2023

LITTLE INVENTORS X SPD STUDENTS PROJECT

FALMOUTH UNIVERSITY

SPECIALIST EVIDENCE EVALUATION AND RESEARCH SERVICE

CONTENTS

1. EXECUTIVE SUMMARY

This report details evaluation findings from the collaborative project between Little Inventors[1], (Sustainable Product Design (SPD) students, and Falmouth University's Recruitment and Outreach team. The programme ran from February to April 2023. Three Stage 3 Falmouth University SPD students worked with and were coached by the Little Inventors staff to facilitate workshops with primary school children as the subjects for human-centred design and problem solving. These SP students then ran workshops with Mawnan Church of England Primary School, facilitating primary school students to develop design ideas ('inventions') along the sustainable themes of oceans, food, and health. The children's inventions were communicated through drawings, which were then used to create models of these ideas by the Stage 1 SPD students. The programme culminated with an exhibition at Falmouth University on 23rd March 2023.

Applied Inspiration's SEER Service supported Falmouth University with project evaluation, informed by the following evaluation aim:

- To develop understanding of experiences of learning and development of Little Inventors participants, including SPD students, school children, and educators.

Evaluation comprised:

- Stage 3 students online focus group (N=3)
- Stage 1 students post-programme survey (N=5)
- Year 5/6 children post-programme survey (N=15)
- Stage 1 lecturers post-programme survey (N=2)
- Year 5/6 teacher post-programme survey (N=3)

1.1. SUMMARY OF EVALUATION FINDINGS

1.1.1. SUMMARY OF STAGE 3 STUDENT ONLINE FOCUS GROUP

An online focus group, exploring the extent to which learning outcomes were met (see table 1), and exploring student experiences of taking part in this project, took place on 28th March 2023 using Microsoft Teams. The focus group was recorded, transcribed, then analysed thematically. Themes were identified primarily through the questions of the semi-structured focus group guide (Appendix B).

A summary of findings follows:

Table 1 Summary of Findings from Stage 3 Student Online Focus Group

Theme	Main findings
Project Inception	• Participants were invited to take part in the programme, having received emails from their lecturer about this opportunity, although they had not anticipated the project to as big as it was.

[1] https://www.littleinventors.org/

	• Initially, participants were excited about the project, particularly as they were working together in a small group and because it was around topics that interested them. • Participants felt supported by Little Inventors, particularly at the beginning of the project. There were some initial concerns around communication and around clarification of roles.
Human Centred Design and Working with Children	• Participants had some prior experience working with children and were familiar with human centred design from their studies. • Participants particularly enjoyed employing their skills in a practical way, which complimented the strong grounding they had in human centred design through the curriculum. • Participants felt the first session with the children required a bit of improvisation, as there had been some miscommunication regarding prior knowledge, but this was treated as a useful learning experience.
Skills Development	• Participants felt they had developed skills in working with young children and finding out the best way to engage them in activity. • Most prominently, participants felt they had developed skills in networking, which they felt would help them in their careers. • Participants also commented on exhibition design, website design, and event management. • As a result of taking part in the project, all three interviewees had been offered paid work, which was a huge benefit.
Recommendations	• Participants were happy with the way the project had been run, as it was a new partnership and they felt it was natural for some teething troubles to emerge. • However, for future delivery, they recommended greater clarity in terms of role responsibility, including the contribution from Little Inventors, ensuring sufficient materials are provided for model making, and clear chains of communication. • They would definitely recommend the project to other students to take part in.

1.1.2. SUMMARY OF STAGE 1 SPD STUDENT SURVEY

A post-programme survey, seeking to understand the extent to which aims had been met, was disseminated to Stage 1 SPD students using Online Surveys during April and May 2023.

With only five respondents, results are not generalisable to the population at large.

Model Making Skills

This area was one of greatest agreement amongst respondents, although there was an area of ambivalence specifically in relation to feeling more confident in ability to work with low cost

materials, having opportunity to work with low cost materials, and opportunity to have a go at producing accurate, representative models.

Working to Client Specification

Responses relating to experience of working to client specification, were a mixture of positive agreement and ambivalence. For the most part (4/5), respondents felt able to interpret the primary school children's drawing when producing their model.

Development of Project Management Skills

Most responses were ambivalent, although two respondents moderately agreed that they had increased their confidence when working with allocated materials and had had an experience of working with allocated materials. Responses pertaining to experience of producing a model in an allocated amount of time were positive, with two respondents agreeing strongly, and another two moderately.

Further Comment

Respondents were also invited to comment freely on any aspect of the project, but no responses were received.

Responses by Individual

Responses split by individual are generally mixed, albeit Respondent 4 was more likely to respond ambivalent than others, as was Respondent 1 to a lesser extent. Respondents 2 and 3 were more likely to respond positively (either agree moderately or strongly) than others. There is no one respondent appearing as a particular outlier.

1.1.3. SUMMARY OF STAGE 1 SPD LECTURERS SURVEY

A post-programme survey, seeking to understand the extent to which aims had been met, was disseminated to Stage 1 SPD lecturers using Online Surveys during April and May 2023.

We received two responses.

Development of Model Making Skills

Both respondents agreed either moderately or strongly that students have developed and improved their model making skills as a result of their participation in this project. However, one respondent was ambivalent about students' confidence in and opportunity for working with low-cost materials, and students' confidence in producing accurate, representative models.

Experience of Working to Client Specification

Both respondents agreed strongly that students were able to interpret the client drawings accurately, and agreed moderately that the project provided students with the opportunity to work to a client specification. Results were less strong (1 agreed moderately, 1 neither agreed nor disagreed) in relation to students' confidence working to client specifications.

Development of Project Management Skills.

Both respondents agreed strongly that the project gave students the opportunity to work with allocated materials, and that their confidence in working with materials increased as a result. Respondents also agreed moderately that the project provided students with an opportunity to experience producing a model in an allocated amount of time. However, one respondent was ambivalent about students' confidence in project management, development of timekeeping skills, and working to a deadline.

There is some variation between respondents, with one respondent notably more ambivalent in their responses than the other. This may be due to interaction with a different range of students, or varying expectations between respondents. This year was the first year in running this project in this form, and there is space to develop future iterations, further developing student skills and confidence. Gathering feedback from a greater number of stakeholders, including lecturers, would also be beneficial

1.1.4. SUMMARY OF YEAR 5/6 PRIMARY PUPILS

The participating primary school children were invited to complete a post-programme survey during the exhibition of their work on 23rd March 2023. This survey was designed to evaluate the extent to which the following aims had been met:

- Develop an understanding of some key sustainability issues.
- Use problem-solving skills to develop 'invention' ideas.
- Develop drawing and visualisation skills.
- Be introduced to Falmouth University, and the idea of university life and learning.

We received 15 responses.

The ideas informing the childrens' drawings demonstrate an awareness on the part of the pupils of some key sustainability issues, with reference to harvest, food waste, clean water, gardens, and the environment, as well as sea life (crabs and octopi). Some pupils were able to demonstrate a deeper understanding, for example, ensuring equality of access to green space, the threat of plastics to sea life, and the problem of food waste. The pupils were evidently very happy with their designs and their realisation as models, while reflection on the drawing and visualisation process is limited.

In terms of awareness of Falmouth University and aspiring to university generally, findings were positive, with all pupils completing this part of the survey (N=14) reporting they would like to find out more about university. 10 reported they had found out more about Falmouth University, and another 10 indicated they think university could be for them. There is an area of ambivalence concerning what pupils have learnt about university through this project, although with the absence of baseline data, it is difficult to generalise further.

1.1.5. SUMMARY OF YEAR 5/6 TEACHER SURVEY

The Year 5/6 teachers were invited to complete a post-programme survey in order to evaluate the extent to which the aims (as noted above) had been met for participating pupils.

The survey was live between April and May 2023 and we received three responses.

Teachers were very positive about the childrens' experiences of the Little Inventors project. In relation to drawing and visualisation skills, respondents mostly agreed strongly with all statements, including those referring to:

- Enabling pupils to think of innovative solutions to sustainability problems,
- Pupils being able to demonstrate an understanding of innovative solutions to sustainability problems,
- Enabling pupils to communicate their innovative solutions to sustainability problems effectively.

One respondent was more ambivalent about pupils developing their drawing skills, which is reflected in the qualitative comment, suggesting the pupils would have benefited from seeing examples of drawings and from being taught to label drawings accurately.

In relation to introduction to university life and learning, all respondents agreed strongly or moderately to all of the statements. All respondents agreed strongly that the project had been valuable to pupils. In qualitative comments, one respondent noted that pupils were inspired by the space at the exhibition and that it was useful for the students to attend the primary school. They suggested providing further information for pupils about course and university options.

Overall, teachers were incredibly positive about the impact of the project on their pupils and felt it was a positive experience. The experience of the exhibition was a particular highlight.

1.2. RECOMMENDATIONS

- **Provide further clarity of roles, responsibilities, and estimated time commitment**: this would particularly benefit Stage 3 SPD students who take on a central role in project delivery and communication between stakeholders.
- **Consider expanding the project to other primary schools**: evaluation findings are positive, and this project is beneficial to a range of stakeholders. This would provide further opportunity for Falmouth to expand awareness of its offer across the county and would support primary schools with curriculum delivery and attainment, in relation to sustainability, design, and with an assortment of transferrable skills benefiting the pupils.
- **Maintain the exhibition component on campus**: this was a clear highlight of the project, particularly for the children. It also provided a valuable opportunity for children to experience a university campus and to begin to visualise future choices available to them.
- **Encourage greater engagement in evaluation**: this is notably a difficult area across the sector, with participants facing competing priorities, students experiencing survey fatigue, and staff facing highly demanding workloads. However, where possible, levels of engagement should be increased. One strategy may be to elicit qualitative "snap shot" data

from the pupils as part of the workshop delivery; this may enable the collation of evidence of greater understanding and reflection than that gained through a survey. It may also be possible to gather feedback from Stage 1 SPD students during lectures or other in-person delivery.

2. INTRODUCTION

This report details evaluation findings from the collaborative project between Little Inventors[2], Sustainable Product Design (SPD) students, and Falmouth University's Recruitment and Outreach team. The programme ran from February to April 2023. Three Stage 3 Falmouth University SPD students worked with and were coached by the Little Inventors staff to facilitate workshops with primary school children as the subjects for human-centred design and problem solving. These SPD students then ran workshops with Mawnan Church of England Primary School, facilitating primary school students to develop design ideas ('inventions') along the sustainable themes of oceans, food, and health. The children's inventions were communicated through drawings, which were then used to create models of these ideas by the Stage 1 SPD students. The programme culminated with an exhibition at Falmouth University on 23rd March 2023.

