshop).

**Table 5 – Bivariate correlations between drama workshop participants’ future academic intentions, academic self-efficacy, and confidence with key skills**

	1	2	3	4	5	6
1. Likelihood of applying to higher education	—					
2. Likelihood of studying drama in higher education (pre workshop)	.30	—				
3. Likelihood of studying drama in higher education (post workshop)	.59*	.67*	—			
4. Academic Self-Efficacy	.56*	.26	.06	—		
5. Collaboration	-.04	.24	.43	.15	—	
6. Communication	-.19	.38	.15	.07	.46	—

Note. \*Relationships are significant at a level of  $p < 0.05$

### Qualitative teacher perceptions

The drama teacher at Crossroads (CT1), indicated that the drama workshop was “brilliant” and “gave our students more confidence a chance to work with HE students and ask questions.” However, CT1 also wrote, “with such a small cohort any statistical impact is very difficult”. More broadly CT1 felt predicted grade setting and attainment had been a significant challenge for their “middling cohort” as they wrote, “How the grade boundaries impacted us... it was much harder to get a grade 4 this year than when GCSEs were marked pre covid.” However, attainment and progression for the Year 12 drama students seemed more straightforward with CT1 indicating that they were intending to go to university and that one of them [who attended the drama workshop] is “doing an acting course”.

“[The drama workshop] gave our students more confidence a chance to work with HE students and ask questions.” (CT1, 2023)

## Outcomes

We posed two questions for our evaluation:

### 1. To what extent may attainment have been raised by this pilot activity?

In addressing question one, both the quantitative and qualitative data suggests that the impact of the drama workshop on direct drama grade attainment may be limited. However, potential indirect effects on attainment were perhaps evident through self-perceptions and cognitive and metacognitive outcomes.

### 2. What lessons can be learnt from this pilot activity (e.g., strengths and challenges)?

In addressing question two:

- Whilst the impact of the drama workshop on direct drama grade attainment may appear limited, only pre workshop grade outcomes were made available for the workshop participants and the sample size was small, which limits the quantitative analyses and interpretations that can be made.
- What the quantitative data did demonstrate is that intentions to apply to higher education, particularly to study a drama related programme, were higher post workshop, suggesting this is a strength of the drama workshop and there is merit to including pre and post workshop measures.
- Qualitative data inferred that the students benefitted from the drama workshop in terms of developing key study, personal, and social skills (i.e., confidence and collaboration/communication with higher education students), which have been positively associated with attainment and considered key intermediate outcomes for attainment (e.g., Schneider & Preckel, 2017; Thomson et al., 2022). As such, this indicates a further strength of the drama workshop and suggests there is merit in adopting mixed evaluation methods to provide a fuller picture.

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## Reflections and recommendations

- Were the drama workshop to be retained in its current guise, some key skills, and outcomes necessary for indirectly raising attainment and encouraging students to carry on into higher education, could likely be developed again.
- Three revisions may help improve the workshop and/or our ability to evaluate its effectiveness:
  - i. Collating grades in drama and perceptions of intermediate outcomes pre and post workshop would help to better establish any direct changes in attainment and progress along the path to attainment.
  - ii. Running workshops with more groups would help increase sample size for both students and teachers so to improve statistical power and gain a greater breadth of teacher perceptions.
  - iii. Adding a control and or comparison group would allow for greater inference of causal effects.



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## 3.2. Podcast (English) project

### Background and aims

The podcast (English) project was devised by Inspiring Choices with input from Media Production and Journalism academics at York St John University, with aims to:

- (i) encourage progress and attainment in subjects reliant on voice, literacy, and technology,
- (ii) inspire students to continue through educational pathways (i.e., into university) and
- (iii) increase study, personal, and social skills, with a specific focus on increasing confidence.

### Pilot activity undertaken

Four state secondary schools, identified by Inspiring Choices as target schools for outreach and attainment activity, participated in the podcast (English) project pilot activity: Greenwood, Newton, Holy Oaks, and South Bay. Participants were selected based on teacher report that they were low in confidence but had an interest in English.

For the podcast (English) project pilot activity, participants were 40 KS4 (Year 10) students (Greenwood = 10, Newton = 13, Holy Oaks = 7, and South Bay = 10) who took part in two, two-hour lessons on podcasting at their respective school followed by a one-day visit, including recording a podcast, at York St John University during the summer term, 2023 (see Table 1).

### Evaluation activity undertaken

We used two data collection and evaluation methods: (1) predicted versus actual grades attained in English (Pre/Post-test); (2) student focus group post recording of the podcast (Qualitative).

Of the four participating schools, Greenwood shared predicted and actual grades for their podcast (English) project participants and Holy Oaks shared predicted and actual grades for their podcast (English) project participants and non-participants from the same year group.

Student focus groups involved podcast (English) project participants from Greenwood and Newton (see Appendix C for focus group questions).

No data was provided by/collected from South Bay.



## Results

### Grades attained

#### Greenwood

Table 6 outlines the predicted and actual end of year 10 English Language and Literature grades attained by the podcast (English) project participants from Greenwood. A paired samples t-test showed that Greenwood’s podcast (English) project participants had different predicted to actually attained English Literature grades:  $t(9) = 3.87$ ,  $p = .004$ ,  $d = 1.23$ , with actual grades attained one grade level lower than predicted grades.

**Table 6 – Podcast (English) project participant English Language and Literature grade profiles for Greenwood**

ID	Predicted English Language grade	Actual English Language grade <sup>7</sup>	Predicted English Literature grade	Actual English Literature grade
1	5	—	7	7
2	4	—	5	3
3	6	—	6	6
4	7	—	7	5
5	7	—	8	7
6	4	—	4	2
7	6	—	6	6
8	7	—	7	6
9	6	—	6	5
10	6	—	7	6
	M = 5.80 SD = 1.14	— —	M = 6.30 SD = 1.16	M = 5.30 SD = 1.64

#### Holy Oaks

Table 7 outlines the predicted and actual end of year 10 English grades attained by the podcast (English) project participants from Holy Oaks. Whilst a t-test with a sample of seven is not generally advisable, we conducted one here to facilitate a comparison with non-pilot project students from the same year group. The paired samples t-test showed no statistically significant difference and so Holy Oaks podcast (English) project participants were attaining actual end of year 10 English grades consistent with their predicted English grades:  $t(6) = -0.68$ ,  $p = .52$ ,  $d = -0.26$ .

<sup>7</sup> Please note no actual English Language grades were available as the students did not sit an end of year 10 exam.

**Table 7 – Podcast (English) project participant English grade profiles for Holy Oaks**

ID	Predicted English Language grade	Actual English Language grade
1	3	4
2	8	6
3	4	5
4	8	9
5	4	5
6	6	6
7	5	5
	M = 5.43 SD = 1.99	M = 5.71 SD = 1.60

Holy Oaks provided data for a further 131 non-pilot project students from the same year group. Of which, 116 had both predicted and attained grades available with a mean predicted end of year 10 English grade of 4.76 (SD = 1.89, range = 1 to 9) and attained end of year 10 English grade of 5.05 (SD = 1.90, range = 1 to 9). A paired samples t-test showed that non-pilot project students from Holy Oaks had different predicted to attained English grades:  $t(115) = -3.93, p < .001, d = -0.37$ , with actual grades attained higher than predicted grades by a grade increment of 0.29.

Note, in deciding on whether it would be better not to be in the pilot versus in the pilot, the effect sizes (rather than statistical significance) are the same (i.e., small). In other words, the difference between predicted and actual grades are the same for both groups.

**Thematic Analysis** is a method of analysing qualitative data and in this case, the two student focus groups were transcribed and read/re-read until the lead analyst became familiar with the content. Initial codes were then generated, followed by searching for themes, reviewing the themes with a critical friend, defining the themes, and then providing a write-up.

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## Qualitative student perceptions

Three overarching themes emerged with respect to thematic analysis of the focus group data from Greenwood (GS) and Newton (NS): **'Planning and information gathering'**; **'Collaboration and idea sharing'**; and **'Education barriers and benefits'**. We unpack these themes below:

1. **'Planning and information gathering'** captured the idea that the podcasting activity engaged students in planning and gathering information on a topic they were passionate about, which they enjoyed and felt would help develop their ability to plan, prepare for, create, and deliver future presentations, as NS2 said, "Choosing something you're passionate about and preparing the information for it" [would be useful for putting together a presentation assessment in future] and the following exchange built on from that:

NS1: I think for planning, it has been useful doing research beforehand and-

NS3: Wording it.

