Green Skills Hackathon: Evaluation Report and Recommendations

Undertaken for London Transport Museums by:

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Contents

(Tables and figures continued)

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 businesses to hear from young people about what is most important to them, both as future employees and in relation to sustainable development.

There is an urgent need for meaningful careers events for secondary school students which directly address how they can prepare for employment in a world focussed on achieving and living with net-zero emissions. For students entering into secondary school this year, they will be coming of age into higher education or employment just as 2030 dawns, the date as which the Mayor of London has set the target for reaching net-zero. By considering now the knowledge, skills, values and attitudes 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 significant number of students.

Total Reach

The total reach of the Green Skills Hackathon was:

142 students
from
20 schools
engaged in
518 hours of student participation
meeting
39 business representatives
from
6 Corporate Partner businesses.

This total does not take into account any cascaded impact within schools that was created if students shared their experience with peers, or the hours put in by students to create their responses to the Virtual Air Quality Challenge, meaning the that total hours of participation is likely far higher.

Reach by Hackathon element

The total reach of the Green Skills Hackathon is made up of participation in each of the four elements of the Hackathon. Each element was able to

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

reach different levels of participants, with the Green Skills Hackathon event on-site at LTM having the highest reach.

The **Green Skills Hackathon** reached 80 students from 8 schools who experienced a total of 400 hours of student participation. Students were supported in their visit by 17 teachers and both students and teachers were brought together with 29 business representatives from 6 Corporate Partner businesses.

The **Livestream broadcast** of the Keynote Speech by Lili Matson (Chief Safety, Health & Environment Officer at TfL) and the Q&A with a panel of senior Corporate Partner representatives increased the Hackathon reach beyond the on-site event. An additional 8 schools signed up to watch the Livestream broadcasts, and from their date of broadcast to the 10th November, the Keynote Speech was viewed 27 times and the Q&A was viewed 80 times.

The **co-creation project** ensured that the Green Skills Hackathon was designed by young people for young people. Uxbridge High School participated in this project which took place between March and October 2022. The co-creation project reached 17 students through 8 workshops experiencing a total of 118 hours of participation.

The **Virtual Air Quality Challenge** enabled schools and students that couldn't be involved in the Green Skills Hackathon event to benefit from the overall Hackathon opportunity. In the online Virtual Air Quality Challenge students worked in groups independently at school to respond to a professional brief to devise a solution to improve London's air pollution, which they presented to a professional panel of experts in an online meeting. The Virtual Air Quality Challenge reached 45 students from 4 participating schools, who were bought together with 10 business representatives from 6 Corporate Partner businesses.

Some schools enhanced the impact of participating in the Green Skills Hackathon by choosing to be involved in multiple elements – for example by being a part of the on-site event as well

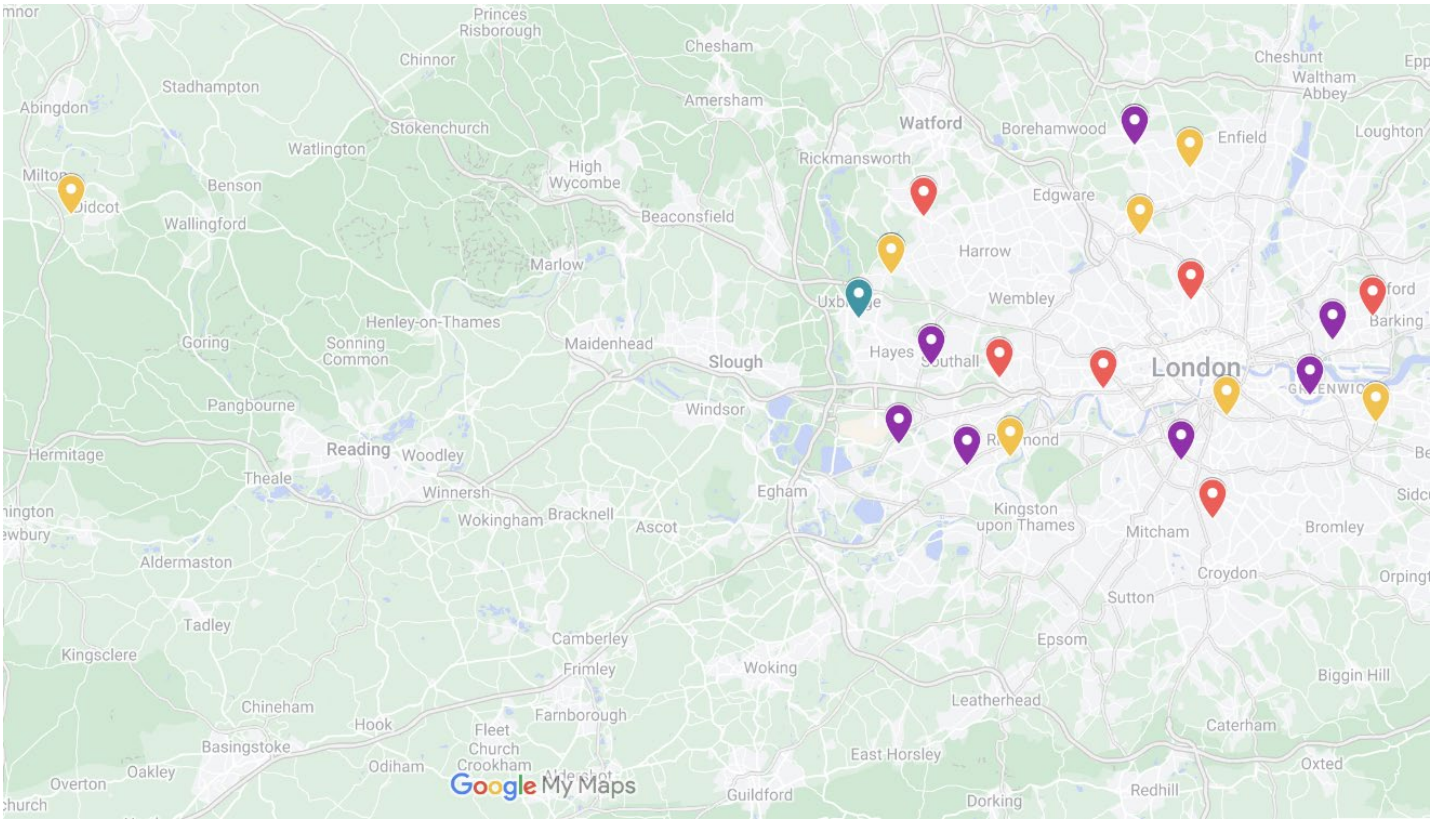


Figure 1. Map of schools that participated in the Green Skill Hackathon.

as participating in the Virtual Air Quality Challenge. Four of the total participating schools enhanced the impact of the Hackathon on their school in this way.

The map in Figure 1 shows the location of the schools that participated in each of the Green Skills Hackathon elements. The map shows that all schools that participated in the on-site Hackathon event, the Virtual Air Quality Challenge and the Co-creation project were within London, with the Livestream broadcasts reaching one additional school outside of London.

Value

97% of students assessed the Green Skills Hackathon as being a 'Valuable' or 'Very valuable' experience for them.

100% of teachers and 100% of Corporate Partners stated that they would like to be involved in the event in the future.

Students summarised the value of the event in terms of what they gained from the experience.

'Significant experience with employers and skills concerning sustainability. Some great understanding of the momentum and human thinking in key organisations' (Student feedback)

Students' responses on what they gained from the Hackathon reveal the topics and information that were explored in the Hackathon which had most impact. Summarised in the Pie Chart in Figure 2, the four areas that had the most impact for students were developing a broader understanding of TfL's work and impact, finding out about career options and opportunities

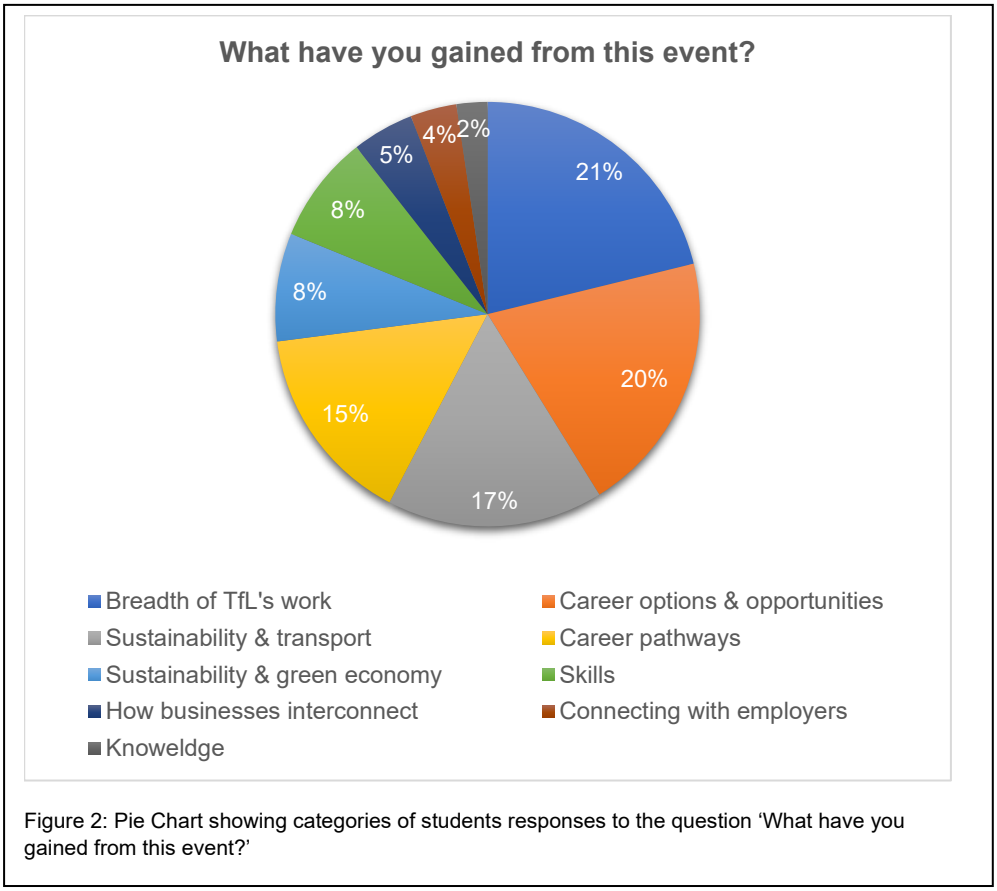


Figure 2: Pie Chart showing categories of students responses to the question 'What have you gained from this event?'

available related to environmental sustainability, finding out more about the connection between transport and sustainability, and gaining insight into career pathways available to them. The details of students' responses for each of these areas reflected how interconnected and integrated environmental sustainability was throughout the Hackathon event, as well as students' optimism for the future and their role within it:

Breadth of TfL's work: '*I have learnt more about TfL and how they make a difference to our planet' (Student feedback).*

Career options & opportunities: '*It has made me more confident in pursuing a career that is more environmentally sustainable' (Student feedback).*

Sustainability & Transport: '*It has helped me expand my initial idea of a greener future and transport businesses' (Student feedback).*

Career Pathways: '*Knowledge of the green skills and sustainability sector and how we can enter this industry' (Student feedback).*

One student summarised the value they gained from the Green Skills Hackathon as integrating all of the areas above: '*I now not only understand transport's impact on the climate crisis but also the different jobs/ courses available within the sector' (Student feedback).*

Meeting the objectives

In addition to the value that students identified as resulting from the Green Skills Hackathon, students, Teachers and Corporate Partners were clear that across all of the Hackathon elements the four key objectives of the Hackathon were met (See section: Summary of Hackathon Objectives).

1. Meaningful and honest conversations.

Students were particularly able to discuss values in relation to environmental sustainability and

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).*

Conversations between students and Corporate Partners were scaffolded by the support provided by LTM staff and through the structure of the event programme, which first introduced and then explored in depth, issues related to employability and environmental sustainability, which enabled these conversations to happen.

'Meaningful conversations surrounding all aspects of sustainability and employment skills' (Corporate Partner feedback).

In the Virtual Air Quality Challenge, all students responded positively to the opportunities to present to and answer questions from a professional panel.

2. Identifying and practicing employability skills.
Students were inspired and motivated by identifying employability skills needed for the future:
'Learnt about different career paths and it showed us no matter your skills/ interests you can get involved' (student feedback).

Students from Uxbridge High School participating in the co-creation project also felt they had practiced and developed employability skills. 100% of the students involved in this project felt they had practiced and developed employability skills including Team work, Communication, Leadership and Public Speaking. This group also purposefully co-created the activities in the Hackathon event to integrate the 21st Century Skills of Communication, Collaboration, Creativity and Critical Thinking.

However teachers participating in the Hackathon event were less sure that the Hackathon had allowed students to practice these skills. In future events, students and teachers could be further supported to identify the 21st Century Skills that they are using by integrating metacognition skills or reflective tools into the practical activities they are participating in. LTM has recently successfully developed metacognition activities for secondary school students in the Inspiring Engineering Careers action research project, which could be applied to this context.

'Green Skills will become increasingly important and as a teacher I should ensure my pupils are aware of the need for such skills in many different industries' (Teacher feedback).

3. How environmental sustainability is shaping businesses.
Students gained a depth of understanding of both the challenges faced by businesses as a result of climate change, as well as the new opportunities that are being created. New career pathways and areas of expertise are being developed to help meet the challenge of climate change, and raising students' awareness of these opportunities was built in throughout the Hackathon.

This inspiring and solutions-focused approach of the Hackathon was effective, as one teacher described:
'Eye opening for pupils with regard to a wide range of sustainability related roles and improved understanding of employers desire to hire people who can help innovate and solve complex environmental challenges' (Teacher feedback).

Results from a survey of Corporate Partners also suggest that businesses might also be shaped or influenced by interactions with young people such as those created by the Green Skills Hackathon. In a survey with Corporate Partners, 43% of respondents said that they would consider changes in the employment opportunities that they offer young people as a result of the Hackathon.

This indicative result hints at how opportunities like the Hackathon enable businesses to harness the ideas and contributions that young people can make to the biggest challenges we face. Further work could be done to support businesses to continue and expand their engagement with young people. One Corporate Partner commented that the Hackathon included '*Lots of motivated students - it would be good to engage them more often (Corporate Partner feedback).*

4. Understanding relevant terminology
Students gained a depth of understanding of key terminology in relation to the journey to net-zero, such as 'Green Skills', in both the Hackathon event and the Virtual Air Quality Challenge.

The Corporate Partners at the Hackathon event who the students heard from and spoke directly to did not shy away from the challenges ahead in

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).

Introduction

Background

This Evaluation Report summarises the findings from 360° evaluation of the Green Skills Hackathon at London Transport Museum [LTM]. The Green Skills Hackathon comprised four elements:

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

The results of evaluating all of these elements are presented in this report.

Summary of Report

Following this introduction which provides the details and context of the overall Green Skills Hackathon project, this report is split into three sections.

Section 1: Summary of Hackathon Objectives

A one-page summary for each of the four Objectives of the Green Skills Hackathon is presented, which draws together the indicators of success from across the evaluation data set. Each summary is accompanied by key data visualisations.

A one-page summary is also provided of the Virtual Air Quality Challenge.

Section 2: Key Learning & Recommendations

Key learning and recommendations are drawn together from the evaluation data set to be used by the LTM Learning Team to inform future events similar to the Green Skills Hackathon.

Section 3: Results by Evaluation Methodology:

The full cohort of evaluation data collated from the Green Skills Hackathon is presented, along with any visualisation tools that have been applied to support understanding of the data.

Summary of terms

This report endeavours to be consistent in terminology. Terms that will be used are outlined here for clarity:

Green Skills Hackathon – Used to refer to the full programme of activities and project, including all four elements.
Green Skills Hackathon Event – Used to refer to the event that took place at LTM on 17th October 2022.
Element – the four areas of work that comprise the full Green Skills Hackathon programme.
Activity – Each part of the Green Skills Hackathon event, for example the Keynote speech and Q&A session (see Table 1 for full programme of activities).
Focussed activities – The three activities that were delivered in carousel format during the Green Skills Hackathon event – the 'Design Thinking activity', the 'Platform Design Challenge' and 'Employer Stands activity'.
Co-creation group – Used the refer to the students from Uxbridge High School who co-created and took leading roles on the day of the Green Skills Hackathon event.
Corporate Partners – Used to refer to the representatives of businesses that participated on the day at the Green Skills Hackathon event as well as in the Virtual Air Quality Challenge panel.
'Hackathon Workshop' – In places is

Time	Green Skills Hackathon event activities		
10:00	Welcome		
10:35	Keynote Speaker		
11:20	Focussed activities, attended by three groups in carousel:		
	Design Thinking	Platform Design Challenge	Employer Stands
13:40	Q&A with Panel of Corporate Partner representatives		
14:25	Closing Remarks		

Table 1: Green Skills Hackathon event activities.

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 impact of different approaches to supporting secondary school students in skills and careers, which have been explored by LTM in 2022. Together, the reports can be used to develop a compelling vision for LTMs ongoing work with this age group.

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 *'Strongly agreeing'* or *'Agreeing'* that it did so (Figure 4).

Conversations enabled by co-creation

By co-creating the event with students from Uxbridge High School, opportunities for students to have meaningful and honest conversations with employers were embedded into every activity in the Hackathon, because each activity was drawn directly from the interests and concerns of these representative young people.

This is shown by the Uxbridge High School students' high levels of ownership of the Hackathon overall (see questions A-C in Figure 5), as well as feeling that their own questions were answered by employers during the Hackathon (see Questions D-E in Figure 5).

Moreover, these students' took leadership roles in the Hackathon, further directing the conversation to areas of interest for them. The importance of this was noted by one teacher commenting on the Q&A: *'Great it was chaired by a pupil' (Teacher feedback).*

A public platform highlighting students' concerns

The format of the Keynote Speech and the Q&A enabled meaningful conversations to happen on a public platform. One teacher commented that it was significant that *'young people [are] articulating what is important to them' (Teacher feedback)* in these forums.

In both activities students asked probing questions to senior representatives of TfL and Corporate Partners, for example questions relating to TfL's future funding, and specific ways that Corporate Partners were tackling the climate crisis. Students were congratulated in both activities for the calibre of their questions, and high levels of engagement by students were observed throughout, demonstrating the success of the two activities in enabling these conversations to happen.

It is also significant that both the Keynote and the Q&A were broadcast online, further amplifying these conversations to an additional 8 schools who signed up to watch them online.

Employees were relatable

The varied format of the three focused activities gave students the opportunity to have small-group and 1-to-1 conversations with employers. These gave students the opportunity to *'ask many questions'* and *'get feedback'* on their own ideas, questions and concerns.

For some students honest conversations were enabled at the Employer Stands in particular because many of the representatives of corporate partners were young and/or recent graduates. This made them more relatable for the young people, who saw themselves reflected in the employees:
'The employees are from different backgrounds and the diversity is amazing. I'm proud to be a part of this event' (Student feedback).
'Employers have interesting insight into career possibilities and how specific modules link to my interests' (Student feedback).

For others, the Employer Stands activity was particularly helpful for the specific information that they found out about career pathways:
'Helped me identify different types of apprenticeships and helped with design' (Student feedback).

Students also felt that the format of the Design Thinking activity which enabled two-way conversations was effective, ensuring that meaningful conversations could take place:
'I liked the balance between allowing us to ask questions and listen to explanations' (Student feedback).
'Yes because all the conversations were meaningful' (Student feedback).

Students commented that considering specific issues related to environmental sustainability via the practical Platform Design Challenge deepened their understanding of the related issues:
'I have learnt about accountability of sustainable industry and how this can be implemented' (Student feedback).

Students were inspired

Students were inspired by the conversations they had with employees across the Green Skills Hackathon. There was surprise from many students who found out through their conversations that *'TfL is not just about trains and busses but how society is interconnected',* and they saw that their own values towards of environmental sustainability are reflected and embedded into the thinking of both TfL and Corporate Partners:
'It was interesting to understand the steps being taken by companies to become more sustainable' (Student feedback).
'Learnt about different career paths and it showed us no matter your skills/interests you can get involved'.(Student feedback).

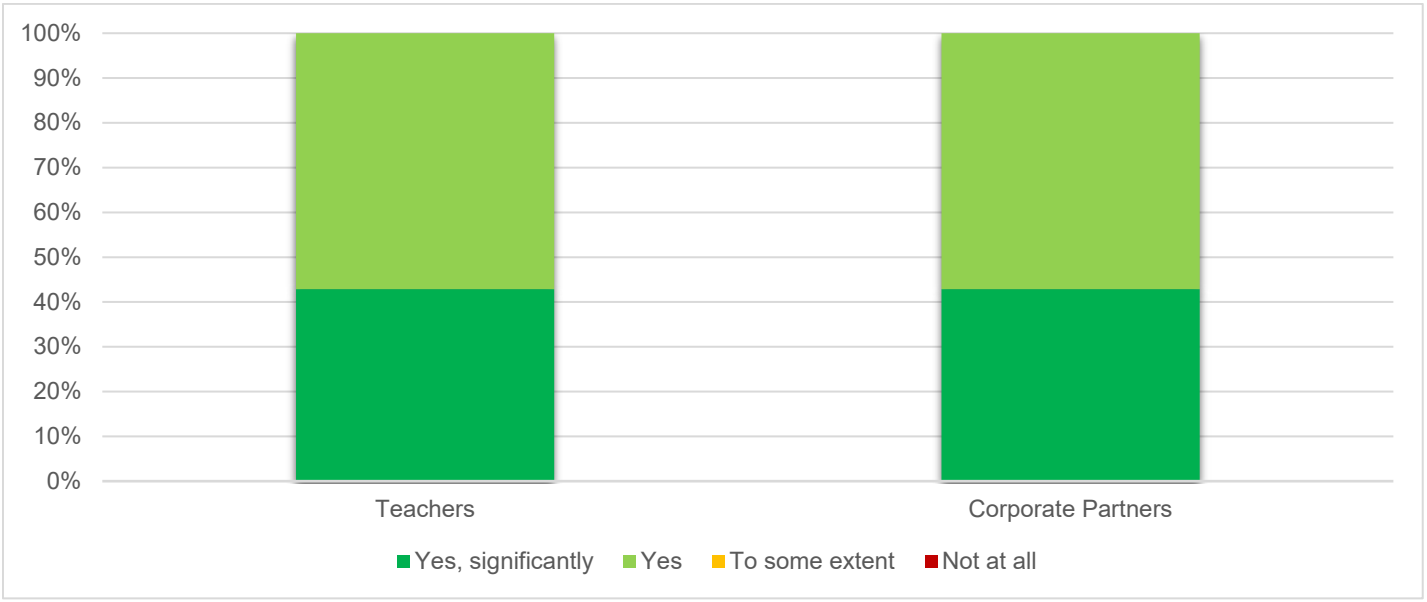


Figure 3: Stacked Bar Chart showing Teachers' and Corporate Partners responses to the Question **'Do you feel your students were able to have meaningful and honest conversations with employers about values in relation to environmental sustainability and employability?'**

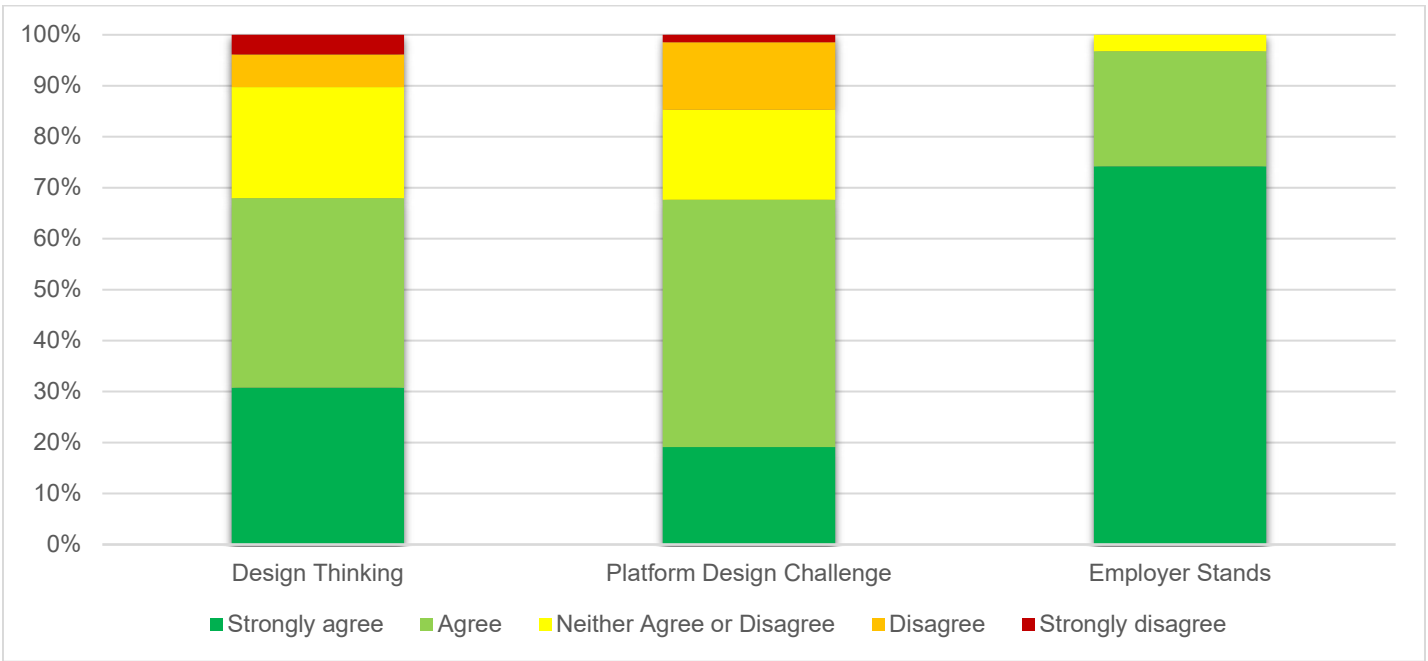
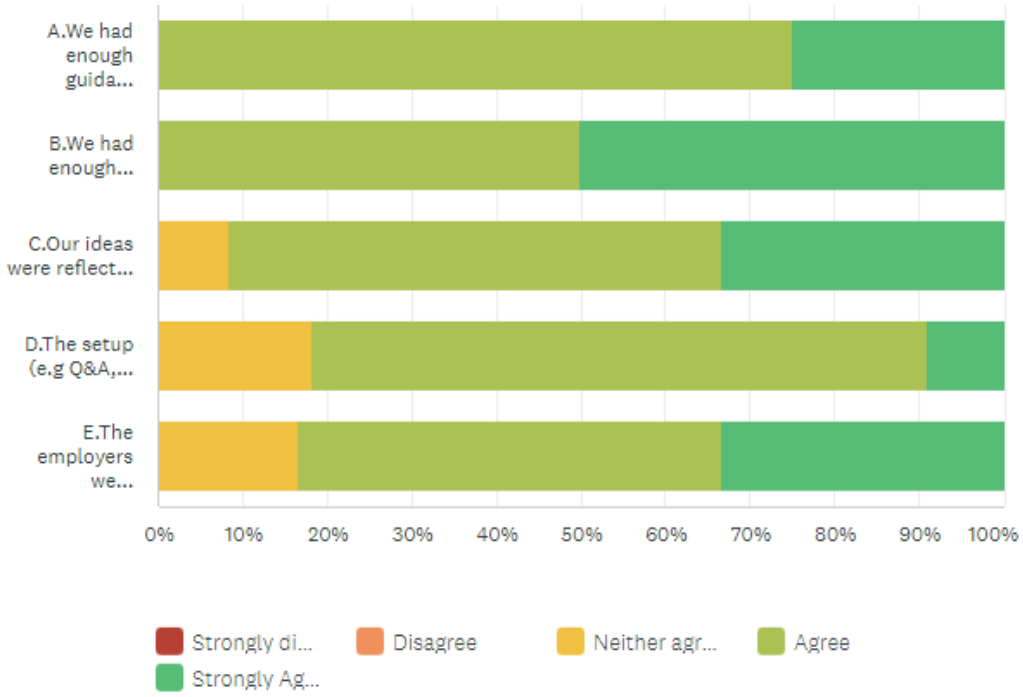


Figure 4: Stacked Bar Chart showing students' agreement with the statement **'I have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability'.**

To what extent do you agree with the following statements?