Project aims for each group of stakeholders were as follows:

Table 2 Project Aims

Stage 3 SPD Students	• Experience and gain an understanding of human-centred design research. • Develop confidence in network building. • Experience facilitating workshops with other Falmouth students. • Build project findings into their final year design project(s).
Stage 1 SPD Students	• Develop model making skills, producing accurate representative models with low-cost materials. • Experience working to client specification. • To develop project management skills to produce models on time, with allocated materials.
Year 5/6 Primary School Children	• Develop an understanding of some key sustainability issues. • Use problem-solving skills to develop 'invention' ideas. • Develop drawing and visualisation skills. • Be introduced to Falmouth university, and the idea of university life and learning.

2.1. EVALUATION ACTIVITY

Applied Inspiration's SEER Service supported Falmouth University with project evaluation, informed by the following evaluation aim:

- To develop understanding of experiences of learning and development of Little Inventors participants, including SPD students, school children, and educators.

The Learning Outcomes and Evaluation Map detailing this evaluation is located in Appendix A of this report.

[2] https://www.littleinventors.org/

Evaluation tools were as follows:

Table 3 Evaluation Tools

Evaluation Tool	Details
Stage 3 Students Online Focus Group (Appendix B)	Delivered online using Microsoft Teams on 28th March 2023. N=3.
Stage 1 Students Post-Programme Survey (Appendix C)	Disseminated through Online Surveys during April and May 2023. N=5.
Stage 1 Lecturers Post-Programme Survey (Appendix D)	Disseminated through Online Surveys during March and April 2023. N=2.
Year 5/6 Primary School Children Post-Programme Survey (Appendix E)	Completed with primary school children on paper during the exhibition on 23rd March. N=15.
Primary School Teachers Post-Programme Survey (Appendix F)	Disseminated through Online Surveys during March and April 2023. N=3.

In the remainder of this report, we present and comment on findings from the evaluation as listed above. We then offer a brief summary and suggest recommendations for future delivery.

3. EVALUATION FINDINGS

3.1. STAGE 3 SPD STUDENTS

Learning outcomes for Stage 3 SPD students were as follows:

- Experience and gain an understanding of human-centred design research.
- Develop confidence in network building.
- Experience facilitating workshops with other Falmouth students.
- Build project findings into their final year design project(s).

An online focus group, exploring the extent to which these outcomes were met, and exploring student experiences of taking part in this project, took place on 28th March 2023 using Microsoft Teams. The focus group was recorded, transcribed, then analysed thematically. Themes were identified primarily through the questions of the semi-structured focus group guide (Appendix B).

Project Inception

Participants were invited to take part in the programme, having received emails from their lecturer about this opportunity, although they had not anticipated the project to as big as it was:

> *"… we were just told about it being a good opportunity, it wasn't going to be anywhere near as big of a thing that it turned out into at first."* (Interviewee 1)

Initially, participants were excited about the project, particularly as they were working together in a small group and because it was around topics that interested them:

> *"… it was exciting to work with a live company on a project, especially around education and the climate crisis as well".* (Interviewee 3)

However, there were some concerns around communication at the start of the project, and around clarification of roles:

> *"I think the communication between all the departments got really complicated and so we didn't know if we were supposed to be communicating with them or if they were in communication with other parts of the team because no one was really talking to us, although it was our project, and we were the ones running it."* (Interviewee 1)

> *"I don't think we quite knew what we were going to be doing at first, but I don't think anybody really knew what our roles with the project was going to be. So, I think the only apprehensions really came from not quite knowing all the details but then again like nobody knew the details."* (Interviewee 1)

Participants felt supported by Little Inventors, particularly at the beginning of the project; towards the end of the project, Little Inventors' role was more one of guidance:

> *"It was more at the very start that they were kind of helpful and then towards the end it was more of a brief guide."* (Interviewee 2)

Human Centred Design and Working with Children

Participants had had some experience working with children, although not to the same extent. Interviewee 3 had worked as a teaching assistant in a primary school previously, and the other participants had done some volunteering in schools. However, participants did remark on the different nature of schools they had been in previously, in comparison with their work with Mawnan School:

> *"…we all had some expectations from the class we went to before. So, we went to Gerran's School beforehand, so it was quite a smaller village school, so I think we were more prepared for that than Mawnan. And then also looking at what I did at Falmouth Primary, thinking, just like thinking that the kids are all going to be very similar and actually they're all quite different"* (Interviewee 1)

Participants were familiar with human centred design, which formed an integral part of their curriculum:

> *"… we did a whole module on it last year and used it in pretty much every module we've ever done but at different levels, different degrees. And if there was any sort or, there's like only some of them where they've been really focused on human-centred design and then others, they've kind of just been in the background."* (Interviewee 3)

Participants enjoyed this aspect of their studies and particularly enjoyed employing their skills in a practical way through Little Inventors, which complimented the strong grounding they had in human-centred design through the curriculum. Interviewee 1 commented on skills learnt in developing activities specific for a young age group, and the benefits of having an extended period of time to work with the children:

> *"I think putting together the lessons and redesigning activities so that they'd work best for the children, once we met them and got to know what they reacted well to, was really good. And that's a different type of human centred design almost, when you have like this longer session with them compared to like a small hour or two with them when you're going back each week. So, I think we learned quite a lot about how to elongate that process and get the most out of it which, yes, we definitely hadn't done before so that was new."* (Interviewee 1)

In reflecting on working with the children, participants were initially apprehensive, feeling "it's a bit daunting because it's school children and they can be very judgy" (Interviewee 3), but were looking forward to the workshops. Participants felt the first session required some improvisation in delivery; they had been informed that the children had already covered some of the content around sustainability, but this was not the case. However, this was very much understood as a learning experience for the participants:

> *"So, our first session that we had with the primary school children was, I think we were a bit underprepared, and we had some miscommunications because we were informed that they had already learned about the oceans and then when we got there, it, we found out that they hadn't leaned anything about the oceans for two years. Our presentation didn't quite fit, and they didn't quite understand some of that, but then we learned from that, and we made*

our presentations better shaped to the class as well. So, everything worked a bit better after that." (Interviewee 3)

Participants also reflected on the development of relationships with the stage 1 students, and the role they were able to adopt as experts, with stage 1 students seeking their advice:

"I think one of the things I wasn't quite expecting was that they actually did ask for our advice on things as well because I wasn't quite expecting that from like the, from your peer group. I wasn't really expecting them to ask for our opinions and inputs on their model making, but they did which was really lovely." (Interviewee 1)

Skills Development

In reflecting on skills developed through involvement in the project, the interviewees reflected on learning to communicate with primary school children and working out the best way to engage them in activities. Interviewees also commented on exhibition design, website design, and event management.

Most prominently, interviewees felt they had developed skills in networking, which they felt would help them in their careers:

"…for literally anything you could end up doing communication and professionalism and… networking. All those sorts of things just help your chances of getting something that you want." (Interviewee 1)

As a result of taking part in the project, all three interviewees had been offered paid work, which was a huge benefit:

"So I think the biggest thing I can say… is that working with the Little Inventors, the three of us all got offered a moderating role as well there… we're freelances for Little Inventors through doing this project, which is really lovely and shows that we must have done something right." (Interviewee 1)

Interviewees reflected that having this project on their CVs would be useful as they navigated careers after graduation:

"…I'm quite interested in the idea of exhibition design and interior design. So, obviously, designing the exhibition and doing… that sort of thing has helped prepare me for that in a way and given me that experience for my CV." (Interviewee 3)

Interviewees also spoke of the responsibility to deliver, particularly with children and teachers relying on them:

"*When you say you're actually going to make a model for every child, you do have to make sure that actually does happen because it's not as simple as… if you forget to hand in your coursework in… knowing that there are 20 kids and 30 first years who, and then also the teachers because they were so excited for it… if that's not going to happen, you're going to let them down."* (Interviewee 2)

Recommendations

Interviewees were happy with the way the project had been run, as it was a new partnership and they felt it was natural for some teething troubles to emerge. However, for future delivery, they recommended greater clarity in terms of role responsibility, including the contribution from Little Inventors, ensuring sufficient materials are provided for model making, and clear chains of communication. They would definitely recommend the project to other students to take part in.

3.2. STAGE 1 SPD STUDENTS

The aims of this activity were for the Stage 1 SPD students to:

- Develop model making skills, producing accurate representative models with low-cost materials.
- Experience working to client specification.
- To develop project management skills to produce models on time, with allocated materials.

A post-programme survey, seeking to understand the extent to which these aims had been met, was disseminated to Stage 1 SPD students using Online Surveys during April and May 2023. We received five responses. A copy of this survey is located in Appendix C.

We present an outline of survey findings below.

