Green Skills Hackathon: Evaluation Report and Recommendations

Undertaken for London Transport Museums by:

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Green Skills Hackathon: Executive Summary

Biggest takeaway: ‘How passionate young people are about shaping our future’. (Corporate Partner feedback).

Hacking the careers fair

In October 2022 The London Transport Museum [LTM] “hacked” the traditional careers fair, delivering The Green Skills Hackathon as part of the Museum’s wider Climate Crossroads programme[1].

The Green Skills Hackathon was designed by young people, for young people. Through an ambitious programme of activities delivered at the Museum and beyond, it created unique careers encounters for secondary school students and Corporate Partners. These encounters supported students to identify future careers and career pathways for themselves within the context of TfL’s net-zero target, and supported businessed buseros.[caforTosuph (s)-2 9.9 0 -14.09 -1.yTD [(engr)-1.3 p (s)-2 (that they will need in a climactically changing world, students will be better prepared to participate in and contribute to the green economy of their future.

The Green Skills Hackathon explored a new way of delivering careers support for young people through four interconnected elements, which were:

1. The Green Skills Hackathon event
2. Livestream broadcast of the Keynote Speech and Q&A session from the Hackathon
3. A co-creation project to develop the Hackathon event
4. A Virtual Air Quality Challenge.

This evaluation report draws together data from a 360° evaluative approach for all four areas of the Green Skills Hackathon. This approach captured the perspectives of participating students, teachers and Corporate Partners, as well as observations of the LTM Learning Team, on the success and impact of the Green Skills Hackathon.

Reach

The Green Skills Hackathon and wider programme of activities reached a signi8T2 -13icpr6 ( )0.5 (ac)nu1 (d) 7 (e)be1. i n s (p (u)) - 0 3 . 6 m 2 6 (a k) - 2 (e

[1] Climate Crossroads | London Transport Museum (ltmuseum.co.uk)

employability with business representatives because they felt reflected and inspired by the employees they met:
‘The employees are from different backgrounds and the diversity is amazing. I'm proud to be a part of this event’ (Student feedback).

Corporate Partners equally felt that that benefitted from the experience, including finding out ‘how sustainability and coding is integrated into the curriculum’ and ‘Hearing different perspectives from the youth on how we can improve our network and new ideas on how we can be more sustainable and green’ (Corporate Partner feedback).

achieving net-zero. One student summed up this challenge:
‘I understand what this means however I am unsure about how to make it net-zero’ (Student feedback).

Terminology was understood by other students in a purposeful way that embedded optimism:
I've understood the terminology and I know how to use it to better explain how to create a better future’ (Student feedback).

Together, these responses by students demonstrate both the challenges ahead in reaching net-zero, and the potential contribution that they can make in helping to reach it. As one Teacher summed up of the even overall:

It is an important forum and opportunity to enable young people to learn more about green careers and how they can potentially make a difference (Teacher feedback).

th October 2022.

Element – the four areas of work that comprise the full Green Skills Hackathon programme

Activity – Each part of the Green Skilleen en3

used to describe the Platform Design Challenge.

Hackathon Objectives

Initial objectives were outlined in January for the Green Skills Hackathon, which were refined into four Hackathon objectives in response to the how the event was developed during the co-creation project. For consistency and where referenced, the four Hackathon objectives are labelled Objective A-D in this report.

The Hackathon Objectives were:
Objective A. Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability.
Objective B. Students can better identify and practice employability skills.
Objective C. Students understand how the drive for environmental sustainability is shaping businesses and the skills they need.
Objective D. Students better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy.

Evaluation Methodologies

A range of methodologies were used to gain a 360° view of the impact of the Green Skills Hackathon.

At the Green Skills Hackathon event these were:
With Corporate Partners
- Post-event survey

With Students
- Pre and post event feedback postcards
- Feedback Boards
- Structured observations (by LTM Team).

With Teachers
- Green Skills Hackathon Survey.

With the co-creation group these were:
- Pre-project survey.
- Post-project survey.

For the Virtual Air Quality Challenge these were:
With Students
- Menti-meter evaluation scales against the four objectives.

With Schools/Online
- Participation data of signed-up schools.
- Online page views and downloads using Google Analytics.

With Corporate Partners
- Post-event feedback questions.

For all four elements:
- (Where possible) quantitative data capture of participating schools.

This report can be reviewed alongside an Evaluation Report written for the Inspiring Engineering Careers action research project delivered by LTM to secondary school students in Spring/Summer 2022. Doing so provides comparative insight into the differing

Summary of Hackathon Objectives

Objective A: Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability.

Holding meaningful conversation

Students, Teachers and Corporate Partners agreed that during the Green Skills Hackathon they had meaningful and honest conversations about values in relation to environmental sustainability and employability.

Key metrics from Teachers and Corporate Partners show that 100% of Teachers and Corporate Partners agreed ‘Yes, significantly’ or ‘Yes’ that the Hackathon enabled these conversations to happen (Figure 3). Students felt that the activity that best supported this objective was the Employer Stands activity, with 97% of students womain s bsus e( )]TJ -8.sut f,5(f)3.6 (a (ou)6.2 hei)7.4 (0.5 (s)-2 (at)3.5 ((ho)0.6))6.2 hei

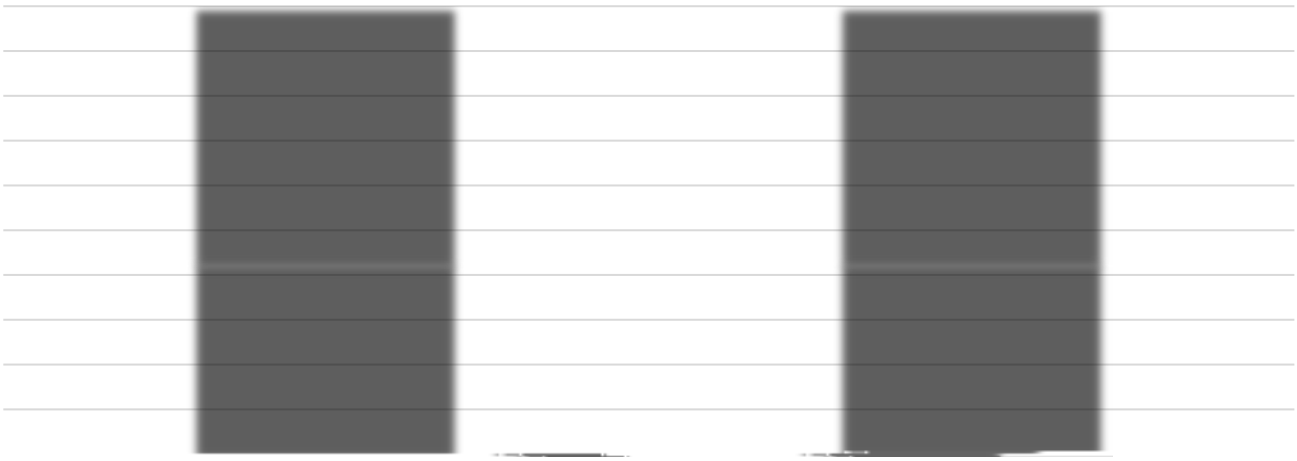

Figure 3: Stacked Bar Chart showing Teachers' and Corporate Partners responses to the Question 'Do you feel your students were able to have meaningful and honest conversations with employers about values in relation to environmental sustainability and employability? '