NS7: And being able to flow from just a sentence.

However, they would have liked more time, with support, to work on the podcast between lessons, as GS7 said, "Maybe more sessions because I feel like we had four hours to plan it and that was two weeks apart so it was like a lot of time in between where we didn't do it..."

2. **'Collaboration and idea sharing'** centred on the notion that the podcasting activity encouraged students to work in a group and share their ideas, which proved challenging at times but also helped build their confidence in using their own voice, as GS2 said, "I think we all, if I can say all of us, enjoyed it but I think the bit that we stressed about the most was trying to, as a group, collaborate and think of one idea that we all like. I think that was our hardest thing. I think we all did enjoy it." GS7 replied, "But then again, that did also still help with social skills in the end so where it didn't benefit in one way, it did in another way." NS9 simply said, "it was much easier" [working in a group]. Equally, it helped students develop a better appreciation of others' ideas and perspectives, which they overall considered useful for their future development and studying English, as exemplified in the following exchange;

NS9: I liked it, yes.

...

NS1: Well you can express what you think about it and then other people add on to that.

NS12: It builds. You get more people's opinions.



3. **'Education barriers and benefits'** saw the students share their expectations and, in some instances, uncertainties regarding their future educational pathway. Central to their uncertainty were perceived barriers, including (i) finance, as GS7 expressed, "...the only thing that throws me off is the finance side of things, how to cope with the expense of going to university", (ii) social support, as GS5 said, "...So it's just like you've got to learn to live for a whole week without them [family] and its going to be different...", (iii) perceived social class status, as NS6 stated, "It's unfair because people can come from higher backgrounds but they're guaranteed to a higher education which means they're going to keep going on being that higher class. Whereas for the middle class... are just as smart but they don't get the chance" and (iv) standard of university living accommodation, as GS8 indicated, "There's been loads of complaints about sharing flats with people, how dirty certain people can be. I know it sounds horrible." Despite this, participants largely indicated that they were interested in continuing into higher education, recognising the benefits with respect to studying something meaningful, independent living, better job prospects, and the development of broader life skills, as GS7 said:

"That's why I want to go to university, just to gain those important life skills because when you come to leave home, if you go to university, you've got the time to gain that before you go straight into the real world when you go to work and get a house or a flat..."

"I think we all, if I can say all of us, enjoyed it but I think the bit that we stressed about the most was trying to, as a group, collaborate and think of one idea that we all like. I think that was our hardest thing. I think we all did enjoy it." (GS2, 2023)

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## Outcomes

We posed two questions for our evaluation:

### 1. To what extent may attainment have been raised by this pilot activity?

In addressing question one, the quantitative data suggests that the impact of the podcast (English) project on direct English grade attainment may be limited.

### 2. What lessons can be learnt from this pilot activity (e.g., strengths and challenges)?

In addressing question two:

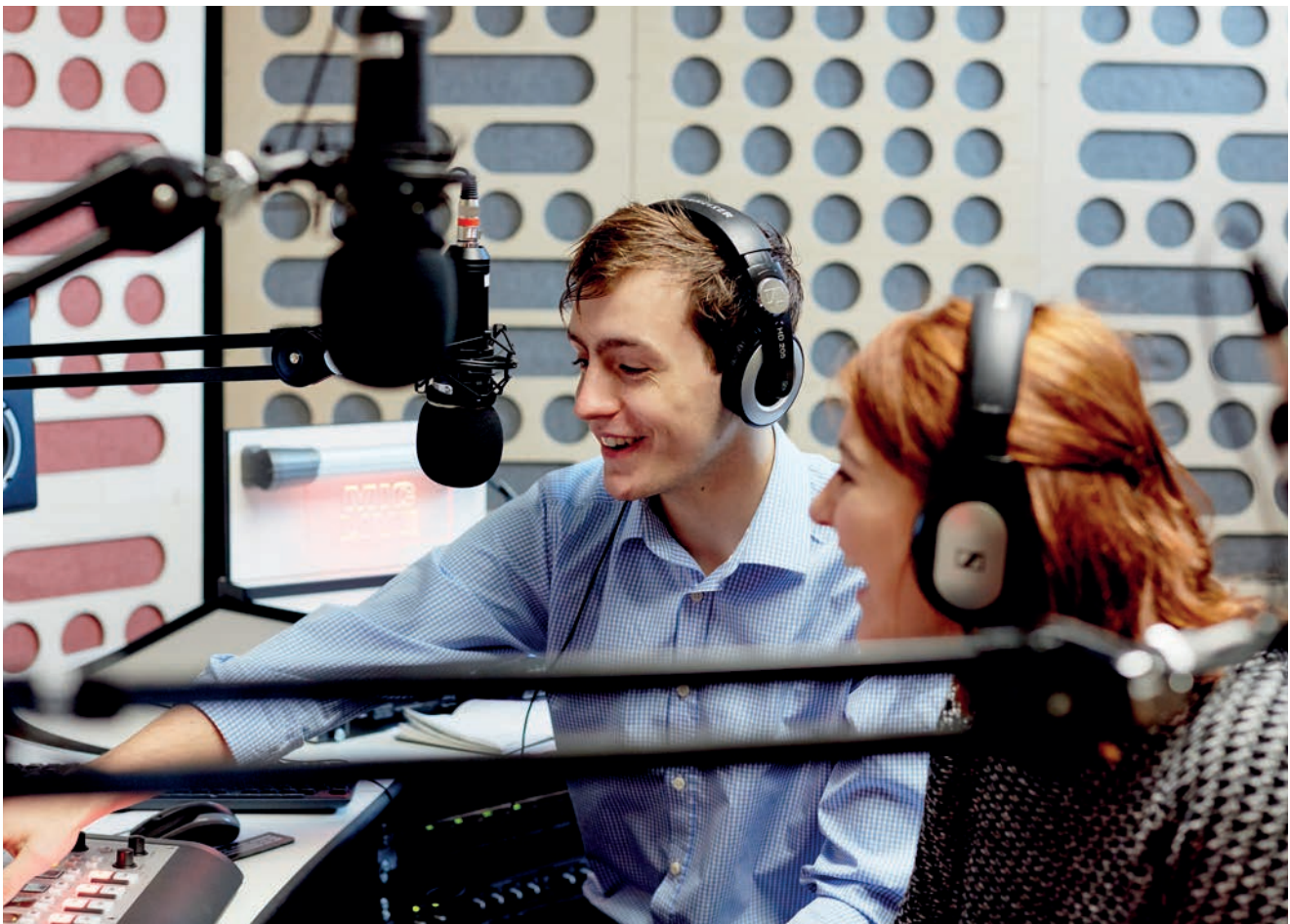
- Whilst the impact of the podcast (English) project on direct English grade attainment may be limited, the students included in this pilot were those whose teachers reported they were low in confidence but had an interest in English and so the more pressing concern is perhaps whether this pilot contributed to an increased sense of confidence. Without inclusion of a quantitative measure of confidence it limits the quantitative analyses and interpretations that can currently be made in this regard.
- What the qualitative data suggested is that students felt they benefitted in terms of developing key study, personal, and social skills, including confidence, preparation, and teamwork. Such key skills are positively associated with attainment and considered key intermediate outcomes (e.g., Schneider & Preckel, 2017), which indicates some strengths of the podcast (English) project and suggests there is merit in adopting mixed evaluation methods to provide a fuller picture.
- The qualitative data also inferred that, following the pilot activity, students' decision-making regarding continuing into higher education was largely favourable, which highlights another potential strength of the podcast (English) project.



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## Reflections and recommendations

- Were the podcast (English) project to be retained in its current guise, some key skills, and outcomes necessary for indirectly raising attainment and encouraging students to carry on into higher education could likely be developed again.
- Three revisions may help improve the workshop and/or our ability to evaluate its effectiveness:
  - i. Collecting quantitative measures of key intermediate outcomes (i.e., confidence) pre and post project would better establish any changes in progress along the path to attainment.
  - ii. Providing further support for students between podcast lessons and including a 'day in the life' of a university student, with time to experience timetabled activity (e.g., lectures and seminars), would address student feedback regarding the pilot and further support the development of key skills and decision-making regarding continuing into higher education.
  - iii. A control and or comparison group for all schools involved would allow for greater inference of causal effects.