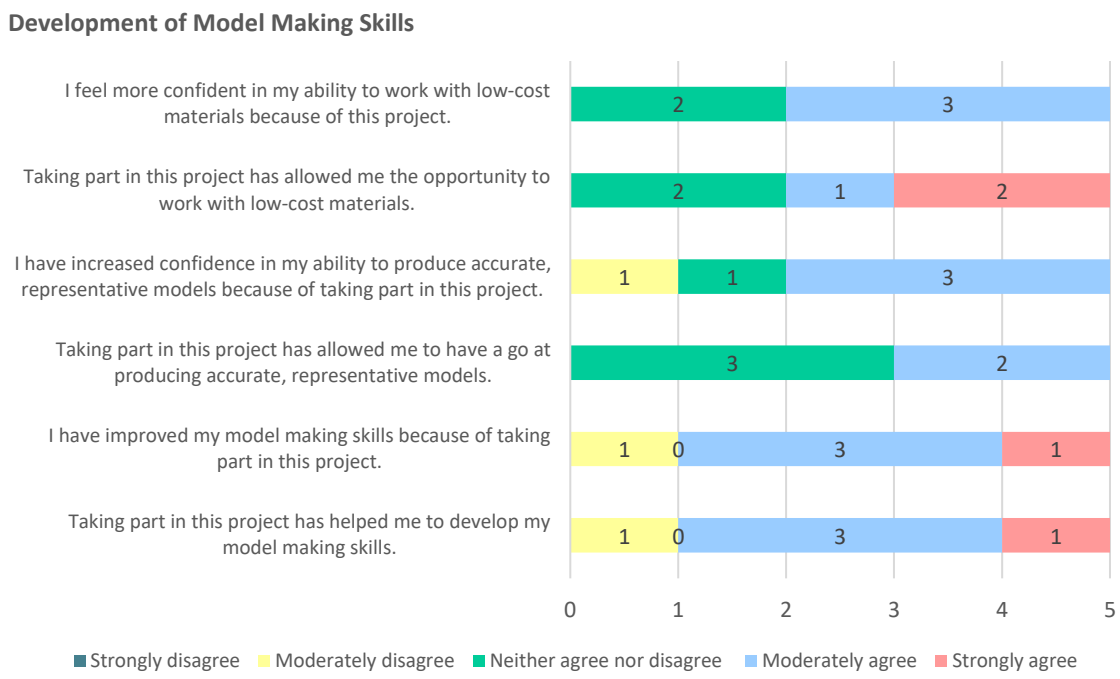


Figure 1 SPD Stage 1 Student Survey- Development of Model Making Skills

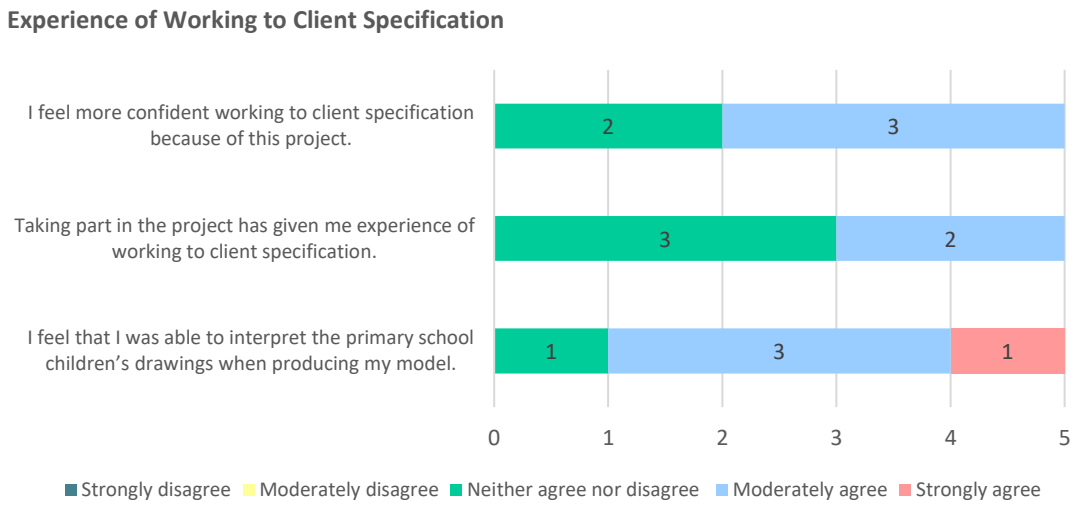


Figure 2 SPD Stage 1 Student Survey- Experience of Working to Client Specification

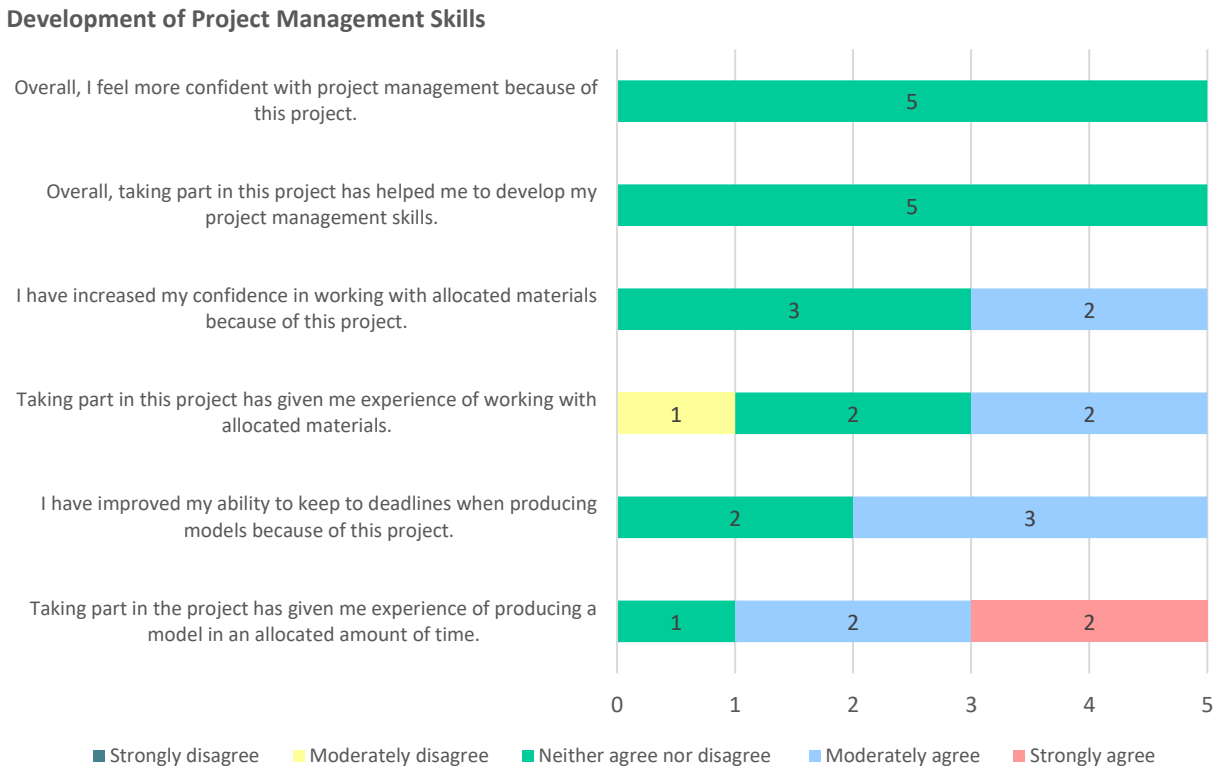


Figure 3 SPD Stage 1 Student Survey- Development of Project Management Skills

Discussion of Findings

As shown in figures 1-3, respondents were invited to indicate the extent to which they agreed with varying statements pertaining to:

- Development of Model Making Skills,
- Experience of Working to Client Specification,
- Development of Project Management Skills.

With only five respondents, results are not generalisable to the population at large.

The greatest area of agreement is in relation to the development of model making skills (figure 1). However, there was an area of ambivalence specifically in relation to feeling more confident in ability to work with low cost materials (two respondents neither agreed nor disagreed), having opportunity to work with low cost materials (two respondents neither agreed nor disagreed), and opportunity to have a good at producing accurate, representative models (three respondents neither agreed nor disagreed).

Responses relating to experience of working to client specification (figure 2), were a mixture of positive agreement and ambivalence. For the most part (4/5), respondents felt able to interpret the primary school children's drawing when producing their model.

With regards to development of project management skills (figure 3), most responses were ambivalent, although two respondents moderately agreed that they had increased their confidence when working with allocated materials, and had had an experience of working with allocated materials. Responses pertaining to experience of producing a model in an allocated amount of time were positive, with two respondents agreeing strongly, and another two moderately.

Respondents were also invited to comment freely on any aspect of the project, but no responses were received.

Figure 4 (below) shows the responses by individual respondent, in order to identify if any one respondent was more inclined than others to respond in a particular way. Responses are generally mixed, albeit Respondent 4 was more likely to respond ambivalent than others, as was Respondent 1 to a lesser extent. Respondents 2 and 3 were more likely to respond positively (either agree moderately or strongly) than others. There is no one respondent appearing as a particular outlier.

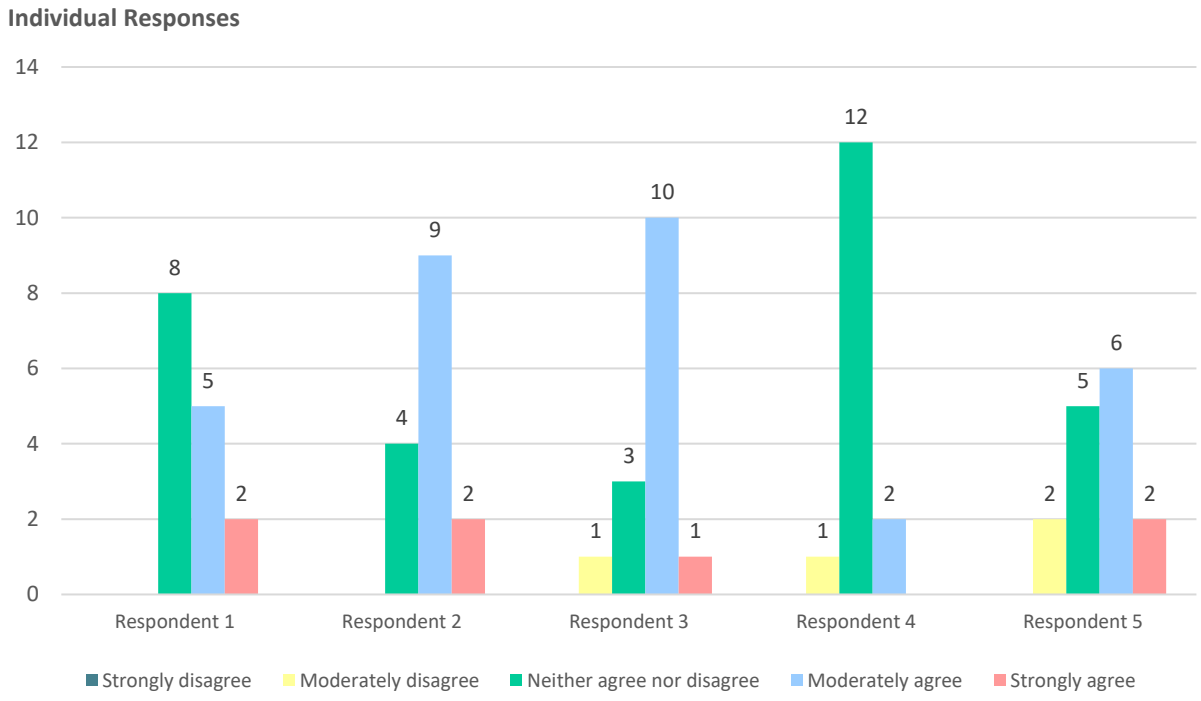


Figure 4 SPD Stage 1 Student Survey- Individual Responses

3.3. STAGE 1 SPD LECTURERS SURVEY

The Stage 1 SPD Lecturers Survey was disseminated through Online Surveys during March and April 2023. This was designed to evaluate the extent to which Stage 1 SPD students:

- Represented client inventions well,
- Progressed and submitted work in a timely, organised manner,
- Developed skillsets required for the programme.

Two staff members responded.

A copy of this survey is located in Appendix D of this report.