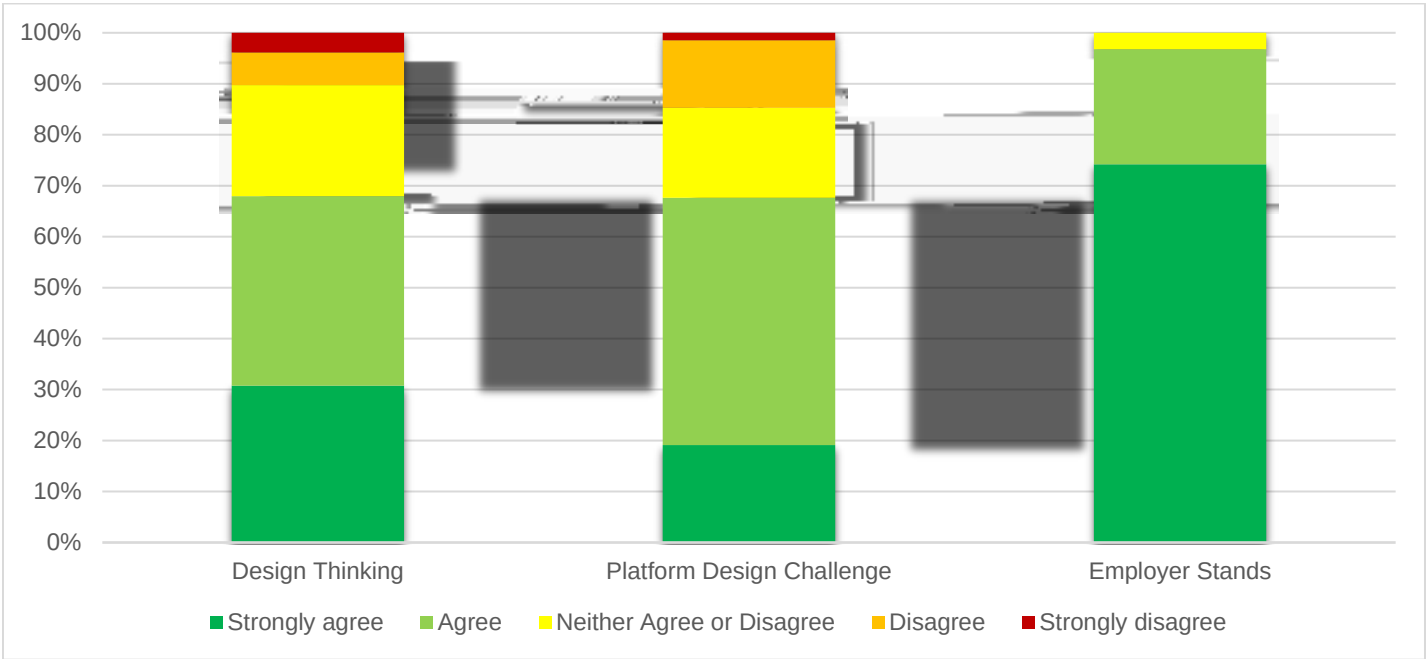

Figure 4: Stacked Bar Chart showing students' agreement with the statement 'I have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability '.

To what extent do you agree with the following statements?

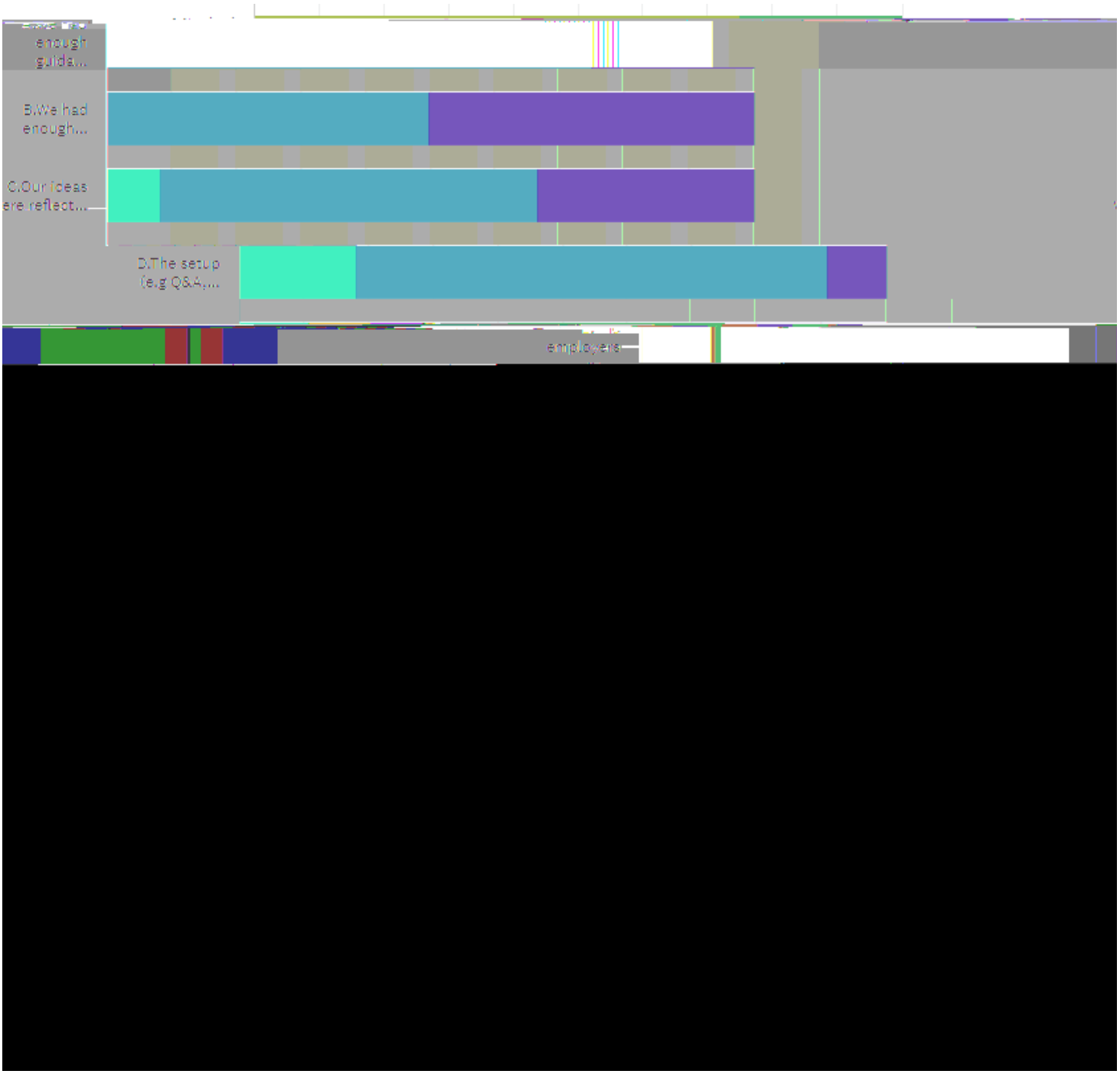

Figure 5.Stacked Bar Charts showing responses by students from Uxbridge High School to questions on co-creation and conversations with employees.

Objective B: Students can better identify and practice employability skills.

Improving employability skills

Students from Uxbridge High School who co-created the Green Skills Hackathon had the opportunity to identify and practice employability skills.

Figure 8: Stacked Bar Chart showing students agreement with the statement ‘I have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability

Objective C: Students understand how the drive for environmental sustainability is shaping businesses and the skills they need.

Understanding future business needs

Students' increased understanding of how the drive for environmental sustainability is shaping businesses and the skills they need stands out as the Hackathon objective that students felt was most clearly achieved.

Across all of the focussed activities undertaken by students, over 92% of students 'Strongly agreed' or 'Agreed'

Figure 10: Stacked Bar Chart comparing responses from Teachers and Corporate Partners in response to the question ‘Do you feel

Objective D: Students better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy.

Demonstrations of understanding

Underpinning the other objectives of the

:

Virtual Air Quality Challenge: Impact Summary

Online challenge content

The Virtual Air Quality Challenge element of the Green Skills Hackathon presented an opportunitytytthe irhe Gre nlhoSbRBh[d.r5an hoirhe Gihohe0b C.5 8ian

‘Results: Virtual Air Quality Challenge’ for full set of student responses).

Students were asked to assess the overall impact of the Vi9 (s)-8 (e 0.001r(t)13)]

students – ‘Inspiring Engineering Careers’ [IEC] – students similarly pitched design ideas to a panel of experts. In the IEC project, students

In a poll for participating groups at the end of each pitch, students responded in a survey poll that they either ‘strongly agreed’ or ‘agreed’ that the Virtual Air Quality Challenge delivered impact across many areas – for example that they ‘had the opportunity to present our own values in relation to environmental sustainability’, they ‘had the opportunity to present our ideas to professionals and employers’ that they ‘learnt about skills needed to tackle environmental challenges’, and that they developed understanding of relevant terminology such as ‘’Environmental Sustainability’ and ‘Green Skills’ (see the section

Key Learning & Recommendations

Key Learning & Recommendations

Identifying Key Learning

The Green Skills Hackathon presented a vibrant event which brought together young people and businesses to collaboratively explore how to address environmroby Evaluation Methodology this report. Together, this data set reveals key areas of learning that can be taken forward into future events created by LTM that similarly bring together young people and businesses to tackle big topics.

Corporate Partners felt the event was successful in enabling them to share their experiences to ‘open students eyes’ and ‘show a range of opportunities in sustainable transport’. They were struck in particular by how clearly ‘students enjoy careers advice’.

What is your biggest takeaway?: ‘How passionate students are about shaping our future’ (Corporate Partner feedback).

Like‘The employees are from different backgrounds and the diversity is amazing. I'm proud to be a part of this event’ (Student feedback).