	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE	TOTAL
A.We had enough guidance to develop our ideas for the Green Skills Hackathon	0.00% 0	0.00% 0	0.00% 0	75.00% 9	25.00% 3	12
B.We had enough independence to develop our ideas for the Green Skills Hackathon	0.00% 0	0.00% 0	0.00% 0	50.00% 6	50.00% 6	12
C.Our ideas were reflected in the final content of the Green Skills Hackathon	0.00% 0	0.00% 0	8.33% 1	58.33% 7	33.33% 4	12
D.The setup (e.g Q&A, workshops, employer stalls etc.) of the Green Skills Hackathon enabled conversations between students and employers to happen	0.00% 0	0.00% 0	18.18% 2	72.73% 8	9.09% 1	11
E.The employers we encountered at the Green Skills Hackathon were able to answer any questions we had	0.00% 0	0.00% 0	16.67% 2	50.00% 6	33.33% 4	12

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.

Following the project, the skills the students felt the project most developed were Team work (23%), Communication (20%), Leadership (11%), Public Speaking (11%).

100% of Uxbridge High School students felt they had improved in their skills as a result of the project, and 100% that they felt these skills would contribute to their future employment (see Results: Student Survey).

Identifying skills

Students from eight other schools who attended the Green Skills Hackathon felt they were particularly able to identify skills that they would need for the green economy during the Employer Stands activity. Many students commented on the different career types (for example future technologies, engineering, policy making) and pathways (for example apprenticeships, graduate programmes) that they found out about in this activity. *'Learnt about different career paths and it showed us no matter your skills/interests you can get involved' (Student feedback).*

Similarly in the Q&A activity the panel of Corporate Partners identified and shared with the students the skills that they felt are most important for employment in their sector. All of the '21st Century Skills' were described by the panel – Collaboration, Creativity, Communication and Critical Thinking – but the answer that received the most significant reaction from the audience of Teachers and Students given by Steffen Reymann from Cubic Transportation Systems was 'Curiosity'. The way in which this skill resonated with the audience suggests that identifying broad skills such as this, that can be cultivated by each student individually, has particular potential within the context of a careers event delivered to such a broad range of students and teachers as the Green Skills Hackathon.

Teachers agreed (86% responding *'Yes significantly'* or *'Yes')* that their students had better knowledge of employability skills that they might need for the future as a result of the Hackathon (Figure 6), and Corporate Partners agreed that students improved their 'understanding of the skills they need for a job', with 86% agreeing *'Yes'* with this statement (Figure 7).

Practicing skills

Students had the chance to directly practice employability skills for themselves in particular in the Design Thinking activity and the Platform Design Challenge. Drawn from and developed through the co-creation project with Uxbridge High School students, these activities embedded all four 21st Century skills, which were noted by the Q&A Panel as being essential for employment. For example (but not limited to):

- **Critical thinking:** Problem solving in designing and budgeting challenges.
- **Collaboration:** Team work to explore different ideas of bridge and platform design.
- **Creativity:** Applied sketching and idea creation in the Design Thinking activity.
- **Communication:** Confidence in presenting design ideas back to the TfL Innovation Team and Mott McDonald representative.

Students also identified for themselves that they practiced specific and technical skills in both practical activities. In the Platform Design Challenge one student identified that they had applied a practical skill of their *'ability to calculate expenses of projects within a budget using sustainable options as well'* and in the Design Thinking activity, students felt they had participated in *'lots of activities where I would have had to think as if I was an employee'.* Developing practical and specific skills in Design Thinking was felt to be particularly important because *'design thinking is widely used'*.

Opportunity to support metacognition

In spite of 21st Century Skills being embedded across Green Skills Hackathon activities, and high levels of engagement in these skills being observed on the day, under 80% of students *'Strongly agreed'* or '*agreed*' that they had identified and practiced employability skills in the Platform Design Challenge (67%), and in the Employer Stands activity (77%) (Figure 8). One student's comment summarises why these may be lower than elsewhere: *'The employees were able to share the skills their jobs require but we haven't had much practice pursuing them'.*

When Teachers were asked to respond '*Yes'* or *'No*' if they felt their students had 'improved their understanding of skills they need for a job', 57% of Teachers added an extra box in between the binary answers and ticked '*Maybe*' (Figure 7).

This mismatch between skills that were embedded into the activities and observed to be engaged with by the students, and how students and Teachers interpreted whether this objective was met, demonstrates that students and Teachers alike can find it difficult to identify where they are practicing skills, particularly those that are non-technical such as 21st Century skills.

There is an opportunity for LTM to address this going forward, through integrating developing students' metacognition skills into the activities so that students can better identify and articulate where they have practiced new skills through participating in activities and events. LTM has recent precedent of successfully including metacognition in schools projects with this age group, which could be applied in this context.

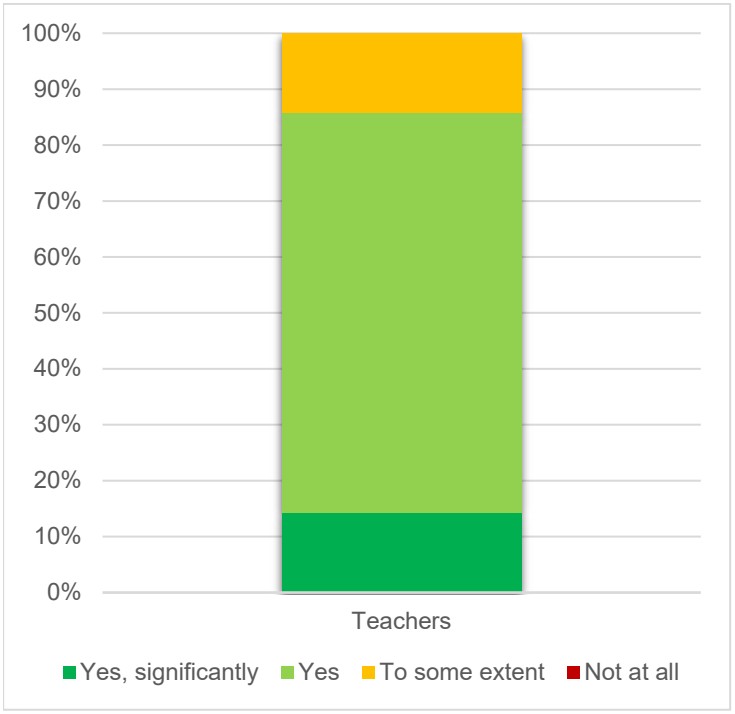


Figure 6: Sacked Bar Chart showing teachers responses to the question **'Do you feel your students now have better knowledge of the skills they might need for the future?'**

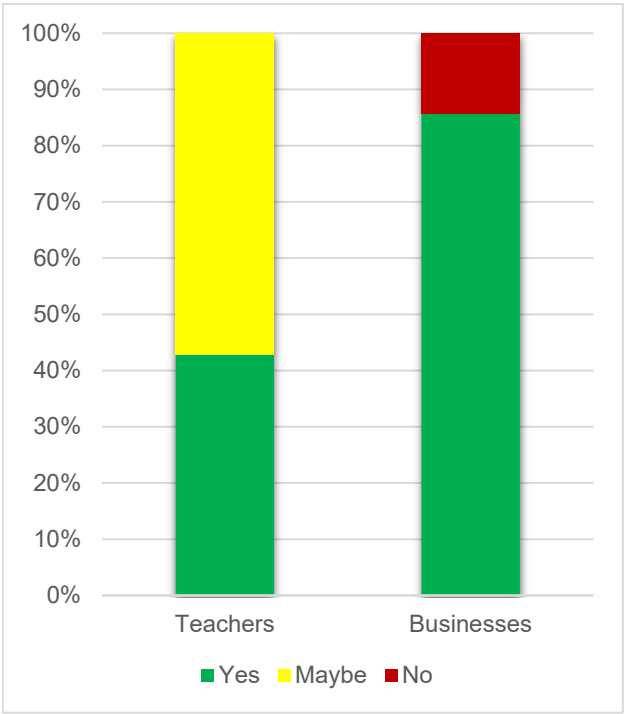


Figure 7: Stacked Bar Chart comparing responses from Teachers and Corporate Partners to the question **'Tick yes/no to indicate if you feel students have improved their understand of skills they need for a job?'**

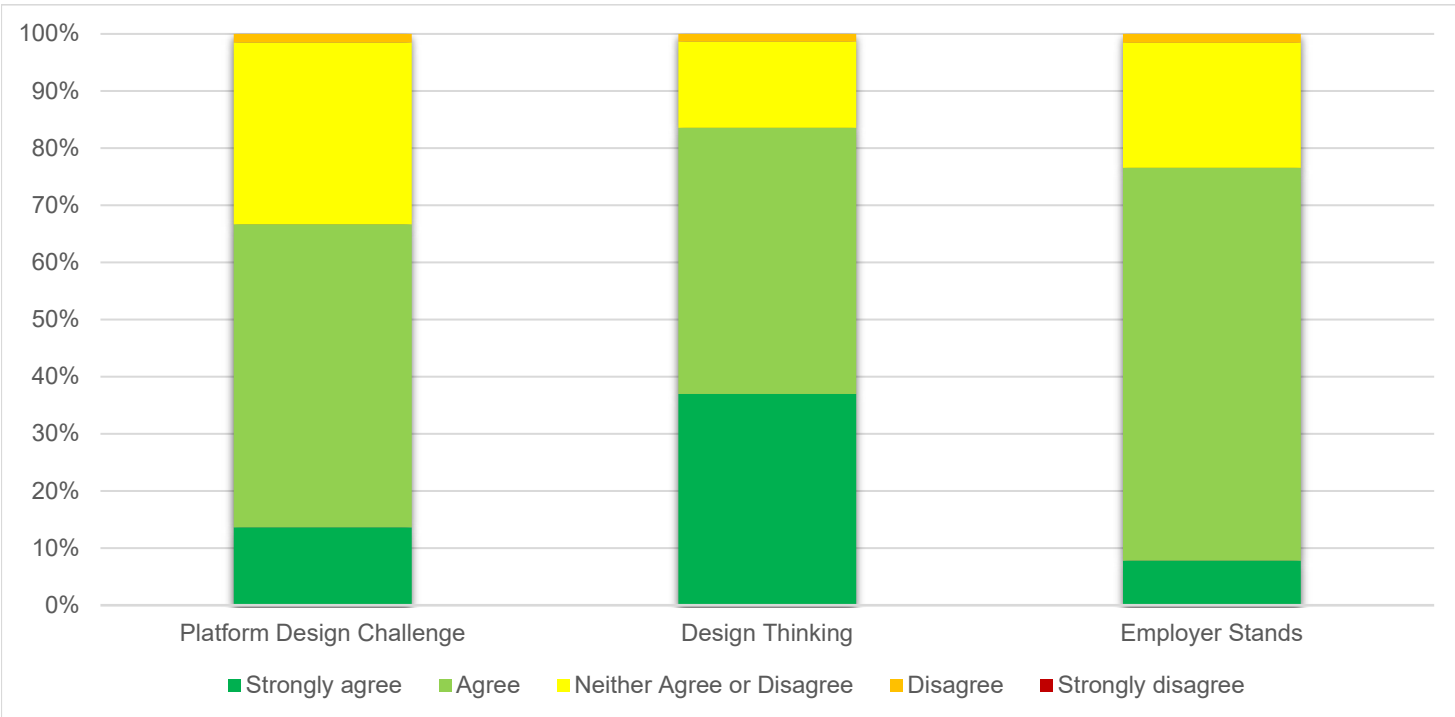


Figure 8: Stacked Bar Chart showing students agreement with the statement **'I have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability'.**

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'* that this objective was met (Figure 9).

Similarly 100% of Teachers and 86% of Corporate Partners felt that students had improved their understanding of how environmental sustainability is shaping businesses as a result of the Hackathon (Figure 10).

These results are enhanced by the depth of understanding of this area that students demonstrated as a result of participating in the Green Skills Hackathon: understanding responsibility, challenges and opportunities.

Understanding responsibility

Students developed a foundational understanding that environmental sustainability is shaping businesses because they *'need to'* respond to environmental challenges on an ethical basis. One student stated: *'Yes, because businesses need to contribute to the keeping of the world's environment' (Student feedback).*

This was supported in the Q&A, where a probing question from a student about the consequences of not taking environmental action was responded to with honesty by the panel of Corporate Partners: businesses take action for significant ethical reasons, but also for commercial reasons, as they cannot win contracts without demonstrating their environmental responsibility.

Understanding challenges

Students understood that the scale of the challenge of achieving environmental sustainability requires a response on an equally large scale. The drive for environmental sustainability is needed across all employment sectors, and students were supported to recognise the interconnectedness between sectors and companies, as well as the need for responsibility to exist top-to-bottom throughout companies. Ian Rawlings from TfL described this in response to a student question in the Q&A that in the future all jobs will bear environmental responsibility, whether implicitly or explicitly.

One student summed up their understanding of this concept: *'I was able to learn/understand company's need for people skilled in many different sectors to help with sustainable change' (Student feedback).*

In addition, students understood that this challenge is not simple or linear. They found out in the Keynote speech that the biggest impact that TfL could have on reducing carbon emissions is via behaviour change towards public transport by those who currently prefer to drive (accounting for 5million car journeys in London per day), rather than a specific technological or engineering solution. Understanding the need for this behaviour change was commented on by one student as the reason they felt this objective had been achieved: *'Businesses need to meet customer demands of privacy and comfort on TfL services so they want to go on trains' (Student feedback).*

The challenge was also shown to be understood through students' first-hand experience of how sustainability operates in the real world. In the Platform Design Challenge, students were challenged to improve the accessibility of a station, whilst also making it 'green' and within budget. This challenged many students to think creatively to develop new solutions, and many were observed to present their design solutions confidently during a feedback opportunity within the activity.

Understanding opportunities

A feature of the Keynote talk, the Q&A and the Employer Stands activity was that the drive for environmental sustainability will also present many new opportunities, which was taken on board by many students. One student described: *'I understand how it has opened many career pathways and most businesses have an eco-friendly team' (Student feedback).*

This optimistic approach was inspiring to the young people who attended, which Teachers identified as particularly impactful: *'Eye opening for pupils with regard to a wide range of sustainability related roles and improved understanding of employers desire to hire people who can help innovate and solve complex environmental challenges' (Teacher feedback).*

That creativity will be required by businesses to achieve environmental sustainability required in the future workforce was similarly identified by the co-creation group. Responding to a question about the types of jobs that are related to environmental sustainability, two student identified creativity as central:
'Careers that require thinking outside of the box, being creative, knowledge, being able to lead a team and organise people and be independent'.
'Someone that has creative ideas' (Co-creation group feedback).

This optimistic thread was built in to the set-up of activities across the Hackathon:
'*We learnt about TfL's future scheme and why it's important. I could ask questions on how it would be improved' (Student feedback).*

By enabling such two-way conversations throughout, the Green Skills Hackathon cultivated a spirit of optimism for the future employment opportunities among the participating students.

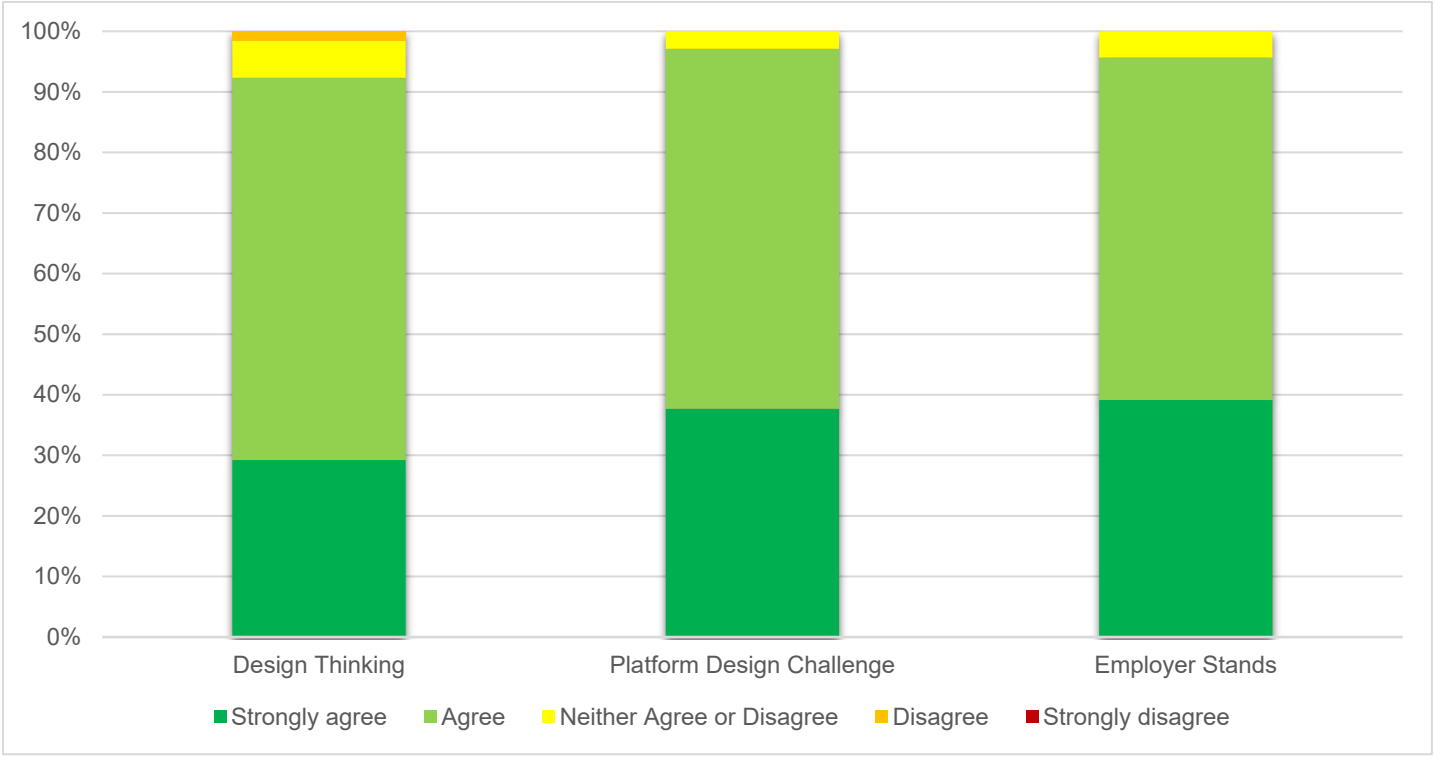


Figure 9: Stacked Bar Chart showing students' agreement with the statement **'I understand how the drive for environmental sustainability is shaping businesses and the skills they need'.**

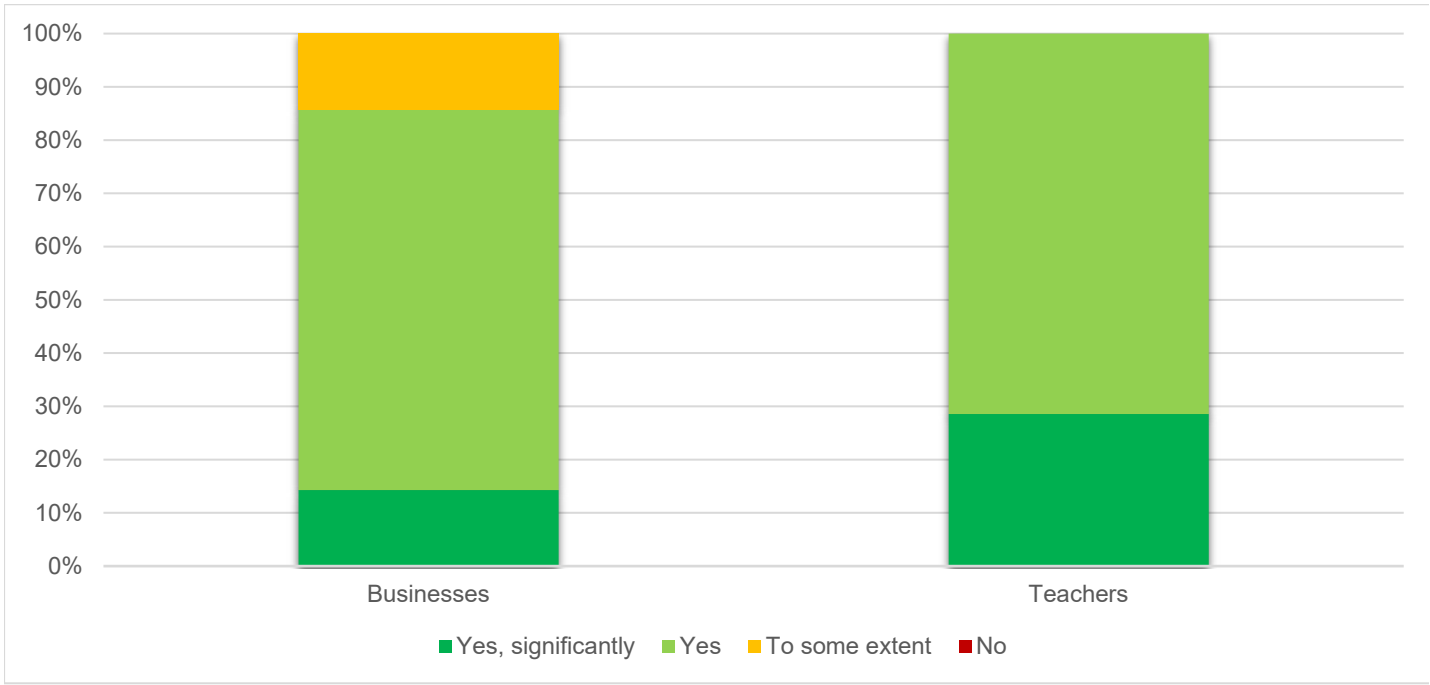


Figure 10: Stacked Bar Chart comparing responses from Teachers and Corporate Partners in response to the question **'Do you feel the students now have a better understanding of how environmental sustainability is shaping businesses and the skills businesses need?'**

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 Green Skills Hackathon, students developed specific understanding of terminology associated with the journey to net-zero, including Green Skills[1] and Green Literacy[2].