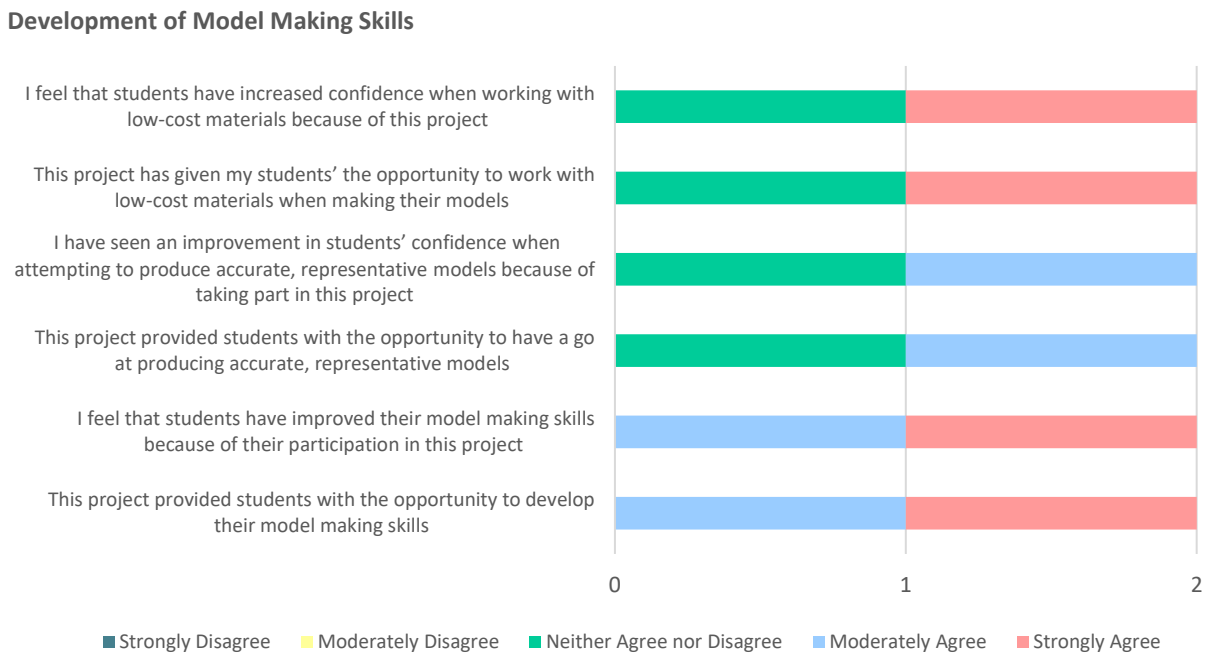


Figure 5 Stage 1 SPD Lecturers Survey- Development of Model Making Skills

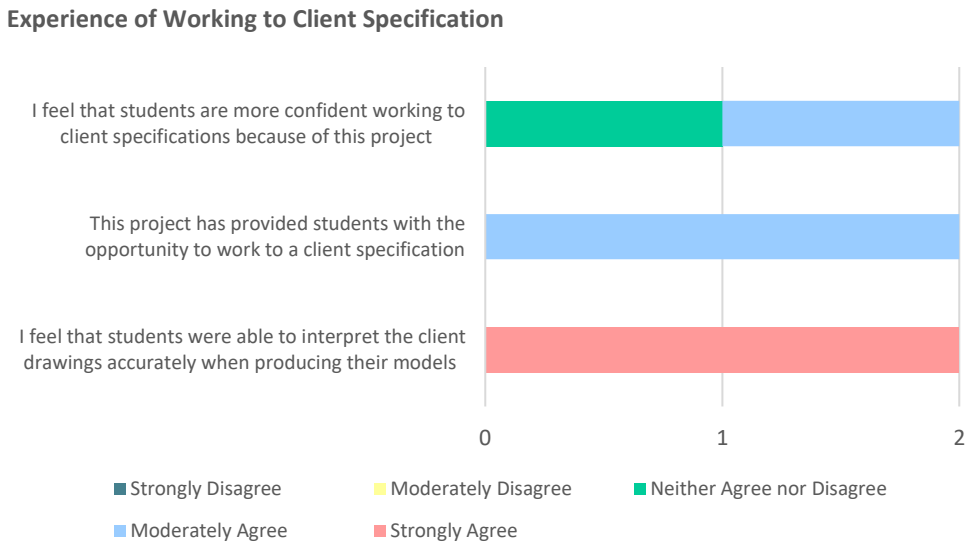


Figure 6 Stage 1 SPD Lecturers Survey- Experience of Working to Client Specification

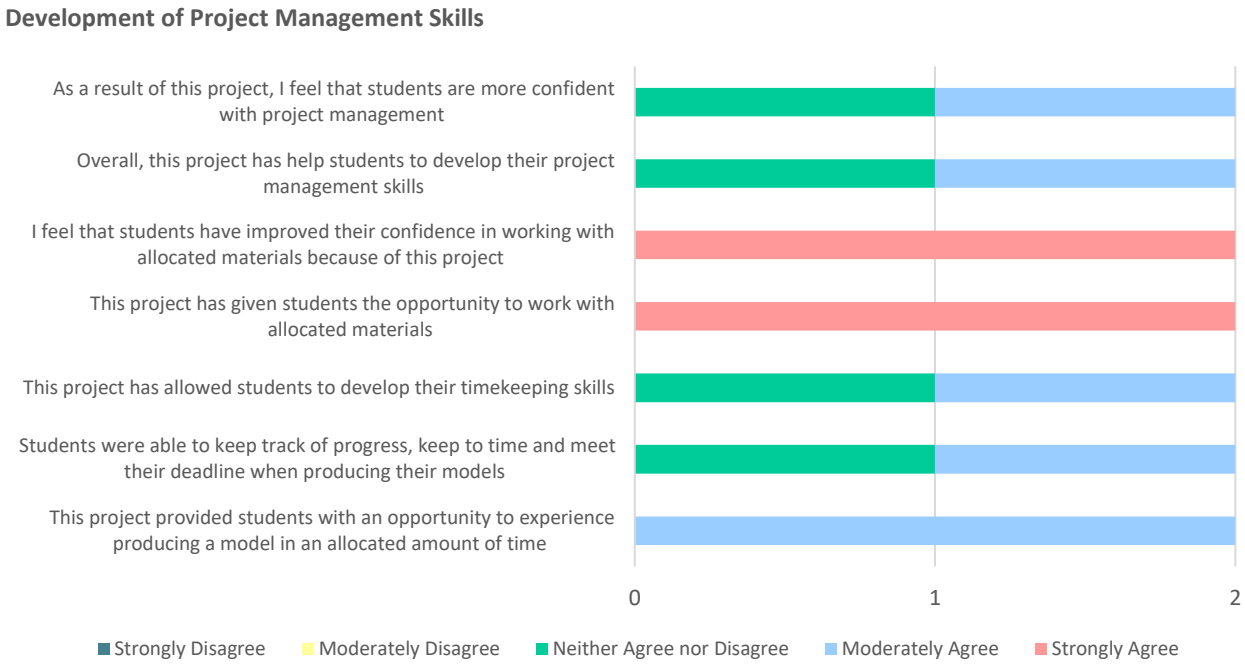


Figure 7 SPD Stage 1 Lecturers Survey- Development of Project Management Skills

Discussion of Findings

As shown in figures 5-7, respondents were invited to indicate the extent to which they agreed with varying statements pertaining to:

- Development of Model Making Skills,
- Experience of Working to Client Specification,
- Development of Project Management Skills.

We only received 2 responses (we are unsure how many lecturers were involved in teaching SPD Stage 1 students at this point), so it is difficult to generalise. However, responses are mostly positive with some areas of ambivalence.

In relation to Stage 1 students' development of model making skills, both respondents agreed either moderately or strongly that students have developed and improved their model making skills as a result of their participation in this project (figure 5). However, one respondent was ambivalent about students' confidence in and opportunity for working with low-cost materials, and students' confidence in producing accurate, representative models.

In relation to students' experience of working to client specification (figure 6), both respondents agreed strongly that students were able to interpret the client drawings accurately and agreed moderately that the project provided students with the opportunity to work to a client specification. Results were less strong (1 agreed moderately, 1 neither agreed nor disagreed) in relation to students' confidence working to client specifications.

Finally, in relation to students' development of project management skills (figure 7), both respondents agreed strongly that the project gave students the opportunity to work with allocated materials, and that their confidence in working with materials increased as a result. Respondents also agreed moderately that the project provided students with an opportunity to experience producing a model in an allocated amount of time. However, one respondent was ambivalent about students' confidence in project management, development of timekeeping skills, and working to a deadline.

In summary, responses are generally positive. There is some variation between respondents, with one respondent notably more ambivalent in their responses than the other. This may be due to interaction with a different range of students, or varying expectations between respondents. This year was the first year in running this project in this form, and there is space to develop further iterations, further developing student skills and confidence. Gathering feedback from a greater number of stakeholders, including lecturers, would also be beneficial.

3.4. YEAR 5/6 PRIMARY PUPILS

The participating primary school children were invited to complete a post-programme survey during the exhibition of their work on 23rd March 2023. This survey was designed to evaluate the extent to which the following aims had been met:

- Develop an understanding of some key sustainability issues.
- Use problem-solving skills to develop 'invention' ideas.
- Develop drawing and visualisation skills.
- Be introduced to Falmouth University, and the idea of university life and learning.

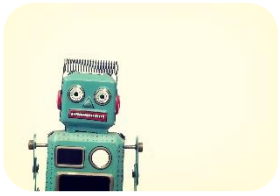
We received 15 responses. Paper copies were scanned with the data then collated and analysed.

A copy of this survey is located in Appendix E of this report. We present findings below.

1. Write one sentence to describe your drawing

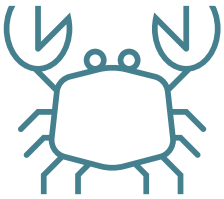
A phone in the disguise of a banana

A box that created wood from food waste



A robot that harvests compost

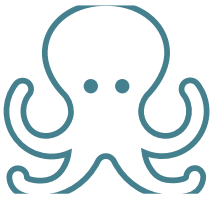
A robot to grow plants and re-use scrap food



A crab with a hat with a plastic sensor on it

Headphones that grow a seed in it

A mobile TV screen

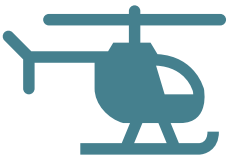


An octopus made from old materials designed to pick up plastic and metal

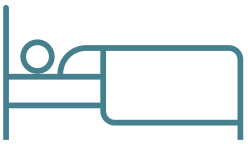
An Octopod 2000 to help the environment

A scooter that turns into a bike and can float on water

A water filter



A flying ambulance to make transport quicker



A chair that turns into a bed on wheels

A fold-up mini garden and you can plant anything you want

Figure 8 Year 5/6 Pupil Survey- Question 1

2. Complete the following sentences…

Table 4 Year 5/6 Pupil Survey- Question 2

Drawing	I designed my model so that…	I liked my model because…	I think my drawing was good because…	To make my drawing even better, I would…
A phone in the disguise of a banana	No one would realise what it was	It has everything I like on it	It was descriptive	Do it neater
Headphones that grow a seed in it	You could store stuff in it	You could still play music	It looked good	
A robot that harvests compost				
A crab with a hat with a plastic sensor on it	Crabs wouldn't eat plastic and die	It is amazing- the colours and the whole thing	They have made the model exactly as I imagined it	Add even more colours
A mobile TV screen	I could watch TV whilst brushing my teeth	It is unique	It showed how to make it	Add more movies
A box that created wood from food waste	Waste would become useful	Because it was cool	Because it has lots of description	Make it different colours
A fold-up mini garden and you can plant anything you want	People with not much space can have a garden	[Student] made it exactly how I wanted it to be	You could see exactly what it looked like	Put more details and describe it more
A robot which harvests compost	It could reuse compost	It looks so cool	It looked so cool	Not do anything because I think it looks epic
A scooter that turns into a bike and can float on water	People could have fun on water	I can have fun	I put my hard work on it	Probably have more time
A water filter	If you have no garden, they can have one	It was amazing	Of the filter	Add more plants
A robot to grow plants and re-use scrap food	We could prevent food waste	It was unique	I enjoyed making it and it's cool	Add more detail
An Octopod 2000 to help the environment	It will help save the ocean	He did a really good job	It explored all the different tentacles	I would add more colour
An octopus made from old materials designed to pick up plastic and metal	The ocean gets saved and cleaned	She did the best job ever	It was cool and strong	Add more detail
I drew a picture of a flying ambulance to make transport quicker	People could get to hospital faster	It could fly	It helped people	Better doors
I drew a picture that is a chair that turns into a bed on wheels	It could help people relax	I like when things turn into things	It is fun and practical	Do nothing