Success activities

Overall, Teachers and Corporate Partners assessed the activities within the Green Skills Hackathon event as being highly successful. 100% of Corporate Partners felt that all of the activities in the Hackathon event were ‘Extremely successful’ or ‘Successful’, and for Teachers only the Closing Remarks activity fell under 80% in being rated ‘Extremely successful’ or ‘Successful’. This was qualified by one Teacher as being because they felt this activity was a ‘Bit short!’ (Figure 14).

The success of two-way dialogue

Across the data set generated from 360° evaluation of the Green Skills Hackathon, the opportunity for two-way dialogue between Corporate Partners and students emerged as being highly significant for all participants.

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event
the Design Thinking activity and the Platform Design Challenge.

Any future events that bring together young people and businesses to explore big topics should seek to include similar two-way interaction opportunities between these two groups. Including these opportunities within other activities beyond the Employer Stands set-up should also be included.

Learning for the Future

The LTM Learning Team have a commitment to their own learning and as a team embed reflexive practice into their work. This enables them to continually improve and develop successful learning programmes, activities and events.

Within the evaluation data set there are some suggestions from Teachers and Corporate Partners about ways to improve events similar to the Hackathon in future. These are picked out from the abundance of feedback on the positive impact of the Hackathon overall. They are collated and drawn attention to here to enable focussed reflection by the LTM Learning Team on the Hackathon event, to hone and refine the success of similar events in the future.

Consider the balance of focus on engineering careers

The Green Skills Hackathon event was delivered to students ranging from Year 8 to Year 13, meaning that many of the participating students were at very different stages of thinking about their future career. Whilst some students participating in the Hackathon event would not have thought about or decided what careers interest them, others were already very clear about the career they wanted to pursue.

The impact of this diversity within the Hackathon event cohort was that some teachers queried whether the Hackathon was too narrowly focussed on engineering, because it didn't accommodate students who had already decided to enter into different employment sectors. When reflecting on the Employer Stands activity, one Teacher commented it was 'too focussed on engineering but excellent people'. Similarly in the Q&A, another Teacher felt this activity was 'a little

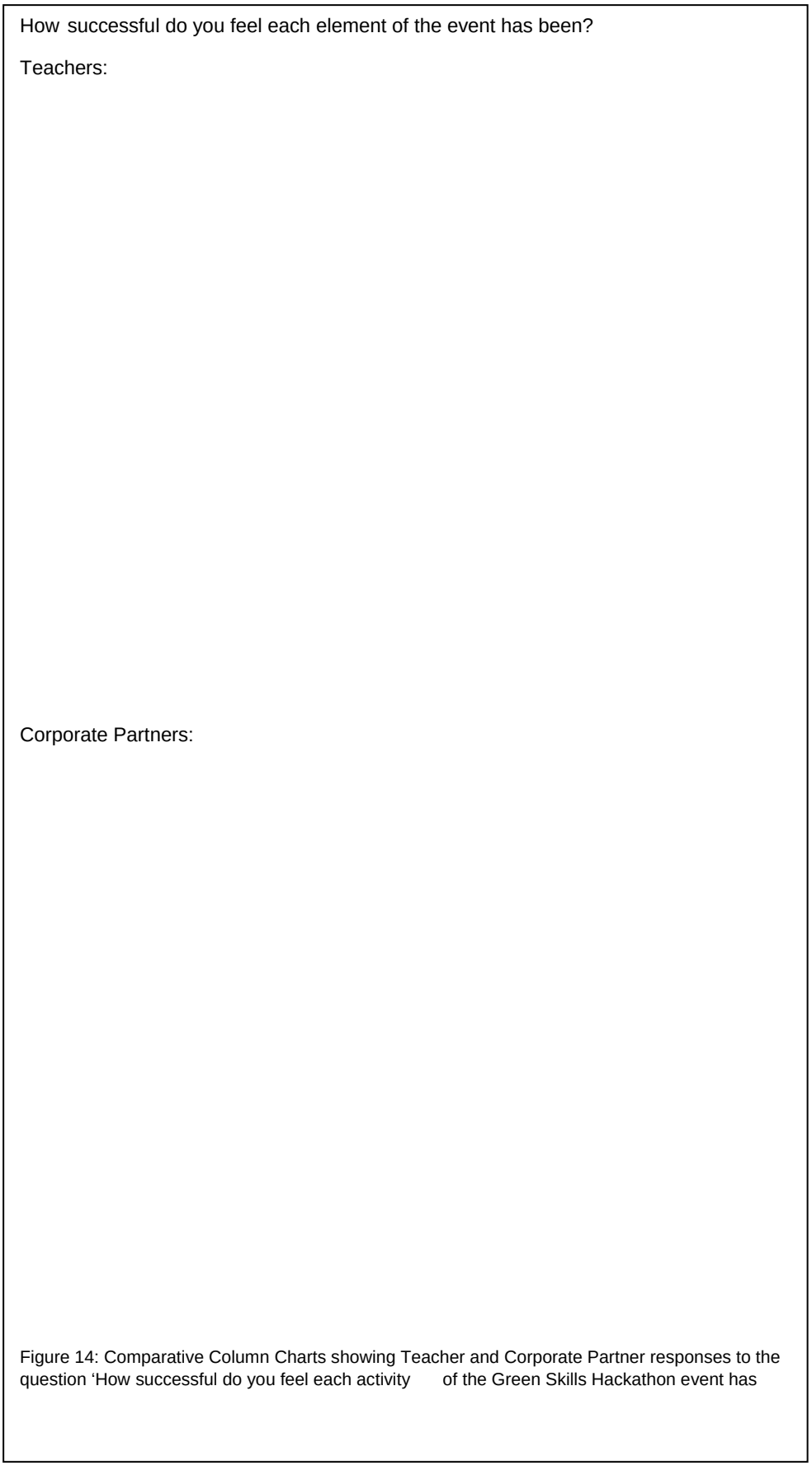


Figure 14: Comparative Column Charts showing Teacher and Corporate Partner responses to the question 'How successful do you feel each activity of the Green Skills Hackathon event has

Results by Evaluation Methodology

Results by Methodology: Quantitative Data

Method

Quantitative data was gathered on participating schools across all elements of the Virtual Air Quality Challenge. This was gathered via capturing information at the point of schools signing up to different elements of the Green Skills Hackathon, and through a head-count of participants on the day.

Results

The raw data is presented below, along with a map visualisation of the participating schools across each element of the Hackathon.