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## 3.3. MyTutor tutoring

### Background and aims

MyTutor is a DfE approved online tutoring programme, which was funded by Inspiring Choices and devised and delivered by a third-party partner. MyTutor aims to: (i) raise results and (ii) increase confidence in students. Tutoring sessions occur online at a time that suits the student, student's family, and school. Students are matched to tutors, working with them 1-2-1 and with an individualised lesson plan to help plug relevant learning gaps.

### Pilot activity undertaken

Two state secondary schools, identified by Inspiring Choices as target schools for outreach and attainment activity, participated in the MyTutor tutoring pilot activity: Greenwood and East Bridge.

Participants were 24 (12 per school) KS4 (Year 11) students who took part in ten sessions of 1-2-1 MyTutor tutoring in English or Mathematics, over the course of the spring term, 2023 (see Table 1).

### Evaluation activity undertaken

We used two data collection and evaluation methods: (1) predicted versus actual grades attained in English or Mathematics (Pre/Post-test); (2) qualitative teacher survey post receipt of actual English or Mathematics grades (Qualitative).

Greenwood shared predicted and actual GCSE grades in the subjects for which their 12 students had received tutoring (n = 6 English tutees; n = 6 Mathematics tutees).

East Bridge shared predicted and actual GCSE grades in English, Mathematics, and Science (Combined and Triple) for their 12 students who had received tutoring and for 92 non-pilot project students from the same year group.

The MyTutor liaison teacher for both Greenwood and East Bridge responded to the qualitative teacher survey (see Appendix B for survey questions).

## Results

### Grades attained

#### Greenwood

Table 8 outlines the predicted, target, and actual GCSE grades attained in June 2023 by the MyTutor participants from Greenwood, as well as the subject tutoring received and percentage attendance on programme achieved by each student.

**Table 8 – MyTutor participant attendance and grade profiles for Greenwood**

ID	Subject tutored in	% MyTutor attendance	Predicted subject grade	Target subject grade	Actual GCSE subject grade
1	English	60	6	6	7
2	English	100	7	7	8
3	English	100	8	8	8
4	English	100	8	8	8
5	English	90	7	6	8
6	English	90	7	6	7
7	Mathematics	40	5	5	5
8	Mathematics	71	4	5	5
9	Mathematics	100	6	7	6
10	Mathematics	60	6	8	6
11	Mathematics	88	7	7	8
12	Mathematics	100	5	5	5
		<b>M = 83.25 SD = 20.49</b>	<b>M = 6.33 SD = 1.23</b>	<b>M = 6.50 SD = 1.17</b>	<b>M = 6.75 SD = 1.29</b>

The Greenwood MyTutor participants attained significantly different predicted to actual GCSE grades:  $t(11) = -2.80$ ,  $p = .02$ ,  $d = -0.81$ , with actual GCSE grades higher than predicted grades by a grade increment of 0.41.

Tutoring attendance was variable ( $M = 83.25$ ,  $SD = 20.49$ , range = 40% to 100%) and shared a non-significant relationship with learning gain (i.e., actual minus predicted GCSE grades),  $r(12) = -.06$ ,  $p = .85$ .

MyTutor attendees from Greenwood **scored better**  
in their GCSE assessment than predicted.



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## East Bridge

Table 9 outlines the predicted, target, and actual GCSE grades attained in June 2023 by the MyTutor participants from East Bridge.

East Bridge provided data for a further 92 non-pilot project students from the same year group with the following average grades:

### Predicted grades:

- i. English (n = 90): M = 4.14, SD = 1.34, range = grades 1 to 7.
- ii. Mathematics (n = 90): M = 4.29, SD = 1.58, range = grades 1 to 9.
- iii. Triple Science (n = 31): M = 6.39, SD = 1.52, range = grades 4 to 9.
- iv. Combined Science (n = 55): M = 3.96/3.51, SD = 1.54/1.56, range = grades 1 to 9.

### Attained grades:

- i. English (n = 88): M = 4.17, SD = 1.66, range = grades 1 to 8.
- ii. Mathematics (n = 90): M = 3.82, SD = 1.68, range = grades 1 to 9.
- iii. Triple Science (n = 31): M = 5.19, SD = 1.49, range = grades 3 to 9.
- iv. Combined Science (n = 53): M = 3.53/3.06, SD = 1.19/1.22, range = grades 1 to 8.

A paired samples t-test showed there was no statistically significant difference between predicted and actual English GCSE grades attained by the East Bridge MyTutor participants:  $t(10) = .82$ ,  $p = .43$ ,  $d = 0.25$ . This was also the case for East Bridge non-pilot project students:  $t(86) = .11$ ,  $p = .92$ ,  $d = 0.01$ .

East Bridge MyTutor participants attained significantly different predicted to actual GCSE grades in Mathematics:  $t(11) = 3.32$ ,  $p = .007$ ,  $d = 0.96$ , with actual GCSE grades attained lower than predicted grades by a grade increment of 0.50. This was also the case for East Bridge non-pilot project students:  $t(89) = 5.88$ ,  $p < .001$ ,  $d = 0.62$ . This suggests that this was a general trend for East Bridge students.

The sample size was too small to test for significant differences in predicted and actual triple or combined science grades amongst the East Bridge MyTutor participants. The East Bridge non-pilot project students attained significantly different predicted to actual GCSE grades in Triple Science:  $t(28) = 5.95$ ,  $p < .001$ ,  $d = 1.11$  and Combined Science:  $t(49) = 5.21$ ,  $p < .001$ ,  $d = 0.74$ / $t(49) = 4.91$ ,  $p < .001$ ,  $d = 0.69$ , with predicted grades higher than actual GCSE grades attained.

**Table 9 – MyTutor participant grade profiles for East Bridge**

ID	Predicted English grade	Actual English grade	Predicted Mathematics grade	Actual Mathematics grade	Predicted Science grade			Actual Science grade		
					Triple	Combined 1	Combined 2	Triple	Combined 1	Combined 2
1	5	4	6	6	5	—	—	3	—	—
2	—	4	2	2	—	—	—	—	2	1
3	3	3	3	3	—	4	4	—	3	2
4	5	5	4	3	—	5	4	—	4	3
5	3	3	3	2	—	3	3	—	3	2
6	5	4	5	4	5	—	—	3	—	—
7	4	1	3	2	—	3	2	—	2	2
8	8	9	7	7	9	—	—	7	—	—
9	5	6	6	5	6	—	—	6	—	—
10	4	4	5	5	4	—	—	3	—	—
11	3	3	2	1	—	2	2	—	3	2
12	5	5	6	6	8	—	—	7	—	—
	M = 4.55 SD = 1.44	M = 4.25 SD = 1.96	M = 4.33 SD = 1.72	M = 3.83 SD = 1.95	M = 6.17 SD = 1.94	M = 3.40 SD = 1.14	M = 3.00 SD = 1.00	M = 4.83 SD = 2.04	M = 2.83 SD = 0.75	M = 2.00 SD = 0.63

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## Qualitative teacher perceptions

The MyTutor liaison teachers from Greenwood (GT1) and East Bridge (EBT1) were either unsure of, or had seen an improvement in, the opportunities that their students were provided with outside the curriculum. With respect to the MyTutor programme, both GT1 and EBT1 agreed that the MyTutor company is well organised, but the delivery and impact of the tutoring was variable.

GT1 wrote, “Some [students] disengaged and one dropped out due to getting many different tutors. Some having their own kids running about whilst delivering the sessions. Hit and miss with quality.”

Similarly, EBT1 wrote, “The company seems extremely well organised and easy to deal with. The impact of the tutoring was not strong... A small number of students said their tutor was helpful.”

According to the teachers, the MyTutor programme appeared more beneficial for the higher ability students than the disadvantaged students. GT1 wrote, “Higher ability students seemed to find benefit more than others... More disadvantaged learners, from experience, make better progress with face-to-face interventions.”