3. Read the following sentences and indicate the response which says if you agree or not

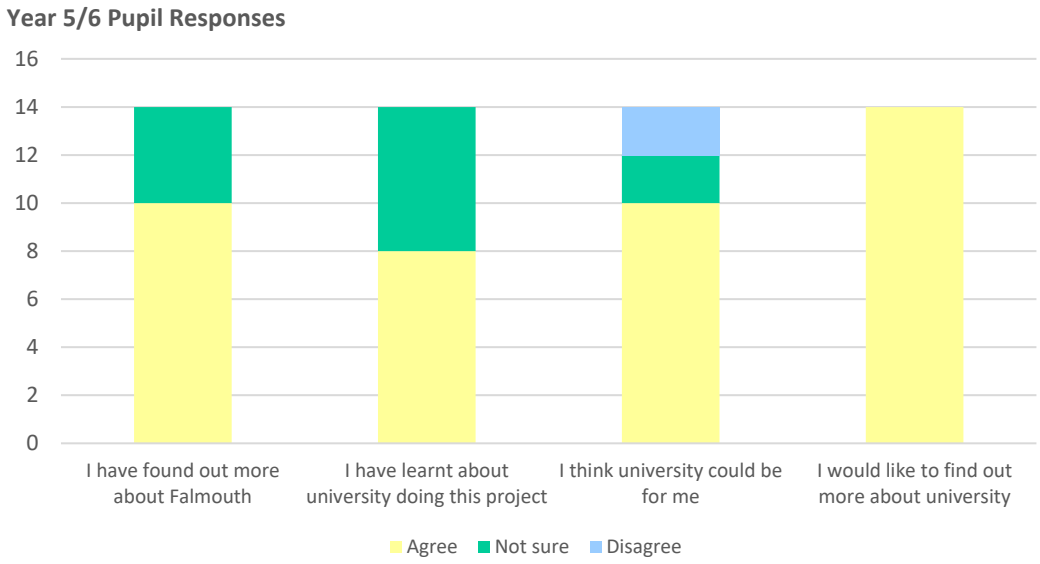


Figure 9 Year 5/6 Pupil Survey Question 3

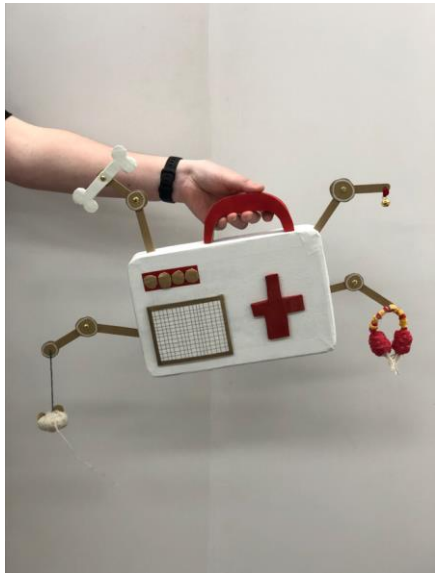
N.B. We only received 14 responses to question 3.

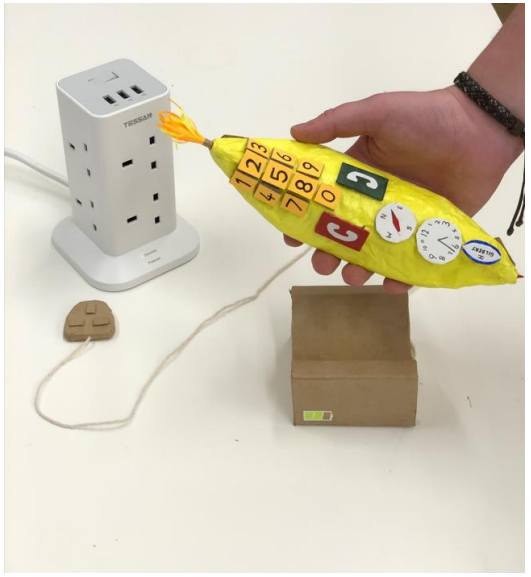
Discussion of Findings

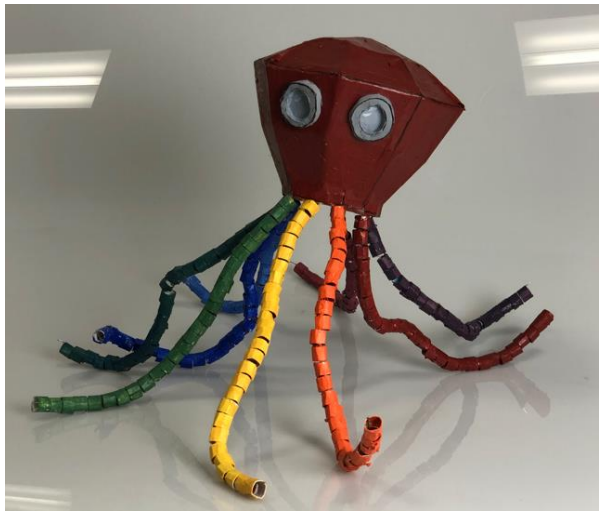
The ideas informing the drawings described in figure 8 demonstrate an awareness on the part of the pupils of some key sustainability issues, with reference to harvest, food waste, clean water, gardens, and the environment, as well as sea life (e.g., crabs and octopi). In question 2 (table 4), some pupils are able to demonstrate a deeper understanding, for example, ensuring equality of access to green space, the threat of plastics to sea life, and the problem of food waste. The pupils were evidently very happy with their designs and their realisation as models, while reflection on the drawing and visualisation process is limited.

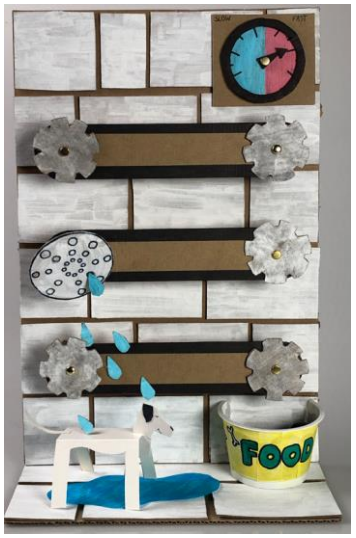
In terms of awareness of Falmouth University and aspiring to university generally, figure 9 shows some positive findings, with all pupils completing this part of the survey (N=14) reporting they would like to find out more about university. 10 reported they had found out more about Falmouth University, and another 10 indicated they think university could be for them. There is an area of ambivalence concerning what pupils have learnt about university through this project, although with the absence of baseline data, it is difficult to generalise further.

Table 5 Selected images of models










DESIGNED BY WILL BIRD
THE MASSAGE BATH


PICKER
Bob


NOT READY
PLASTIC PINCHER 2000


AMBULANCE
BU12 ABZ

3.5. YEAR 5/6 TEACHER SURVEY

The Year 5/6 teachers were invited to complete a post-programme survey in order to evaluate the extent to which the following aims had been met for participating pupils:

- Develop an understanding of some key sustainability issues.
- Use problem-solving skills to develop 'invention' ideas.
- Develop drawing and visualisation skills.
- Be introduced to Falmouth University, and the idea of university life and learning.

The survey was live between April and May 2023 and we received three responses. A copy of this survey is located in Appendix F of this report. We present findings below.

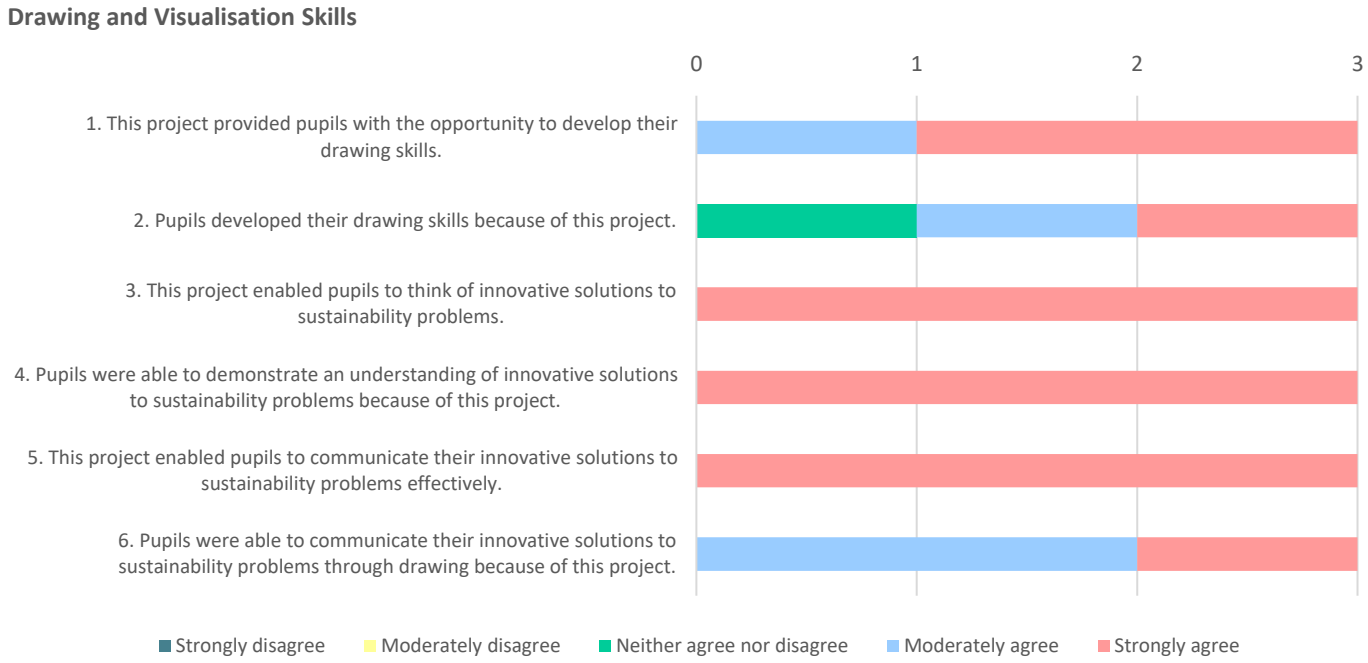


Figure 10 Year 5/6 Teacher Survey- Drawing and Visualisation Skills

Question 7: Please use this space to comment freely on your responses to Section 1

We received one response to this invitation to comment. The respondent notes that the class enjoyed drawing their models and innovations, "but were not given any skills to use for drawing". This respondent suggested provided some examples of sketches and explicit teaching on how to label effectively.