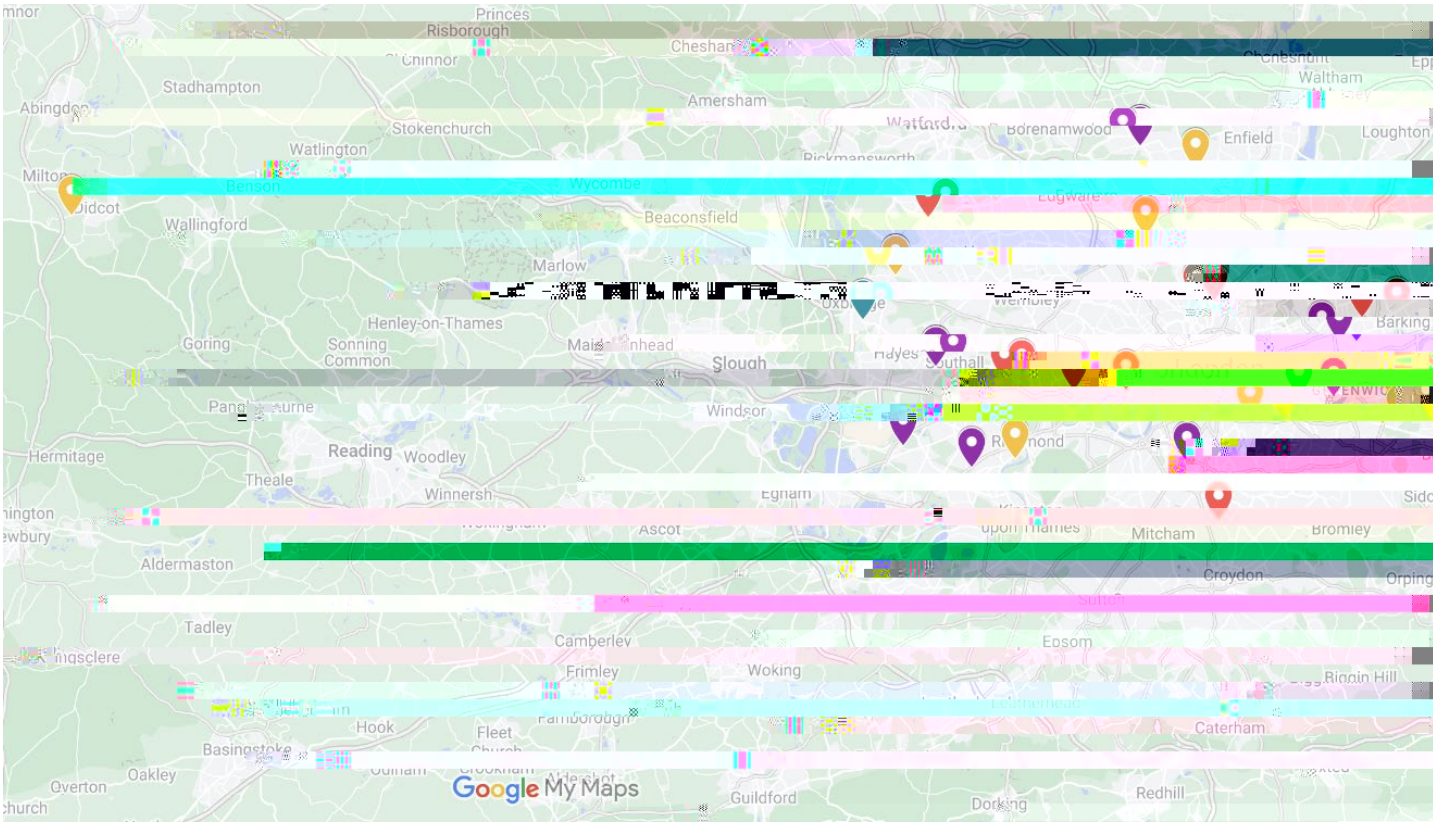
Green Skills Hackathon Event

School Name

Livestream Broadcasts

School Name	School Postcode
UTC Oxfordshire	OX11 6BZ
Sacred Heart Catholic Secondary School	SE5 0RP
Ashmole Academy	N14 5RJ
Ark Pioneer Academy	EN5 2BE
Ark Greenwich Free School	SE18 4LH
Orleans Park School	TW1 3BB
Pentland Field School	

Green Skills Hackathon Map of Reach



Green Skills Hackathon Event Livestream Broadcasts Co-creation Project

s All item All items Uxbridge High School

The Green Skills Hackathon Reach map can be accessed here:
https://www.google.com/maps/d/u/0/edit?mid=1pggIKrbDUA3INyzqpxbg8YoRgKBAEZM&usp=sharing

Results by Methodology: Student feedback boards for focussed activities

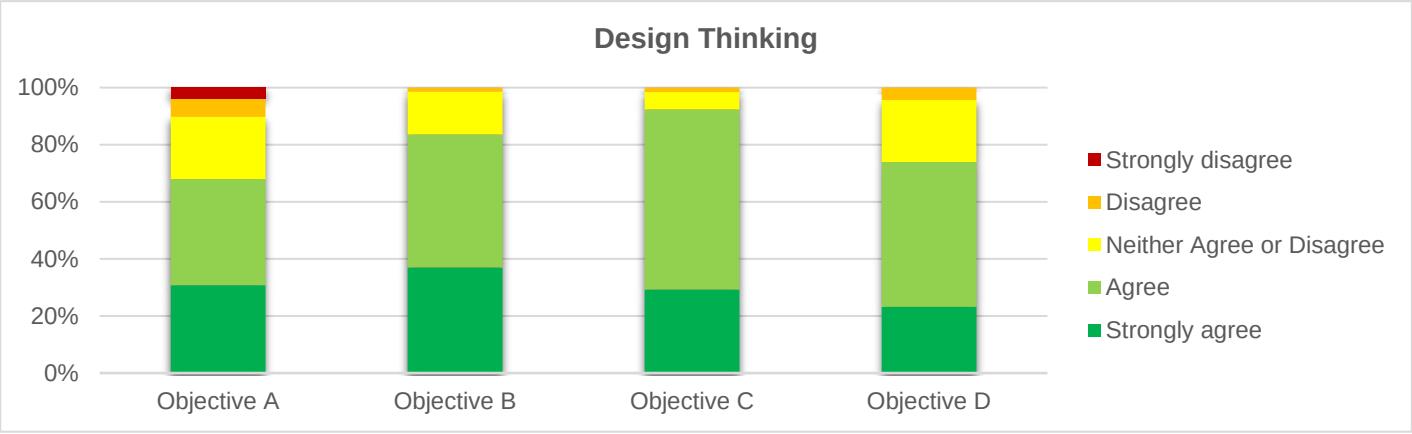
Method

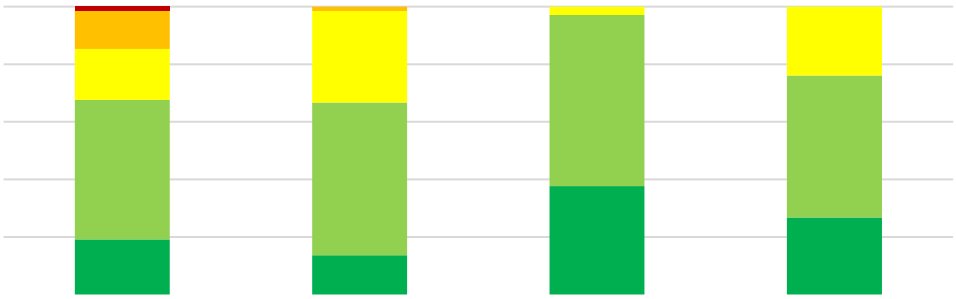
At the end of each of the three focussed activities – the Design Thinking workshop, the Platform Design Challenge, and the Employer Stands - students were asked to provide feedback against the four Hackathon Objectives. They voted against a Likert scale of agreement using sticky-dots, and provided additional qualitative feedback using post-its.

Results

Below, the results from the student feedback boards are presented first by Activity and then by Objective for ease of analysis and comparison. This is followed by all qualitative data, which is grouped by Activity and Objective.