There were also mixed feelings regarding whether the programme raised grades and built confidence, as GT1 wrote, “The students achieved well and mostly in line or above their target. I cannot solely contribute this to My Tutor but it certainly helped” and “confidence was built and grades secured.”

However, EBT1 simply wrote that students’ performance was, “quite poor”; albeit they also indicated their “students’ engagement was low.”

Face-to-face delivery with a teacher was viewed as a means to help to improve the programme’s quality, as GT1 wrote, “...I still believe in quality face to face opportunities delivered by teachers who know the students.”

“The company seems extremely well organised and easy to deal with. The impact of the tutoring was not strong... A small number of students said their tutor was helpful.”  
(EBT1, 2023)

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## Outcomes

We posed two questions for our evaluation:

### 1. To what extent may attainment have been raised by this pilot activity?

In addressing question one, both the quantitative and qualitative data suggests that the impact of the MyTutor tutoring programme on direct and indirect attainment was likely mixed.

### 2. What lessons can be learnt from this pilot activity (e.g., strengths and challenges)?

In addressing question two:

- Some evidence of a potentially positive impact on direct attainment was provided by one school but not the other. In the group where potentially positive impact emerged, it was unfortunately not possible to make a comparison with students at the school who did not take part in the programme.
- The mixed findings were mirrored by the qualitative data and perceptions of the teachers who recognised the value in the pilot activity, but were unsure of its direct contribution to attainment and felt it was suited to some but not all students.
- Whilst evidence was likely mixed, some possible benefits appeared to emerge with respect to boosting confidence. In the case for core subjects (i.e., English and Mathematics), which some students find especially difficult and where confidence has positive effects on learners' academic attainment (Aryana, 2010), this is noteworthy.

## Reflections and recommendations

- Were the MyTutor tutoring programme to be retained in its current guise, some key skills and outcomes necessary for directly and indirectly raising attainment could likely be developed again.
- Three revisions may help improve the workshop and/or our ability to evaluate its effectiveness:
  - i. Collecting data from a comparator group of students (i.e., those not participating in the MyTutor tutoring programme) in all schools involved in the project would increase confidence in any attainment gains evidenced.
  - ii. A redesign of the delivery of the programme (e.g., in person and with a well-matched and professional tutor) may help to (re)engage students and especially those from disadvantaged and/or unrepresented groups.
  - iii. Increasing the sample sizes would allow for more precise estimate of effects and less bias in estimates (i.e., over and underestimation of effects).

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## 3.4. STEM conference

### Background and aims

The STEM conference was devised by Inspiring Choices with input from staff at the National Railway Museum, York, with aims to: (i) encourage progress and attainment in STEM subjects (i.e., Science and Mathematics), (ii) inspire students to continue through educational pathways (i.e., into university), and (iii) increase study, personal, and social skills, broadly.

### Pilot activity undertaken

Four state secondary schools: Crossroads, East Bridge, 'Yew Tree', and 'Ridgeway' participated in the STEM conference. These schools are identified by Inspiring Choices as target schools for outreach and attainment activity.

Participants were 86 KS3 (Year 9) students at time one (pre-STEM conference): Crossroads (n = 13), East Bridge (n = 28), Yew Tree (n = 24), and Ridgeway (n = 21) and took part in a one-day conference with practical workshops at the National Railway Museum, York during the summer term, 2023 (see Table 1).

### Evaluation activity undertaken

We used two data collection and evaluation methods: (1) predicted versus actual grades attained in Science and Mathematics (Pre/Post-test); (2) Quantitative/ qualitative student survey, pre and post conference day (Pre/Post-test and Qualitative; see Appendix D).

Of the four participating schools, all provided predicted Science and Mathematics grades. Crossroads also shared actual Science grades for their 13 STEM conference participants and for 141 non-pilot project students from the same year group.

There were 58 time two (post-STEM conference) participants retained from three schools who completed the post conference day survey: Crossroads (n = 11), East Bridge (n = 26), and Yew Tree (n = 21). No time two data was collected from Ridgeway.



## Results

### Grades attained

On average, students from all schools attending the STEM conference had a target grade of 6 for both Science and Mathematics.

Table 10 outlines the target and actual end of Year 9 Combined Science grades attained by the STEM conference participants from Crossroads. A paired samples t-test showed that Crossroad's STEM conference participants had different predicted to actually attained end of year Combined Science grades:  $t(12) = 2.64, p = .02, d = 0.73$  /  $t(12) = 3.49, p = .004, d = 0.97$ , with target grades higher than actual grades with a grade increment of 0.69 and 0.92, respectively.

**Table 10 – STEM conference participant Combined Science grade profiles for Crossroads**

ID	Target Combined Science grade 1	Target Combined Science grade 2	Actual Combined Science grade 1	Actual Combined Science grade 2
1	3	3	3	3
2	5	5	5	5
3	6	6	5	4
4	5	5	5	4
5	5	5	5	5
6	6	6	4	4
7	5	5	5	4
8	6	6	6	6
9	7	7	4	4
10	3	3	3	3
11	5	5	4	4
12	7	7	6	6
13	5	5	4	4
	M = 5.23 SD = 1.24	M = 5.23 SD = 1.24	M = 4.54 SD = .97	M = 4.31 SD = .95

Crossroads provided data for a further 141 non-pilot project students from the same year group, with mean target Combined Science grades of 4.45 (SD = 1.15, range = 3 to 7)/4.45 (SD = 1.15, range = 3 to 7) and mean attained actual end of Year 9 Combined Science grades of 4.08 (SD = 1.24, range = 1 to 7)/3.79 (SD = 1.23, range = 1 to 7), respectively.

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A paired samples t-test showed that non-pilot project students from Crossroads also had different predicted to actually attained end of year Combined Science grades:  $t(140) = 4.46, p = <.001, d = 0.38$  /  $t(140) = 8.40, p = <.001, d = 0.71$ , with target grades higher than actual grades with a grade increment of 0.37 and 0.66, respectively. This suggests a school wide effect.

There was no statistically significant difference in learning gain (i.e., actual minus predicted year end grades) between non-pilot project students from Crossroads and Crossroads students who attended the STEM conference:  $t(152) = 1.14, p = .26, d = 0.33$  /  $t(152) = .97, p = .33, d = 0.28$ .

## Student survey

### Quantitative: Pre and post conference day

Quantitative survey questions were designed to capture and quantify student perceptions of their grade prediction, attainment, subject enjoyment, future academic/career intentions, and key study, personal, and social skills, pre and post conference day (see Appendix D). Students responded to quantitative survey questions on a 5-point scale: 1 = strongly disagree or extremely unlikely to 5 = strongly agree or extremely likely.

### Student perceptions of grade prediction, attainment, subject enjoyment, and future academic/career intentions

Table 11 outlines the Year 9 STEM conference students' perceptions of their ability to achieve their target Science and Mathematics grades (**grade prediction**), satisfaction with school assessment results in Science and Mathematics (**attainment**), pre and post conference enjoyment in learning STEM subjects (**subject enjoyment**), and pre and post conference likelihood of studying STEM subjects post GCSE, and perceived competence to move into a STEM job/career (**future academic/career intentions**).



