RHS: Feel Good by Growing Pilot Project

PRU PILOT: EVALUATION

OCTOBER 2023 – MAY 2024

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Executive Summary

The RHS Feel Good by Growing project was a pilot intervention which sought to support pupil wellbeing in Pupil Referral Units (PRUs) and specialist settings by encouraging and enabling the facilitation of gardening and plant-growing activities. The project was designed to give PRUs the autonomy to design the exact shape that the project took in their setting, allowing staff to tailor it to their pupils' needs, as well as giving pupils themselves the autonomy to investigate whether they could improve their wellbeing by growing plants and gardening for a pupil-chosen purpose.

The implementation of the project took various forms, with **PRUs often taking multiple, overlapping approaches**, allowing them to adapt to the needs of their pupils and the environment they were in. All PRUs used various RHS project structural elements and teaching resources, but some approaches also derived from staff's own philosophy and pedagogical approach.

The RHS partnered with ImpactEd Evaluation to understand both the implementation and impact of the project, as well as the overall feedback from participating PRUs. This report presents the findings from the evaluation, conducted between October 2023 to May 2024.

The impact of the project, as well as the feedback received from PRU staff, was overwhelmingly positive. The results indicated that **pupil wellbeing greatly increased over the course of the pilot**, with staff also reporting an increase on their own wellbeing, as well as that of their peers.

> *"I like it, I am going to do it at college. I like growing things and eating them."*
>
> - participating pupil, pupil survey (final)

Figure 1: Pupil caring for plants

Figure 2: Pupil reading to plant

> *"I find it heartwarming that there is a project like this aimed at children who often have fewer opportunities to experience being valued and welcomed to be a part of something."*
>
> - staff member at participating PRU, staff survey

Key findings

1. PRUs often implemented the project such that it could extend past the pilot timeline – project leads and staff intended the overarching **approaches they took to have long-term or cyclical benefits**, for example by providing a space that could have a beneficial purpose, developing a sustainable connection with the local community through entrepreneurial activities, or growing produce which could be used elsewhere.

2. In matched pupils (n=27), **pupil wellbeing increased from 2.59 to 3.23 out of 5, from the beginning to the end of the project.** This increase was statistically significant ($p<0.001$), and mirrored the trends seen in the unmatched sample: in unmatched pupils (n=104 to 170), their collective average wellbeing score before the project was notably and statistically significantly below the national benchmark, but **within ~10 weeks (by the midpoint window) pupil wellbeing had improved to be in line with the national average**. This level of wellbeing was sustained by the end of the project.

3. Of those who participated in the evaluation, **100% of PRU staff indicated that they would recommend the project to other PRUs**. Staff and project leads expressing their gratitude to the RHS *"for the continued support throughout our journey"* (staff survey).

Recommendations

More information on future recommendations for the RHS Feel Good by Growing project, as well as for the evaluation itself, can be found in section *6. Conclusion*.

Key **recommendations for any future iterations of the project** include:

- Keep giving PRUs autonomy regarding how the project is implemented in their individual settings.
- Consider lengthening the kick-off phase of the project.
- Create additional project elements and resources while keeping old ones available.
- Keep offering grants for support in both gardening and growing, and staffing.
- Share a complete timeline of project elements at the start.

Key **recommendations for the evaluation design** include:

- Consider a longitudinal evaluation over a greater time period.
- Revisit the need for qualitative questions in pupil surveys.
- Increase the scale of the evaluation to increase the number of possible respondents and response rate (proportion of participants who respond).

1. Introduction

The RHS Feel Good by Growing project was a pilot project for Pupil Referral Units (PRUs) and specialist settings with a Social, Emotional and Mental Health (SEMH) focus across England running between September 2023 and April 2024, with pupils first engaging from October 2023 onwards. These are alternative education provisions set up to provide specialist support for pupils who are not placed in mainstream schools for various reasons. The project aimed to encourage pupils to connect with nature, supporting and improving their wellbeing by growing and caring for plants. It was also designed for pupils to feel empowered to choose how to support their own wellbeing through growing plants and gardening activities, and investigate themselves how they were able to do this.

PRUs with pupils of any ages were invited to apply to participate in the project, with 15 PRUs participating at any one time. The project took a flexible approach, whereby the RHS provided support for the PRUs, for example through funding, resources and suggested activities. The PRUs were given the autonomy to decide exactly how the project could be implemented in their individual setting, with pupils also given choices about how exactly they could be involved and empowered to take ownership of their own participation.