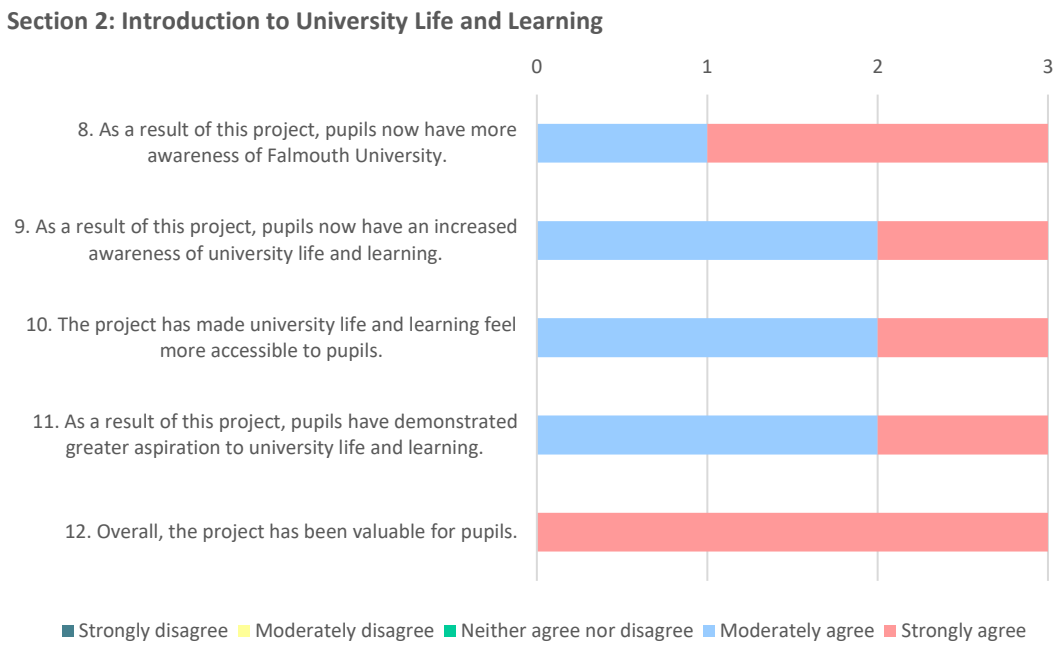


Figure 11 Year 5/6 Teacher Survey- Introduction to University Life and Learning

Question 13: Please use this space to comment freely on your responses to Section 2

We received one response to this invitation to comment, stating that the children who attended the exhibition were "really inspired by the space and the students inspired them about the course". The respondent suggested:

> *It would be really lovely to hear more about the course and university life/options/courses that fit within the project to inspire them even more."*

This respondent also appreciated having students in school as it was:

> *…a good opportunity to see how primary school learning can affect decisions later on in life and how skills can be used in a range of ways.*

Question 14: Please use this space to comment freely on any aspect of the Little Inventors project

We received three responses to this invitation to comment. All praised how much the children had enjoyed the project. Two commented explicitly on the exhibition, with one stating:

> *The project has been a huge success at school and to see the children's excited faces to see their models and meet their makers during the exhibition was really special.*

Two commented on the experience of university the project provided the children, with one stating:

> *This was a fantastic event that opened the pupils' eyes to university, inventing and the understanding that there's a lot out there to do, see and create.*

All three thanked the students and Falmouth generally for their hard work, and one stated they would definitely like to be involved in the project again.

One respondent remarked that it was wonderful seeing the class' ideas progress and "become more exciting each session." Another added:

> *The project has given a lot of them more confidence with their drawing and inventing skills but also given them a brilliant sense of their amazing minds being our future… I think we have some future designers amongst them.*

Discussion of Findings

Teachers were very positive about the childrens' experiences of the Little Inventors project. In relation to drawing and visualisation skills (figure 10), respondents mostly agreed strongly with all statements, including those referring to:

- Enabling pupils to think of innovative solutions to sustainability problems,
- Pupils being able to demonstrate an understanding of innovative solutions to sustainability problems,
- Enabling pupils to communicate their innovative solutions to sustainability problems effectively.

One respondent was more ambivalent about pupils developing their drawing skills, which is reflected in the qualitative comment.

In relation to introduction to university life and learning (figure 11), all respondents agreed strongly or moderately to all of the statements. All respondents agreed strongly that the project had been valuable to pupils. In qualitative comments, one respondent noted that pupils were inspired by the space at the exhibition and that it was useful for the students to attend the primary school. They suggested providing further information for pupils about course and university options.

Overall, teachers were incredibly positive about the impact of the project on their pupils and felt it was a positive experience. The experience of the exhibition was a particular highlight.

4. CONCLUSION AND RECOMMENDATIONS

The Little Inventors project involved collaboration between a range of stakeholders, with varied aims and objectives for pupils, students, and for the University itself. Working with schools can be challenging, particularly in terms of finding time within a very full curriculum and in terms of communicating and finalising arrangements. Nonetheless, the evaluation of Little Inventors shows a very positive experience, with evidence of impact particularly for the school pupils, the Stage 3 SPD students, and the University.

A robust evaluation design and provision of tools enabled data collection from a variety of stakeholders. Although limited by response rates in some instances (e.g., Stage 1 SPD students), holistically the data in this report provide evidence of a very successful pilot as well as identified areas for development in subsequent years.

The focus group with Stage 3 SPD students yielded particularly rich data, as is often the case with qualitative methods. Findings show that these students encountered some challenges, such as a lack of clarity about roles and miscommunication in places. However, the findings also show the students rose to these challenges, responding professionally, and delivered successfully. These students were able to reflect in depth on the skills they had developed through this project, particularly those pertaining to career development; all three were able to secure paid work through taking part in this project.

Data from the Stage 1 SPD students is more mixed, reflecting possibly differing levels of engagement. In general, respondents reported a moderate increase in levels of confidence and development of project management skills. This aligns largely with findings from the Stage 1 SPD lecturers' survey, with positive findings albeit some areas of ambivalence. As there were only two respondents to this survey, it is difficult to generalise. However, both respondents agreed that the project had provided students to work with allocated materials within a given timeframe. There is clearly space for further development and enhancement in student skills in future iterations of this project.

Lastly, feedback from the pupils and their teachers was very positive. Children particularly enjoyed seeing their drawings develop into models and the exhibition was a clear highlight. Children demonstrated an increased awareness and, in some cases, understanding of issues pertaining to sustainability and were able to interpret these into drawings reflective of their own contexts. There is also evidence that children's understanding of Falmouth and university in general increased. Teachers were particularly positive about the project and were keen to participate again.

Recommendations

With this in mind, we offer the following recommendations for further discussion:

- **Provide further clarity of roles, responsibilities, and estimated time commitment**: this would particularly benefit Stage 3 SPD students who take on a central role in project delivery and communication between stakeholders.
- **Consider expanding the project to other primary schools**: evaluation findings are positive, and this project is beneficial to a range of stakeholders. This would provide further

opportunity for Falmouth to expand awareness of its offer across the county and would support primary schools with curriculum delivery and attainment, in relation to sustainability, design, and with an assortment of transferrable skills benefiting the pupils.

- **Maintain the exhibition component on campus**: this was a clear highlight of the project, particularly for the children. It also provided a valuable opportunity for children to experience a university campus and to begin to visualise future choices available to them.
- **Encourage greater engagement in evaluation**: this is notably a difficult area across the sector, with participants facing competing priorities, students experiencing survey fatigue, and staff facing highly demanding workloads. However, where possible, levels of engagement should be increased. One strategy may be to elicit qualitative “snap shot” data from the pupils as part of the workshop delivery; this may enable the collation of evidence of greater understanding and reflection than that gained through a survey. It may also be possible to gather feedback from Stage 1 SPD students during lectures or other in-person delivery.

APPENDIX A: LEARNING OUTCOMES AND EVALUATION MAP

Who	Proposed Learning Outcome (LO)	What aspect of the project will support achievement of the LO?	Initial proposed evaluation method
Falmouth University Stage 3 SPD students	To experience and to gain an understanding of human-centred design research	Working with and being coached by the Little Inventors staff (Ellie Birkhead) Facilitating workshops in primary schools, with primary school children as the subjects for human-centred design / problem solving	**Tool: Focus group (1hr)** **Timing:** End of project (scheduled out-of-class time, online) Semi-structured questions, including: • Understanding of human centred design • Confidence development • Reflections on learning to inform future design projects
	To develop confidence in network building	Refers to engaging with the school and developing network with teachers and Little Inventors.	
	To experience facilitating workshops with other Falmouth students	Workshops will be held with Stage 1 SPD students to create the link between maker and inventor, pass on design ideas and understanding and support makers in their task.	
	To build project findings into their final year design project	They can include the work they have done with LI in the submission of their final year project (SPD330 Design Futures module). This would be mapped to the course 'Professionalism' learning outcome.	
	To develop model making skills, producing accurate	Workshop with Ellie Birkhead	**Tool: Two short Surveys**

Falmouth University Stage 1 SPD students	representative models with low-cost materials	Subsequent models developed from primary school children's drawings
		
		They will produce a project management file to plan and reflect on the development of the models. Staff are still working on this but can send to you asap.
		
		They will not do a cost sheet/budget for the model.
			Timing: On completion of final models (email link)
			
			• Survey 1 - To Stage 1 SPD students, including:
			  ○ Reflections on skill development
			  ○ Reflections on working to client specification
			  ○ Reflections on development of management skills
			
			• Survey 2 – to the assessing Falmouth University lecturer, including whether the Stage 1 SPD students generally:
			  ○ Represented client inventions well
			  ○ Progressed and submitted work in a timely, organised manner
			  ○ Developed skillsets required for the programme

	To experience working to client specification	Models made from primary school children's drawings, as the 'clients'	
	To develop project management skills to produce model on time with allocated materials	Development and production of the final models	
Year 5/6 primary school children from the participating primary school	To develop an understanding of some key sustainability issues	In-class workshops with the Falmouth University Stage 3 SPD students	**Tool: Artefact analysis** **Timing:** End of in-school workshops Falmouth Uni students should photograph and upload each pupil's final artefact to shared folder. Either: • Assessed using the drawings produced **OR**
	To use problem-solving skills in developing "invention" ideas	In-class workshops with the Falmouth University Stage 3 SPD students Production of drawings showing innovative solutions to sustainability problems	

			• A short separate writing task asking pupils to describe some of the sustainability issues they learned about and how they solved the problem

	To develop drawing and visualisation skills	Production of drawings showing innovative solutions to sustainability problems	**Tool: Two <u>short</u> Surveys**
			
			• Survey 1 - To primary school students, including
			  ○ Reflections on their drawing skills
			  ○ Learning about university
			  ○ Aspirations to university
			
			• Survey 2 – To primary school teacher(s), including:
			  ○ Children's skill and knowledge development
			  ○ Value of project

	To be introduced to Falmouth University and the idea of university life and learning	Contact and discussion with the Falmouth University Stage 3 SPD students Falmouth University students to be briefed on general information they may wish to talk about with the children when they visit. This can be very simple, age-appropriate information easily introduced alongside the main learning.	