**Table 11 – Year 9 STEM conference participant perceptions and intentions, overall, by school, and pre and post conference day attendance**

	Perception of target grade achievement		Satisfaction with assessment results		Enjoyment in learning STEM subjects		Likelihood of studying STEM subjects post GCSE		Competence to enter a STEM job/career	
	Science (M; SD)	Maths (M; SD)	Science (M; SD)	Maths (M; SD)	Pre workshop (M; SD)	Post workshop (M; SD)	Pre workshop (M; SD)	Post workshop (M; SD)	Pre workshop (M; SD)	Post workshop (M; SD)
<b>Overall</b>	3.73 (0.79)	3.71 (0.80)	3.46 (0.88)	3.42 (0.88)	3.56 (0.78)	3.64 (0.87)	3.05 (1.04)	3.31 (0.98)	3.25 (0.96)	3.62 (0.91)
<b>Crossroads</b>	3.92 (0.76)	3.92 (0.76)	3.23 (1.09)	3.46 (1.13)	3.69 (0.63)	3.64 (0.92)	2.62 (1.26)	3.27 (0.91)	3.23 (1.17)	3.45 (0.82)
<b>East Bridge</b>	3.86 (0.65)	3.75 (0.75)	3.68 (0.72)	3.54 (0.79)	3.57 (0.79)	3.46 (0.95)	3.14 (1.15)	3.12 (1.03)	3.29 (0.85)	3.35 (1.02)
<b>Yew Tree</b>	3.87 (0.69)	3.87 (0.82)	3.65 (0.65)	3.52 (0.73)	3.71 (0.69)	3.86 (0.73)	3.21 (0.72)	3.57 (0.93)	3.54 (0.93)	4.05 (0.67)
<b>Ridgeway</b>	3.29 (0.96)	3.33 (0.80)	3.10 (1.04)	3.14 (0.96)	3.29 (0.90)	—	3.00 (1.05)	—	2.85 (0.93)	—

As shown in Table 11, the Year 9 STEM conference students overall agreed that they could achieve their predicted Science (M = 3.73; SD = 0.79) and Mathematics (M = 3.71; SD = 0.80) grades and were satisfied with their school assessment results in Science (M = 3.46; SD = 0.88) and Mathematics (M = 3.42; SD = 0.88). Similar mean scores were evident at the level of each school (see Table 11).

Overall, there was no statistically significant difference between pre and post STEM conference day participants' enjoyment in learning STEM subjects:  $t(57) = .57$ ,  $p = .57$ ,  $d = 0.08$ ; likelihood of studying STEM subjects post GCSE:  $t(57) = -1.46$ ,  $p = .15$ ,  $d = -0.19$ ; or perceptions of competence to move into a STEM job/career:  $t(57) = -1.24$ ,  $p = .22$ ,  $d = -0.16$ .



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At the level of each school, there was one significant difference identified amongst Year 9 STEM conference students from Yew Tree. Specifically, their perceptions of competence to move into a STEM job/career were higher after versus before attending the STEM conference day:  $t(20) = -2.32, p = .03, d = -0.51$ .

### **Student perceptions of their key study, personal, and social skills**

Students' perceptions of key study, personal, and social skills were considered here as intermediate outcomes that may provide richer insight into the impact of the STEM conference day.

Cognitive and metacognitive outcomes in the form of confidence with five key skills were the intermediate outcomes, known to be positively associated with attainment outcomes, that were captured using a validated measure (SICKS; Bray et al., 2020; see pp. 9 – 10):

- i. **Collaboration**
- ii. **Communication**
- iii. **Creativity and innovation**
- iv. **Self-direction**
- v. **Critical Thinking**

Table 12 outlines the means and reliability estimates (Cronbach's Alpha,  $\alpha$ ) for the Year 9 STEM conference students' confidence with key skills, pre and post conference day. On average, participants were most confident in their ability to collaborate and least confident in their critical thinking ability pre conference day. Post conference day, they remained most confident in their ability to collaborate and least confident in their critical thinking ability. No significant differences in confidence with key skills were identified from pre to post conference day.



**Table 12 – Means and reliability estimates for STEM conference day participants’ pre and post perceptions of confidence with key skills**

	M	SD	$\alpha$
<b>Pre conference day</b>			
1. Collaboration	3.61	0.61	.78
2. Communication	2.63	1.12	— <sup>^</sup>
3. Creativity	3.38	0.64	.42 <sup>^^</sup>
4. Self-direction	3.56	0.60	.67
5. Critical thinking	3.47	0.60	.60
<b>Post conference day</b>			
6. Collaboration	3.74	0.61	.84
7. Communication	3.07	1.08	— <sup>^</sup>
8. Creativity	3.65	0.63	.63
9. Self-direction	3.67	0.56	.72
10. Critical thinking	3.61	0.69	.84

Note. <sup>^</sup>Due to a production error, there were too few items to run a reliability analysis and so this subscale was not carried forward and has not been further interpreted. <sup>^^</sup>Internal consistency is usually considered acceptable if the estimate is 0.70 or higher, with a lower threshold of 0.60 for scales with few items and so this subscale was not carried forward and has not been further interpreted.

Table 13 shows the bivariate correlations between future academic intentions, subject enjoyment, and confidence with key skills for the Year 9 STEM conference day participants before and after having attended the STEM conference day.

**Pre conference day, significant positive bivariate correlations were found between:**

- Enjoyment in learning STEM subjects and likelihood of studying STEM subjects post GCSE, competence to enter a STEM job/career, self-direction, and critical thinking.
- Likelihood of studying STEM subjects post GCSE, and competence to enter a STEM job/career, self-direction, and critical thinking.
- Competence to enter a STEM job/career and self-direction and critical thinking.
- Confidence in three key skills (i.e., collaboration, self-direction, and critical thinking).

Post conference day, significant positive bivariate correlations were found between:

- Enjoyment in learning STEM subjects and likelihood of studying STEM subjects post GCSE, competence to enter a STEM job/career, collaboration, self-direction, and critical thinking.
- Likelihood of studying STEM subjects post GCSE, and competence to enter a STEM job/career, self-direction, and critical thinking.
- Competence to enter a STEM job/career and collaboration, self-direction, and critical thinking.
- Confidence in three key skills (i.e., collaboration, self-direction, and critical thinking).

**Table 13 – Bivariate correlations between STEM conference day participants’ pre and post future academic intentions, subject enjoyment, and confidence with key skills**

Pre conference day	1	2	3	4	5
1. Enjoyment in learning STEM subjects	—				
2. Likelihood of studying STEM subjects post GCSE	.58**	—			
3. Competence to enter a STEM job/career	.73**	.71**	—		
4. Collaboration	.14	.03	-.01	—	
5. Self-direction	.34**	.31**	.31**	.42**	—
6. Critical thinking	.31*	.25*	.23*	.44**	.54**
Post conference day	7	8	9	10	11
7. Enjoyment in learning STEM subjects	—				
8. Likelihood of studying STEM subjects post GCSE	.75**	—			
9. Competence to enter a STEM job/career	.68**	.74**	—		
10. Collaboration	.30*	.25	.34*	—	
11. Self-direction	.61**	.55**	.60**	.56**	—
12. Critical thinking	.54**	.52**	.56**	.61**	.63**

Note. \*p<0.05; \*\* p<0.01

**Content analysis** in qualitative research involves identifying keywords, counting occurrences, and then reading them over to offer a final write-up. Here we adopted this approach to identify the top three things that students had learnt, found most useful, and would improve about the STEM conference.

## Qualitative: Post conference day

Students who attended the STEM conference and provided qualitative responses, post event, were asked what they had learned, what was most useful, and what could be improved for future STEM conference days. **Content analysis** revealed the top three things that students referenced in each of these areas (see Table 14).

**Table 14 – Top three responses of STEM conference participants regarding what they learnt, what was most useful, and any improvements**

What they learned	The most useful part	To improve
Increased knowledge of STEM	The careers fair	Activity frequency
Awareness of degree apprenticeships	The Question and Answer	Group composition
Further and higher education pathways	Talking to people from different careers	Variety of employers

In illustrating the top three things they had learnt from the conference, Alex stated that their knowledge of “...the meaning of STEM” increased (**Increased knowledge of STEM**), with Charlie also highlighting that they now know “you can get degree apprenticeships” (**Awareness of degree apprenticeships**), and Taylor indicating that they gathered knowledge “...about different job and types of education after school” (**Further and higher education pathways**).

In terms of what was most useful, they found the **careers fair**, the **question-and-answer session**, and **talking to people from different careers** to be especially beneficial, as Drew stated, “talking to representatives of companies in STEM [was useful]”.

Finally, whilst the consensus was that they would not change anything, some suggestions for improvements alluded to more activities to reduce wait periods (**Activity frequency**), swapping groups around more frequently (**Group composition**), and to have more areas of employment represented, with an emphasis on the special forces, as Jordan suggested the inclusion of “more work with people from the fields” (**Variety of employers**).



## Outcomes

We posed two questions for our evaluation:

### 1. To what extent may attainment have been raised by this pilot activity?

In addressing question one, both the quantitative and qualitative data suggests that the impact of the conference day on direct Science grade attainment may be limited. However, potential indirect links to attainment were perhaps evident through self-perceptions and cognitive and metacognitive outcomes.