As part of the project, the RHS offered PRUs:

- Herb plant kits and accompanying activities provided as an introduction to the project.
- £200 grants to support growing and gardening.
- £1,000 grants to support staff release time to attend meetings and co-develop resources.
- 1:1 surgeries.
- A selection of resources including ideas for pupil-led action research into gardening for wellbeing.

This report presents the findings of the RHS Feel Good by Growing PRU pilot project's evaluation. It discusses **three key areas: implementation, impact on pupil wellbeing, and project feedback**. It evidences findings from quantitative and qualitative pupil and staff surveys, triangulating these with further qualitative data collected through a staff focus group and interviews.

Overall, there were **three main windows of data collection**:

- Baseline: October 2023 – November 2023
- Midpoint: December 2023 – January 2024
- Final: March 2024 – May 2024

Using a mixed method and collecting data from different sources allowed for a cross-sectional approach, holistically enhancing the evaluation and building a deeper understanding of the project's impact.

2. Methodology

2.1. Research Questions

The RHS Feel Good by Growing project aimed to understand how plants and gardening can support pupil wellbeing in specialist settings, namely Pupil Referral Units (PRUs) and specialist schools. Given the non-prescriptive nature of the project and the autonomy the individual PRUs had when implementing the project, it was also important to understand how PRUs went about this. Therefore, the research questions for the evaluation centred on understanding the implementation of the project, the impact it had on pupil wellbeing, and what general feedback the PRUs had so that the RHS could look at improving the project further in the future if rolled out on a greater scale.

1. How did PRUs implement the RHS Feel Good by Growing project, and what were the perceived enablers and barriers for doing this?
2. What impact did the RHS Feel Good by Growing project have on pupils' wellbeing in PRUs?
3. What feedback did PRUs have about the RHS Feel Good by Growing project, and how could it be improved to support the wellbeing of pupils more?

2.2. Outcome Measures

For more detail on the quantitative measures used including full question sets, see *8.1. Survey design*.

Outcome	Quantitative measures	Qualitative measures
Approach (Research Question 1)	N/A	▶ **Focus group and interviews** with PRU project leads post-project.
Enablers and challenges (Research Question 1)	N/A	▶ **Focus group and interviews** with PRU project leads post-project.
Exposure to plants and gardening (Research Question 1)	▶ **Staff survey custom questions**, designed by ImpactEd Evaluation for this evaluation. Administered post-project to all participating staff who had worked with pupils on the project. Two types of questions: o One Yes/No question	N/A

Outcome	Quantitative measures	Qualitative measures
	o Likert scale questions, 1-6 and '*Unsure*' ▶ **Pupil survey custom question**, designed by ImpactEd Evaluation for this evaluation. Administered to all participating pupils pre-during, and post-project. o One Yes/No question	
Pupil wellbeing (Research Question 2)	▶ **Pupil survey: Warwick-Edinburgh Mental Wellbeing Scale – Short** (WEMWBS)*, administered to all participating pupils pre-, during and post-project. o National benchmarks available using ImpactEd's School Impact Platform dataset. ▶ **Staff survey custom questions**, designed by ImpactEd Evaluation for this evaluation. Administered post-project to all participating staff who had worked with pupils on the project. Likert scale questions, 1-5.	▶ Two **qualitative pupil survey** questions, administered to all participating pupils pre-, during and post-project. ▶ **Focus group and interviews** with PRU project leads post-project.
Usefulness of project structure elements (Research Question 3)	▶ **Staff survey custom questions**, designed by ImpactEd Evaluation for this evaluation. Administered post-project to all participating staff who had worked with pupils on the project. Likert scale questions, 1-5, and '*I don't know what this is*', '*I didn't do this*'.	N/A

* An internationally recognised standardised assessment to measure wellbeing. For more information: https://warwick.ac.uk/fac/sci/med/research/platform/wemwbs/about/wemwbsvsswemwbs

Outcome	Quantitative measures	Qualitative measures
Usefulness of project teaching resources (Research Question 3)	▶ **Staff survey custom questions**, designed by ImpactEd Evaluation for this evaluation. Administered post-project to all participating staff who had worked with pupils on the project. Likert scale questions, 1-5, and '*I don't know what this is*', '*I didn't use this*'.	N/A
General feedback (Research Question 3)	▶ **Staff survey custom questions**, designed by ImpactEd Evaluation for this evaluation. Administered post-project to all participating staff who had worked with pupils on the project. Likert scale questions, 1-5. ▶ **Pupil survey custom question on engagement,** designed by ImpactEd Evaluation for this evaluation. Administered to all participating pupils pre-, during and post-project. o One Yes/No question	▶ Two **qualitative staff survey** questions, administered to all participating pupils pre-, during and post-project. ▶ **Focus group and interviews** with RHS project leads post-project.