Where used, accurate definitions of terminology were given across the activities in the Green Skills Hackathon. The impact of this was shown by 86% of Teachers and Corporate Partners who felt that students had improved their understanding of terminology associated with the journey to net-zero (Figure 11). Students felt that the Employer Stands particularly supported this objective, with 88% '*Strongly agreeing*' or '*agreeing'* that it did so (Figure 12).

As one student summarised: *I've understood the terminology and I know how to use it to better explain how to create a better future' (Student feedback).*

Variety of approaches to communicating terminology

Across all of the activities, students cited particularly impactful methods that supported developing their understanding of these key terms, demonstrating that having a mixed approach to delivering this content was particularly successful.

Some students felt they gained a better understanding as the result of the Keynote speech:
'We had a lecture about why'.
'We heard about TfL and it was very educational'(Student feedback).

Some felt they developed their understanding of key terms through finding out more about specific examples of technology that are part of TfL's current work towards Net-Zero:
'I understood about carbon capture for the heat from the trains' (Student feedback).

Others reflected that the applied development of relevant skills via the focussed activities helped them to both better understand relevant terminology, as well as the work that is required to reach net-zero:
'The drawing tasks [in Design Thinking] help me understand'…'helped me visualise the future and innovative design'(Student feedback).

For many students, meeting so many people during the Employer Stands activity was a particularly useful approach to broadening their understanding:
'Lots of people widened our knowledge with interesting vocab'(Student feedback).
'The employers spoke to us about a few key terms associated with a greener future within TfL'(Student feedback).

The challenge of net-zero

Whilst knowing the terminology associated with the journey to net-zero is important, the Green Skills Hackathon successfully communicated that this alone isn't enough. There is no single course of action that can be implemented to reach net-zero, and this message clearly had a big impact on students. For example, during the Design Thinking activity, students responded particularly strongly to finding out that there are just over 6000 working days left to reach TfL's net-zero target by 2030.

One student voiced this overall concern:
'I understand what this means however I am unsure about how to make it net-zero' (Student feedback).

Part of the solution

Students understood that in their working lives they will be part of the solution of achieving net-zero. This understanding was demonstrated by students from Uxbridge High School who were asked to describe what they understood by the term 'Green Skills' after the Hackathon. A range of clear descriptions connecting to skills, what people do and consumption choices (e.g. reducing electricity) were described, with some responses in particular demonstrating that students had developed ownership of the skills that they believe are needed to achieve this:
'That they are skills that you can develop and are required to help support sustainability and a green environment and future' (Co-creation group feedback).

The language of innovation was also included, showing a clear through-line between the content of the Hackathon and the understanding of skills required:
'Being able to innovate and include environmentally friendly means in everyday life' (Co-creation group feedback).

Interestingly, the Uxbridge High School students found it more difficult to define Green Literacy. Of two students that responded, one described it as *'sustainable knowledge'* and the other responded *'I'm actually unsure'*.
This shows there is a way to go and more work to be done in continuing to communicate these complex concepts, particularly Green Literacy. As one student stated:
'*Terminology is important as it allows us to know the difference' (Student feedback).*

[1] Green Skills: The knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society. *United Nations Industrial Development Organisation, August 2022* What are green skills? | UNIDO

[2] Green Literacy: The ability to understand the impact of human decisions and actions on the environment.

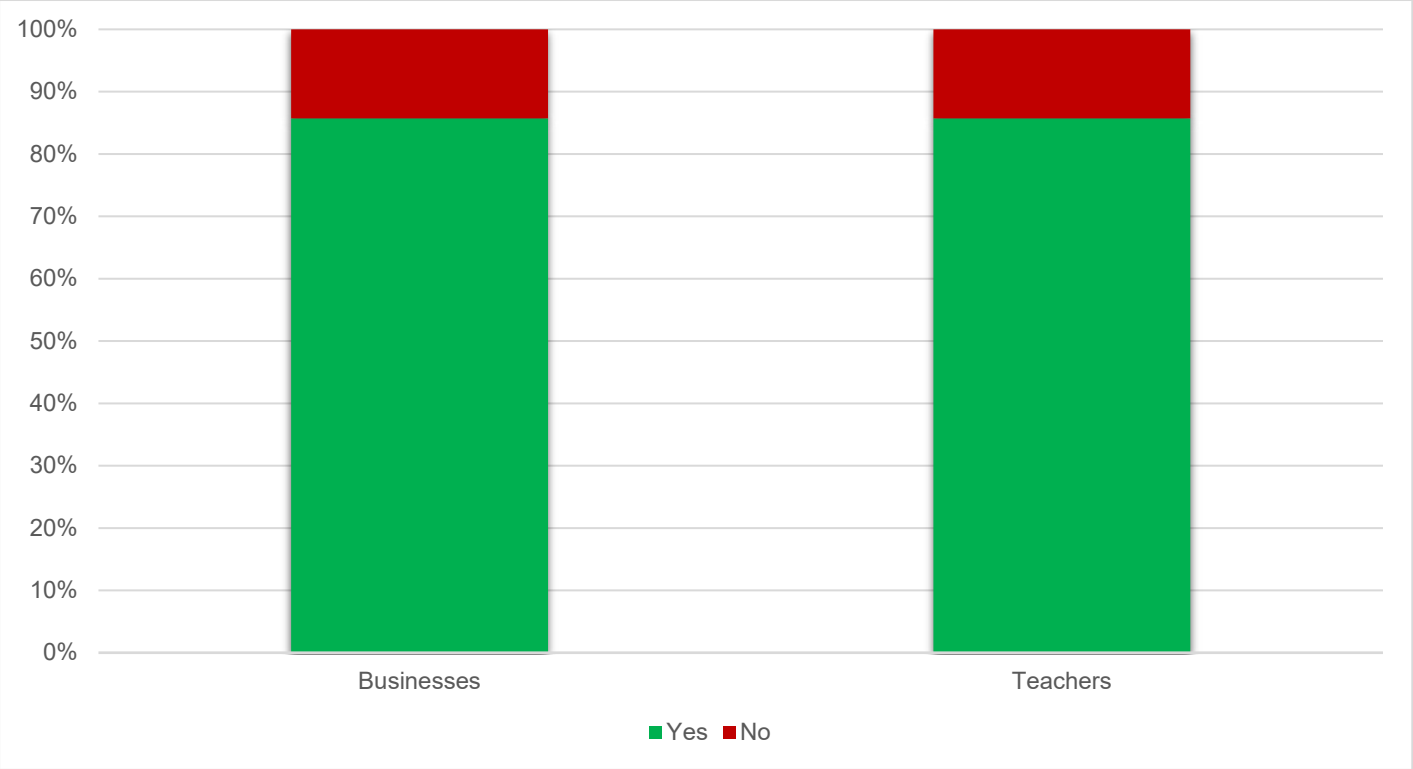


Figure 11: Stacked Bar Chart Stacked Bar Chart comparing responses from Teachers and Corporate Partners to the question ‘‘**Tick yes/no to indicate if you feel students have improved their understand of terminology associated with our journey to net-zero’**

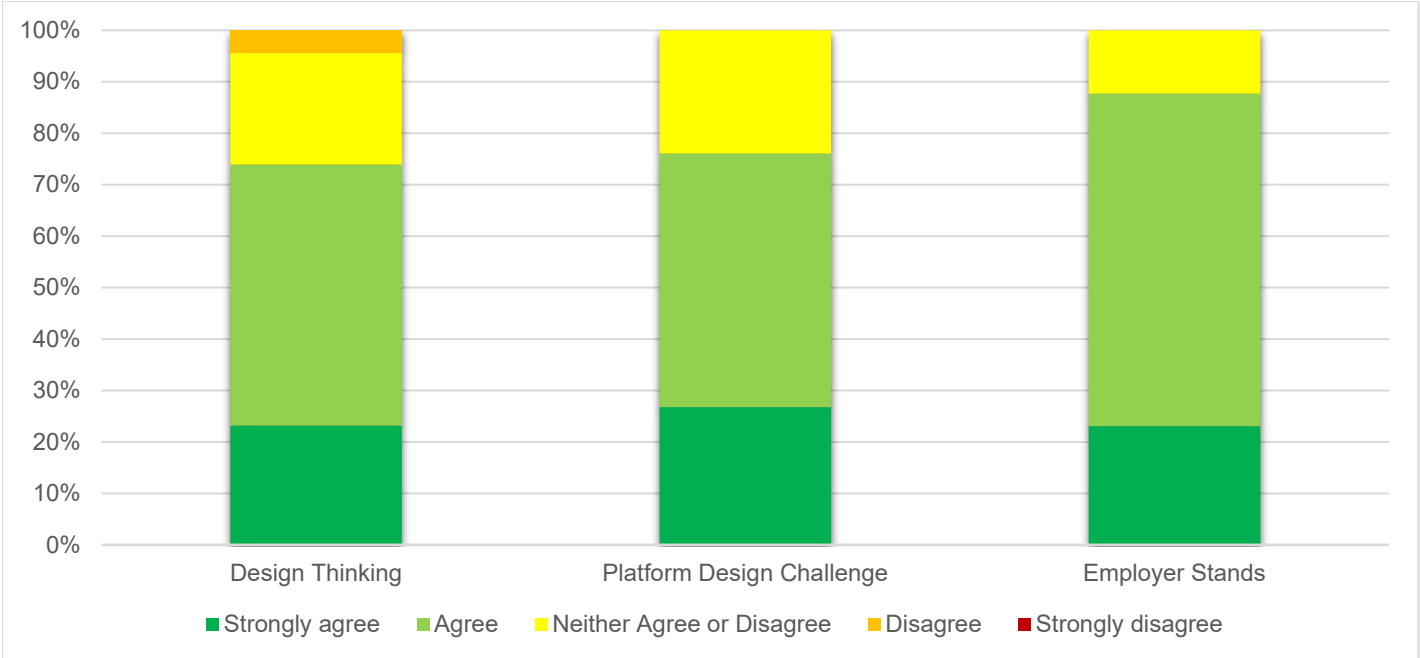


Figure 12: Stacked Bar Chart showing students’ agreement with the statement **‘I better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy’.**

Virtual Air Quality Challenge: Impact Summary

Online challenge content

The Virtual Air Quality Challenge element of the Green Skills Hackathon presented an opportunity to extend the reach of the Hackathon beyond the schools that could attend the on-site Hackathon event.

The Virtual Air Quality Challenge invited students to work together in a team to develop an innovative solution to improve London's air quality, which they pitched online to a panel of experts.

An Online Hub was also created which hosted supporting documents, including the Brief and Criteria for the challenge, and session plans to support teachers and students to develop their ideas. *Having it over zoom is great for letting kids be comfortable, especially doing something which could be quite daunting, in their own recognisable environment' (Corporate Partner feedback).*

Reach

A total of eight groups from seven schools registered their interest in participating in the Virtual Air Quality Challenge. Five groups from four schools went on to pitch their ideas to the panel.

There were 57 unique users of the Online Hub, and 22 downloads of the Brief and Criteria document by the schools that signed up to access the Hub.

The format of the Virtual Air Quality Challenge had the potential to reach far greater numbers of schools and students than it did. The conversion rate from eight groups who registered interest in the project to just five who pitched their ideas to the final panel suggests that if a 'Challenge' approach similar to the Virtual Air Quality Challenge is used in future, then more prior investigation into how it can work best for interested schools would be needed.

Impact

For the students and schools that did participate in pitching their idea to the panel, the Virtual Air Quality Challenge delivered impact.
I really enjoyed seeing the students present about such important issues (Corporate Partner feedback).

Prize visits were arranged for the schools who participated in the Challenge, including 50 students visiting the TEDI Campus, and 16 students visiting Abellio.

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

Students were asked to assess the overall impact of the Virtual Air Quality Challenge opportunity, in terms of whether it would contribute to them gaining future employment and if it would contribute to them demonstrating employability skills for future employers. To both questions, students responded an average of 3.9, (where 3='*Neither agree or disagree'*, 4= *'Agree'* and 5='*Strongly agree'*), shown in Figure 13.

In a separate action research project delivered by LTM to Key Stage 4 students – 'Inspiring Engineering Careers' [IEC] – students similarly pitched design ideas to a panel of experts. In the IEC project, students identified this opportunity as having significant impact on their employability skills and future career prospects, greater than what was identified by the students participating in pitches in the Virtual Air Quality Challenge. This difference, and the scaffolding surrounding each approach, should be considered by the LTM when reflecting on how to take forward similar Challenges and panel presentations in the future.

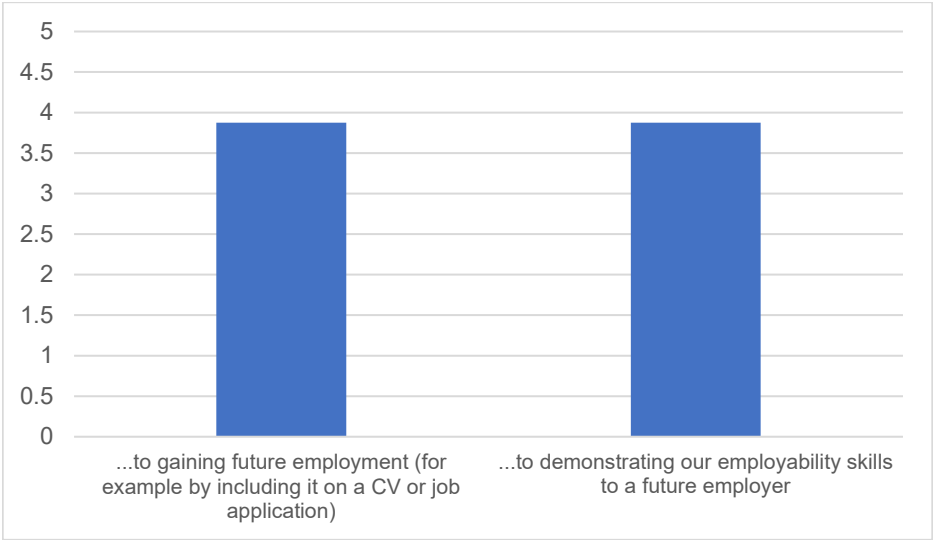


Figure 13: Bar Charts showing student responses to the question '**To what extent does your group agree or disagree that this opportunity has contributed... (1=Strongly disagree, 5=Strongly agree)'**

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 environmental sustainability and the TfL target of reaching net-zero by 2030. Evaluation was conducted across all of the Hackathon elements – the Green Skills Hackathon event, the livestream broadcasts of the Hackathon, the co-creation project, and the Virtual Air Quality Challenge. This evaluation was conducted with participating students, Teachers and Corporate Partners, and the results are presented in the 'Results by Evaluation Methodology' section of 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.

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.

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).*

Likewise students and teachers were effusive with praise about the significance of having conversations with employees whose experiences and backgrounds were reflective of themselves and their interests.

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

Across the board, the Employer Stands activity which included scaffolded interactions between students and employees was felt to be particularly successful at enabling two-way dialogues. Dialogue was also embedded in more subtle ways into other activities, for example through students working directly with professional employees in 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.

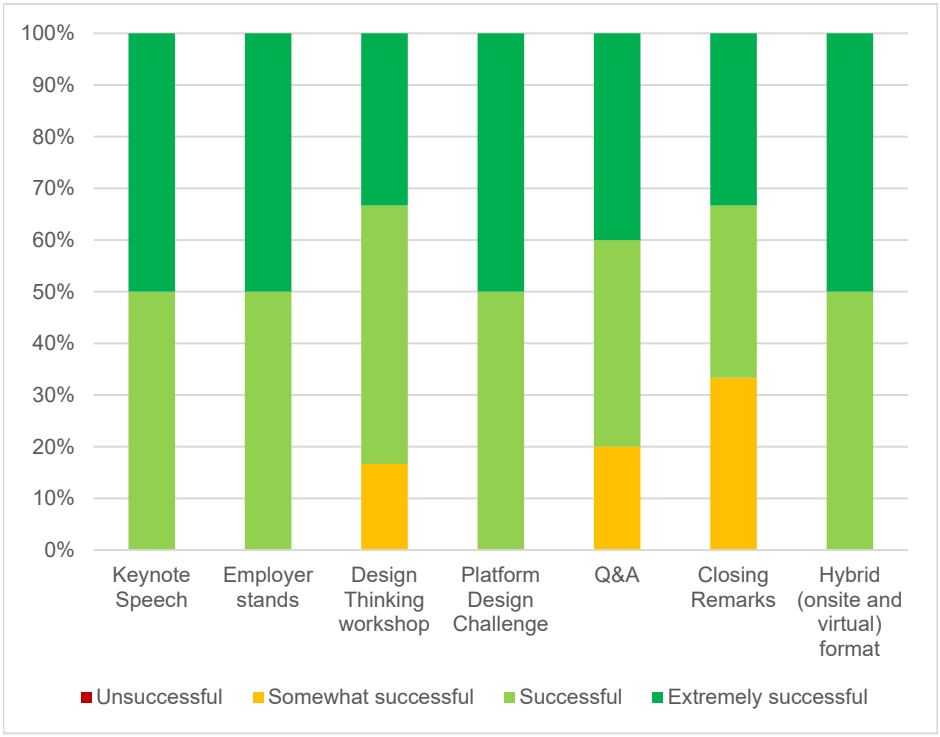
Consider the balance of focus on engineering careers

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*

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

Teachers:



Corporate Partners:

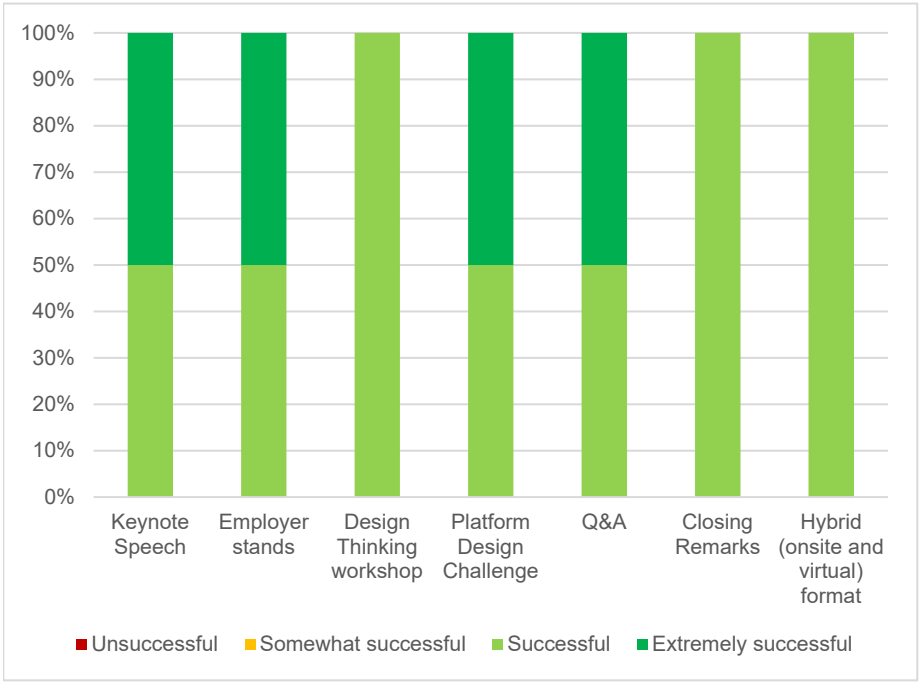


Figure 14: Comparative Column Charts showing Teacher and Corporate Partner responses to the question **'How successful do you feel each activity of the Green Skills Hackathon event has been?'**

too technical on some answers'.

One Teacher suggested that including information on a '*wider variety of "Green Skills" opportunities (other than engineering)'* would be better for their students.

Similarly, the results from a more detailed post-project survey with the co-creation project students from Uxbridge High School suggest that a narrow focus on engineering in the Hackathon may not have been helpful for some students. When asked if careers that they encountered at the Green Skills Hackathon were in areas of employment that they are interested in, 58% of students in the co-creation group responded 'No' (Figure 15). For many, this was because they were already interested in alternative sectors, for example: *'I'm more interested in biology'*.

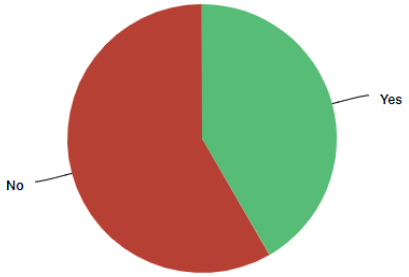


Figure 15: Co-creation students responses to the question **'were the careers you encountered at the Green Skills Hackathon in areas that you are interested in?'**

Together, this evaluation feedback invites the LTM Learning Team to reflect on whether the focus on engineering is too narrow when delivering an event for such a wide age group, some of whom may already consider themselves on a career pathway towards employment in alternative sectors. The Team's reflection on this needs to be balanced against the wider goal across much of LTM's work with young people to inspire them towards careers in transport and engineering, which some students may not have considered before. Striking a balance between providing inspiration for engineering careers whilst not focussing too narrowly on this would create an even more successful event in the future.

Increase support for students to identify the skills they practice

Support for students to practice employability skills in the co-creation project was clear. In a post-project survey with this group, 100% of students felt they improved their skills including in Teamwork, Communication, Leadership, Public Speaking, Organisation and Creativity (among other categories of skills – see 'Results: Pre and post project student survey with co-creation group') and 100% felt that these skills would be useful for future employment. The context and content of the longer-term co-creation project clearly supported students to identify the employability skills that they developed.

This wasn't as clearly the case for the Green Skills Hackathon. In spite of the co-creation project working with students to identify key employability skills that were important to them, and these being embedded by the co-creation group into the structure and activities of the Green Skills Hackathon event that was created, some Teachers were unsure if the Hackathon event had enabled their students to practice employability skills. When asked to respond 'Yes' or 'No' to the question 'have your students developed skills they need for a job', 56% of teachers added and selected a 'Maybe' option (Figure 16). One student agreed*: 'The employees were able to share the skills their jobs require but we haven't had much practice pursuing them (Student feedback)'*.

There was also diversity in how Teachers felt employability skills were included in the event. Whilst one teacher felt that the event could **'***Focus a bit more on employability skills, creativity and sustainability aside',* another recognised that through the event their

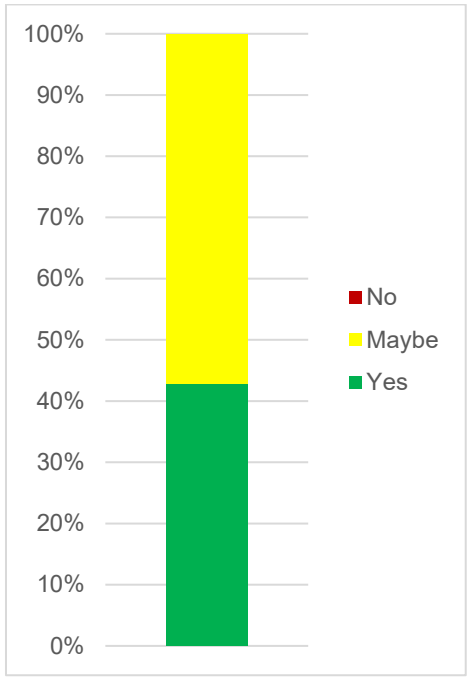


Figure 16: Teachers responses to the question '**Tick yes/no to indicate if you feel students have improved their understand of skills they need for a job?'**

students had developed an **'***Understanding of what green skills are'* including '*Recognising soft skills'.*

The Teacher feedback on employability skills from the Hackathon event prompts reflection on how best to support employability skills within the context of a day-long event.

Consideration could be given to using the focussed activities to develop particular employability skills, such as public speaking, confidence or self-efficacy. For example, this could borrow from LTM's recent Inspiring Engineering Careers action research project with Key Stage 4 students, which directly explored these skills through focussed activities.

Similarly, activities across the Hackathon event could integrate supporting students to develop metacognition skills, which would help them to more clearly identify where they have practiced employability skills during the

Hackathon. Doing so could help students and Teachers to identify, for example, that they practiced communication skills through speaking with employees, and collaboration skills in the Platform Design Challenge. The potential lifelong impact of developing metacognition skills which enables students to identify transferable experiences could have significant benefit on their future career prospects.

One further way to support students and Teachers to identify the skills that are practiced during the Hackathon could be to adapt the reflective methodology used as part of this Evaluation. During the Hackathon, student feedback to key questions was captured using feedback boards, stickers and post-its. One Teacher commented: '*The feedback stickers and post-its were really great but it would have been more valuable if they had asked session-specific questions'.*

Whilst the questions used during the Hackathon were selected to generate the insights needed for this report, this methodology could be repurposed to instead support students to identify the ways in which they achieved the intended outcomes of each activity, for example the skills that they developed and practiced.