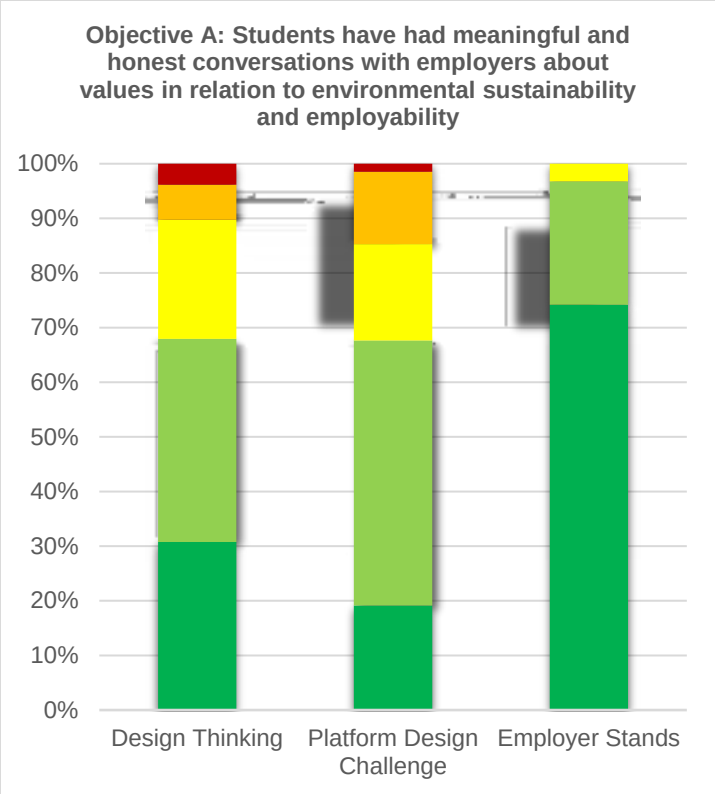
Results by Activity

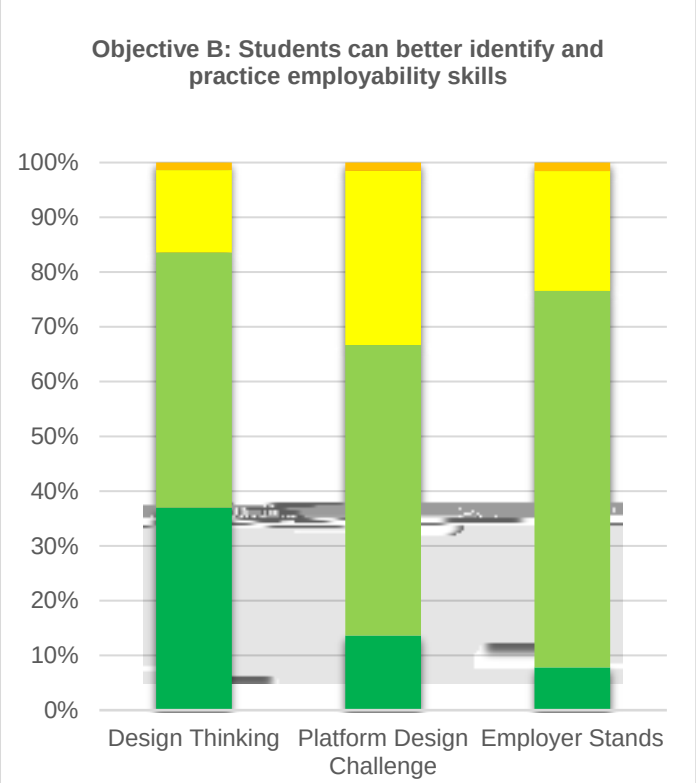


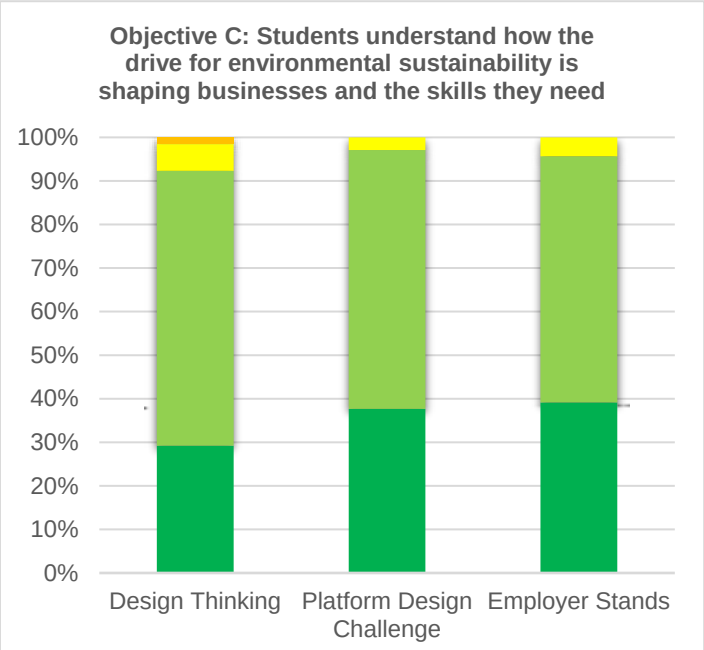


Objective A: Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability.
Objective B: Students can better identify and practice employability skills.
Objective C: Students understand how the drive for environmental sustainability is shaping businesses and the skills they need.
Objective D: Students better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy.

Results by Hackathon Objective

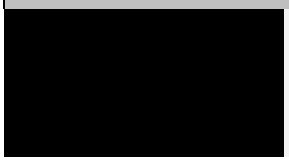






Qualitative Feedback on activities and objectives continued.

Employer stands continued			
A. Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability	**B. Students can better identify and practice employability skills**	**C. Students understand how the drive for environmental sustainability is shaping businesses and the skills they need**	**D. Students better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy**
We got to speak to employers from different companies who hoped me understand environmental sustainability.			
Speaking to employers helped increase my understanding to sustainability.			
We spoke to employees and people with experience.			
Platform Design Challenge.			



Results by Methodology: Student Feedback Postcards

Method

Students completed a feedback postcard at the beginning of the Green Skills Hackathon and at the end. The results enable comparison between students' previous encounters with employers before the event against what they gained from the experience of meeting employers in the Green Skills Hackathon.

Results

All results are set out below, along with additional data visualisations were applied.

Pre-Event Feedback

1. What encounters have you previously had with employers

(Were these in areas of work you are interested in?) Yes	(Were these in areas of work you are interested in?) No
Being a vet. I love animals.	

Post-Event Feedback

4. What have you gained from this event? (Pie chart showing categories of students responses)

Results by Methodology: Observational Evaluation

Method

To collect observational evaluation across all activities in the Green Skills Hackathon event, an observational evaluation record sheet was created. This sheet intended to identify the extent to which the four Hackathon objectives were achieved, as identified via student and Teacher behaviour and responses on the day. The observational evaluation sheet included an engagement scale to rate the percentage of students engaged with each Hackathon objective, as well as space to record specific observations to demonstrate how each objective was achieved (see Appendix C). The observations were conducted by members of the LTM Learning Team who were supporting the Hackathon event, as well as the overall project evaluator. Some activities had a number of observations conducted for them, whilst others had only one.

Results

The engagement scale/s for each activity are presented below, along with qualitative observations of the activities, categorised under the four Hackathon objectives.

Engagement Scale

Th

Focussed Activity: Platform Design Challenge

	Hackathon Objectives:	
	A. Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability	**B. Students can bette.32600.0 0 g9 4 24 refBT g0.002 Tw 78 0 0 78 105.12 62neWBT g-0.002 BT grab b**

Focussed Activity: Design Thinking

	Hackathon Objectives:			
	A. Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability	**B. Students can better identify and practice employability skills**	**C. Students understand how the drive for environmental sustainability is shaping businesses and the skills they need**	**D. Students better understand terminology associated with our journey to net-zero such as Green Skills or Green Literacy**
Observation 1	3: 40-60%	4: 60-80%	4: 60-80%	4: 60-80%
	.Confident in shouting out answers/having conversations with employers. . Encouraging each other to speak.	More insight. .Practical tied into their getting a better understanding. .Spoke to each other more. ."Careers couldn't have been threaded through better"	. Understood the importance of future innovations. . Feel businesses should attempt to implement more sustainable outcomes. .Answering honestly, confidently.	Practical really helped with relating the terminology. .Not many students appeared to look pressured into writing or calling something out.
Observation 2	3: 40-60%	3: 40-60%	4: 60-80%	4: 60-80%
	.Some nervous laughs when asked if any were interested in pursuing a career in design.	.The few who responded to questions were deeply inspired. .Looking around the room some students' attention was elsewhere.	A few questions but very detailed. Strong use of terminology.	Use of language was strong by the students that spoke up.
Observation 3	4: 60-80%	4: 60-80%	4: 60-80%	5: more than 80%
	.Outside of the box ideas. .Lots of relative feedback. .All agreed useful.	.Highly engaged. . 8 students stayed to ask		

Q&A and closing remarks

	Hackathon Objectives:		
	A. Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability	B. Students can better identify and practice employability skills	C. Students understand how the drive for environmental sustainability is

Results by Methodology: Pre and post project student survey with co-creation group

Method

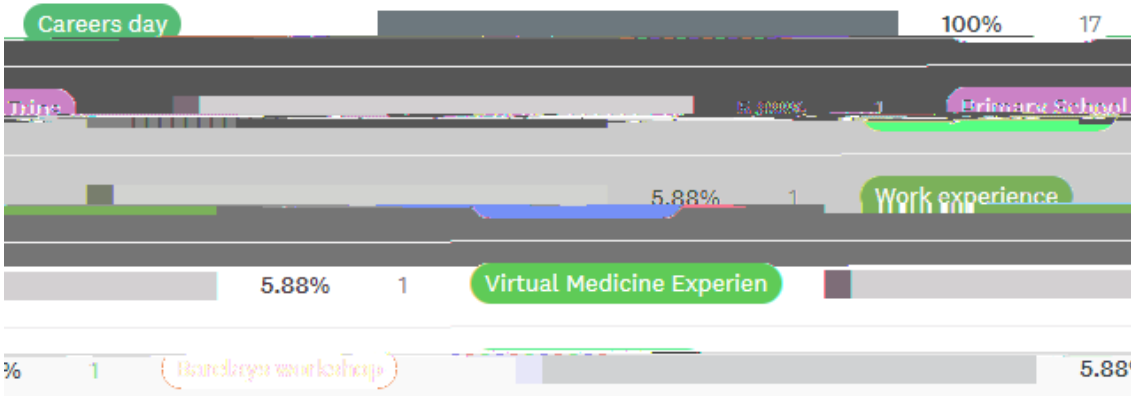
Students from Uxbridge High School completed a paper-based survey at the beginning of their co-creation project, and at the end of the Green Skills Hackathon event. Questions differed between the two surveys in response to the development of the overall Hackathon objectives during the project.