Table 1: Outcome measures

2.3. Evaluation Design

15 PRUs were participating in the project at any one time. Two PRUs left the project shortly before the midpoint window (December 2023 – January 2024) and were subsequently replaced by two others. In total, data was collected from 17 different PRUs, with 13 participating for the full duration of the project.

Pupil survey

All participating pupils were asked to complete surveys before ('baseline'), during ('midpoint') and at the end of ('final') the project. In total, **278 pupils completed at least one survey, 27 of which completed all three surveys**, providing a matched sample of data. The table below identifies the sample sizes for different pupil subgroups who collected quantitative data through surveys. As all quantitative questions in the survey were mandatory, with no non-scaled response choices for the Likert scale questions (for example, '*I don't know*'), the sample sizes were the same for all questions. However, the qualitative questions were optional, meaning sample sizes for these may vary – sample sizes in Table 2 are maximum sample sizes.

Subgroup		Baseline sample size	Midpoint sample size	Final sample size	Matched sample size
All		170 (169 for 'Touched a plant/seed)	104	107	27
Key stages	**KS1**	1 (1%)	0 (0%)	0 (0%)	0 (0%)
	KS2	48 (28%)	21 (20%)	18 (17%)	8 (30%)
	KS3	33 (19%)	26 (25%)	28 (26%)	4 (15%)
	KS4	88 (52%)	57 (55%)	61 (57%)	15 (56%)
Gender†	**Male**	107 (63%)	69 (66%)	59 (55%)	17 (63%)
	Female	47 (28%)	28 (27%)	42 (39%)	9 (33%)
	Other	0 (0%)	1 (1%)	1 (1%)	0 (0%)
	Prefer not to say	16 (9%)	6 (6%)	5 (5%)	1 (4%)
Touched a plant/seed‡	**Yes**	101 (60%)	76 (73%)	85 (79%)	N/A
	No	54 (32%)	22 (21%)	17 (16%)	N/A
	Don't know	14 (8%)	6 (6%)	5 (5%)	N/A

Table 2: Pupil survey – sample sizes

† As self-identified in the first survey a pupil completed (e.g. if completed a midpoint and final but not a baseline, this is the gender they self-identified as in the midpoint)

‡ Relative to the window of data (e.g. a pupil may have answered 'yes' in the baseline, but 'no' in the midpoint survey), hence why no matched data available.

Pupils were asked some contextual questions, including their PRU, school year, day and month of birth and gender in every survey they completed, as well as a code that a staff member had given them. It is possible that codes were inconsistently given to pupils, with some pupils being given different codes for each survey, so the possible matched sample size may be higher (see *2.5. Limitations* for more information) than that used.

The **baseline, midpoint and final pupil surveys were identical** and were composed of a total of 17 questions. As well as the six contextual questions, the surveys each consisted of two qualitative questions, seven Likert scale questions and two yes/no/don't know questions. Below is an outline of the question sets where the responses could be quantified:

- Pupil wellbeing: quantitative (7 questions)
  - Warwick-Edinburgh Mental Wellbeing Survey – Shortened (WEMWBS).
  - Such as *'I've been feeling optimistic about the future'*.
  - 1-5 Likert scale, where 1= 'None of the time' and 5= 'All of the time'.
- Pupil wellbeing: qualitative (2 questions)
  - *'How do you feel when you garden or grow plants?'* and *'If you answered the last question, what is it about gardening and growing plants that makes you feel like that?'*
  - Open text format.
- Exposure to plants and gardening (1 question)
  - *'Have you touched a plant or seed in the last month?'*
  - Options: 'Yes', 'No', 'Don't know'.
- Engagement (1 question)
  - *'Do you want to keep gardening or growing plants?'*
  - Options: 'Yes', 'No', 'Don't know'.

The surveys were administered online, with pupils presented with one question at a time on the screen. All questions had Widgit symbols to improve accessibility. An information pack was also provided to PRUs to help them support pupils taking a survey and included guidance such as a crib sheet with definitions of key words and phrases.