APPENDIX B: STAGE 3 SPD STUDENTS SEMI-STRUCTURED FOCUS GROUP GUIDE

Focus Group Guide: Little Inventors x SPD Students x Falmouth University's Recruitment and Outreach Team

Statement to read out at the beginning of the focus group/interview:

Falmouth University are interested in hearing from you about your experiences as part of the Little Inventors project with Sustainable Product Design (SPD) students.

This focus group is part of a larger evaluation project, to inform practice going forward. Findings from this evaluation will be shared with key staff from Falmouth University, including staff involved in working with Little Inventors, and other staff involved in working with local primary schools.

This focus group is being conducted by Applied Inspiration's SEER service on behalf of Falmouth University. SEER works in partnership with Falmouth University to support research and evaluation.

This conversation is being recorded for research purposes. We will not share your personal information with anyone outside of our organisation (Applied Inspiration) without your consent. We will use your data for the purpose of research and evaluation, and will only share de-identified information with relevant stakeholders to support research, evaluation, reporting and dissemination. We do not use these results in any way that might affect you as an individual, and responses will be stored on a secure database in accordance with the General Data Protection Regulation (GDPR). This does not affect your rights to access the data held about you or to have it rectified. To find out more about how we use your data, you can read our privacy policy (https://collaborativehe.com/privacy-policy), or email support@appliedinspiration.co. We will only share de-identified information and will remove identifying information where possible. You can speak freely during this discussion. However, in very rare cases, confidentiality will be broken if you disclose behaviour or actions of others that explicitly indicates a risk to yourself or others (for instance, abuse, or plans to harm yourself or others). In such cases, we have a responsibility to disclose this information to relevant personnel.

If you change your mind about participation, please let us know within seven days of this interview/focus group and we will delete your contributions from our data.

Do you have any questions about any of the information I have provided?

Involvement in Little Inventors

(The purpose for each area of questions is shown in italic text for the interviewer's use)

To establish conversational flow, to explore contextual information, motivations for becoming involved.

1. Can you tell me a bit about how you came to be involved in this project? What was your motivation for taking part? Did you have any apprehensions going into the work? Were you excited about it?
2. Can you tell me about working with Little Inventors? What was their role? Did you find working with Little Inventors helpful in preparing you for this work? In what way?
3. Have you any prior experience working with primary school children? Did you have any preconceptions of what to expect? How did you feel approaching this?

Human-Centred Design

Exploring experience of human-centred design, including working with Little Inventors and primary school children

4. Can you tell me a bit about human-centred design? Is this something you've explored in your degree course at Falmouth? Had you any experience of human-centred research prior to this project?
5. How did you find delivering the workshops with the school children? Was there anything that went particularly well? Anything challenging? Anything you would do differently if you did this again?
6. What do you think you learnt about human-centred design taking part in this project? Were there any skills you felt you were able to develop particularly?

Working with Falmouth SPD Level 1 Students

Exploring facilitation role with younger peers, including learning and development

7. Can you talk a bit about your experience workshopping with the level 1 students? How was this for you? Again, any highlights or challenges?
8. Did you feel well-prepared for working with level 1 students? Did you feel you had the support and preparation you needed from e.g., your lecturers/tutors etc.?
9. Did you explore the concept of human-centred design with your younger peers at all? Did you feel able to support your younger peers in exploring this concept? Do you think you learnt anything new about human centred design through working with your younger peers?

Wider Skills Development

Exploring wider skills development, including networking, and "soft" skills

10. Aside from your learning and development around human-centred design, can you think of any other skills you've developed or acquired because of this project? Any new learning? These might be skills applied to your degree, or perhaps to where you want your degree to take you e.g., future careers.
11. Did you get opportunities to network as part of this project? E.g., meet with other professionals? Other students? Do you feel you developed your confidence in talking to and working with other people? How was this for you?
12. Can you identify any skills you need particularly for your chosen career? Do you think this project helped you acquire this? Can you think of anything else that could support you to develop the skills you need for your chosen career?

Final Thoughts and Future Plans

To pull together reflections, and to consider learning to take into final project

13. Do you feel, generally, that taking part in this project was a positive experience for you? Is there anything you would do differently were you to do it again? Or anything your tutors etc. could do differently to improve this experience?
14. Would you recommend this experience to other students? Why? Why not?
15. Are you making use of the learning from this project to inform your final year project? Tell me a bit about this?
16. Is there anything else you want to add at this point?

APPENDIX C: STAGE 1 SPD STUDENT SURVEY

Little Inventors - SPD Level 1 Student Survey

Page 1: About This Survey

We would really appreciate it if you could take 10 minutes to complete this survey, which is designed to help us evaluate the impact of your involvement in the Little Inventors project, reflecting more broadly on how you have developed your model making skills, management skills and your experience of working to client specifications.

Whilst we will not identify participants, the small scale of this project means we cannot identify anonymity. Nonetheless, please feel you can respond freely. We will feedback to key staff members at Falmouth University, for example, we may say "one student felt that the workshops should have been longer" etc.

CONFIDENTIALITY

Your privacy is very important to us. We will not share your personal information with anyone outside Falmouth University and our partners without your consent. We will use your data to for the purpose of monitoring, research, and evaluation, and will only share de-identified information with key partners to support research, evaluation, and reporting. We do not use these results in any way that might affect you as an individual, and responses will be stored on a secure database in accordance with the General Data Protection Regulation (GDPR). Where possible, all responses will be anonymised.

This does not affect your rights to access the data held about you, to have it corrected or to withdraw your consent to marketing. To find out more about how we use your data, you can read our Privacy Policy [*https://www.falmouth.ac.uk/data-privacy*], or email support@appliedinspiration.co. If you change your mind about how you want us to use your data, you can contact us by emailing support@appliedinspiration.co.

Page 2: Questions

Section 1 - Development of Model Making Skills

Please indicate the extent to which you agree with the following statements.

1. Taking part in this project has helped me to develop my model making skills.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

2. I have improved my model making skills because of taking part in this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

3. Taking part in this project has allowed me to have a go at producing accurate, representative models.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree

2 / 9

- 4 - Moderately Agree
- 5 - Strongly Agree

4. I have increased confidence in my ability to produce accurate, representative models because of taking part in this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

5. Taking part in this project has allowed me the opportunity to work with low-cost materials.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

6. I feel more confident in my ability to work with low-cost materials because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree

3 / 9

- 5 - Strongly Agree

7. Please use this space to comment freely on your responses to Section 1.

Section 2 - Experience of Working to Client Specification

Thinking about the primary school children's drawings, please indicate the extent to which you agree with the following statements.

8. I feel that I was able to interpret the primary school children's drawings when producing my model.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

9. Taking part in the project has given me experience of working to client specification.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree

- 5 - Strongly Agree

10. I feel more confident working to client specification because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

11. Please use this space to comment freely on your responses to Section 2.

Section 3 - Development of Project Management Skills

Please indicate the extent to which you agree with the following statements.

12. Taking part in the project has given me experience of producing a model in an allocated amount of time.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

13. I have improved my ability to keep to deadlines when producing models because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

14. Taking part in this project has given me experience of working with allocated materials.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

15. I have increased my confidence in working with allocated materials because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

16. Overall, taking part in this project has helped me to develop my project management skills.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

17. Overall, I feel more confident with project management because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

18. Please use this space to comment freely on your responses to Section 3.

Open Space

Thank you for completing this survey - your feedback is helpful for Falmouth University as they continue to develop the project.

19. Please use this space to comment freely on any aspect of the Little Inventors project.

APPENDIX D: STAGE 1 LECTURERS POST-PROGRAMME SURVEY

Little Inventors - SPD Level 1 Lecturer Survey

Page 1: About This Survey

We would really appreciate it if you could take 10 minutes to complete this survey, which is designed to help us evaluate the impact of your students' involvement in the Little Inventors project. We ask that you reflect on how your students generally were able to meet key learning outcomes, including representing client specifications and the development of related skills more generally.

This survey is part of a larger evaluation project, and de-identified findings will be shared with relevant SPD staff, and other key stakeholders, including Little Inventors and Falmouth University's Recruitment and Outreach team.

CONFIDENTIALITY

Your privacy is very important to us. We will not share your personal information with anyone outside Falmouth University and our partners without your consent. We will use your data to for the purpose of monitoring, research, and evaluation, and will only share de-identified information with key partners to support research, evaluation, and reporting. We do not use these results in any way that might affect you as an individual, and responses will be stored on a secure database in accordance with the General Data Protection Regulation (GDPR). Where possible, all responses will be anonymised.

This does not affect your rights to access the data held about you, to have it corrected or to withdraw your consent to marketing. To find out more about how we use your data, you can read our Privacy Policy [*https://www.falmouth.ac.uk/data-privacy*], or email support@appliedinspiration.co. If you change your mind about how you want us to use your data, you can contact us by emailing support@appliedinspiration.co.

Page 2: Questions

Section 1 - Development of Model Making Skills

Please indicate the extent to which you agree with the following statements.

1. This project provided students with the opportunity to develop their model making skills.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

2. I feel that students have improved their model making skills because of their participation in this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

3. This project provided students with the opportunity to have a go at producing accurate, representative models.

- 1 - Strongly Disagree
- 2 - Moderately Disagree

- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

4. I have seen an improvement in students' confidence when attempting to produce accurate, representative models because of taking part in this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

5. This project has given my students' the opportunity to work with low-cost materials when making their models.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

6. I feel that students have increased confidence when working with low-cost materials because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree

- 4 - Moderately Agree
- 5 - Strongly Agree

7. Please use this space to comment freely on your responses to Section 1.

Section 2 - Experience of Working to Client Specification

Thinking about the primary school children's drawings in this scenario, please indicate the extent to which you agree with the following statements.

8. I feel that students were able to interpret the client drawings accurately when producing their models.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

9. This project has provided students with the opportunity to work to a client specification.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree

- 4 - Moderately Agree
- 5 - Strongly Agree

10. I feel that students are more confident working to client specifications because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

11. Please use this space to comment freely on your responses to Section 2.

Section 3 - Development of Project Management Skills

Please indicate the extent to which you agree with the following statements.