Results

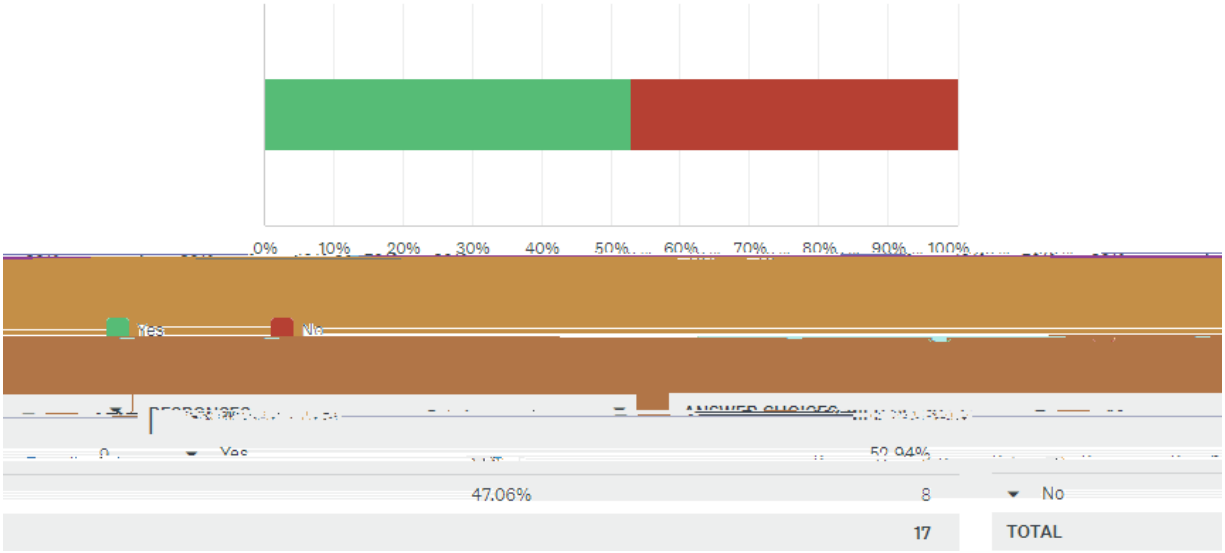
The results from each survey were processed in Survey Monkey. The raw data is presented below, with data visualisations were relevant.

Pre-Project Survey

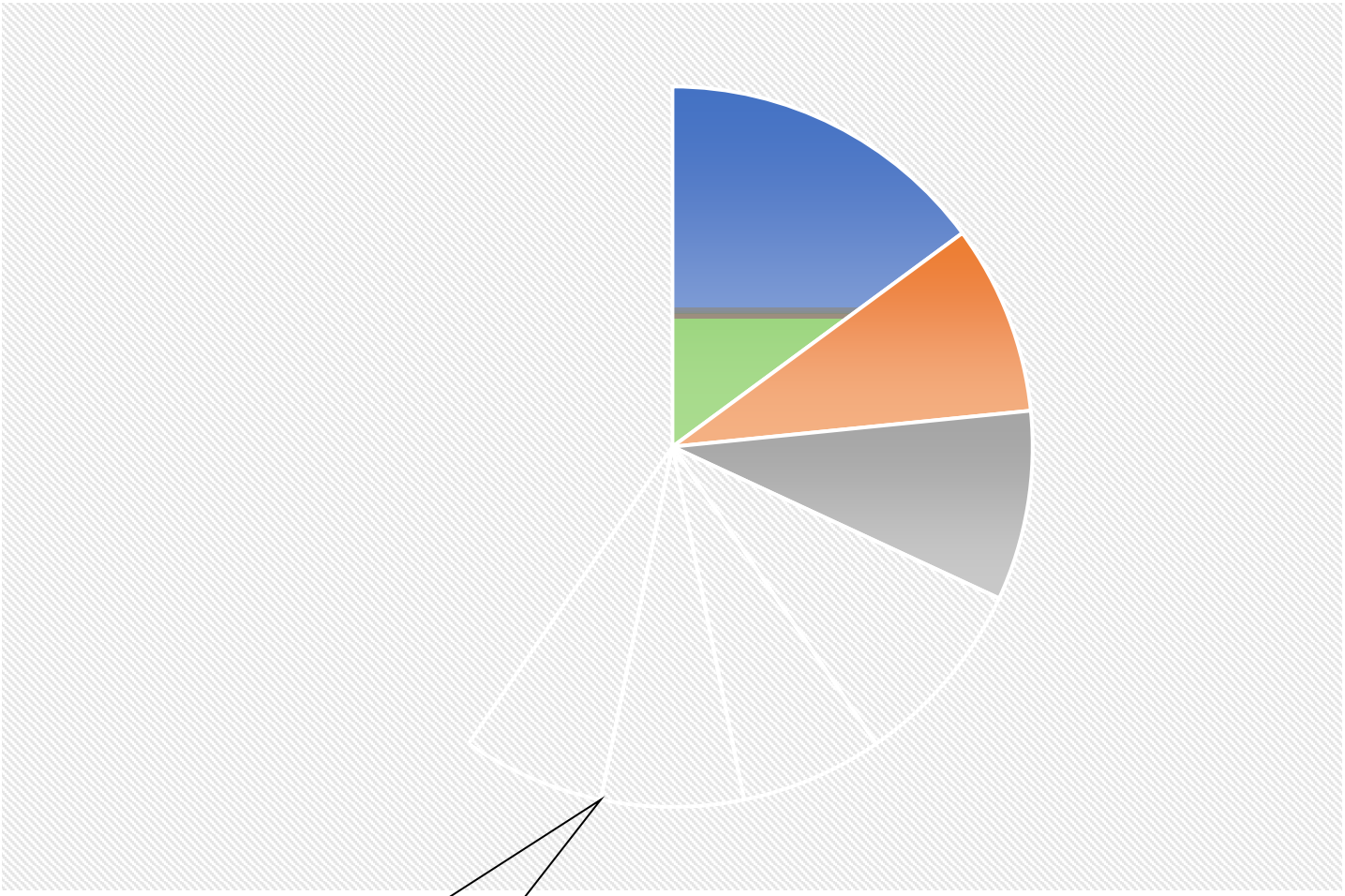
1. What experiences have you previously had with employers (if any)?



2. Are these in areas of work you are interested in?



3. Write down three skills that you think are most important for finding employment.



4. Thinking about these three skills and your own skill set, mark with an 'X' on the line how ready you think you are for employment? (1='Not at all ready' and 10='Extremely ready').

Average of all responses to question 4.

5. If you could ask a future employer anything, what would it be?

All data:

What are the colleagues like? Is it a friendly working area?
What are you looking for in an employee? What requirements, A-levels?
What do you look for in an employee
What are you looking for in it?
To help lead me forward with promotions in the field of work.
How they worked to achieve the job they did.
What do you prefer in someone who you want on your team?

6. What do you think might be the biggest barrier to you entering the career that you want?

Understanding what green skills are. Recognising soft skills.
My fear for heights
Competitive field. Unsure what requirements are needed.

Hard work

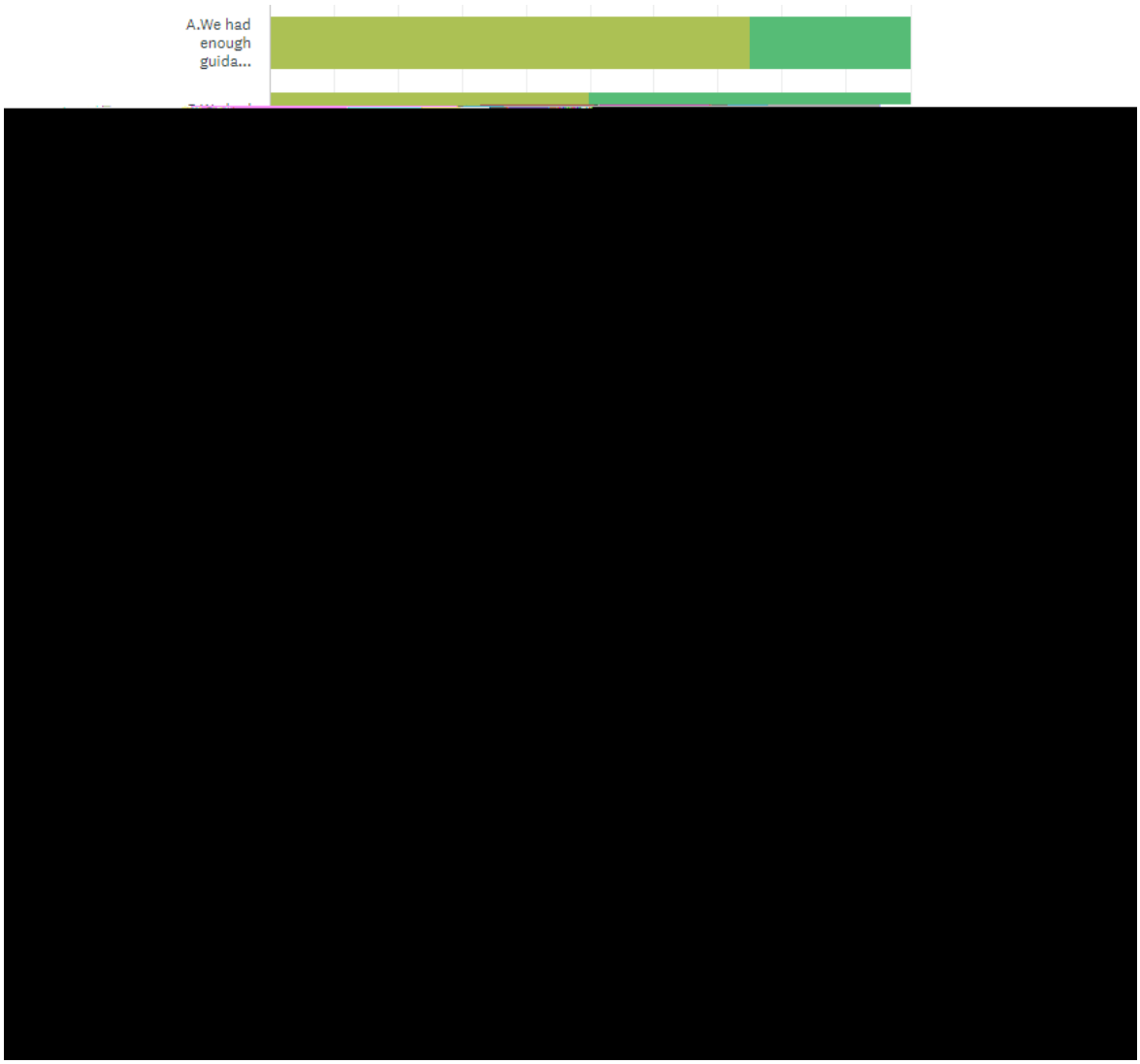
7. What do you understand by the term 'environmental sustainability'?