All survey windows were intended to be two weeks long, however due to low completion rates and PRUs requesting more time to administer surveys, all windows were extended. For the majority of PRUs, the windows for data collection are set out in Table 3 below. For matched pupils, the average time between the baseline and midpoint surveys was 75 days, and the average time between the midpoint and final surveys was 132 days.

Subgroup	Start date	End date	Total length of window (days)
Baseline	02/10/2023	20/10/2023	18
Midpoint	07/12/2023	26/01/2024	50 (incl. school holidays)
Final	18/04/2024	10/05/2024	22

Table 3: Pupil survey – data collection windows

It should be noted that because two PRUs joined the project late, they completed a baseline survey when other PRUs completed a midpoint survey, and completed a midpoint survey when other PRUs completed a final survey. Neither of these PRUs completed final pupil surveys (see *2.5. Limitations*).

Staff survey

All staff members who had gardened or grown plants with pupils were asked to complete a survey at the end of the project ('final'). These were completed between 12/03/2024 – 07/04/2024. In total, **14 staff members from 14 different PRUs responded to the survey**. Although, one indicated that they had not gardened, grown or looked after plants with pupils at any point since the start of the project, so their responses were excluded from the analysis. Of the 13 responses used for analysis, the sample sizes for different roles are shown in Table 4. It should be noted that these are maximum sample sizes available and may vary for different question sets and analysis.

Subgroup		Sample size
All		13
Role	**Class teacher**	5
	Middle leader	4
	Senior leader	2
	Other	2
Are they their PRU's RHS project lead?	**Yes**	11
	No	2

Table 4: staff survey – sample sizes

Staff were asked four contextual questions: their role, which PRU they worked at, if they were their PRU's RHS project lead and whether they had gardened, grown or looked after plants with pupils. The rest of the survey was composed of six core question sets. In total (but excluding the contextual questions), there were 40 questions. Two of these were qualitative, but for the remaining 38 these were split into five matrix style questions to manage the perception of survey fatigue. The six core question sets are outlined below. For full question sets and scales, please see *8.1. Survey design.*

- Exposure to plants and gardening (7 questions)
  - Main question: *'How often did / have / will you garden or grow plants with pupils?'* with each question being a different term, ranging from Autumn 2022 to Autumn 2024.
  - 1-6 Likert scale, where 1= 'Never'; 6= 'More than once a week'.
  - Respondents also had the opportunity to select 'Unsure'.
- Pupil wellbeing (10 questions)
  - Main question: *'How many pupils would you say the following statements apply to?'*, followed by statements such as *'The project has helped pupils to feel more relaxed'*.
  - 1-5 Likert scale, where 1= 'None'; 5= 'All'.
- Usefulness of project structure (6 questions)

  - Main question: *'How useful in supporting pupil wellbeing were these different RHS project elements?'*, followed by elements such as *'Herb starter kits'* and *'Pupil voice research questions'*.
  - 1-5 Likert scale, where 1= 'Not at all useful'; 5= 'Extremely useful'.
  - Respondents also had the opportunity to select 'I didn't do this' or 'I don't know what this is'.
- Usefulness of teaching resources (10 questions)
  - Main question: *'How useful in supporting pupil wellbeing were these different RHS resources?'*, followed by elements such as *'Pupil-led action research ideas (PowerPoint)'* and *'Pupil gardening ideas worksheet'*.
  - 1-5 Likert scale, where 1= 'Not at all useful'; 5= 'Extremely useful'.
  - Respondents also had the opportunity to select 'I didn't use this' or 'I don't know what this is'.
- Additional feedback: quantitative (5 questions)
  - Main question: *'To what extent do you agree with the following?'* followed by statements such as *'I would recommend the project to other PRUs'*.
  - 1-5 Likert scale, where 1= 'Strongly disagree', 5= 'Strongly agree'.
- Overall feedback and recommendations: qualitative (2 questions)
  - *'Do you have any specific comments on how the RHS could improve the project to better support pupil wellbeing?'* and *'Is there anything else about the project you would like to share?'*.

Staff focus groups and interviews

In April 2024, all then-participating PRUs (15) were invited to sign up to an online focus group at the end of the project, with the intention of conducting two focus groups each with six participants, up to an hour long. This would have allowed staff to converse with one another about the project, with the researcher using the evaluation topic guide to steer the conversation. This would enable participants to build on each other's responses.