### 2. What lessons can be learnt from this pilot activity (e.g., strengths and challenges)?

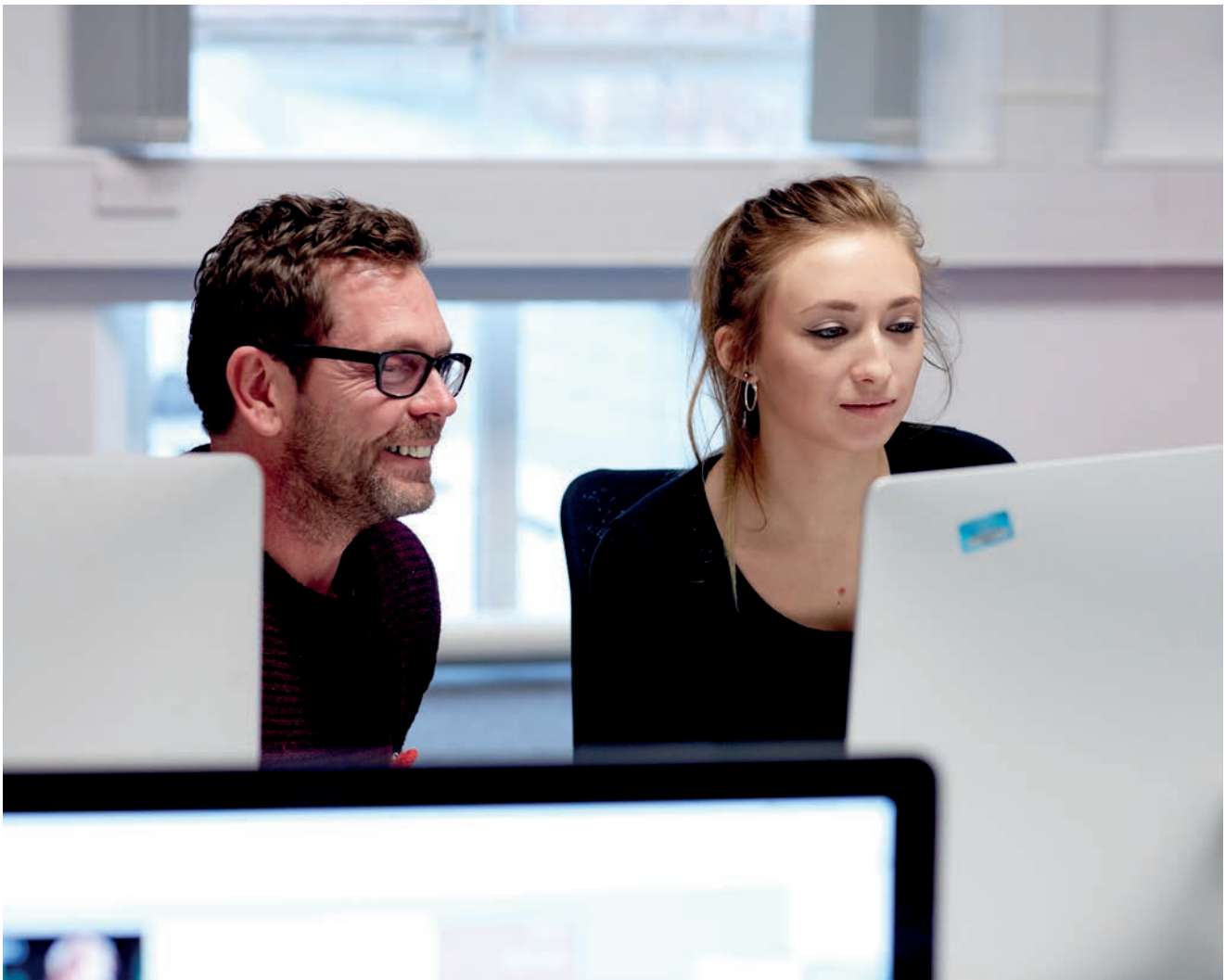
In addressing question two:

- Whilst the impact of the conference day on direct Science grade attainment may appear limited, the same findings were evident for non-pilot project students with respect to having higher predicted than attained grades, which suggests some nuance may be being missed around the setting of target grades and/or approach to assessment. This is worthy of consideration given only one school provided pre and post grade data for comparison.
- What the quantitative data did demonstrate is that perceptions of competence to move into a STEM job/career were higher after attending the STEM conference, suggesting this is a strength of the conference day and there is merit to including pre and post workshop measures. Further, enjoyment, collaboration, self-direction, and critical thinking appear to be tied up with future academic/career intentions, which offers some steer in terms of potentially important intermediate outcomes to monitor.
- The qualitative data corroborated the sense that students felt better versed and equipped to continue through educational and employment pathways in STEM following the conference day, which indicates a further strength of this event and suggests there is merit in adopting mixed evaluation methods to provide a fuller picture.

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## Reflections and recommendations

- Were the conference day to be retained in its current guise, some key skills and outcomes necessary for indirectly raising attainment and encouraging students to carry on into higher education and employment could likely be developed again.
- Three revisions may help improve the conference day and/or our ability to evaluate its effectiveness:
  - i. Triangulating grades with teacher perceptions may provide a more holistic picture of the path to attainment and direct attainment.
  - ii. Adding more activities and changing groups regularly to reduce wait times would address likely student feedback and facilitate working with varied groups of people and potentially develop confidence in key skills.
  - iii. Introducing an appropriate control or comparison group with randomisation of participants and employing an alternative valid measure of key skills would help with identifying any causal inference, whilst producing more accurate results.



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## 4. Closing Remarks

Throughout 2023, Inspiring Choices – the York and North Yorkshire Uni Connect Partnership – devised and delivered pilot activities aimed at raising attainment in target state secondary schools, with a long-term view to increase access and success in higher education among students from disadvantaged and underrepresented groups. Here we reported on four of these pilot activities and examined: (1) the extent to which attainment may have been raised by the pilot activities, and (2) what lessons could be learnt from these pilot activities (e.g., strengths and challenges of designs).

Overall, findings were mixed with respect to attainment being raised by the pilot activities. Where direct grade attainment was concerned, there was limited evidence that the pilot activities had an impact, with some instances of better grades achieved than predicted, some instances of poorer than predicted grades achieved, and some instances of equivalent predicted to actual grades achieved.

Supplementary analyses (see Appendix E) corroborate that whilst there was limited evidence that encountering an Inspiring Choices pilot activity had a positive impact on grade attainment, attending a programme did not negatively impact on grade attainment either.

Where the key positives of the pilot activities appear to lay is in possible indirect links to attainment (i.e., enhanced study, personal, and social skills) and favourable future academic and career intentions. Collaboration, teamwork, preparation, enjoyment, self-direction, and critical thinking were amongst the key skills perceived, by both students and teachers, to be developed across the four pilot activities. This is noteworthy because these intermediate outcomes are positively associated with attainment and progression (e.g., Schneider & Preckel, 2017; Thomson et al., 2022). Students also often felt inspired and more competent to continue in educational and career pathways post pilot activities.



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If the four pilot activities were to be retained, most need to be revised/re-purposed to directly improve attainment. The evaluation designs used also lend themselves to problems with inference and attribution. That is, the survey-based nature of the quantitative designs used do not allow for confounding variables to be controlled (e.g., intelligence), potentially misleading us about the true effects of intermediate outcomes on grade attainment, for example. Retrospective surveys and qualitative designs also lend themselves to recall bias, which impacts on whether we are confident our evaluation is capturing what we think it should be. Most of the data collected was also cross-sectional (i.e., reflects a snapshot in time), meaning that we are only able to conclude that relationships/differences exist and we cannot definitively state that it is the pilot project (or other factors) that precede/cause changes in attainment or not (comparison groups and randomisation are required). We also had small sample sizes in some instances across the pilot projects, which can lead to a lack of statistical power and make it difficult to estimate effects.

Against the preceding backdrop, there is a need for ongoing, rigorous evaluation of attainment raising. For instance, adopting longitudinal or matched-pairs designs would help to identify the sequencing of events and reduce confounding factors. Doing so would help to further move the pilot activity designs and evaluations toward being able to make more robust claims about whether taking part is associated with better outcomes.





# Appendix A – Drama Survey

Name ..... School Year .....