12. This project provided students with an opportunity to experience producing a model in an allocated amount of time.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree

- 4 - Moderately Agree
- 5 - Strongly Agree

13. Students were able to keep track of progress, keep to time and meet their deadline when producing their models.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

14. This project has allowed students to develop their timekeeping skills.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

15. This project has given students the opportunity to work with allocated materials.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

16. I feel that students have improved their confidence in working with allocated materials because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

17. Overall, this project has help students to develop their project management skills.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

18. As a result of this project, I feel that students are more confident with project management.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

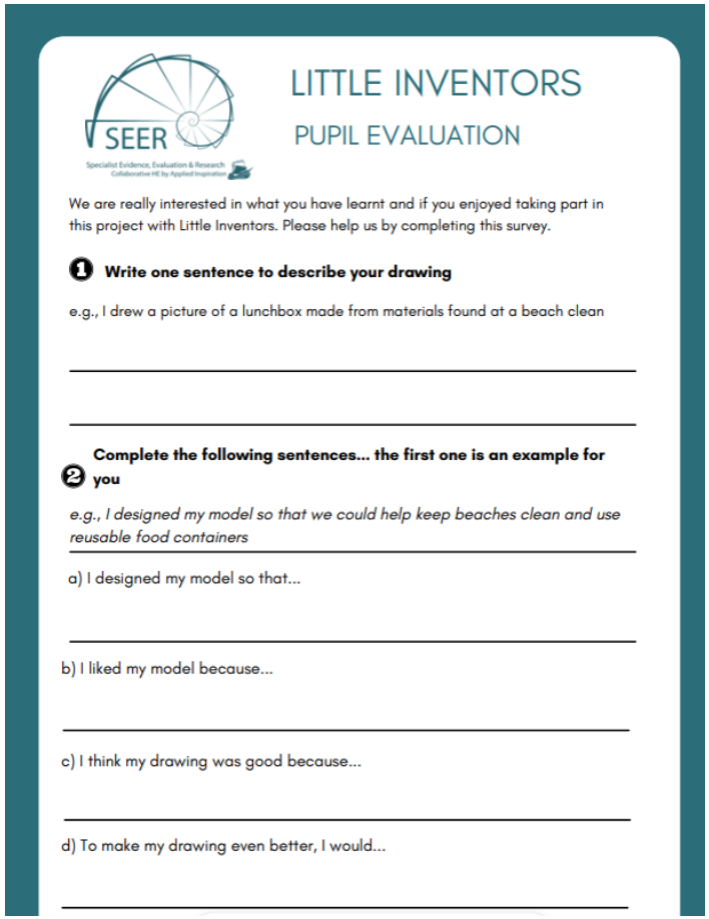
19. Please use this space to comment freely on your responses to Section 3.

Open Space

Thank you for completing this survey - your feedback is helpful for Falmouth University as they continue to develop the project.

20. Please use this space to comment freely on any aspect of the Little Inventors project.

APPENDIX E: YEAR 5/6 PRIMARY PUPIL SURVEY



LITTLE INVENTORS

PUPIL EVALUATION

We are really interested in what you have learnt and if you enjoyed taking part in this project with Little Inventors. Please help us by completing this survey.

1 Write one sentence to describe your drawing

e.g., I drew a picture of a lunchbox made from materials found at a beach clean

2 Complete the following sentences... the first one is an example for you

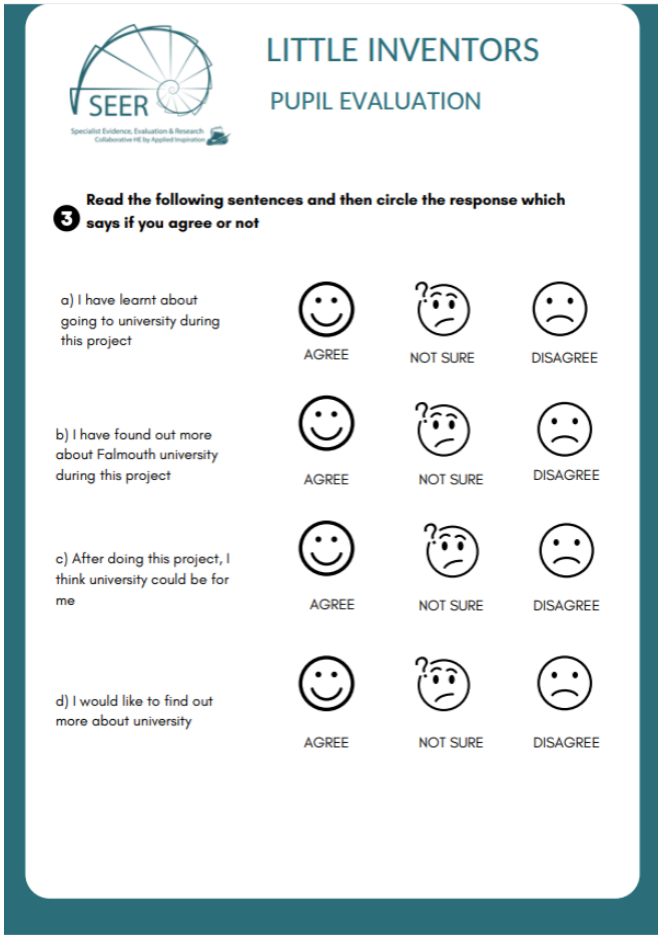
e.g., I designed my model so that we could help keep beaches clean and use reusable food containers

a) I designed my model so that...

b) I liked my model because...

c) I think my drawing was good because...

d) To make my drawing even better, I would...



LITTLE INVENTORS

PUPIL EVALUATION

3 Read the following sentences and then circle the response which says if you agree or not

	AGREE	NOT SURE	DISAGREE
a) I have learnt about going to university during this project			
b) I have found out more about Falmouth university during this project			
c) After doing this project, I think university could be for me			
d) I would like to find out more about university			

APPENDIX F: YEAR 5/6 TEACHER SURVEY

Little Inventors - Y5-6 Teachers Short Survey

Page 1: About This Survey

We would really appreciate it if you could complete this survey, which is designed to help us evaluate the impact had on your pupils through their involvement in the Little Inventors project. We ask that you reflect broadly how they have developed their drawing and visualisation skills, as well as their understanding of university life and learning.

CONFIDENTIALITY

Your privacy is very important to us. We will not share your personal information with anyone outside Falmouth University and our partners without your consent. We will use your data to for the purpose of monitoring, research, and evaluation, and will only share de-identified information with key partners to support research, evaluation, and reporting. We do not use these results in any way that might affect you as an individual, and responses will be stored on a secure database in accordance with the General Data Protection Regulation (GDPR). Where possible, all responses will be anonymised.

This does not affect your rights to access the data held about you, to have it corrected or to withdraw your consent to marketing. To find out more about how we use your data, you can read our Privacy Policy [*https://www.falmouth.ac.uk/data-privacy*], or email support@appliedinspiration.co. If you change your mind about how you want us to use your data, you can contact us by emailing support@appliedinspiration.co.

Page 2: Questions

Section 1 - Drawing and Visualisation Skills

Please indicate the extent to which you agree with the following statements.

1. This project provided pupils with the opportunity to develop their drawing skills.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

2. Pupils developed their drawing skills because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

3. This project enabled pupils to think of innovative solutions to sustainability problems.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree

- 4 - Moderately Agree
- 5 - Strongly Agree

4. Pupils were able to demonstrate an understanding of innovate solutions to sustainability problems because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

5. This project enabled pupils to communicate their innovative solutions to sustainability problems effectively.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

6. Pupils were able to communicate their innovative solutions to sustainability problems through drawing because of this project.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree

- 5 - Strongly Agree

7. Please use this space to comment freely on your responses to Section 1.

Section 2 - Introduction to University Life and Learning

Please indicate the extent to which you agree with the following statements.

8. As a result of this project, pupils now have more awareness of Falmouth University.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

9. As a result of this project, pupils now have an increased awareness of university life and learning.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

10. The project has made university life and learning feel more accessible to pupils.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

11. As a result of this project, pupils have demonstrated greater aspiration to university life and learning.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

12. Overall, the project has been valuable for pupils.

- 1 - Strongly Disagree
- 2 - Moderately Disagree
- 3 - Neither Agree nor Disagree
- 4 - Moderately Agree
- 5 - Strongly Agree

13. Please use this space to comment freely on your responses to Section 2.

Open Space

Thank you for completing this survey- your feedback is helpful for Falmouth University as they continue to develop the project.

14. Please use this space to comment freely on any aspect of the Little Inventors project.

APPENDIX G: FOCUS GROUP PARTICIPANT INFORMATION SHEET

Focus Group Participant Information Statement

Little Inventors x SPD Project x Falmouth University's Recruitment and Outreach Team

You are invited to participate in the research project identified above which is being conducted by researchers from Specialist Evidence, Evaluation and Research (SEER) in collaboration with Little Inventors, SPD students, and Falmouth University's Recruitment and Outreach team.

Why is the research being done?

We are conducting this focus group to help understand student experiences and learning on this project and to inform any delivery in the future. We would also like to learn from students about their experiences working with primary school students. Findings from this focus group will form part of a final report, which will be shared with Falmouth University SPD staff, Little Inventors, and other key stakeholders at Falmouth (e.g., those working in school partnerships).

What choice do you have?

Participation in this research is your choice. Whether or not you decide to participate, your decision will not disadvantage you. If you do decide to participate, you may decide to withdraw from the project up to 7 days after participation in the focus group without giving a reason.

What will you be asked to do?

You have been invited to take part in a focus group for students. This will be an online group discussion with other students involved in the pilot. A researcher from SEER will lead the discussion. Everyone is encouraged to join in the conversation, but you can choose what you wish to share and when. Participants are asked to keep comments made in the session confidential.

The topics for the session will be around your experience of working with and being coached by the Little Inventors staff; facilitating workshops in primary schools, with primary school children as the subjects for human-centred design/problem solving and developing a network with teachers and Little Inventors.

How much time will it take?
The focus group will take around 60 minutes.

What are the risks and benefits of participating?
Comments made in the session will not be attributed to you specifically, however, given the small number of students involved in the pilot, we cannot guarantee anonymity. Your contribution will only be used for evaluation of the scheme, to inform future development, and for broader monitoring, reporting, and dissemination.

How will your privacy be protected?
Any information collected will be de-identified and stored securely and only accessed by the researchers, except as required by law. All participants will be de-identified upon transcription, and transcripts will be protected on a secure online server and stored on a password protected shared drive, accessible only to the researchers. Audio files from the focus group will be stored on a password protected shared drive, accessible only to the researchers; these will be deleted after a period of 2 years.

Research team members not involved in the focus group will have access only to anonymised transcripts. Participants will be able to review the transcript of the focus group to edit or erase their contributions up to 7 days after data collection upon request.

It is our policy to break confidentiality only in the event of a disclosure of harm or intended harm to participants or to others.

If you have any questions about participating, wish to withdraw or discuss your participation, please contact frances@appliedinspiration.co.