However, due to low sign up and logistical constraints of the environment in PRUs, focus groups were notably smaller than anticipated (see *2.5. Limitations*). Additional times were offered to provide some level of flexibility, with three being scheduled instead of the initial two. However, last minute dropouts meant that the **total sample size for this qualitative data was four** – two participants were in one group, with a further two participants sharing data in separate interviews rather than focus groups. **Four PRUs were represented in total**. Nevertheless, having a smaller group and interviews allowed the researcher to deviate from the topic guide if necessary to explore particular points. The two participants in the focus group were encouraged to respond to each other to create a free-flowing discussion.

The topic guide covered three core areas:

- Implementation approach
- Enablers and challenges
- Impact on pupils' wellbeing

The focus group and interviews were recorded and transcribed with participants' consent.

2.4. Analysis

It should be noted that not all analysis has been commented on in the report. Only data with the strongest narratives relating to the research questions and outcomes have been drawn out, particularly those across both quantitative and qualitative data that triangulate – or contradict – with each other.

Quantitative data analysis

Measures in the surveys where questions could be quantified were mostly analysed separately, with **only questions under the same question set aggregated together**. These included two main types of question formats: Likert scale statement questions, and yes/no questions (the latter having the additional options of 'Don't know' or 'Unsure' where appropriate). The data was checked for duplicates within each survey window (baseline, midpoint and final).

For Likert scale questions, **descriptive analysis was conducted to calculate mean average scores** in each data collection window for each question set per participant. This involved summing the responses and dividing by the number of questions[§]. When doing this, there were no inverse style questions in the staff nor pupil surveys that needed to be considered. For some questions, respondents had the option to select answers outside of the scale, such as 'I don't know what this is' and 'I didn't do this'. Where a participant gave this response to at least one question in single question set, this data was discarded along with all other responses within that given question set. This was because these averages per respondent were then used to calculate mean average scores for the question sets across the data set for all stakeholder groups, so discarding this data ensured the data was not skewed.

For the pupil survey, which was administered in all three data collection windows, calculating the mean average scores for a question set (i.e. 'survey score') allowed for **comparative analysis across the three data collection windows**. Because the sample size was considerably larger for unmatched participants than for matched pupils, average scores commented on throughout the report are for all participants within the given data collection window, regardless of whether they also collected data in the other two windows.

Nevertheless, **data from matched pupils was used to conduct pre/post analysis,** which examined the average amount of change observed between the baseline, midpoint and final surveys. This is presented as percentage points, calculated as:

$$\frac{[average\ 'Window\ B'\ score] - [average\ 'Window\ A'\ score]}{[maximum\ scale\ score - 1]} \times 100$$

[§] For the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS), averages were calculated to reflect the Likert scale of 1-5, instead of the accumulated response scale of 7-35. This allowed comparison to a national benchmark available in the 1-5 scale. Validity is retained despite the change of scale because the distribution of averages is similar, regardless of which scale is used.

Percentage point change quantifies the change observed in absolute terms, meaning change noted is not relative to the starting value. Using matched data for this analysis ensures that the comparisons made are between equivalent groups, therefore enhancing the robustness of the data. However, the smaller sample size should be considered when interpreting this data (see *2.5. Limitations*).

Furthermore, analysis into the change observed in matched pupils in measures included conducting **paired t-tests**, where relevant, on baseline-midpoint, midpoint-final, and baseline-final data to calculate p-values and determine statistical significance. A result has statistical significance when it is very unlikely to have occurred given the null hypothesis. In other words, if a result is statistically significant, it is unlikely to have occurred due purely to chance. A p-value is a measure of the probability that an observed result could have occurred by chance alone. The lower the p-value, the greater the statistical significance of the observed difference. Typically, a p-value of ≤ 0.05 indicates that the change was statistically significant. A p-value higher than 0.05 (> 0.05) is not statistically significant and indicates strong evidence for the null hypothesis; i.e. that we cannot be confident that this change did not occur due purely to chance.

The t-tests identified whether there was a significant difference between the scores in the respective windows for each outcome. The standard social science convention of a 'significant' p-value being less than 0.05 was used. But, again, some caution needs to be kept in mind when interpreting any statistically significant results where sample sizes were small.

It should be noted that the absence of a comparison group means that it cannot be claimed that any observed changes were solely caused by participating in the project. However, the inclusion of a national benchmark for the pupil wellbeing survey (WEMWBS) helps to contextualise the average scores for this question set within each individual data collection window. It should be noted that this is a national benchmark that collates data from mostly mainstream settings, where pupils typically have a higher level of wellbeing than those in PRUs. Having this benchmark allowed **one-sample t-tests** to be calculated to determine whether pupil scores in WEMWBS were statistically significant, using the same social science convention as the paired t-tests (above).