Predicted GCSE/A level grade for Drama .....

Most recent grade received for Drama .....

## Section A:

**Q1: The following statements are about how you feel about your performance in drama class at school.**

In Drama Class at School...	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I consider I can achieve my predicted GCSE/A level grade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am satisfied with my results in my assessments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q2: How likely are you to apply to Higher Education (such as university or degree apprenticeship)?**

Extremely unlikely	Quite unlikely	Neither likely or unlikely	Quite likely	Extremely likely
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q3: How likely were/are you to apply to Higher Education to study a drama related programme?**

	Extremely unlikely	Quite unlikely	Neither likely or unlikely	Quite likely	Extremely likely
1. Before taking part in the Inspiring Choices workshop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. After taking part in the Inspiring Choices workshop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Section B:

The following statements relate to how you feel about studying in at university from an academic perspective. Please consider each statement and indicate the extent to which you agree or disagree.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I am confident that I can get the grades required to progress to university.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I have the academic ability to do well at university.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I could manage with the level of study required at university.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Section C:

The following statements are about your levels of confidence with key skills. Please indicate the extent to which you agree or disagree with how confident you are to do each of the activities listed below.

How confident are you to:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. Work in pairs or small groups to complete a task together.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Work with other students to set goals and create a plan for your team.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Create joint products using contributions from each student.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Communicate your ideas using media other than a written paper (e.g., posters, video, blogs, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Prepare and deliver an oral presentation to the teacher or others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Answer questions in front of an audience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Test out different ideas and work to improve them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Invent a solution to difficult problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Create something new that can help you express your ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How confident are you to:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
10. Track your own progress and change things if you are not working the way that you should be to complete a task.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Assess the quality of your work before it is completed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Use peer, teacher or expert feedback to change your work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Try to solve problems or answer questions that have no single correct solution or answer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Draw your own ideas based on analysis of numbers, facts, or relevant information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Analyse different arguments, perspectives or solutions to a problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for completing this survey

## Survey key:

### Section A

Q1) Perceptions of competence and performance in drama – adapted from the Perceived Competence Scale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989).

Q2) Likelihood of continuing into higher education (post workshop only).

Q3) Likelihood of continuing to study drama in higher education (pre and post workshop).

### Section B

Academic self-efficacy scale (university alternative) – replicated from the TASO Access and Success Questionnaire (2023).

### Section C

The collaboration (c1 – 3), communication (c4 – 6), creativity and innovation (c7 – 9), self-direction (c10 – 12), and critical thinking (c13 – 15) subscales of the Short Instrument for Measuring Students' Confidence with 'Key Skills' (SICKS; Bray et al., 2020).

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## Appendix B – Qualitative Teacher Survey

Hello,

Inspiring Choices funded the MyTutor/Drama Workshop programme for your students and are interested to hear your feedback. We would appreciate any thoughts about your students' involvement in the programme.

Your participation is completely voluntary, and you can stop answering questions at any time without question. You can skip a question if you choose not to answer it, and there are no right or wrong answers. We are simply interested in what you think of the programme.

Please be assured that any information provided within this questionnaire will remain confidential, and when the results of this project are written up, we will not use your name or include any information which may leave you identifiable. This is to help your right to confidentiality and right to anonymity.

### Q1 Do you consent to participate in this questionnaire?

Yes (1)

No (2)

### Q2 Please state your name

.....

### Q3 Please state the school you teach at

.....

### Q4 When you first started teaching, what did you think of the study opportunities that students were given, beyond curriculum?

.....

### Q5 What do you think of these opportunities now?

.....

### Q6 What do you think of MyTutor?<sup>8</sup>

.....

### Q7 What has the level of support been like for your students?

.....

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<sup>8</sup> For the drama project, the phrase 'MyTutor' was replaced with 'Inspiring Choices/Drama Workshop'

---

**Q8 What, if anything, has been positive about your students' experience with MyTutor?**

.....

**Q9 Please state any key skills that your students have developed since their involvement with MyTutor (e.g., organisation and confidence).**

.....

**Q10 What, if anything, has been negative about your students' experience with MyTutor?**

.....

**Q11 What do you think about your students' performance at school since taking part in MyTutor?**

.....

**Q12 Are you satisfied with their performance?**

Yes (1)

No (2)

**Q13 Why are you satisfied/unsatisfied with their performance?**

.....

**Q14 Do you feel they will achieve their predicted grades?**

Yes (1)

No (2)

**Q15 Are your feelings about them achieving their predicted grades the same as or different to how you felt before they took part in MyTutor and why?**

.....

**Q16 What are your thoughts on your students applying to Higher Education, such as university or degree apprenticeship, in the future?**

.....

**Q17 Why do you think they would/would not want to apply?**

.....

---

**Q18 How do you think they would find studying in Higher Education (e.g., academically, coping, and socially)?**

.....

**Q19 Are your feelings the same to how you felt before they took part in MyTutor?**

Yes (1)

No (2)

**Q20 Is there anything else you would like to add about you/your students?**

Yes (1)

No (2)

**Q33 If yes, please elaborate here.**

.....

**Thank you for participating in this questionnaire.**

---

## Appendix C – Focus Group Schedule

**Facilitator(s) introduce(s) themselves and go(es) over information, consent, ground rules, confidentiality, and any questions on these (5 mins):**

I/We are doing a project to find out more about you, what you would like in terms of support when thinking about your future, and how we can better design activities to support you and future participants in the Inspiring Choices programme.

Your participation is voluntary, and you can leave the discussion at any time. Also, if you do not want to answer a specific question, that is fine. There are no 'right or wrong' answers to these questions.

I/We are interested in what you think. If you disagree with anything that anyone else has said, we would be really interested to hear what but please be respectful. Please also feel free to respond to each other's comments and questions, you don't have to wait for me/us to ask questions. I/We'd really like this to become a discussion among the group as much as possible. Are there any other ground rules you would like to add?

I/We will be audio recording the session. Please be assured that any information you provide will remain confidential. When I/We write up the results of this study, I/We will not use your names or include any information that means people can identify what you said. I/We would ask if you would also all respect each other's privacy and not share any information discussed in this focus group with anyone else.

Does anyone have any questions before we start?

### **Icebreaker Activity "This or That" (5 mins)**

So that everyone can get a bit more familiar with each other and me/us, I/We would just like us each to share a little bit of information. Please can you tell each other:

1. What is your name and how old are you?
2. What is your favourite subject at school?

### **First, I/We would like you to talk generally about your experiences at school (5-10 mins)**

3. What has been your general experience of school so far?
4. What do you think about studying English at school?
5. What do you think about your current performance in English at school?
  - **Probe:** Are they satisfied/unsatisfied with their performance?
  - **Probe:** Why are they satisfied/unsatisfied with their performance?

---

### Thinking about today (5-10 mins)

6. What, if anything, has been positive about your experience of today's activity (i.e., podcasting) with Inspiring Choices?
7. What activities have you done today that you think will be helpful with supporting your development/your development in English at school?
  - **Probe:** Can you give some examples of what activities have been helpful?
  - **Probe:** Why do you think these activities are helpful (e.g., developing new skills and confidence)?
8. What activities have you done today that you think will not be so helpful with supporting your development/your development in English at school?
  - **Probe:** Can you give some examples of what activities have not been so helpful?
  - **Probe:** Why do you think these activities are not so helpful?
9. How do you feel about your future performance in English at school?
  - **Probe:** Do you feel you will achieve your predicted grades?
  - **Probes:** Are your feelings the same or different to how you felt before taking part in today's activities? If the same or different, then why?

### Focus Group Reflection Activity – “Who/What Matters?” (5-10 mins):

In this next part of the discussion, we will engage in a reflection task and then we will discuss your future self and how others can help you prepare for the future.

### Thinking about the future (5-10 mins):

10. What are your thoughts on applying to Higher Education, such as university or degree apprenticeship, in the future?
  - **Probe:** Why do you think you would/would not want to apply?
  - **Probe:** How do you think you would find studying in Higher Education (e.g., academically, coping, and socially)?
  - **Probe:** What benefits, if any, do you see to gaining a Higher Education qualification?
11. What are your thoughts on applying to Higher Education to study an English related programme?
  - **Probe:** Why do you think you would/would not want to apply?