To use less fossil fuels
Making sure we are using our

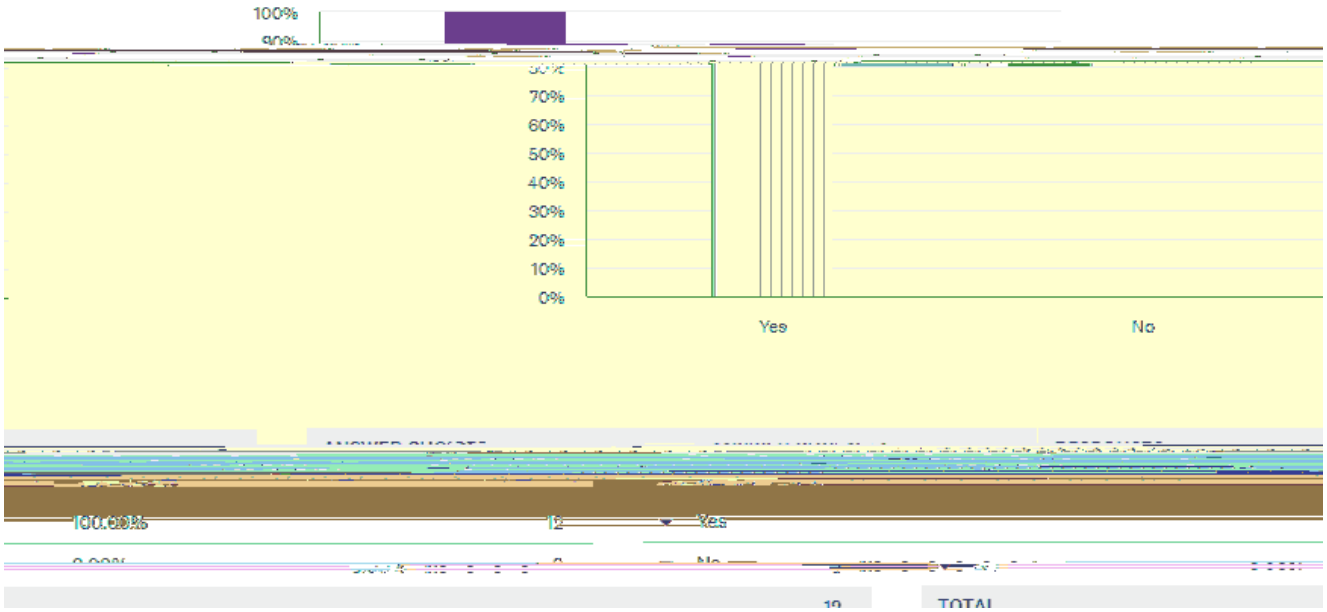
9. Many businesses want to become more environmentally sustainable. What skills do you think they might need among their employees?

Post-Project Survey

1.To what extent do you agree with the following statements?



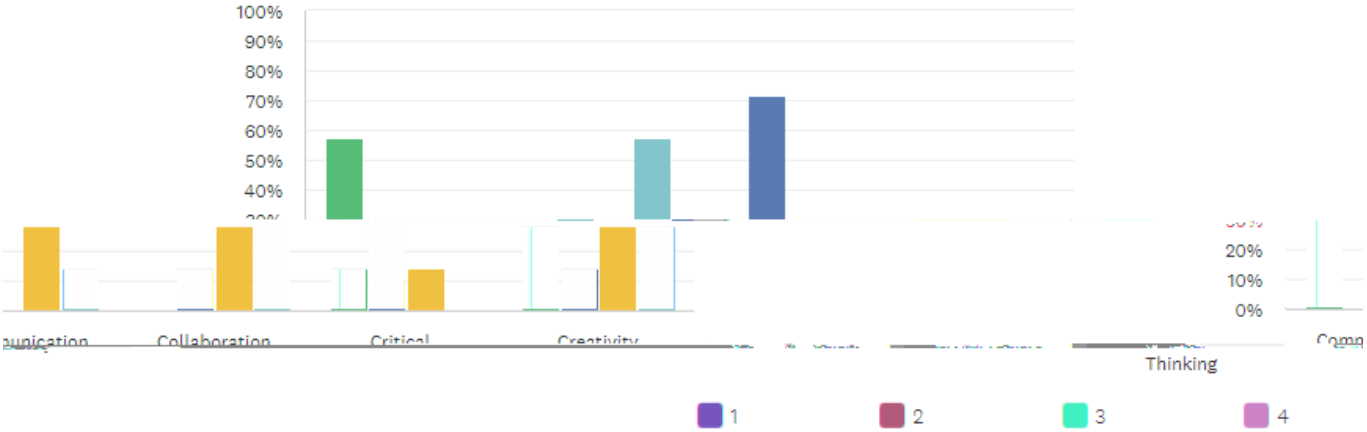
4. Do you think your skills in these areas improved as a result of this project?

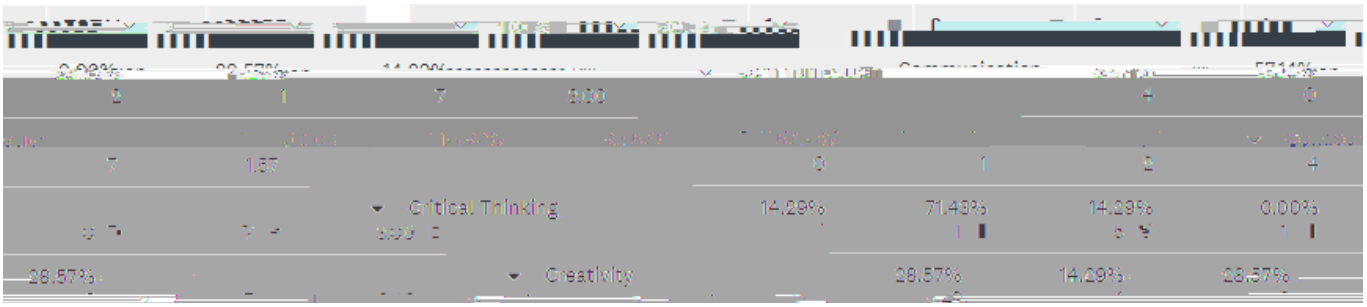


5. Do you think these skills will be useful to your future employability?

6.

10. From what you've found out in this project and at the Green Skills Hackathon, rate which skill you think is most important in relation to careers in environmental sustainability. (Where 1 = Most Important, 2 = Second Most Important etc.)





Results by Methodology: Teacher Survey

Method

Teachers from participating schools completed a paper-based survey at the end of the Green Skills Hackathon event.

Results

The results from the survey were processed in Survey Monkey. The raw data is presented below, with data visualisations were relevant.

3. Do you feel your students now have better knowledge of employability skills they might need in the future?

5. How valuable has this event been for your school? What have you gained from this event?

Very valuable, has allowed students to apply their understanding of sustainability to a relatable problem.
Listening to ideas from other schools. A better understanding of sustainable developments coming our way in London in the future.