Include opportunities for schools to collaborate

The Green Skills Hackathon event presented a rare opportunity of many different schools being together in one space.

Two teachers wondered if the impact of this opportunity could be extended. One suggested '*Maybe think of a way to get students from different schools to interact with each other'* and another that *'Student helpers could be more involved/engaged'.*

Whilst not easy to organise and facilitate, the benefits of purposefully bringing together different perspectives of students from different schools could enrich the conversations around important topics in the future. This would also contribute to increasing skills development, in particular in giving students further opportunities to practice their communication skills.

Refine engagement strategy beyond the Hackathon event

The Green Skills Hackathon extended its reach beyond the on-site event via a Virtual Air Quality Challenge and via Livestream broadcasts of the Keynote Speech and the Q&A.

The Virtual Air Quality Challenge presented an opportunity for the Green Skills Hackathon to reach schools beyond the on-site Hackathon event. However, only eight school groups registered an interest in the Challenge and five groups participated in pitching ideas to the panel of experts. This suggests that further work could be done to market the event to increase schools' interest and participation in it. It also indicates that the format of the Challenge may not have been right for schools' needs. If the virtual challenge format is repeated, further front-end research with schools should be conducted to ensure that the format that is developed works for a greater number of schools.

The Livestream Broadcasts of the Keynote Speech and Q&A were a neat way to connect the schools that had participated in the Virtual Air Quality Challenge - as well as additional schools interested in environmental sustainability and careers - with the on-site Hackathon event. One teacher who attended the on-site event commented that it was '*a good idea for this session'.* Eight schools signed up to access the Livestream Broadcasts, which were also available to watch afterwards. Between the broadcasts on the 17th October and 10th November there were a total of 27 views of the Keynote speech and 80 views of the Q&A. It isn't possible to know how many of the views came from schools or which schools viewed each broadcast.

As with the Virtual Air Quality Challenge, the Livestream Broadcasts had the potential to reach far more than the eight schools that registered an interest in viewing this content. If repeated, consideration should be given to how to refine the livestream broadcasts so that engagement beyond the on-site event can be increased.

Smaller, practical changes

Four Teacher and Corporate Partner comments reflected smaller, practical changes that could be included to further improve events like the Green Skills Hackathon, which are listed below for consideration.

Corporate Partners:
'Separate briefing for business'.
'Bigger space in which to engage with the young people'.
Teachers:
On Design Thinking workshop: It was '*quite vague'* and the Innovation Team *'could have shared innovations with pupils'*.
'More space for lunch break'.

Recommendations

The Green Skills Hackathon was highly successful. To help extend this success in future similar events, four key recommendations can be reflected on by the LTM Learning Team:

1. Consider the balance of focus on engineering careers.
2. Increase support for students to identify the skills they practice.
3. Include opportunities for schools to collaborate.
4. Refine engagement strategy beyond the Hackathon event.

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	School Postcode	Year Group	How many students attended?
Elthorne Park High School	W7 2AH	Year 12 and Year 13	10
Pentland Field School	UB10 8TS	Year 11	7
Guru Nanak Academy	UB4 0KT	Year 10	18
Plashet School	E6 1DG	Year 10	10
Sacred Heart School	W6 7DG	Year 11	10
Northwood School	HA6 1QN	Year 11	8
Camden School for Girls	NW5 2BD	Year 10	7
Norbury High School for Girls	CR7 8BC	Year 11	10
		Total Schools:	**8**

Co-creation project

Session date/name/description	How many students attended?
4th March 2022. **Introduction to the Museum, the project and key staff**	17
28th March 2022. **Workshop Ideas, Timetable, Expression of Interest**	17
29th April 2022. **Refining the Workshops, Roles at the Event, Ideas for Keynote speaker**	15
14th June 2022. **Provocations Activity, Q&A**	15
8th July 2022. **Training for Roles on the Day, Allocation of Specific Duties**	15
15th July 2022. M**eet the Climate Crossroads Team, Social Media Training**	15
15th September 2022. **Final preparation on specific student roles.**	12
3rd October 2022. **Run through of the event.**	12
Total Participants:	**118**

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	UB10 8TS
Christ's College Finchley	N2 0SE
Total Schools:	**8**

Virtual Air Quality Challenge

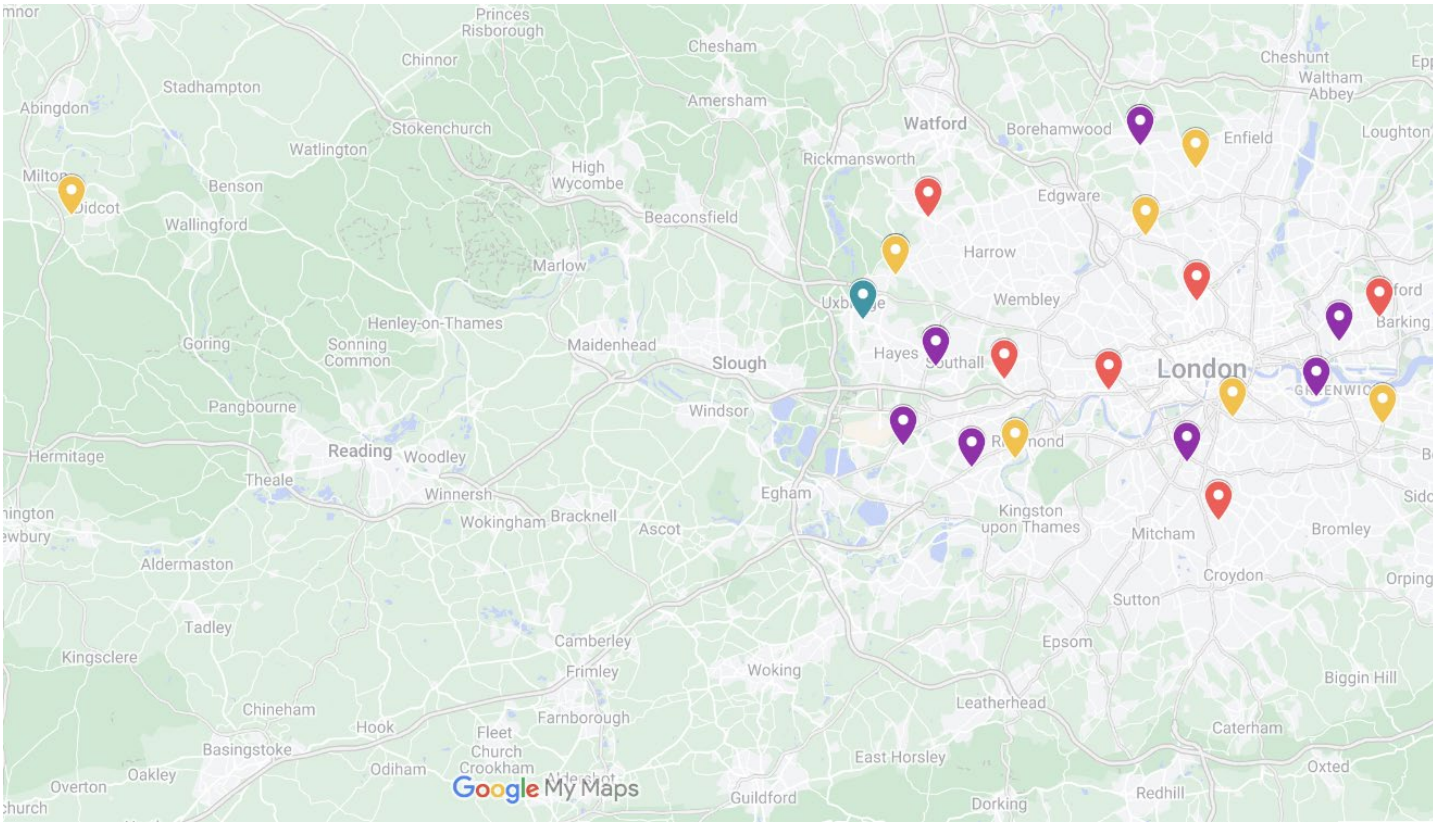
School Name	School Postcode	Year Group	Number of students involved in project	Did the school attend their pitching session? (Yes/No)	How many students were in the pitching group?	How many students participated in creating pitches (that weren't presenting)
Ark Pioneer Academy	EN5 2BE	10	8	Yes	2	3
Ark Pioneer Academy	EN5 2BE	10	8	Yes	2	3
La Retraite Roman Catholic Girls School	SW12 0AB	10	4	Yes	1	1
Guru Nanak	UB4 0LT	mixed	13	Yes	5	5
Twickenham School	TW2 6JW	8	12	Yes	8	0
Eastlea Community School	E16 4NP	10	20	No	NA	NA
Marjory Kinnon	TW14 9QZ	KS3	9	No	NA	NA
Canary Wharf College	E14 3BA	8	10	No	NA	NA

Comparative table showing which schools participated in which element/s of the Hackathon?

Note: Schools highlighted in orange attended two elements of the Green Skills Hackathon.

Green Skills Hackathon event	Livestream broadcasts	Virtual Air Quality Challenge
Pentland Field School	Pentland Field School	Marjory Kinnon
Guru Nanak Academy	Orleans Park School	Guru Nanak Academy
Elthorne Park High School	Ark Pioneer Academy	Ark Pioneer Academy
Sacred Heart Catholic Secondary School	Sacred Heart Catholic Secondary School	La Retraite Roman Catholic Girls School
Northwood School	UTC Oxfordshire	Eastlea Community School
Camden School for Girls	Ashmole Academy	Twickenham School
Norbury High School for Girls	Ark Greenwich Free School	Canary Wharf College
Plashet School	Christ's College Finchley	
Total schools participating in this element: 8	Total schools signed up to this element: 8	Total schools signed up to this element: 7

Green Skills Hackathon Map of Reach



Green Skills Hackathon Event	Livestream Broadcasts	Virtual Air Quality Challenge	Co-creation Project
All items	All items	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

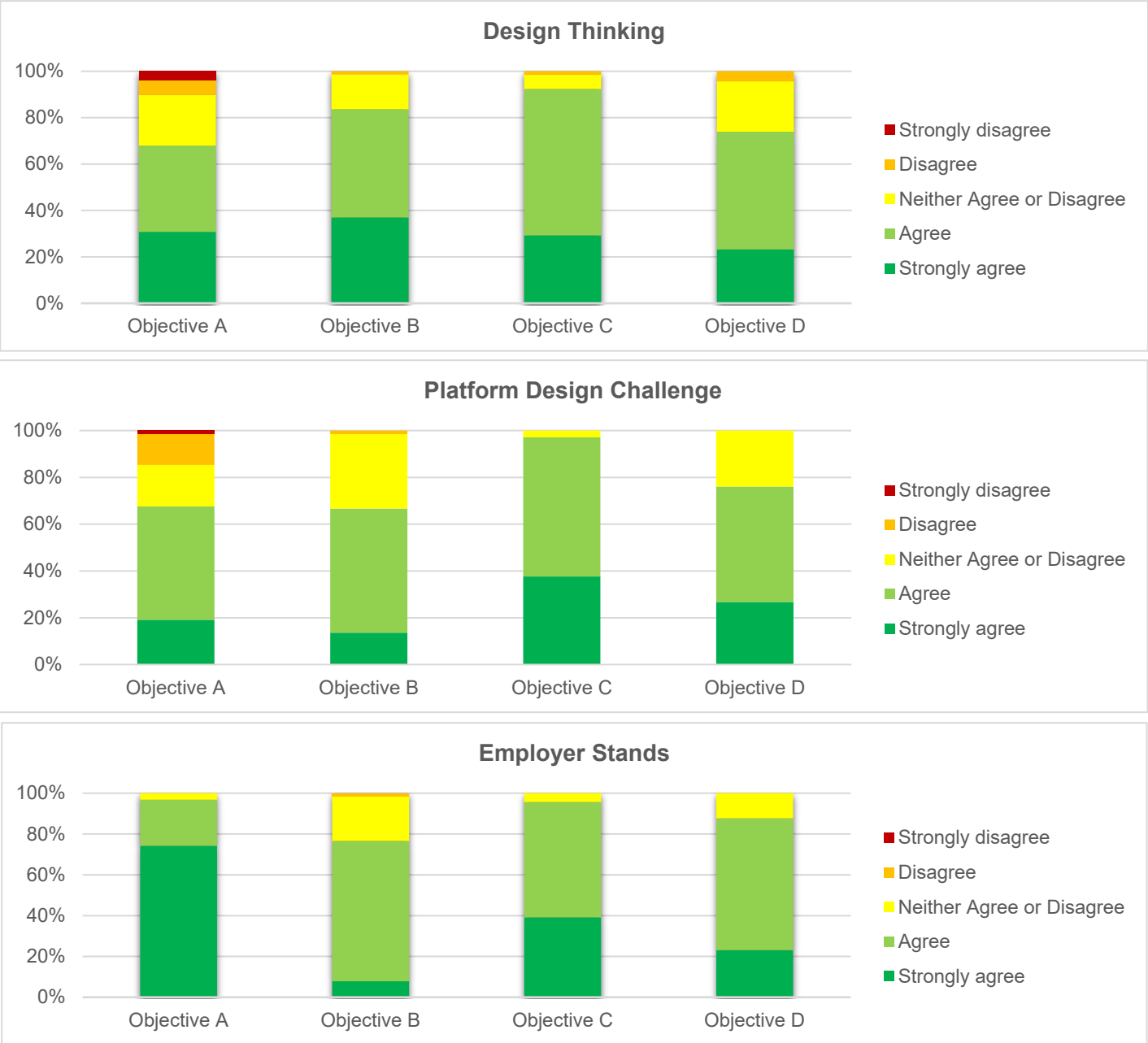
Method

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



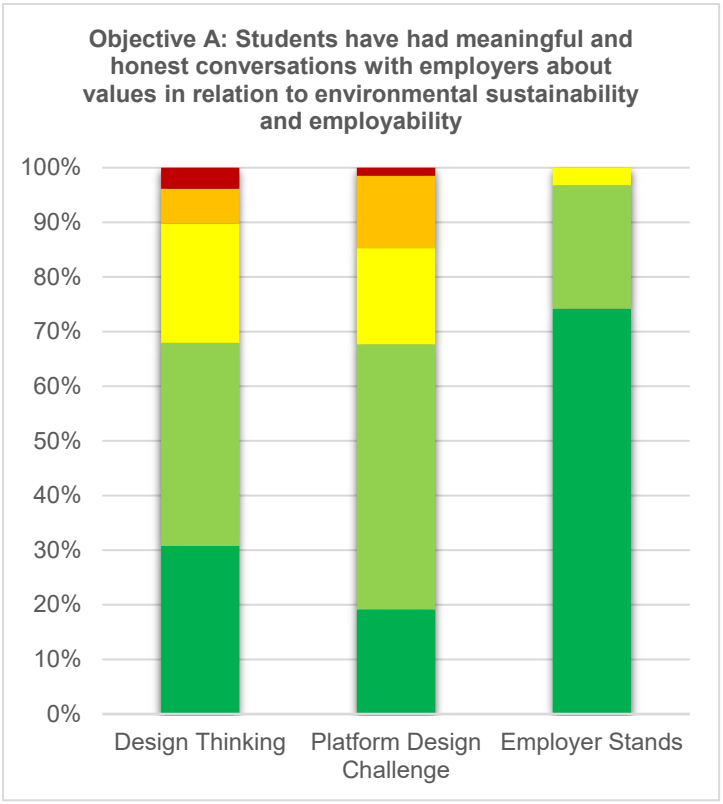
Objective A: Students have had meaningful and honest conversations with employers about values in relation to environmental sustainability and employability.

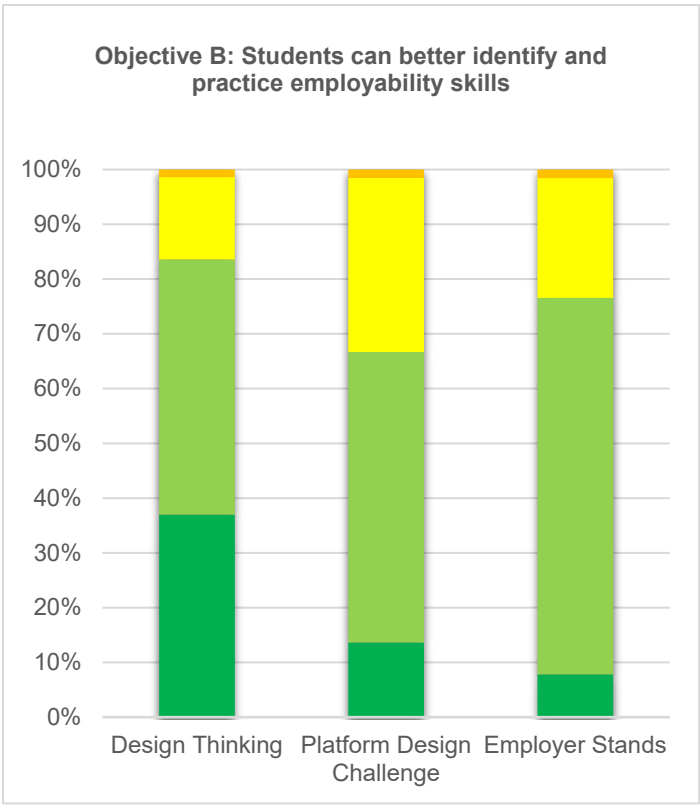
Objective B: Students can better identify and practice employability skills.

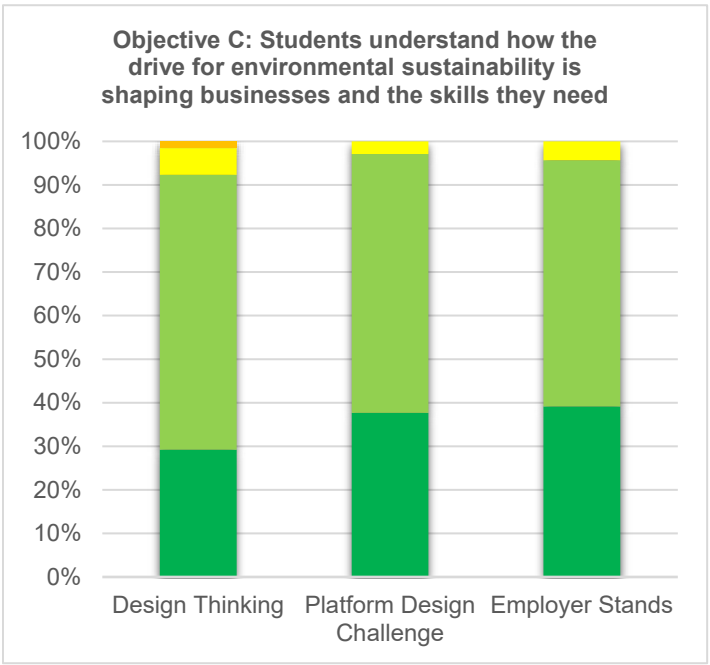
Objective C: Students understand how the drive for environmental sustainability is shaping businesses and the skills they need.

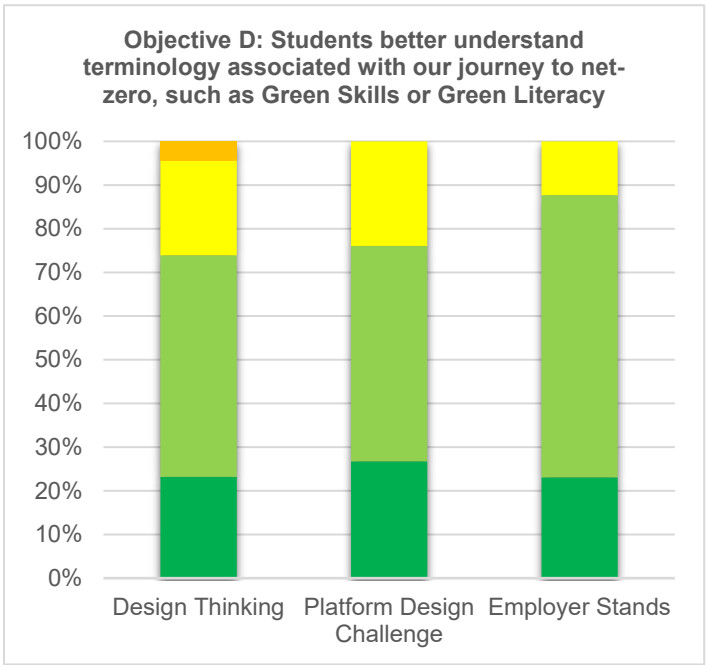
Objective D: Students better understand terminology associated with our journey to net-zero, such as Green Skills or Green Literacy.

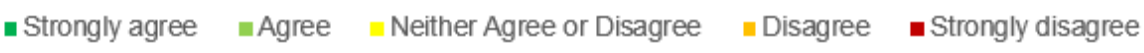
Results by Hackathon Objective











Qualitative Feedback on Activities and Objectives

Design Thinking			
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**
Information was explained but we were in a large group so discussions were limited.	Yes	Not really told about the skills needed just go through concepts.	I understand the green skills
Very informative.	Design thinking is widely used.	Businesses should attempt to.	We were able to associate in activities to help us understand.
I understood it.	I have evaluated and practiced these skills.	Yes, businesses must meet customer needs.	I like the drawing part and how they asked for our ideas.
I understood values in relation to environmental sustainability.	Yes I have	Yes, because businesses need to contribute to the keeping of the world's environment.	The employers spoke to us about a few key terms associated with a greener future within TfL.
They have helped me to understand different perspectives about transport and how to make it efficient.	Yes	They work hard :)	I've understood the terminology and I know how to use it to better explain how to create a better future.
The employees spoke about the topic very clearly and I personally understood this topic well.	We were able to think up ideas quickly and draw.	Yes, I would because it will support the environment and make it a sustainable environment/space to live in.	Helped me understand a lot better.
Employers have interesting insight into career possibilities and how specific modules link to my interests.	Yes I had to use my thinking skills.	I understand how it has opened many career pathways and most businesses have an eco-friendly team.	I understand what this means however I am unsure about how to make it net-zero.
I was able to get feedback on my questions.	We did lots of activities where I would have had to think as if I was an employee.	Lots of opportunities for people to develop their skills.	There was a lot of discussion about the idea process and focussing attention toward the bigger idea. However, the actual process was briefly mentioned.
Yeah, especially when they asked us for our ideas.	Yes	Construction is no longer just about making a strong structure but also building extra ideas and how to make it multipurpose.	Was thoroughly explained but I already knew a bit.
We discussed a lot of factors about how we can improve up to 2050.	I understand what kind of jobs TfL has.		Due to information from worked into work in the sector and answer questions.
I liked the balance between allowing us to ask questions and listen to explanations.	Yes, I have.		The drawing tasks helped me understand.
We were able to ask questions.			The drawings help visualise the future innovative design.

Qualitative Feedback on activities and objectives continued.

Employer stands			
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**
Speaking to employers helped me have a better understanding of sustainability.	Learnt about different career paths and it showed us no matter your skills/interests you can get involved.	I am aware of the needs that companies require to become more green.	We've had multiple talks and tasks
They helped me get a better ideas of design engineering and programming.	I agree as I learnt different types of skills.	We looked at sustainable alternatives to real life - current society.	We got to hear from people who are very educated on the topic and from lots of different backgrounds.
I could ask about how much electricity is used and it's providing about 600k homes with electricity.	I had the opportunity to identify and practice employability skills.	We learnt about the jobs needed and why they are so important for today and the future.	Communicating with people working in the industry broadened our knowledge.
I learnt about how they use VR for transport.	Learnt about employability through different career paths.	Businesses need to meet customer demands of privacy and comfort on TfL services so they want to go on trains.	We had a lecture about why.
We spoke to employers at different companies about how environmental sustainability is incorporated into their job sectors.	Understand the different paths and skills needed.	I understand how the drive for environmental sustainability is shaping business and that changes have to be made.	We heard about the TfL and it was very educational.
They helped us and I got to code the sphere thing!	I now have a strong understanding on some of the skills.	I learnt how the TfL are trying to make the trains and buses electric.	Lots of people widened our knowledge with interesting vocab :)
Employers spoke about their drive towards creating a sustainable world and how this is a valued job area.	Design thinking activity.	We learnt about TfL's future scheme and why it's important. I could ask questions on how it would be improved.	Alternative uses to carry out these functions.
They have been very helpful. I met engineers who are Asian too.	The VR helped me understand how it works.	Different jobs needed and the skills required for each job.	Helped widen my knowledge on technology.
Helped me identify different types of apprenticeships and helped with design.	We got to speak to the early careers team.	We learnt about TfL's sustainable future and how this is necessary to reach Net-zero.	We understood what it is and could answer questions based on it.
Yes because all the conversations were meaningful.	The employees were able to share the skills their jobs require but we haven't had much practice pursuing them.	I was able to learn/understand company's need for people skilled in many different sectors to help with sustainable change.	I understood about carbon capture for the heat from the trains.
Yes, all of them are meaningful.	Learnt about graduate programmes available.		Terminology is important as it allows us to know the difference.
The employers were very comfortable sharing their personal experiences with us as well as encouraging us to pursue any jobs in TfL.	We learned about different career paths and had a opportunity to identify.		We asked many questions and listened to different people.
They helped me understand the work done in TfL.	Learnt about unit apprenticeships, discovered new opportunities.		We heard from different groups of people about the topic.
Yes, I have spoken to different employers to get a better understanding.	We heard about the different career types within TfL.		
The employees are from different backgrounds and the diversity is amazing. I'm proud to be a part of this event.	I have gotten to see some interesting experiences.		
Employees from different backgrounds and occupations all were passionate to incorporate sustainability in what they believed in :)			

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.			
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**
I have learnt about accountability of sustainable industry and how this can be implemented.	Ability to calculate expenses of projects within a budget using sustainable options as well.		