- 
- **Probes:** Are your feelings the same or different to how you felt before taking part in today's activities? If the same or different, then why?
  - **Probe:** How do you think you would find studying English in Higher Education (e.g., academically, coping, and socially)?
  - **Probe:** How important do you think English is for your chosen career and/or future plans? Why/Why not?

12. What activities could Inspiring Choices do to help you with your future education?

- **Probe:** What would you like them to do/not do?
- **Probe:** Why would you like them to do/not do these things?

13. Finally, if you had a chance to tell your parents/teachers/Inspiring Choices how they could best help you to prepare for future study, assessment success, and/or your academic/career pathway, what would you say?

**Focus Group Closing Activity (5-10 minutes):**

At this point, use a flip chart and write responses on paper/posit its. First, the pupils will be asked to list all the 'dos' for helping them prepare for future study, assessment success, and academic/career pathway, which we will write down. The same process will be completed for the 'don'ts.' When the participants feel the list is complete, they will be thanked for their participation and the focus group will end.

# Appendix D – STEM Survey – Time 1

## STEM Conference Questionnaire: Pre-Event Instructions

Please tick the box at the end of the statement below to confirm you are happy to participate. Then, answer the questions.

**CONSENT STATEMENT:** I HAVE READ AND UNDERSTOOD THE INFORMATION AND I AM HAPPY TO PARTICIPATE

**STEM** = Science, Technology, Engineering and Maths

Full Name ..... School .....

What is your target grade for Science? .....

What is your target grade for Maths? .....

### Section A:

**Q1. The following statements are about how you feel about your performance in science and maths class at school.**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<b>In Science Class at School...</b>					
1. I consider I can achieve my target grade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am satisfied with my results in my assessments (e.g., homework marks, exams, coursework).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>In Maths Class at School...</b>					
3. I consider I can achieve my target grade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am satisfied with my results in my assessments (e.g., homework marks, exams, coursework).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q2. I feel that I could enter a STEM job role or career in the future.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q3. I enjoy learning about STEM subjects.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q4. I would like to study STEM subjects after my GCSEs.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section B:**

The following statements are about your levels of confidence with key skills. Please indicate the extent to which you agree or disagree with how confident you are to do each of the activities listed below.

How confident are you to:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. Work in pairs or small groups to complete a task together	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Work with other students to set goals and create a plan for your team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Create joint products using contributions from each student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Answer questions in front of an audience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Invent a solution to difficult problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Create something new that can help you express your ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Track your own progress and change things if you are not working the way that you should be to complete a task	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Assess the quality of your work before it is completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Use peer, teacher or expert feedback to change your work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Try to solve problems or answer questions that have no single correct solution or answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How confident are you to:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
11. Draw your own ideas based on analysis of numbers, facts, or relevant information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Analyse different arguments, perspectives or solutions to a problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for completing this survey

## Survey key:

### Section A

Q1) Perceptions of competence and performance in science and Mathematics – adapted from the Perceived Competence Scale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989).

Q2) Perceptions of competence to continue to a STEM career.

Q3) Enjoyment in learning STEM subjects.

Q4) Likelihood of studying STEM subjects post-GCSE.

### Section B

Collaboration (b1 – 3), communication (b4)<sup>9</sup>, creativity and innovation (b5 and 6)<sup>10</sup>, self-direction (d7 – 9), and critical thinking (d10 – 12) subscales of the Short Instrument for Measuring Students' Confidence with 'Key Skills' (SICKS; Bray et al., 2020).

<sup>9</sup> Please note, due to a production error, two items were omitted from this subscale.

<sup>10</sup> Please note, due to a production error, one item was omitted from this subscale.

## Appendix D – STEM Survey – Time 2

### STEM Conference Questionnaire: Pre-Event Instructions

Please tick the box at the end of the statement below to confirm you are happy to participate. Then, answer the questions.

**CONSENT STATEMENT:** I HAVE READ AND UNDERSTOOD THE INFORMATION AND I AM HAPPY TO PARTICIPATE

**STEM** = Science, Technology, Engineering and Maths

Full Name ..... School .....

### Section A:

**Q1. I feel that I could enter a STEM job role or career in the future.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q2. I enjoy learning about STEM subjects.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Q3. I would like to study STEM subjects after my GCSEs.**

Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Section B:

The following statements are about your levels of confidence with key skills. Please indicate the extent to which you agree or disagree with how confident you are to do each of the activities listed below.

How confident are you to:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
<b>1. Work in pairs or small groups to complete a task together</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How confident are you to:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
2. Work with other students to set goals and create a plan for your team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Create joint products using contributions from each student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Communicate your ideas using media other than a written paper (e.g., posters, video, blogs, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Prepare and deliver an oral presentation to the teacher or others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Answer questions in front of an audience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Test out different ideas and work to improve them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Invent a solution to difficult problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Create something new that can help you express your ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Track your own progress and change things if you are not working the way that you should be to complete a task	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Assess the quality of your work before it is completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Use peer, teacher or expert feedback to change your work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Try to solve problems or answer questions that have no single correct solution or answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Draw your own ideas based on analysis of numbers, facts, or relevant information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Analyse different arguments, perspectives or solutions to a problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

## Section C:

Q5. Please tell us one thing you have learned today.

.....

Q6. What has been the most useful part of today?

.....

Q7. How would you improve the day?

.....

Thank you for completing this survey

## Survey key:

### Section A

Q1) Perceptions of competence to continue to a STEM career.

Q2) Enjoyment in learning STEM subjects.

Q3) Likelihood of studying STEM subjects post-GCSE.

### Section B

Q4) Collaboration (b1 – 3), communication (b4 – 6)<sup>11</sup>, creativity and innovation (b7 – 9)<sup>12</sup>, self-direction (d10 – 12), and critical thinking (b13 – 15) subscales of the Short Instrument for Measuring Students' Confidence with 'Key Skills' (SICKS; Bray et al., 2020).

### Section C

Q5) Perceptions of what was learnt from the event.

Q6) Perceptions of what was useful about the event.

Q7) Feedback on what they would improve about the event.

---

<sup>11</sup> The time 1 error was carried forward such that the communication subscale was comprised of just b4 at time 2.

<sup>12</sup> The time 1 error was carried forward such that the creativity and innovation subscale was comprised of b5 and b6 at time 2.

## Appendix E – Supplementary analyses

We pooled all the available data to explore whether encountering an Inspiring Choices programme or not was associated with enhanced learning gain (i.e., actual grade attained minus predicted grade).

**Regression** is used when we want to understand how one variable can be predicted by other variables. Here we adopted this inferential statistical test to understand how being involved in an Inspiring Choices programme versus not may predict learning gain.

We ran a series of exploratory regression analyses that considered the predictive ability of being involved in an Inspiring Choices programme versus not in terms of learning gain by year of study and subject (see Table 14). No statistically significant models emerged and so learning gain, as dissected by year of study and subject, was not significantly higher or lower for those involved in an Inspiring Choices programme versus those not involved, or vice versa.

**Table 15 – Multiple regressions considering the predictive ability of being involved in an Inspiring Choices programme versus not in terms of learning gain by year of study and subject**

Learning Gain	R <sup>2</sup>	F(df)	p	β/B/(t)
Year 11 English	.00	.002 (1,102)	.97	0.004 /0.01/ (0.04)
Year 11 Mathematics	.02	1.64 (1,106)	.20	0.12 /0.24/ (1.29)
Year 11 Combined Science 1	.00	.20 (1,53)	.25	0.06 /0.16/ (0.44)
Year 11 Combined Science 2	.01	.32 (1,53)	.58	-0.08 /-0.22/ (-0.56)
Year 11 Triple Science	.00	.04 (1,33)	.85	-0.03 /-0.09/ (-0.19)
Year 11 Drama	.06	.95 (1,14)	.35	0.25 /0.37/ (0.97)
Year 10 English	.00	.001 (1,121)	.98	-0.002 /-0.01/ (-0.02)
Year 9 Combined Science 1	.01	1.31 (1,152)	.26	0.92 /0.32/ (1.14)
Year 9 Combined Science 2	.01	.95 (1,152)	.33	0.08 /0.26/ (0.97)



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