8. Would you like to be involved in this event in the future?

Yes.
Yes! Would be interested in bringing Yr11 pupils in addition to Yr13.
Yes 100%
Yes, absolutely. It is an important forum and opportunity to enable young people to learn more about green careers and how they can potentially make a difference.
YES

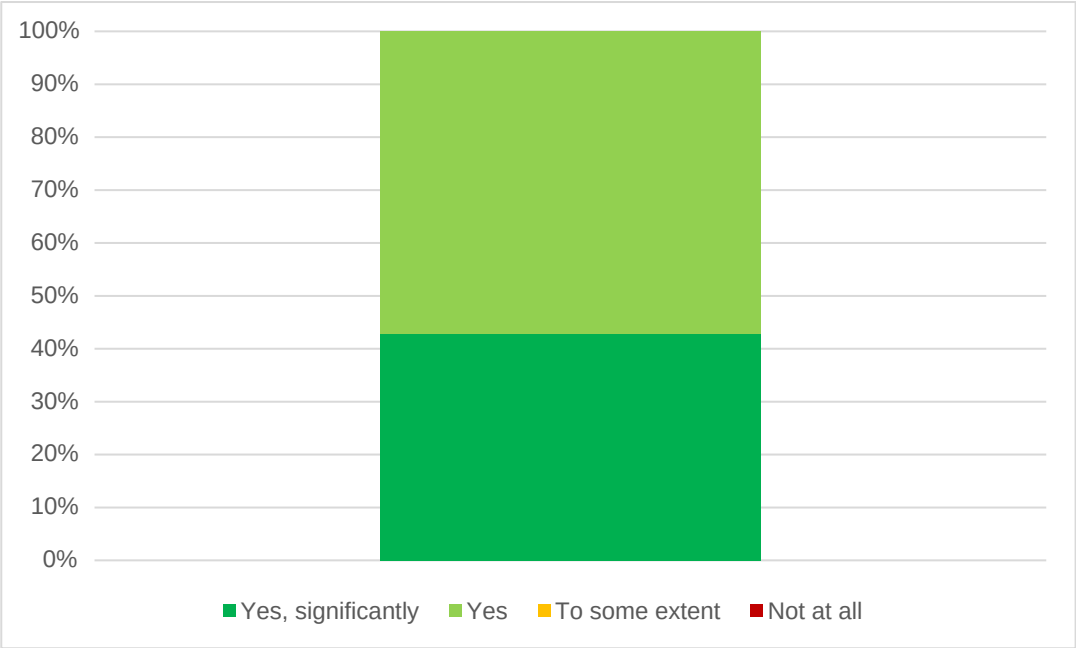
9

Results by Methodology: Corporate Partners Survey

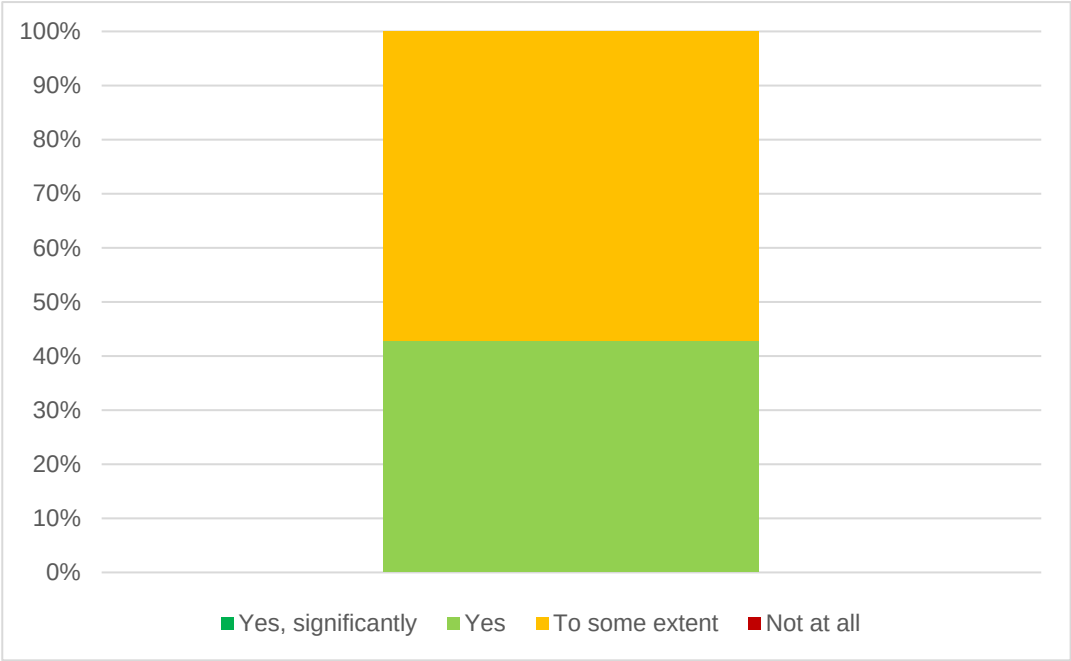
Method

Representatives of Corporate Partners involved in the Green Skills Hackathon event completed a digital survey at the end of the event. The results from the survey were

1. Do you feel you have been able to have meaningful and honest conversations with students about values in relation to environments sustainability and employability?



2. Do you think the interactions you have had with students will prompt you to consider changes in the employment opportunities you offer young people?



3.

5

8. How successful do you feel each element of the event has been?

9. Would you like to be involved in this event in the future?

Yes
Yes
Yes - would be interested in developing a workshop
Yes
Yes
Yes
Yes

10. What changes would you recommend if we were to repeat the event?

Unsure, it has been quite successful at showing transport in an interesting light.
Separate briefing for business.
None.
Bigger space in which to engage with the young people.

11. What have you learnt from the day? Did anything surprise you? 0.02 0 0008 0.48 0.48 ref28.86 161

How digital literate the students are
Learnt more about how to get involved in these events.
Diversity of students - lots of females
Range of transport companies

Lots of motivated students - it would be good to engage them more often

All results for the Virtual Air Quality Challenge

Method

Three evaluation methods were applied to gather data on the Virtual Air Quality Challenge. The participation reach of this element was compiled at the point of schools signing up to the Challenge. Information on the reach of the Online Hub was captured using Google Analytics once the Challenge had taken place.

Feedback from students on their experience of the Virtual Air Quality Challenge was captured using a pre-prepared poll, built using the menti-meter online presentation platform.

Feedback from Corporate Partners who participated in the Panel was captured via responses to feedback questions.

Results

The results from these combined methods are presented below. Data visualisations have been created for the menti-meter feedback from students.

Reach

Feedback from Corporate Partners on the Virtual Air Quality Challenge panel

1. What worked well?	I really enjoyed seeing the students present about such important issues – great to give them the opportunity to problem solve/think strategically about topics so vital to our city and planet. I'm also glad it gives them an insight into what our work is like, so hopefully it can also inspire them for their future careers!
	Clear comms and scheduling the training session before hand was a good plan.
	I think the pitching presentation format of the challenge works well and is something that students can quote on their transcripts and CVs. I really like the STEM Ambassador's feedback and the fact that they were speaking more than we were for the most part. I think that's really valuable for the students.
2. What could be improved?	

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ALL » EVENT CATEGORY: File download

30 Jun 2022 - 27 Oct 2022

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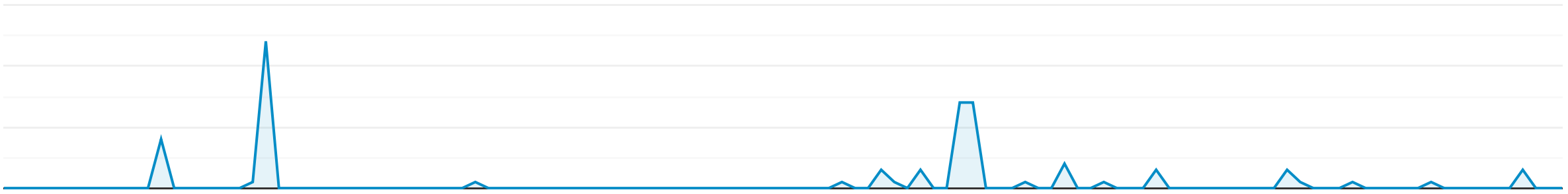
Event



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Rows 1 - 8 of 8

Green Skills Hackathon - Observation Engagement Scale sheet

Your name:

Name of Activity and which session:
(e.g. 'Design Thinking workshop 1')

A. Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability.	B. Students can better identify and practice employability skills.	C. Students understand how the drive for environmental sustainability is shaping businesses and the skills they need.	D. Students better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy.

Lizzie Hilton

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Arts Participation Producer

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