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

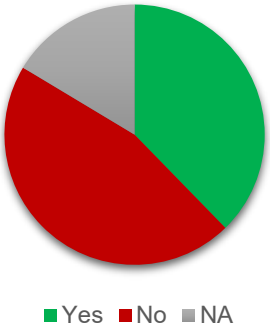
All results are set out below, along with additional data visualisations were applied.

Pre-Event Feedback

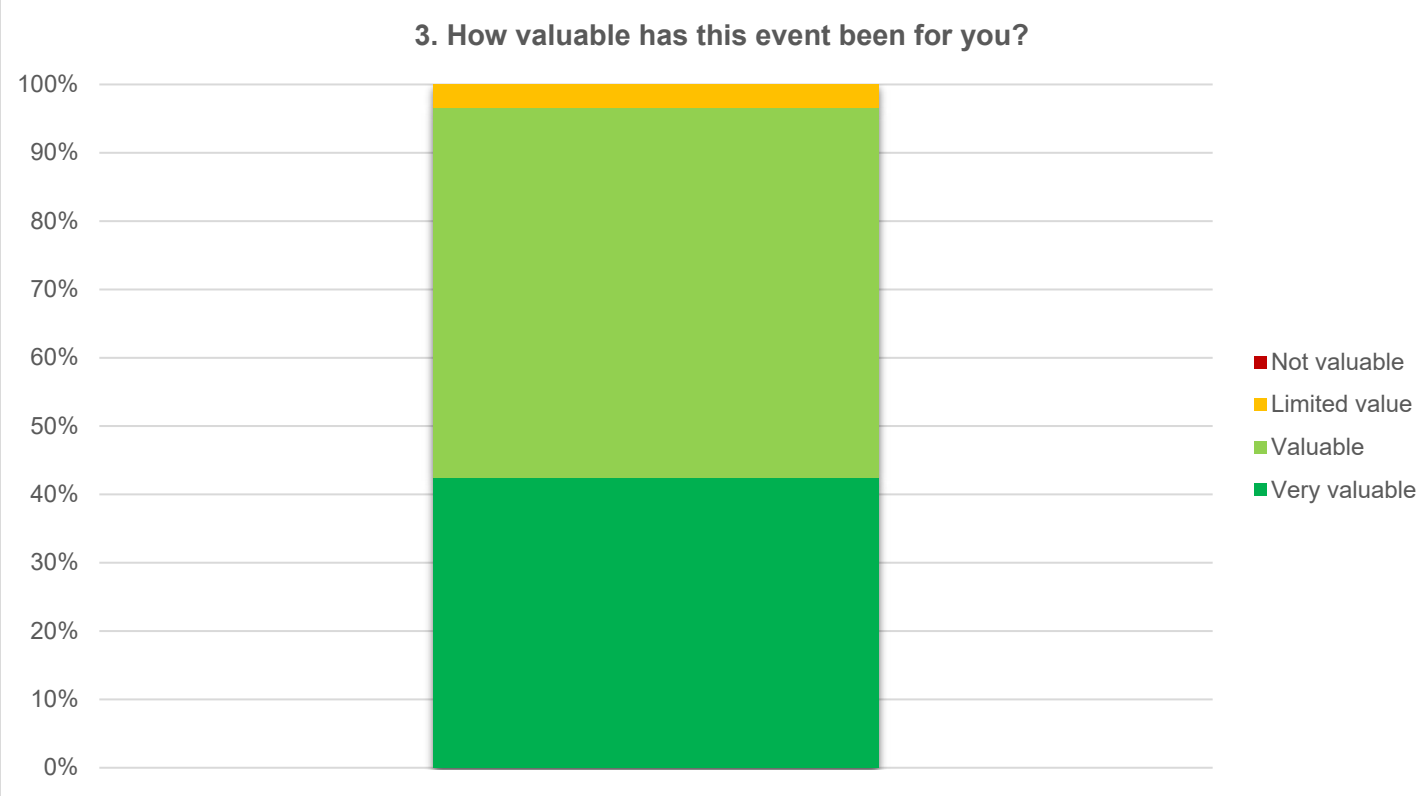
1. What encounters have you previously had with employers?

(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.	Had a careers day at school and I looked at law and business.
In business studies a worker from the Bank of London spoke about future careers. Careers fair showed various types of subjects with employed jobs.	I want to be a businessman open my own business.
Estate agency.	Want to open a metal and wood factory.
Interior design.	Career days, architecture workshop, parliament roadshow workshop.
Structural engineer.	Careers day where lots of companies and employers came to our school to talk about jobs we might want to go into.
Doctor. Engineer.	Work experience (in a nursery)
We had a careers day where we had integrations with our more desired careers.	Work experience. Dragons den.
We did have a careers day in Year 9 which allowed us to speak and interact with employers from different industries (e.g. architecture, technology, business and engineering)	Work experience. Career day.
Yes a very small insight in Year 9 we had a career day.	At school I have met a professional chef and gardener.
Architecture workshop. Parliament roadshow workshop.	Work experience at a real estate agency.
We had careers day in Year 9 to give a taste. Architecture workshop. Parliament roadshow workshop.	Work experience. Dragons den.
Yes I have. We had Yr9 careers day where employers came and talked about job opportunities.	Work experience (a nursery).
We had careers day (ambulance, police, law)	I met a professional chef at school, I also went on a trip and met professional gardeners.
I want to become an engineer civil or software engineer as they are both very interesting jobs.	Career days. Work. University fairs. Work experience. Volunteering. Job fairs.
I've done a work day at an animal sanctuary.	Career days. Work. Uni fairs. Work experience. Volunteering.
Dragons den - business work experience @ ETZ.	Vodafone - sustainability talks and tech management.
Work experience at British Airways and IAG	Virtual careers day.
Event organised w/LSC supporting in GG.	Professional chef and gardener.
Small piece first engineering experience. Questors theatre set design. Politics summer school. Virendra Sharma (MP).	I have briefly worked in a primary school for career day.
In terms of employment I would try to have myself employed as a fashion designer or to work in the fashion industry.	Work experience - at Boots.
Brunel University, met employers of different industries. AWS GET IT, met career experts, in the tech industry. Careers fair.	
Career days. Work school spokesperson.	
Business wonders they employ people so I know a bit.	

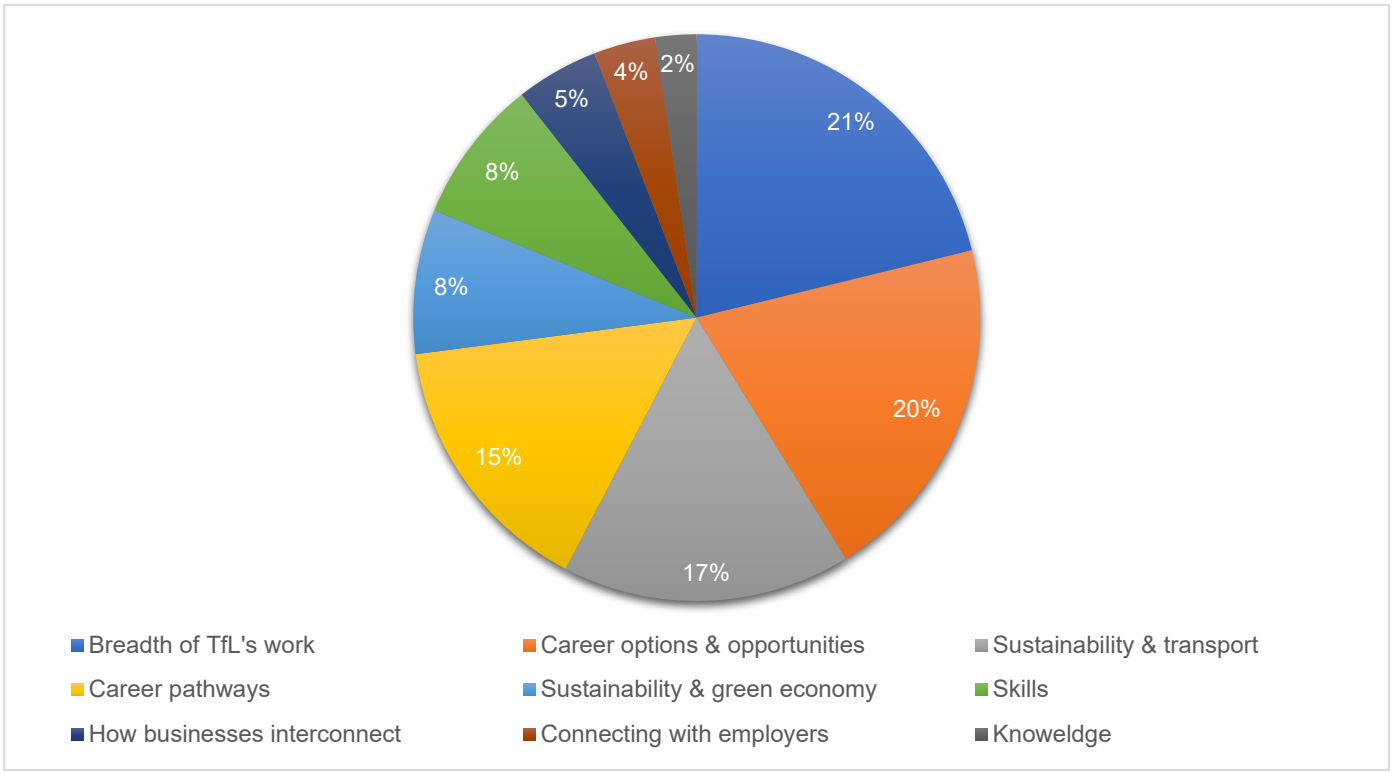
2. Were these in areas of work that you are interested in?



Post-Event Feedback



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



4. What have you gained from this event? (responses organised by 'Value' rating)

Limited value	Valuable	Very valuable
More understanding and knowledge on transport and the different factors of engineering.	Realising how many job opportunities there are in engineering and meeting people who are Asian too.	New knowledge on variety of career paths into the future and how the future will change.
It has not been that valuable to me personally as it isn't the sector I am interested in.	Learnt about sustainable travel. More knowledge on apprenticeships.	Learnt about the range of careers in sustainability. Nice museum.
	Information on journey's into sustainability in transport careers. Creative thinking skills. Chance to talk to industry professionals.	The wide range of career opportunities available.
	I have learnt how everyone in the TfL company produce designs. Also, providers who also work together.	The importance of sustainability in transport.
	A lot of amazing things that goes on at TfL.	I now not only understand transports impact on the climate crisis but also the different jobs/ courses available within the sector.
	It has helped me expand my initial idea of a greener future and businesses.	Knowledge.
	How there is so many sectors and how many people are part of the TfL - and it's not only about bus drivers and trains.	I learnt many new things like electricity is provided in 600k houses.
	It's not about trains and buses but how society is interconnected.	Insight into how the travel sector is responding to the climate crisis through development of more sustainable transport.
	Understanding of how the drive for sustainability is shaping the future of TfL.	Realisation that there is so much that goes into TfL as well as the jobs and programmes.
	New knowledge on TfL and new careers within TfL.	I have learnt a lot about how many companies are trying hard to reduce the carbon emissions so we would have a good future.
	I learnt about the importance of sustainability.	I have gained valuable information about apprenticeships and jobs, I have learnt more about sustainability and how carbon footprints have impacted us individually.
	Knowledge of stem industries within the transport sector are taking part and addressing the climate crisis.	I have experienced how the TfL works other than trains, buses.
	Current progress on the transportation sphere and sustainability employer skills.	Experience. Insight. Fun.
	Deeper understanding in the reliance of connectivity of sectors and jobs.	I have learnt how the TfL are planning to make the public transport more sustainable.
	Gained real life experience about jobs on the outside world. Gained knowledge on how TfL works and how they help build an eco world.	I now know that TfL give different opportunities and are also preparing for our future and planning the next steps.
	I have learnt about some of the other careers involved in TfL other than drivers (like engineers and accountants).	From today I have learnt that we need to increase the public transport such as electric trains/scooters, so we can help reduce the carbon footprint, leaving a safe environment.
	More stuff on TfL and how they impact our city.	Significant experience with employers and skills concerning sustainability. Some great understanding of the momentum and human thinking in key organisations.
	I have gained a lot of knowledge in regards to the different job roles that TfL offer.	I have gained an insight about how to reduce carbon footprints and make transport better of the society.
	TfL is not only arranging busses and transport but also about the environment.	I gained Knowledge about sustainable energy.
	That there is more to TfL than busses.	Green economy. Job opportunities. How business rely on each other.
	I have learnt about new jobs and how to get involved with businesses.	It has made me more confident in pursing a career that is more environmentally sustainable.

4. What have you gained from this event (continued)

Limited value	Valuable	Very valuable
	I have got a new perspective on possible careers that are available for me in the future which was very interesting.	It was interesting to understand the steps being taken by companies to become more sustainable.
	I learned how much of London relies on TfL and how many young people come and take part.	Meeting people from lots of ethnicities was really cool.
	About the green economy. Job opportunities.	I have learned lots of things from this experience.
	There are many other jobs in TfL which aren't normally known about.	Opportunity to talk to employers. Extra knowledge from TfL.
	The range of jobs available within TfL.	I have learned lots of things from this experience.
	Learnt more about the different career opportunities related to transport.	
	Knowledge of the green skills and sustainability sector and how we can enter this industry.	
	More knowledge about the different kinds of apprenticeships and employment routes into working in sustainability in public transport.	
	I found it interesting to see how many different aspects of a green job there are and how many different skills are needed.	
	I have learnt more about the TfL and how they make a difference to our planet.	
	More knowledge about TfL and the available career paths.	

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

This scale was used by observers to rate the extent to which each Hackathon objective was met. It identified the number of students in each activity who were demonstrating engagement with each activity. The table below shows each rating on the scale 1-5, with an indicative amount of how many students these correlate to in a standard group of 30 students:

1: 20% or under	2: 20% - 40%	3: 40% - 60%	4: 60% - 80%	5: 80% or over
6 students or over	6-12 students	12-18 students	18-24 students	24 students or over

Observation feedback

Keynote Speech

	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	5: more than 80% All students looking at speaker, not talking or looking at their phones. All students engaged.	5: more than 80%	5: more than 80%	5: more than 80%
Observation 2	5: more than 80% .One students asks a probing question about TfL's funding, to which Lili Matson responds 'That's a great question'. The student appears proud of asking the question, and all students and Teachers in the audience listen to the answer.	5: more than 80% .Some students and teachers take notes as they listen attentively. Absorbing information in a lecture-based context is an important employability skill.	5: more than 80% .There is 100% engagement in the Keynote speech from the audience. When a school arrives late and enters the theatre, no teachers or students turn around in response to this disruption – they are all attentively listening to the speech, which directly addresses this objective.	5: more than 80% .There is 100% engagement from students and teachers, looking at Lili Matson, nodding in response to information, including descriptions of key terminology. .When TfL's net-zero target is described in detail, students look to each other and raise their eyebrows, indicating acknowledgment of the ambition and challenge of this target.

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 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	4: 60-80%	4: 60-80%	4: 60-80%	4: 60-80%
	- Very few students raised their hand in response to questions at beginning - Students considering leader interjections fully and receptively - Students ask questions directly towards Lauren and Sam to improve their stations - Based on surveys at the end of the lesson, Students appeared to have had a satisfactory experience, with most surveyed responses being within the neutral and like range	- Male students in the back do not seem well engaged with the activity (Further on it improves) - One group in the front actively jotting down notes to record information - No groups went over budget - One group introduced solar panels and explained their reasoning for it	- Students participated in lively conversation amongst themselves when considering accessibility for their stations - 3/4ths of students put lifts in their stations, and one group was mindful to use ramps and another to use canopies - Groups actively discussing project costs and considering it when developing plans	- Female students appear to understand the core objectives of the workshop and apply it well to their hypothetical structures - Accessibility mentioned - Lively debate amongst groups concerning energy-saving projects, and they reach out to the leaders for direction to improve their projects in this regard
Observation 2	5: more than 80%	5: more than 80%	5: more than 80%	5: more than 80%
	- A good number of students seem to be paying strong attention straight off - Groups appear to be engaging well with leader injections - Relevant and sensible answers were given when prompted by Lauren - Students appear to be approaching the session with enthusiasm and enjoyment - Based on the after programme survey, this session seems to have been received favourably well, with responses generally falling around "Agree"	- All groups seem focused and attentive - Students greatly use pictures and their Lego supplies as references to map out and plan their designs - Lively discussion occurring all across this session	- One group considered using ramps as an accessibility option and extrapolated on it being cost effective - One group considered removing car parks for the station and brought forward the idea to Lauren to figure out it's feasibility - One group brought up bus routes to reduce car congestion at their station - Three groups included solar panels in their designs, and discussed the feasibility with Lauren - Accountability and Sustainability mentioned in after survey notes	- Accessibility being discussed actively among groups - Students actively considered transport methods to their stations in terms of making them more accessible - Students consistently write down notes to further their efforts - No groups went over budget - One group brought up green spaces without prior mention by Lauren
Observation 3	5: more than 80%	4: 60-80%	5: more than 80%	5: more than 80%
	- Several groups actively engaging with Lauren and Sam's interjections to develop their ideas and options - Some students appear distracted or not focused - Going off the after survey results, this session appears to have been particularly well received, the responses ranging from liked to exceptionally liked.	- Not as much lively discussion as seen previously in the last two sessions, except in the two front most groups - All groups participating in activity, although with some students being more engaged than others and less debate overall being held	- Several groups using building blocks to visualise their station plans - Methods of disabled access actively considered during planning process - No groups went over budget - The environmental emissions of train braking were brought up and discussed as an issue	- One group used both lifts and ramps to improve their station's accessibility - Another group talked about greenery when discussing their station's accessibility - One-way systems were brought up as an effective accessibility measure - Several groups used solar panels for environmental improvement - Smooth platforms were brought forward as a way to aid accessibility

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 questions at the end.	Also responded to solutions. .Very inquisitive group. .Many students who didn't confidently speak up wrote their responses and thoughts down.	Looked confident in sharing strategies. Clear better understanding of Design Thinking. .Responded to questions clearly and eloquently.

Focussed activity: Employer stands

	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**
	5: more than 80%	5: more than 80%	5: more than 80%	5: more than 80%
Observation 1	.Opportunities for conversations are scaffolded by support from LTM team. The Employer Stands facilitator talks to and guides the students to employees that they haven't yet spoken to, adding conversation prompts and key introductions where needed. . Teacher gives additional feedback after stating "Our students are so lucky to have this opportunity". "For one student, he's doing Art, Maths and Physics A-Level and he's just met someone who did exactly the same, and is only four months into employment. So he can see a future pathway for himself, but has also just learnt all about the recruitment process as well and how you need to conduct yourself to gain employment. You just can't replicate that". .All employees ask questions of the students, and two-way conversations take place throughout the session.	.Students show confidence in talking to employees at Employer stands - eye contact, standing up straight, maintaining conversation, smiling. .Students move easily from one stand to another, self-assertively identifying who they want to talk to and what they want to ask. .Students are consciously timekeeping (observed looking at watch and moving on to another stand), ensuring they have enough time to make the most from the opportunity of meeting multiple employers.	.Students are keen to try the VR headset at Cubic's stand, and a group naturally forms at this stand at the beginning of the session. They show excitement ("that's so cool" etc.) at using the VR headset, and nod with interest when the relationship between this and Cubic's work is described to them. .Students are so keen on the conversations they are having, that at the end of the session many continue to talk to the employees, staying right to the end of the session. .The TfL team describe the range of roles associated with environmental sustainability (including engineering and design as well as policy and business strategy). Students are heard to continue to discuss their surprise at this after the session has concluded.	.The TfL team have drawn an image and described key terminology on a large piece of paper on their table, and this is used throughout the session as an effective conversation stater with students, and students respond with nods, smiles and further questions.

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 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	5: more than 80% .Students looking, maintaining eye contact. Students not looking at phones, fiddling with things. .Student question to panel "do you think sustainability can be affordable, and how?". In question opportunity, increased listening (less fiddling) to 80-85%.	5: more than 80% .When green skills referred to, 100% of students are listening. . Discussion of skill which is key - 'Curiosity' 80-95% listening. Other skills mentioned: empathy, problem solving, critical thinking, communication.	5: more than 80% . When sustainable futures and carbon reduction are discussed, 99% of students are listening. . Students really challenge panel to give answers more specifically, e.g. "What are the consequences of sustainable practices not working".	4: 60-80% .Green economy 75%-80% students beginning to lean on hands. Some students fiddling and whispering to friends. Despite students leaning on hands, 75-80% still maintaining eye contact, looking through duration. By 2:04 the attention is dropping a little as info becomes more detailed. .Very comprehensive q's asked, showing the students really understood 'sustainability, 'green skills', 'green economy' and how these related to transport.
Observation 2	5: more than 80% .Teachers and students in audience nod when the Q&A's Panel Chair (a student from Uxbridge High School) introduces the activity and asks the first question. .Teachers and students observed to raise eyebrows and look to each other and nod when panel introduce themselves (Suggesting they are impressed with the panel). .No hesitancy by students in raising hands and asking questions. The questions are clearly linked to the rest of the activities from the Hackathon. .Some of the panel members have been included in other elements of the Hackathon, the tone of questions from students is confident and familiar. Panel members are honest and clear. The rapport developed during the day is shown in this activity.	5: more than 80% .Discussion of skills has full attention of audience. .Steffen Reymann (Cubic) refers to "Curiosity" as important skill - gets significant reaction from students and teachers. . Confidence skills demonstrated in asking probing questions of panel - students are congratulated for calibre of questions. Proactive putting forward ideas in professional format. .Students nominated from each school to give feedback speak with confidence. This is a successful format, engaged in by every school.	5: more than 80% .Questions from students dig in to this objective. One student asks a question, and asks again for more depth. Other students turn around to see the questioner, and smile and nod (showing support for asking their question in this way). Answers from panel give depth that students are seeking.	4: 60-80% .Some students show less engagement when more details about the green economy are given - leaning on hands and from side to side. This could be due to the time of day and length of Q&A, rather than the content itself. .Students articulate own questions well, using accurate terminology. .Panel give some qualification where they use technical terms, and student audience maintain eye contact through this and looking in direction of speaker.

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

Method

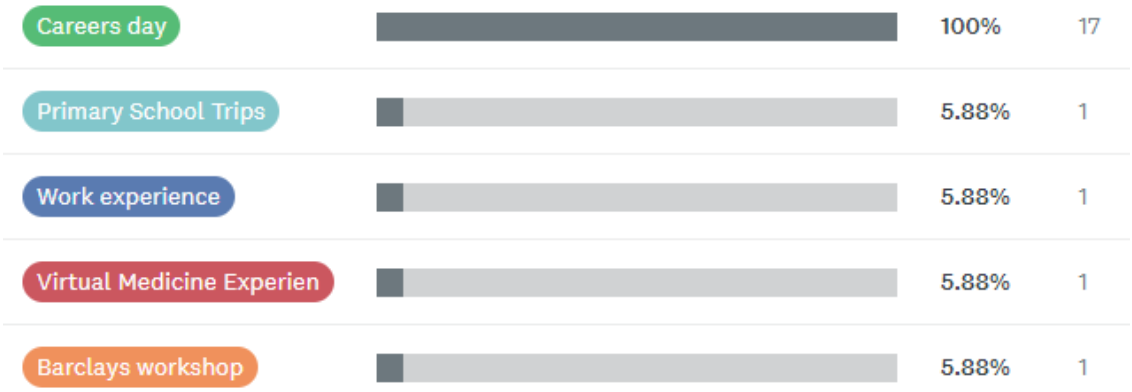
Students from Uxbridge High School completed a paper-based survey at the beginning of their co-creation project, and at the end of the Green Skills Hackathon event. Questions differed between the two surveys in response to the development of the overall Hackathon objectives during the project.

Results

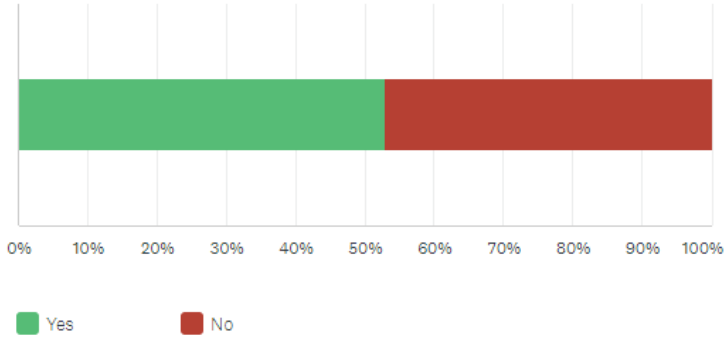
The results from each survey were processed in Survey Monkey. The raw data is presented below, with data visualisations were relevant.

Pre-Project Survey

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

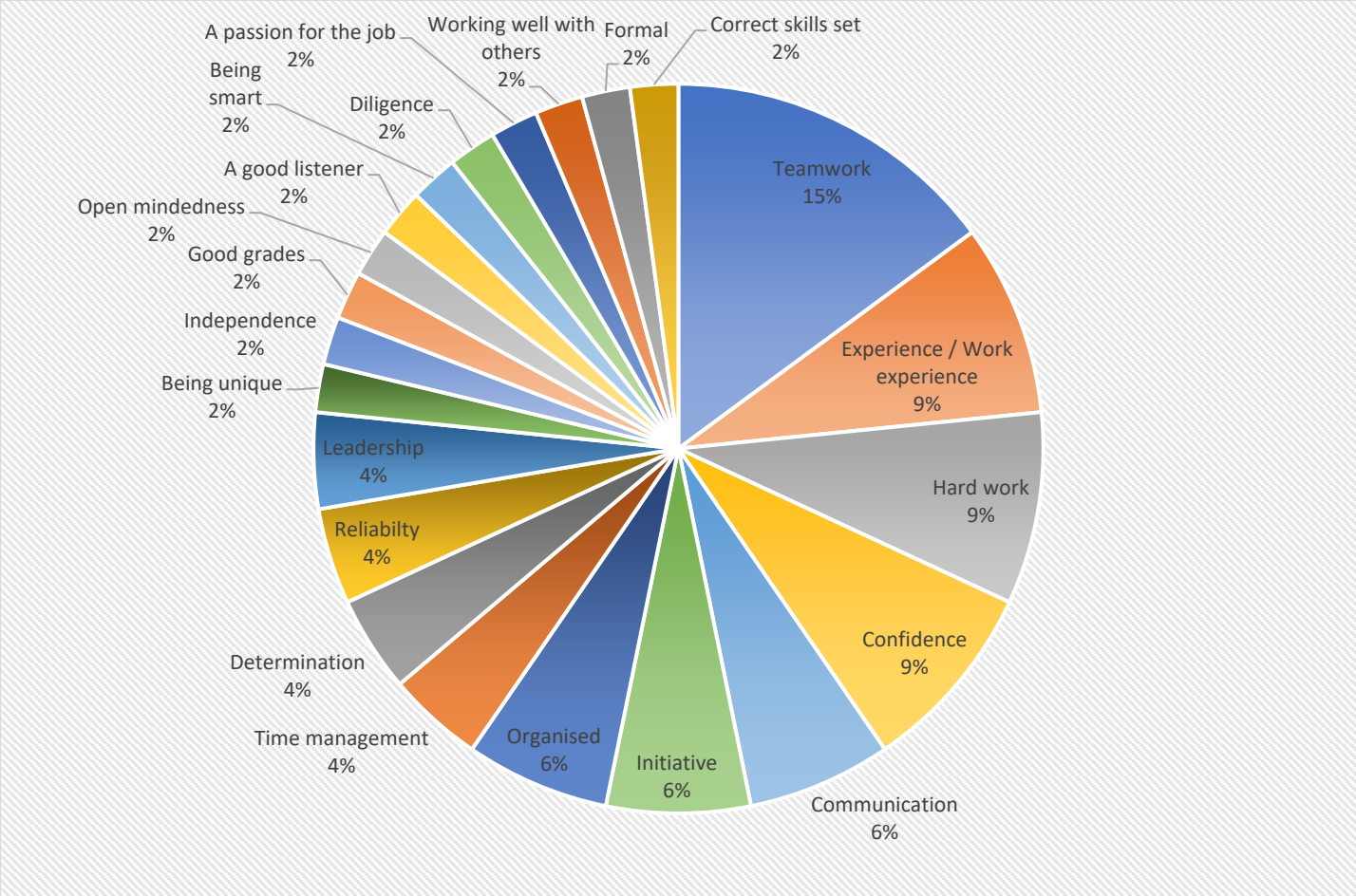


2. Are these in areas of work you are interested in?

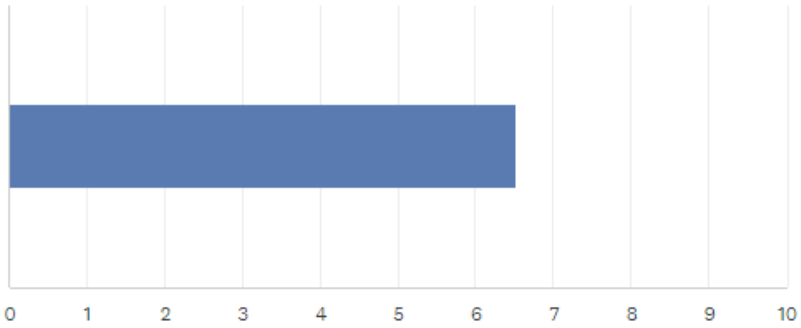


ANSWER CHOICES	RESPONSES	
Yes	52.94%	9
No	47.06%	8
TOTAL		17

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

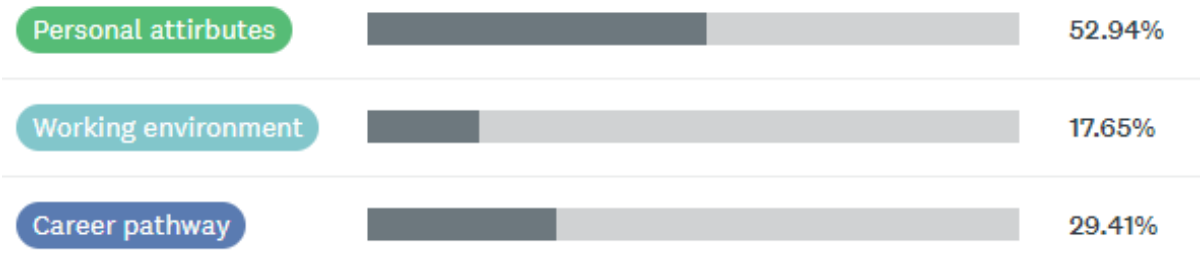


4. Thinking about these three skills and your own skill set, mark with an 'X' on the line how ready you think you are for employment? (1='Not at all ready' and 10='Extremely ready').



Average of all responses to question 4.

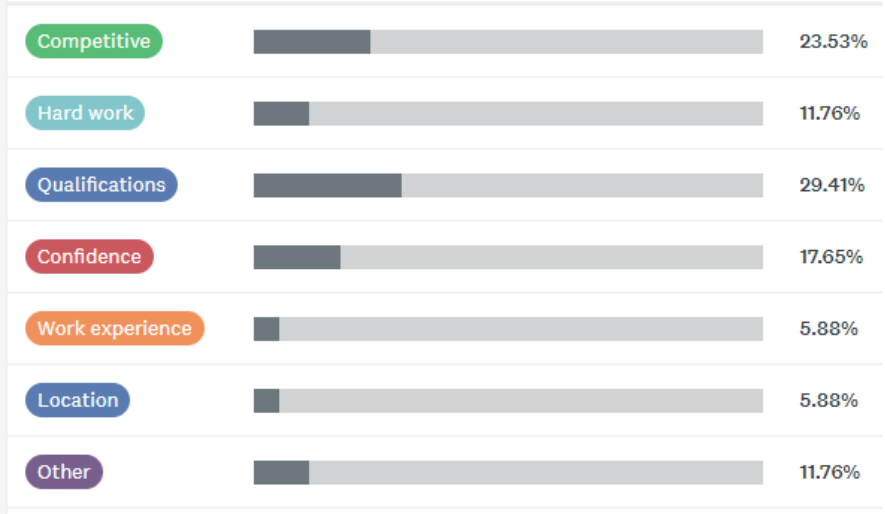
5. If you could ask a future employer anything, what would it be?



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?
If you were nervous when starting out, how did you combat that fear/ the nerves?
How hard did you work to get to where you are? How did you know you were making the right choice?
What approach did you take to get here?
What skill set do you value the most?
What career path did you take to reach your current position?
What made you choose this job?
How long is the job for. How is the work environment.
What qualities would an ideal employee have. Details on the workspace.
What's the key thing that makes you want to hire someone?
What's the best thing for an employee to have.

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

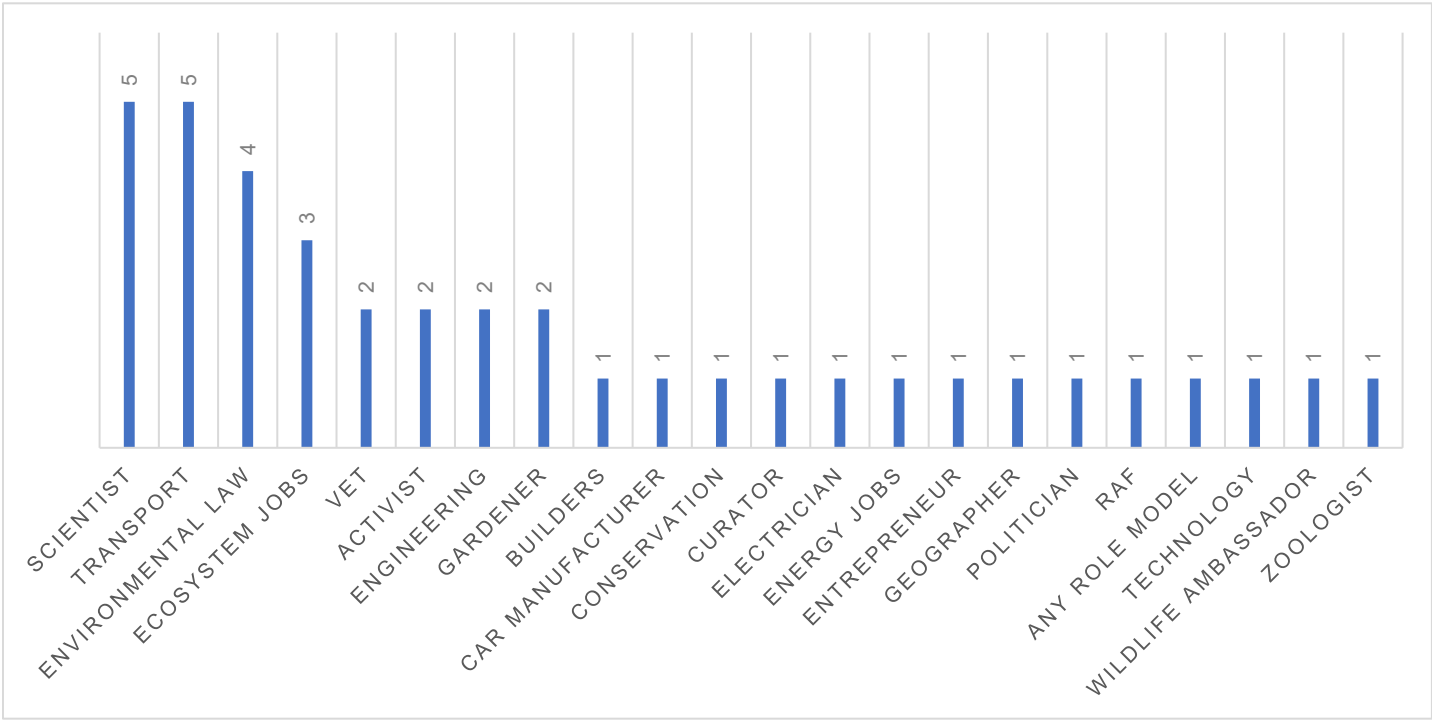


Understanding what green skills are. Recognising soft skills.
My fear for heights
Competitive field. Unsure what requirements are needed.
Hard work
Grades
The competitivity.
High grade boundaries.
Very competitive, hardest jobs to get into, loads of hard work.
Trying to fit in / getting wed to the environment.
You need English and Maths and have to pass in GCSE's and for A-Levels you have to do an essay based subject for Law in University.
The grades required to get into certain courses.
Competitive.
Self-confidence.
My confidence.
Not having the work experience to stand out to employers.
Only sticking to one career path and not branching out and exploring other options
Not liking coding.
Where I live.

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

To use less fossil fuels
Making sure we are using our natural resources in a sustainable way - so we don't run out of them.
Taking care of the environment
It is if something is suitable and environment friendly to the environment.
To use machines and transport in a way that won't damage the environment in the long run.
Things that do not harm or affect the environment negatively by being more efficient and considerate.
To care and look after the environment.
How something effects the environment and whether it can have a lasting effect.
Environmental sustainability is whether it is sustainable for the environment, will it harm or effect the environment.
Is it sustainable for the environment, will it harm or effect the environment?
To travel and work in a way that won't damage the environment.
If a substance is environmentally friendly.
To keep the environment at a point where it won't erode but stay in a normal state.
It is how well we can use resources from the environment and still have a similar quantity in the future.
Having a good surrounding environment around humans. For example, less pollution.
To keep the environment in a position where it won't degrade.

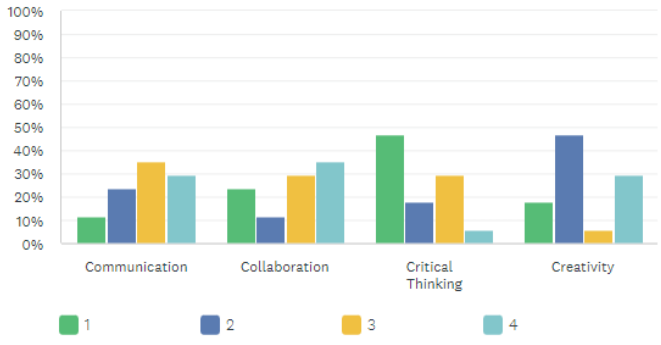
8. What type of careers do you think are related to environmental sustainability? (list all the careers that you can think of)



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

Know how to work with electricity
Initiative, creativity, problem solving.
Finding opportunities. Being creative.
Teamwork, initiative, critical thinking.
Creativity. Open mindedness.
Thinking, awareness, intelligence, creativity.
Creative employers. Ones who genuinely care.
The ability to work alongside others and approach situations with an open-mind.
Open-minded. Determination. Ambitious.
Determination. Open minded.
Co-operation. Ambition. Open mindedness. Determination.
Environmental law. Marine biologist.
Knowledge of what's going on. Ambition to keep going.
People able to come up with ideas to tackle problems. Good communication. Leadership.
Determination. Patience.
Creativity, Critical Thinking

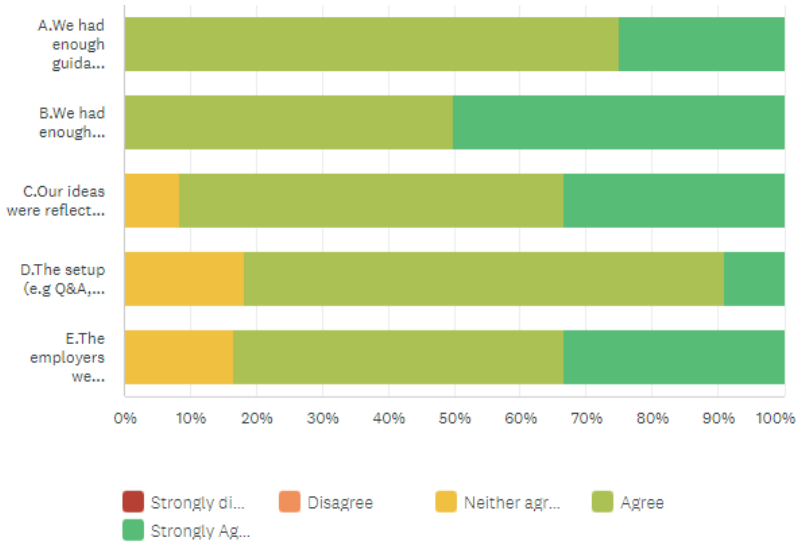
10. Rate which skill you think is most important in relation to careers in environmental sustainability. (Where 1 = Most Important, 2 = Second Most Important etc.)



	1	2	3	4	TOTAL	SCORE
Communication	11.76% 2	23.53% 4	35.29% 6	29.41% 5	17	2.18
Collaboration	23.53% 4	11.76% 2	29.41% 5	35.29% 6	17	2.24
Critical Thinking	47.06% 8	17.65% 3	29.41% 5	5.88% 1	17	3.06
Creativity	17.65% 3	47.06% 8	5.88% 1	29.41% 5	17	2.53

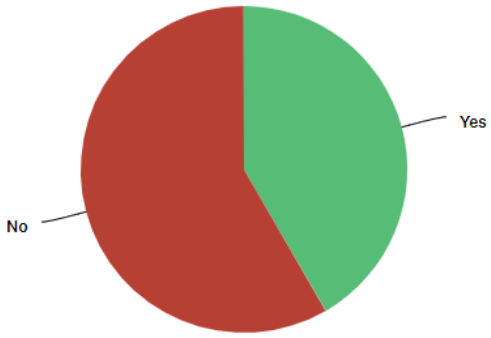
Post-Project Survey

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



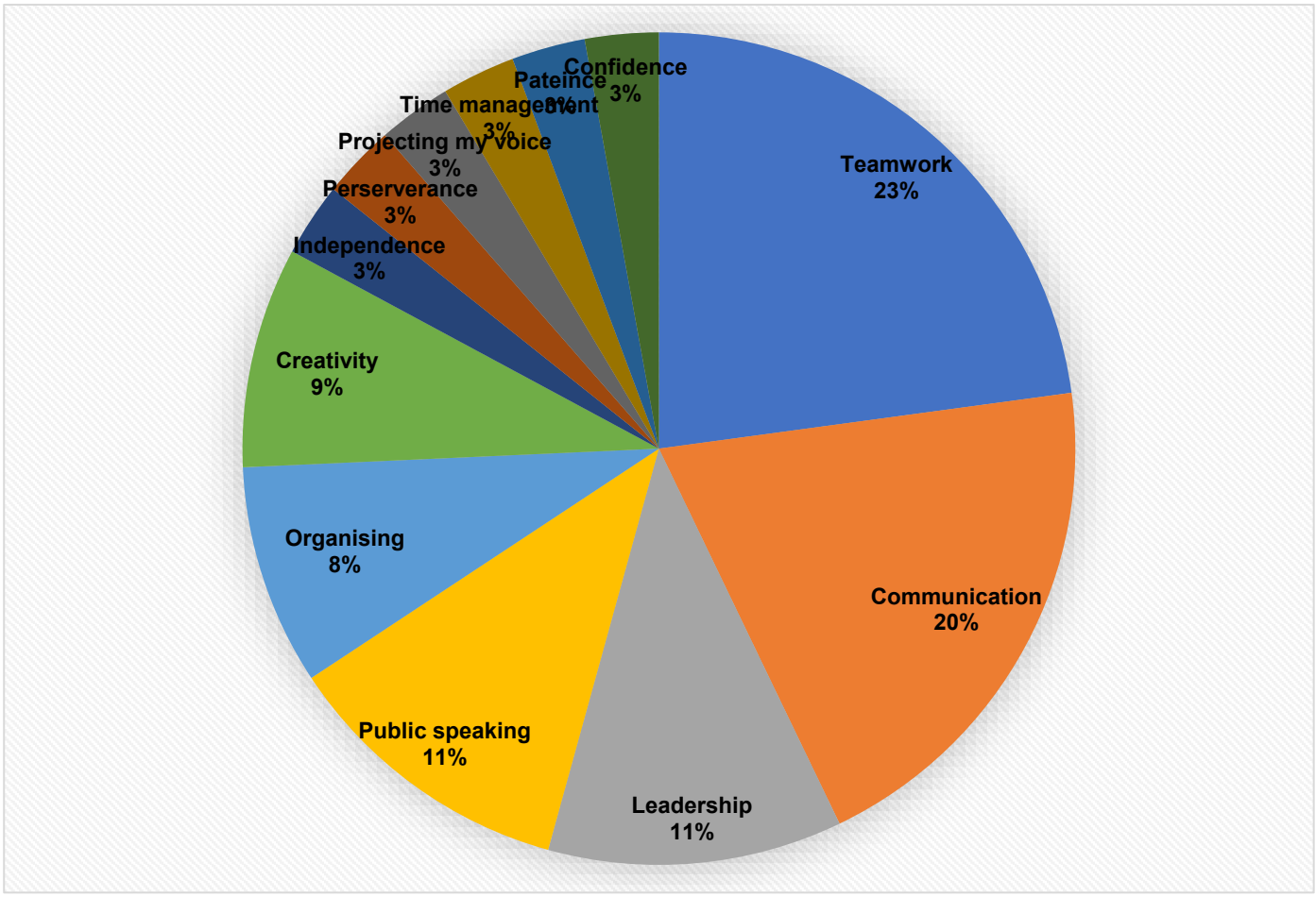
	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE	TOTAL
A.We had enough guidance to develop our ideas for the Green Skills Hackathon	0.00% 0	0.00% 0	0.00% 0	75.00% 9	25.00% 3	12
B.We had enough independence to develop our ideas for the Green Skills Hackathon	0.00% 0	0.00% 0	0.00% 0	50.00% 6	50.00% 6	12
C.Our ideas were reflected in the final content of the Green Skills Hackathon	0.00% 0	0.00% 0	8.33% 1	58.33% 7	33.33% 4	12
D.The setup (e.g Q&A, workshops, employer stalls etc.) of the Green Skills Hackathon enabled conversations between students and employers to happen	0.00% 0	0.00% 0	18.18% 2	72.73% 8	9.09% 1	11
E.The employers we encountered at the Green Skills Hackathon were able to answer any questions we had	0.00% 0	0.00% 0	16.67% 2	50.00% 6	33.33% 4	12

2. Were the careers that you encountered at the Green Skills Hackathon in areas that you are interested in?

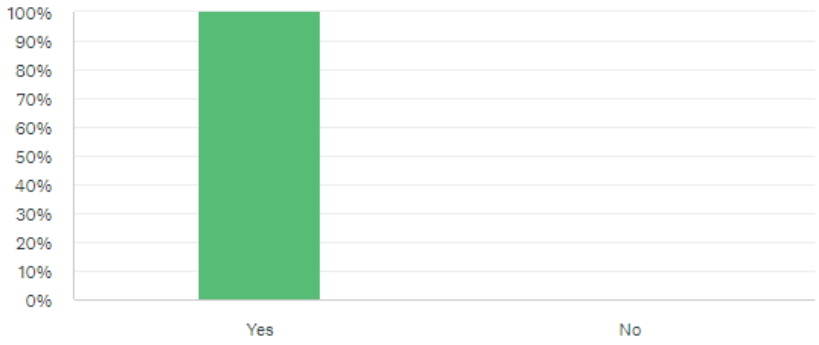


ANSWER CHOICES	RESPONSES	
Yes	41.67%	5
No	58.33%	7
TOTAL		12

3.Write down three skills that you used during this project

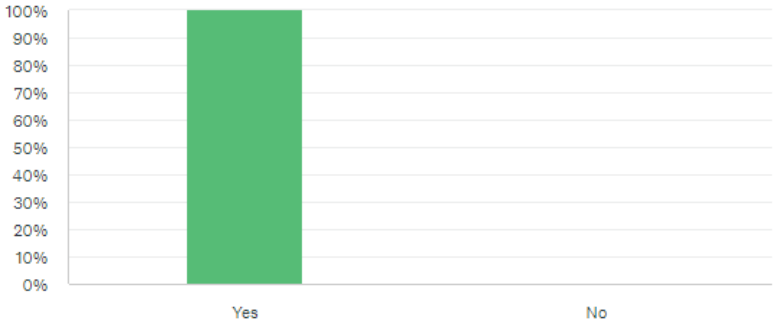


4. Do you think your skills in these areas improved as a result of this project?



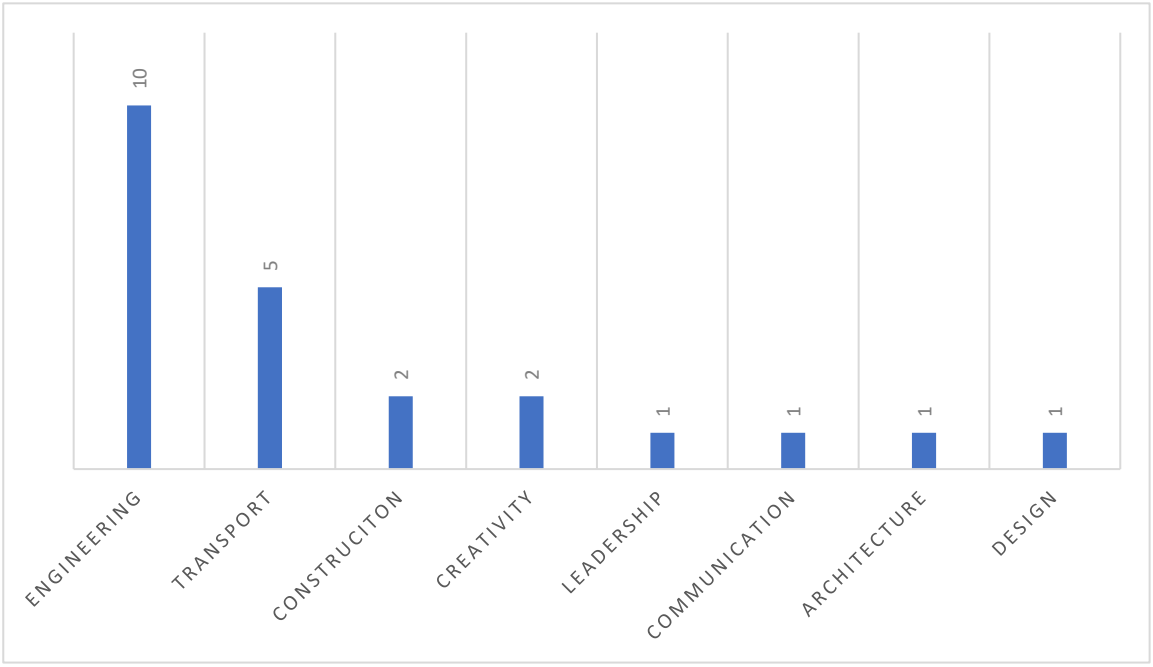
ANSWER CHOICES	RESPONSES	
Yes	100.00%	12
No	0.00%	0
TOTAL		12

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



ANSWER CHOICES	RESPONSES	
Yes	100.00%	12
No	0.00%	0
TOTAL		12

6. Having participated in the Green Skills Hackathon, what type of careers do you now think are related to environmental sustainability? (list all that you can think of).



All data:

Engineering
Engineering.
Careers that require thinking outside of the box, being creative, knowledgeable, being able to lead a team and organise people and be independent.
Engineering. Public speakers.
Engineering. Transport. Construction.
Transport manager. Engineer. Construction.
Anything to do with sustainability and no release of greenhouse gasses. Engineer. Bus driver.
Engineer. Architect. Vehicle designer.
Engineer. Someone that has creative ideas.
Engineering. Construction. Transport.
Engineers, Designers.

7. What do you understand by the term 'Green skills'?

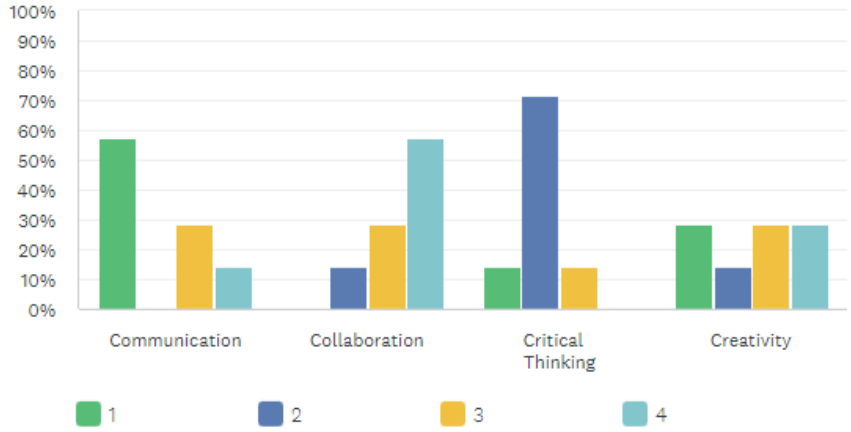
Environment. Net-zero.
Sustainability skills.
That they are skills that you can develop and are required to help support sustainability and a green environment and future.
Skills which benefit the environment.
What we do that benefits the environment.
The use of environmentally friendly thing and electricity.
Skills to make more sustainable stuff.
Being able to innovate and include environmentally friendly means in everyday life.
Skills used to nurture the green society.

8. What do you understand by the term 'Green literacy'?

Sustainable knowledge.
I'm actually unsure.

9. Many businesses want to become more environmentally sustainable. From what you've found out in this project, what skills do employers most need from their employees to do this?

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.)



	1	2	3	4	TOTAL	SCORE
Communication	57.14% 4	0.00% 0	28.57% 2	14.29% 1	7	3.00
Collaboration	0.00% 0	14.29% 1	28.57% 2	57.14% 4	7	1.57
Critical Thinking	14.29% 1	71.43% 5	14.29% 1	0.00% 0	7	3.00
Creativity	28.57% 2	14.29% 1	28.57% 2	28.57% 2	7	2.43

Results by Methodology: Teacher Survey

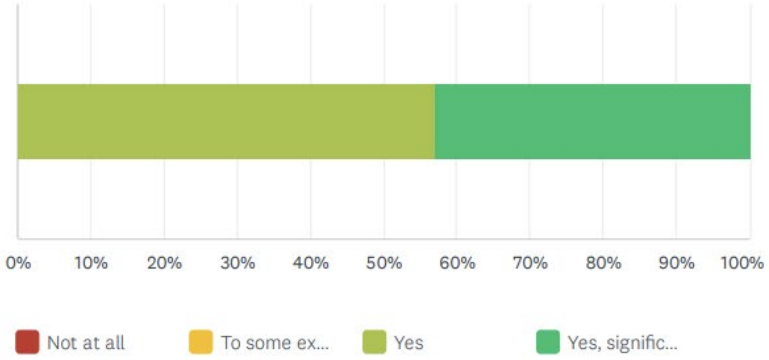
Method

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

Results

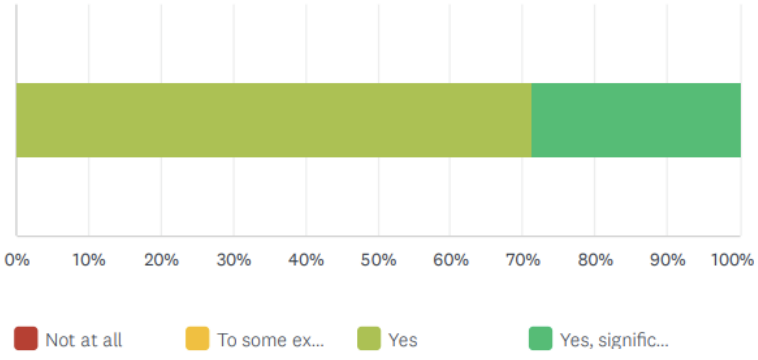
The results from the survey were processed in Survey Monkey. The raw data is presented below, with data visualisations were relevant.

1. Do you feel your students were able to have meaningful and honest conversations with employers about values in relation to environmental sustainability and employability?



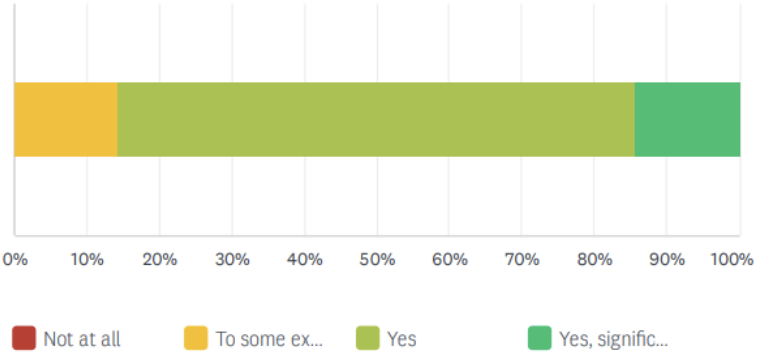
ANSWER CHOICES	RESPONSES	
Not at all	0.00%	0
To some extent	0.00%	0
Yes	57.14%	4
Yes, significantly	42.86%	3
TOTAL		7

2. Do you feel your students now have a better understanding of how environmental sustainability is shaping business and the skills businesses need?



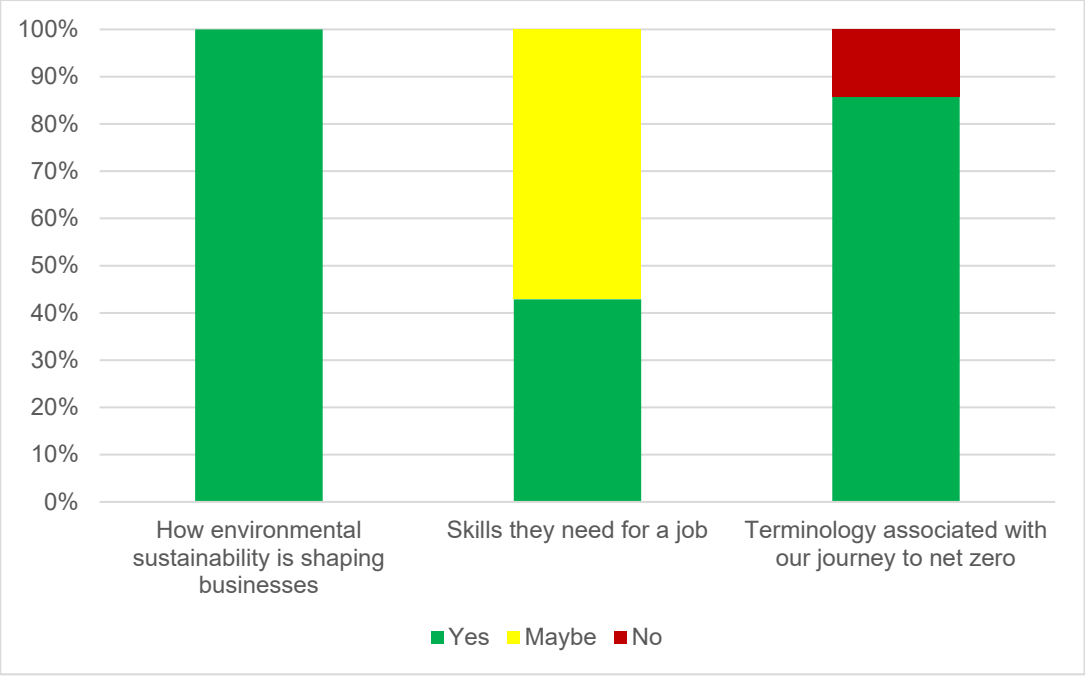
ANSWER CHOICES	RESPONSES	
Not at all	0.00%	0
To some extent	0.00%	0
Yes	71.43%	5
Yes, significantly	28.57%	2
TOTAL		7

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



ANSWER CHOICES	RESPONSES	
Not at all	0.00%	0
To some extent	14.29%	1
Yes	71.43%	5
Yes, significantly	14.29%	1
TOTAL		7

4. Tick yes/no to indicate the specific areas you feel students have improved their understanding of:



Note: In response to 'Skills they need for a job', four teachers (56%) added and selected their own box 'Maybe'.

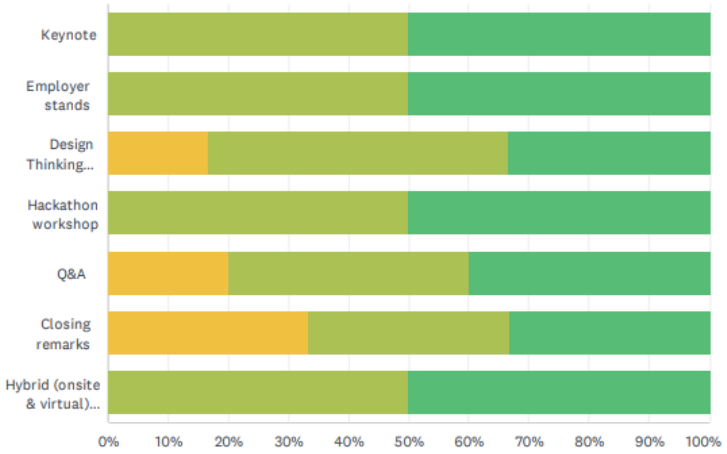
5. How valuable has this event been for your school? What have you gained from this event?

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.
Eye opening for pupils with regard to a wide range of sustainability related roles and improved understanding of employers desire to hire people who can help innovate and solve complex environmental challenges.
Very valuable. Students had great conversations with employers and really enjoyed / learnt from the session with Mott McDonald.
Very valuable. Students were able to engage in a range of useful activities, gain insights from LTM/ TfL and employers about future careers and how employers are tracking sustainability.
Very valuable and insightful. Gained a better understanding of the various green careers available and the routes students can take.

6. What impact do you feel this event has had on the future employability of the Young People attending?

Understanding what green skills are. Recognising soft skills.
They will be more able to articulate the skills that make them employable as geography A-Level students.
Has made them think more deeply about the skills they need and the roots they can take into these areas of employment.
They have learnt skills, they can add this to their UCAS applications or at interview. They can reference this in future careers conversations.
Students have gained the knowledge and understanding on the careers available.

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



	UNSUCCESSFUL	SOMEWHAT SUCCESSFUL	SUCCESSFUL	EXTREMELY SUCCESSFUL	TOTAL	WEIGHTED AVERAGE
Keynote	0.00% 0	0.00% 0	50.00% 3	50.00% 3	6	3.50
Employer stands	0.00% 0	0.00% 0	50.00% 3	50.00% 3	6	3.50
Design Thinking workshop	0.00% 0	16.67% 1	50.00% 3	33.33% 2	6	3.17
Hackathon workshop	0.00% 0	0.00% 0	50.00% 3	50.00% 3	6	3.50
Q&A	0.00% 0	20.00% 1	40.00% 2	40.00% 2	5	3.20
Closing remarks	0.00% 0	33.33% 1	33.33% 1	33.33% 1	3	3.00
Hybrid (onsite & virtual) format	0.00% 0	0.00% 0	50.00% 1	50.00% 1	2	3.50

Additional comments:

Keynote	Employer stands	Design Thinking workshop	Hackathon workshop	Q&A	Closing remarks	Hybrid (onsite & virtual) format
Interesting facts, simple outline of where TfL are at.	Employers engaged well with the students.	Quick tasks are good, students have the best focus when tasks are short.	Good to think about budgets and encourage good teamwork.	Some really interesting points raised but a little too technical on some answers. A bit too in depth.	Great to hear the students speak out in a public forum.	Not sure but a good idea for this session.
Clear, inspiring and informative.	Too focused on engineering but excellent people!	Could have shared innovations with pupils.	Pupils engaged very well. Clear. Could have shared innovations with pupils to inspire.	Great it was chaired by a pupil.	Good summary of benefits of the day - bit short!	We attended in person. Highly valuable experience.
Perfect introduction.	Very engaging	Quite vague compared to other sessions.	Provided great thinking time /skills	Very informative and engaging.		
	Excellent range of employers and expertise.	Interactivity always a winner.	Opportunity to work as a team to develop ideas.	Young people articulating what is important to them.		

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

Focus a bit more on employability skills, creativity and sustainability aside.
Maybe think of a way to get students from different schools to interact with each other.
Careers - wider variety of "Green Skills" opportunities (other than engineering). More space for lunch break.
Student helpers could be more involved/engaged.
The feedback stickers and post-its were really great but it would have been more valuable if they had asked session-specific questions.

10. What have you learnt from the day? Did anything surprise you?

How big the organisation TfL is and the different areas they are involved in.
Fantastic industry links and inspiring speakers!
TfL owning so much land was a surprise.
It has been good to learn more about transport as a sector and how its experience and goals relates to other areas both strategically and in relation to the climate emergency more broadly.
The number of green careers available.

11. What is your biggest takeaway?

Real world application of sustainability.
Green Skills will become increasingly important and as a teacher I should ensure my pupils are aware of the need for such skills in many different industries.
The importance of problem solving and trying to bring this in to our teaching.
How much young people are making the links between their skills and how they are using what they know to develop their knowledge and see how it can help them going forward.
The importance of green careers on our future.

Results by Methodology: Corporate Partners Survey

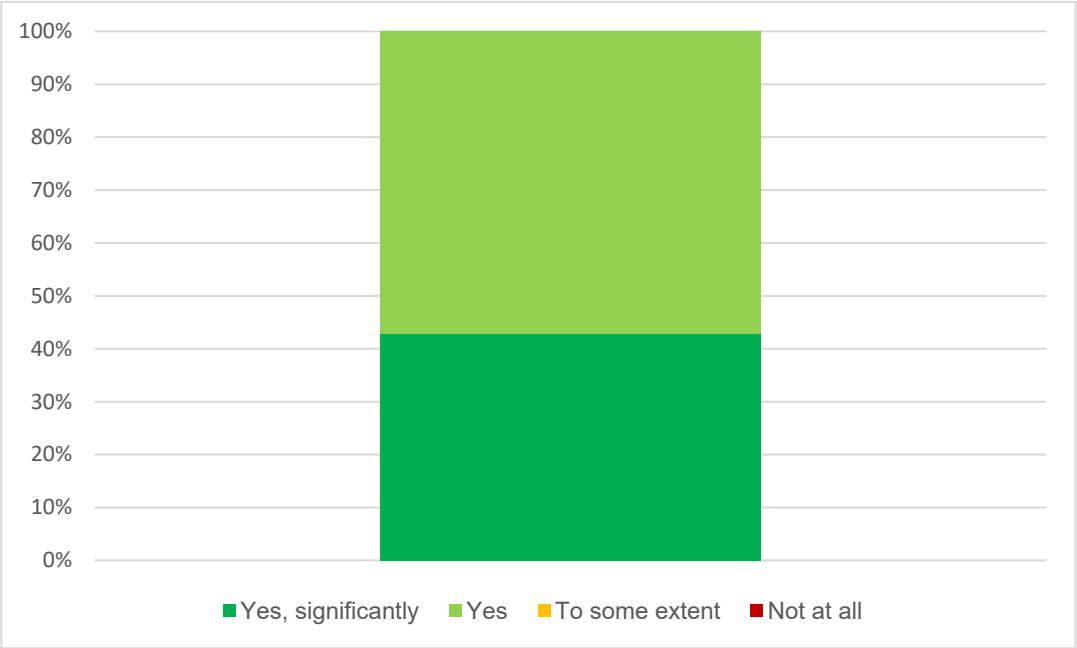
Method

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

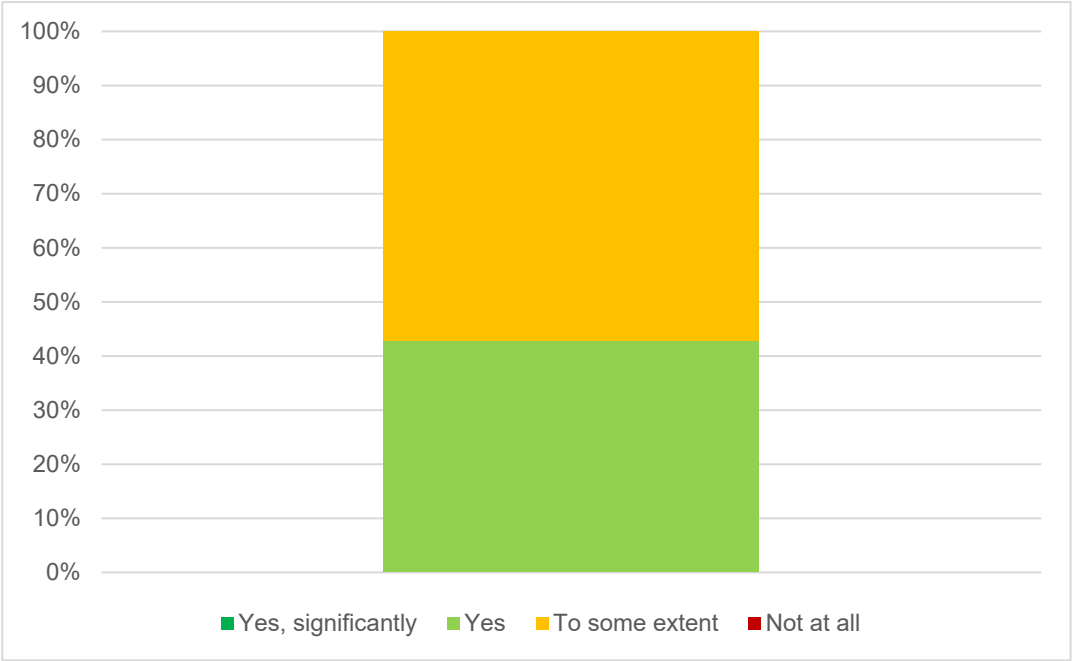
Results

The results from the survey were processed in Microsoft Forms and using Excel. The raw data is presented below, with data visualisations were relevant.

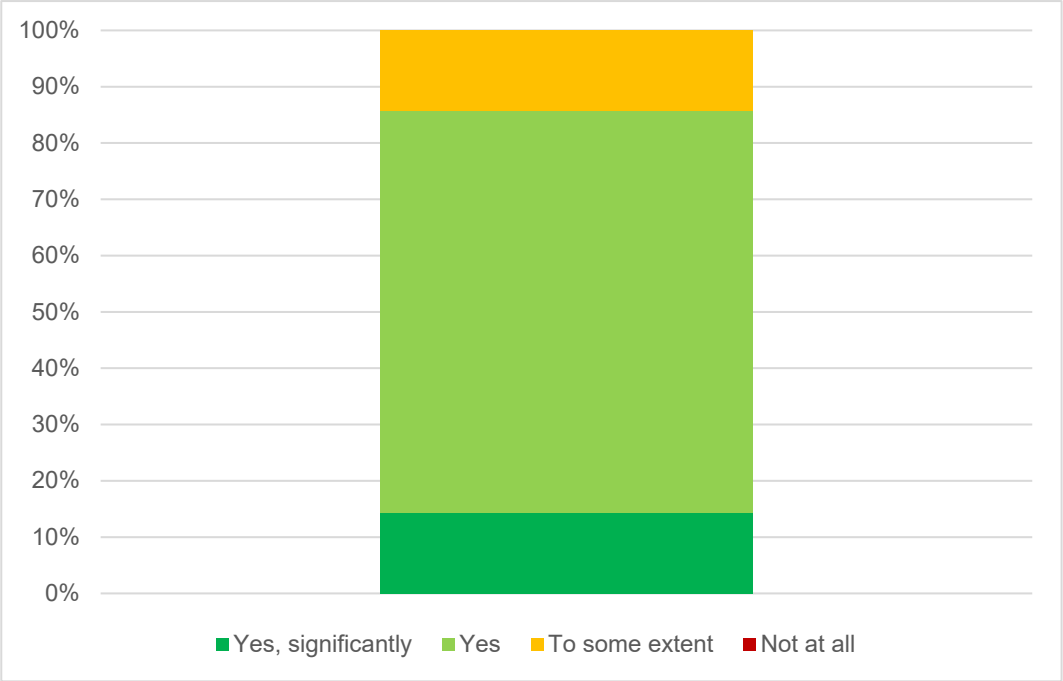
1. Do you feel you have been able to have meaningful and honest conversations with students about values in relation to environments sustainability and employability?



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?



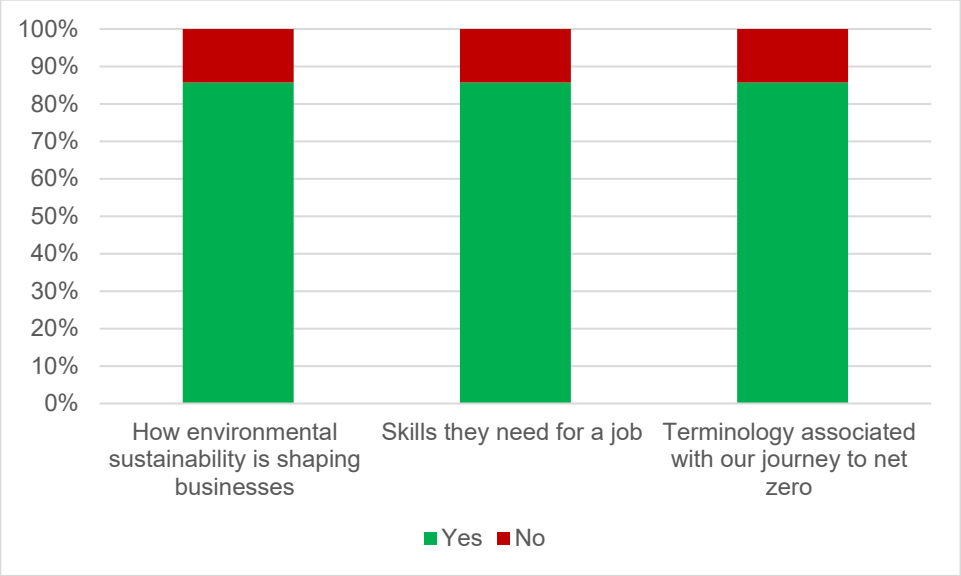
3. Do you feel students you have engaged with now have a better understanding of how environmental sustainability is shaping businesses and the skills businesses need?



4. How have you imparted information on / knowledge of employability skills to students?

Interactive demos and props to elicit questions and excitement.
Digital interactive displays, conversation and questions
With demonstrations of coding. Talking about careers
Different types of projects, different schemes available.
Conversations, leaflets, QR code, discussion with teachers
Meaningful conversations surrounding all aspects of sustainability and employment skills
Running Design Thinking workshop, Q&A and speaking to students afterwards.

5. Select yes / no to indicate the specific areas you feel students have improved their understanding of



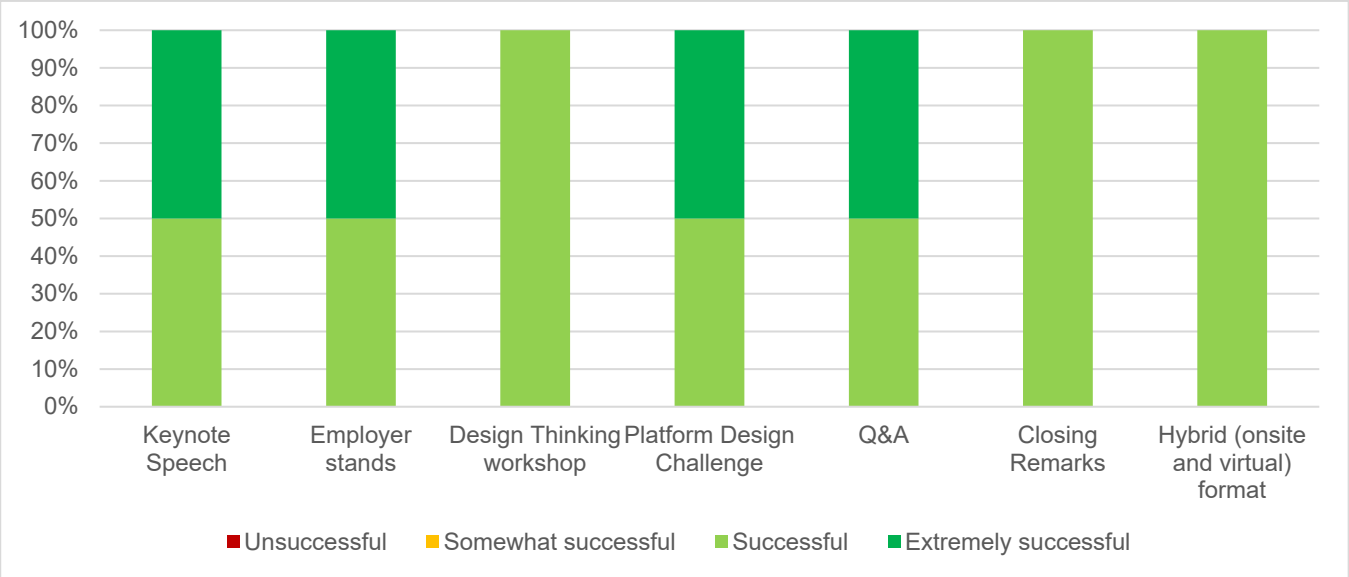
6. How valuable has this event been for your organisation? What have you gained from this event?

Great opportunity to engage with young people and get them excited to work in our industry.
Networking links and achieving KPI targets etc. Knowing how to improve STEM engagement.
An understanding of how sustainability and coding is integrated into the curriculum.
Very valuable, communication with students to let them know of the opportunities available.
Opportunity to talk to young people about green job opportunities and what they understand about TfL
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.
Has helped to better understand how best to explain what we do in easy to understand ways.

7. What impact do you feel this event has had on the future employability of the Young People attending?

Hopefully showed them the range of opportunities in the sustainable transport area.
More awareness of opportunities and securing future talent.
More aware and open to a variety of careers.
Hopefully more people attending in the future.
They will consider TfL.
We were able to share our own experience of starting careers and routes into our own organisation.
Open their eyes to design thinking and what to do.

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?

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

12. What is your biggest take away?

What other industries are doing, how to attract students
Lots of students are interested in geography. Lots of students have experience of coding
Students enjoy careers advice
How passionate young people are about shaping our future.

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

Participating and signed up schools to the Virtual Air Quality Challenge

School Name	School Postcode	Year Group	Number of students involved in the project	Did the school attend their pitching session? (Yes/No)	How many students were in the pitching group?	How many students participated in creating pitches (that weren't presenting)
Ark Pioneer Academy	EN5 2BE	10	5	Yes	2	3
Ark Pioneer Academy	EN5 2BE	10	5	Yes	2	3
La Retraite Roman Catholic Girls School	SW12 0AB	10	1	Yes	1	1
Guru Nanak	UB4 0LT	mixed	10	Yes	5	5
Twickenham School	TW2 6JW	8	8	Yes	8	0
Eastlea Community School	E16 4NP	10	20	No	NA	NA
Marjory Kinnon	TW14 9QZ	KS3	9	No	NA	NA
Canary Wharf College	E14 3BA	8	10	No	NA	NA

Page views of Online Hub content to 27th October (See Appendix A for Google Analytics dataset of page views)

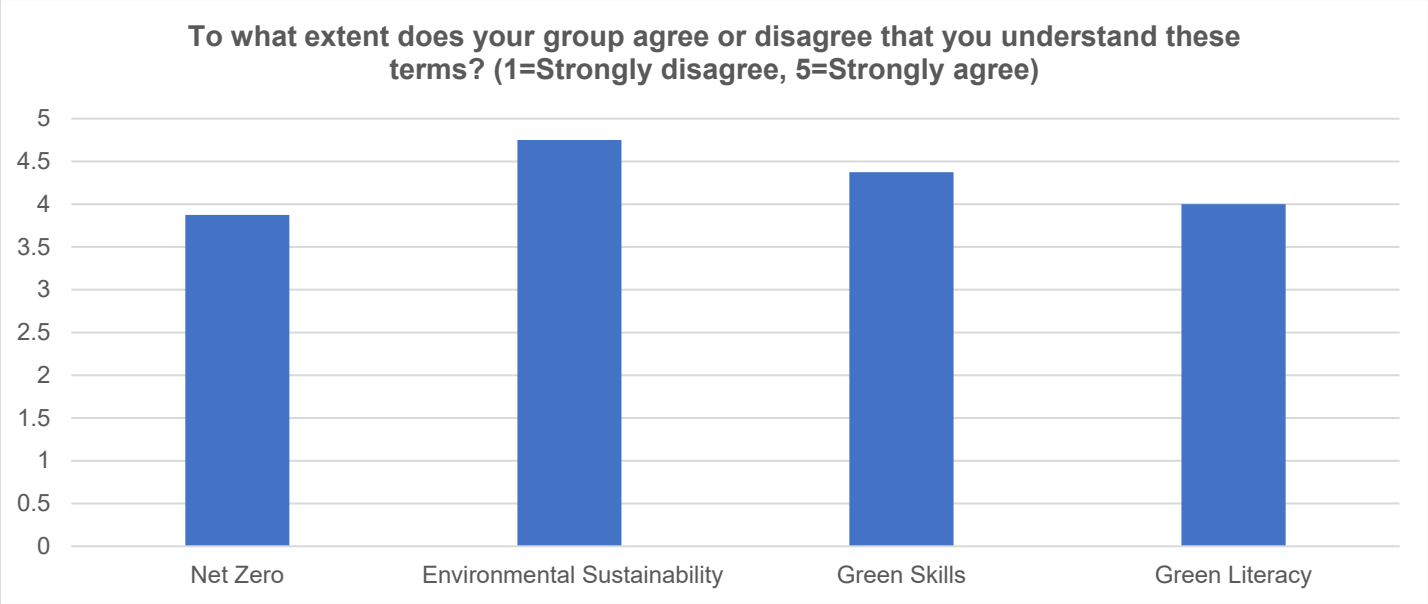
Total views	101
Total unique users	57

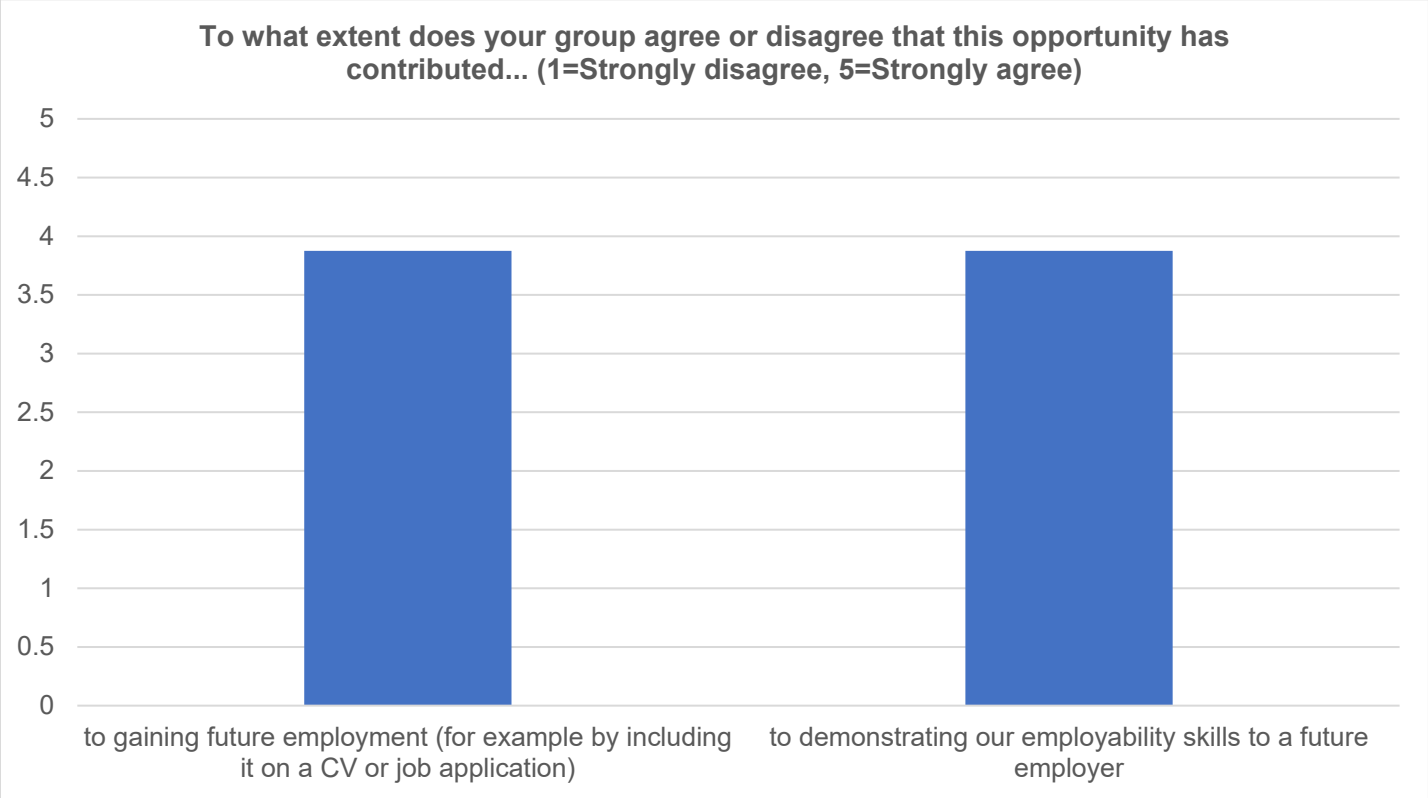
Top four most downloaded documents from Online Hub to 27th October (See Appendix B for Google Analytics dataset of downloads)

Document title	Total downloads
'The Brief and Criteria'	22
'Session Plan 2 – Research'	17
'Session Plan 1 – The Problem'	11
'Session Plan 3 – Iterative Design'	10

Menti-meter Feedback from Students

Menti-meter Feedback from Students (continued)





Additional feedback on Menti-meter polling from LTM Team*: 'Menti-meter didn't work as well as I would have liked as the presentation wasn't always syncing to show who had or hadn't answered, so there are some questions not everyone answered'.*

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?	It was a real shame that a couple of schools didn't show up – not sure what the reason was, was there a miscommunication? Just would be good to understand why/how that happened so that it can be avoided in future but appreciate these things happen!
	Schools to be more prompt with their timing (something you of course can't control)
	I scored person 1 and then when I saw team 2's presentation, it completely changed my mind on the scoring. i.e, I scored person 1 similar to team 2, but team 2 for me were so much more stronger. Had I not been able to compare presentations, I'd not have known the transparency in regards to confidence levels, research etc. Also, is there a way to score people or put in consideration where a team may just be 1 person who did all the research, put the presentation together and present, v a team activity. Etc. How do we score individual v a team, both require separate skills. I found team work SOO much harder at uni, than solo work.
	There is some "dead space" in the zoom call. By that I mean, once the kids and ambassadors said their piece, there was silences and gaps to be filled. I don't think it was awkward, necessarily, just clunky. Likewise with the menti-meter. While I think it is really important for the students to be able to voice their opinions on the VAQ and I think getting them to do so on menti-meter is great because you are guaranteed that they are going to do it and they can watch it happening in real time, but I felt there were too many questions and perhaps less questions with more time to discuss answers by themselves may be more beneficial so that they aren't rushed.
3. Was this a worthwhile opportunity for you and the students?	Yes definitely
	It was great to hear young people's passion towards sustainable projects, some of which were genuinely worth looking into further!
	I think so. Students seem to enjoy it and it is something they could use to bolster their CVs and transcripts. Having the opportunity to chat to the ambassadors too is great because they may never have had such an opportunity otherwise.
4. Was the training you received enough to prepare you for the event?	Yes.
	Yes, well covered.
	Yes.
5. How could the content or structure of the event be improved (if at all)?	I thought it was really good, so not much feedback on this! Only minor point was when we were asking the students questions afterwards we often ended up giving feedback at the same time, and then were asked to give feedback afterwards, so it might be worth just doing feedback & questions at the same time
	I think the structure worked well. Of course if everyone was in the same room/place, it could be easier to manage, however I thought the remote session went as well as possible on the day.
	Overall, I think the format is solid. There are a few aspects that I do think could be improved upon. Reduce "dead space" have a list of pre prepared questions or activities you can do to either interview the students or the ambassadors about their work. A few generic questions that can open up discussion after the presentation time has elapsed. Likewise using some of the time at the end of the session post-breakout rooms to ask these questions, particularly to the ambassadors, would be helpful. That gives an opportunity for all the students to gain some insight, even if it were from people they didn't have in their breakout room. Reduce the number of questions on the menti-meter, give more time for discussion among themselves, and ask more meaningful questions.

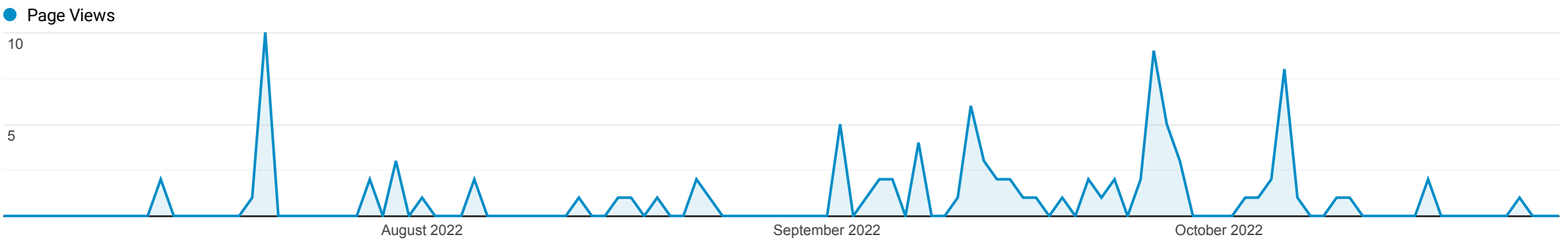
Appendices

Useful stat report

All Users
100.00% Page Views

30 Jun 2022 - 27 Oct 2022

Report Tab



This data was filtered with the following filter expression: **air-quality-challenge-hub**

Page	Page Views	Unique Page Views	Avg. Time on Page	Entrances	Bounce Rate	Users	Sessions	Pages/Session
	101 % of Total: 0.01% (1,592,398)	**80** % of Total: 0.01% (1,232,005)	**00:44:25** Avg for View: 00:05:04 (776.49%)	**71** % of Total: 0.01% (572,070)	**50.00%** Avg for View: 48.03% (4.10%)	**57** % of Total: 0.01% (487,045)	**72** % of Total: 0.01% (572,125)	**1.40** Avg for View: 2.78 (-49.60%)
1. www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**101** **(100.00%)**	80 (100.00%)	00:44:25	71 (100.00%)	50.00%	57 (100.00%)	72 (100.00%)	1.40

Rows 1 - 1 of 1

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Top Events

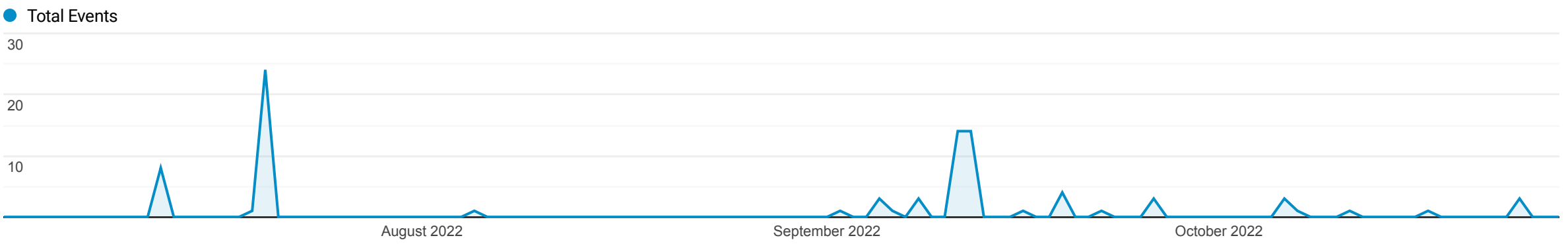
ALL » EVENT CATEGORY: File download

30 Jun 2022 - 27 Oct 2022

All Users
1.33% Unique Events

Explorer

Event



This data was filtered using an **advanced filter**.

Event Label	Page	Total Events ↓	Unique Events	Event Value	Avg. Value
		88 % of Total: 0.01% (1,170,952)	**74** % of Total: 0.01% (726,808)	**0** % of Total: 0.00% (875)	**0.00** Avg for View: <0.01 (-100.00%)
1. The Brief and Criteria.pdf 512.04 KB, PDF	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**22** (24.72%)	20 (27.03%)	0 (0.00%)	0.00
2. Session Plan 2 - Research.pptx 701.59 KB, PPTX	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**17** (19.10%)	10 (13.51%)	0 (0.00%)	0.00
3. Session Plan 1- The Problem.pptx 708.79 KB, PPTX	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**11** (12.36%)	10 (13.51%)	0 (0.00%)	0.00
4. Session Plan 3 - Iterative Design.pptx 701.87 KB, PPTX	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**10** (11.24%)	10 (13.51%)	0 (0.00%)	0.00
5. Climate Glossary.pdf 325.73 KB, PDF	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**8** (8.99%)	8 (10.81%)	0 (0.00%)	0.00
6. Session Plan 4 - Pitching.pptx 707.69 KB, PPTX	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**8** (8.99%)	5 (6.76%)	0 (0.00%)	0.00
7. Technologies to Improve Air Quality.pdf 879.19 KB, PDF	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**8** (8.99%)	6 (8.11%)	0 (0.00%)	0.00
8. Session Plan 4 - Pitching.pptx 707.68 KB, PPTX	www.ltmuseum.co.uk/schools/key-stage-4-5/air-quality-challenge-hub?auHash=3S5S9LHfiyIU4SvcYbz6d5aw6-KuDe0c8kZ4ePAZqaw	**5** (5.62%)	5 (6.76%)	0 (0.00%)	0.00

Rows 1 - 8 of 8

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Green Skills Hackathon - Observation Engagement Scale sheet

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

	Evaluation 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.**
Circle the number on the scale for how well the Activity achieved each Evaluation Objective (1=low, 5=high, or 'NA').	**1 (less than 20%)**	**1**	**1**	**1**
	2 (20%)	**2**	**2**	**2**
	3 (40%)	**3**	**3**	**3**
	4 (60%)	**4**	**4**	**4**
	5 (more than 80%)	**5**	**5**	**5**
	NA	**NA**	**NA**	**NA**
Observations (please give between 1 and 3 observations to show how this objective was achieved and why you have circled this number, for example something a student has said, or something you noticed in their behaviour).				

Activity	**Outcomes for Students**			
[KH] Design Thinking and Innovation Workshop	I have worked directly with the Innovation Team at TfL to understand better their role and skills they use. Percentage of students who engage with opportunity to work with Innovation Team. How they respond.	I was able to using design thinking practises and apply them to a problem. Percentage of students who understand activity and participate. How they respond.	I could see how TfL requires people with lots of different skills to help solve the problems facing us in building a sustainable city. Percentage of students who respond to this idea.	When/if terminology was used, it was explained/defined clearly. (If relevant) how students respond to terminology and definitions. If I asked for a term to be defined, my question was answered. (If relevant) when a term is defined, do students ask for further definitions.
	I was able to share my thoughts and ideas with TfL Innovation. Percentage of students who share their ideas. How they are supported to all participate. How they respond.			
	I was able to see where my opinion and thoughts would be of value to an employer. Percentage of students' opinions that are responded to by Innovation Team, how students react.			

[AC] Hackathon Workshop	I have worked with Mott Macdonald on a problem-solving challenge that is relevant and real-world. Percentage of students who engage with opportunity to work with Mott PacDonald team. How they respond.	I was able to develop problem solving skills within a real-world context. How did students respond to using problem-solving skills? Did this seem to have an impact?	I was presented with a real-world list of sustainable materials for a station update and had to consider this within their solutions.How students respond to this opportunity. Percentage of studentst hat use the materials in their solution.	When/if terminology was used, it was explained/defined clearly. (If relevant) how students respond to terminology and definitions. If I asked for a term to be defined, my question was answered. (If relevant) when a term is defined, do students ask for further definitions.
		I was able to be adaptable when presented with a challenge.How students respond to the challenge what do they say? What enthusaism is demonstrated?	I worked with the Sustainability Lead for Rail at Mott Macdonald. Percentage of students who engage with opportunity to work with Sustainability Lead for Rail.	
		I was able to present and pitch my solutions to a problem. Percentage of students who pitch their idea, how they respond to this opportunity?		
[AC] Employer Stands; Networking Resource	I have been able to speak directly to many different employers.	I understood that talking to employers is an employability skill. Percentage of students who practice this skill. How they respond to this opportunity? I practiced talking confidently (presentation skills) to employers. Percentage of students who practice this skill. How they respond to this opportunity?		
	I was able to ask employers questions around routes into roles during this activity.			
	The student booklet provided on the day suggested some questions to help build deeper knowledge of businesses and their work.			
	I was encouraged to have honest conversations with employers through the facilitator and introduction to the event.			
	Percentage of students who practice this skill. How they respond to this opportunity?			
[AC/RH] Q&A	I have posed questions to the panel and all questions are student-led.	I head from the panel about what 'Green Skills' are and the priorities for young people to be focusing on for development. How students respond to this opportunity?	I heard from the panel how building a sustainable future will lead to specific jobs. How students respond to this opportunity?	In the Q&A the panel clearly described what 'Green Skills' and 'Green Jobs' are. How students respond to this opportunity?
	The questions put forward by my schools helped shaped the themes covered in the panel.			
	I was provided with the opportunity to ask the panel my own questions on how we working towards a sustainable future.			
	How students respond to this opportunity?			
Closing remarks; Statement from Business about what they are going to take away from the event and changes they would like to make?	I can see my opinions are valued by employers. How students respond to statement by employers that relate to this.			
	I feel employers at the event better understand my views and will consider me in the opportunities they provide for young people. How students respond to statement by employers that relate to this.			

How-to:

General

. Complete one Observation Engagement Scale Sheet for each Activity that you are supporting (for example, x3 will be completed for the Design Thinking workshop).
. Fill in your name and the name of the acivity at the top - this is just for reference.
. Feel free to write notes around the paper if you need to - I'll only use what's in the 'Evaluation Objectives' table.

Before the activity

. Note - You are observing how participants respond to the content of the session (not the content of the session itself, although these are connected!).
. Familiarise yourself with the 'Outcomes for students' of the Activity you're observing.
. Spend some time thinking about how this might happen in the activity (you could use the activity/workshop plan to help you).

During the activity

. Spot **when** the 'outcomes for students' happen (i.e. at what point do students react/respond? This can be indicated by body lanugage, smiling, watching facilitator, eye contact, not twiddling thumbs, actually doing the activity, what students say, interactions between peers etc. etc.).
. Spot **how** the 'outcomes for students' happen (i.e. what gets the biggest response, what methods of engagement are particularly effective etc.)
. When the outcomes happen, what percentage of students did this apply to? Circle the relevant number of on the scale.

After the activity

. Make sure you have circled a number on the scale, or 'NA'.
. Write 1-3 observations to demonstrate how this Objective was achieved or why you gave this Scale rating.
. Return Engagement Scale sheet to Lizzie at the end of the day.

lizzie@lizziehilton.com

Lizzie Hilton

Museum Consultant and
Arts Participation Producer

www.lizziehilton.com