Further descriptive analysis was conducted for Likert scale measures to delve deeper into the question breakdowns. Similar to the analysis methodology used for the overall measures, **mean average scores per question** at the baseline, midpoint and final were compared where possible. This gave an insight into what areas of a measure pupils or staff were reporting more positively or negatively on.

Frequency distribution analysis was also conducted for all quantifiable questions in the staff survey, allowing for further comparative analysis within a question set and helping to visualise and understand the division of responses to identify similarities and differences in the data. This analysis was also used for all yes/no style questions in the pupil survey, allowing for comparative analysis between the data collection windows to highlight any trends. Where relevant, frequency distribution was also used to **identify the modal average**, which calculated which response to a question was the most popular amongst respondents.

Qualitative data analysis

The focus group and interviews were analysed using the recordings and transcripts. To retain anonymity, these PRUs were pseudonymised as 'PRU [A-D]'. **Thematic analysis** was conducted with the transcribed conversations to extract emerging themes linked to the implementation of the project, enablers and challenges to implementation, and the project's perceived impact on pupils' wellbeing. Key quotes were drawn out during this process which could be used to evidence findings and create mini case studies, particularly as the smaller focus group and interviews allowed for more in-depth discussion with participants as initially anticipated. Thematic analysis was used as this is the best suited analysis to identify, analyse and report patterns within qualitative data.

Moreover, both the staff and pupil surveys had two optional qualitative questions for participants to answer if they wish. These were also analysed using **thematic analysis**, with quotes used in the report where appropriate. **Word frequency analysis** was also used for some of the qualitative data in the pupil survey. This meant that the data could be analysed somewhat quantitatively, allowing for comparative analysis across the different data collection windows in the pupil survey.

Images

Some figures used in this report are images shared by PRUs participating in the project. These have been used where relevant, but not analysed as part of the evaluation and so not commented on explicitly in the findings. To retain anonymity, the identity of the PRU has not been identified. Permission was obtained from PRUs to use all images included in the report.

2.5. Limitations

Some limitations with this evaluation that should be considered when assessing findings include:

- **Some pupils may have answered all surveys, but not matched in analysis**. This is because, in principle, it was intended for PRU staff to give the same pupils the same code to enter in the survey in every window, meaning this could be used as a matching ID. However, this was not done consistently across the PRUs, so an ID made up of the pupils' code, PRU, and birthday was used for matching. Subsequently, there may be some pupils in the sample who were unmatched when, in fact, they could have been.
- **Low/ limited sample size**. This was due to an amalgamation of reasons, including:
  - Some pupils not being matched when they could have been (see the above limitation).
  - Small pilot size (and therefore small maximum sample size).
  - Low sign-up rate and attendance to focus groups.
  - Logistical constraints of the PRU environment (particularly reducing focus group attendance), such as unforeseen and urgent incidents that staff had to attend to.
  - Nature of PRUs having a higher transience compared to mainstream schools.

  As a result, the sample that responded – particularly in the qualitative research – may have had different views compared to wider cohorts, and therefore the data is subject to selection bias.
- **A large amount of the evidence collected is based on self-reporting** by staff /pupils, for instance through surveys and qualitative research. This subjects the data to social desirability, recall and self-perception bias. This has been mitigated by triangulating evidence where possible.
- **Lack of specified comparison group.** Although the pupil wellbeing survey has a national benchmark, this includes pupils across various education settings in England, not exclusively PRUs. The absence of a defined comparison group similar to the participating group – for both pupils and staff – means it is challenging to confidently attribute changes to the project, as other background factors could also be influencing the results.

3. Implementation

3.1. Approach

As part of the Feel Good by Growing project, the RHS gave PRUs grants, resources and support through other project elements to enable them to facilitate gardening and plant-related activities with pupils to support and improve their wellbeing. Ultimately, **PRUs were given the autonomy to decide how to best implement the project in their setting**, allowing them to tailor implementation approaches to their environment and needs.

Project leads in the focus group and interviews were asked to describe their approaches. Generally, PRUs implemented the project by integrating several approaches. At the start of the project, PRUs were asked to generate a question using the *prompt 'Can we improve our wellbeing by gardening to…'*, which then informed their chosen approach(es). Some of these approaches were related to the ideas set out by the RHS, other approaches arose from their own philosophy and pedagogical approach. In all cases, the direction or approach set by staff had then been extended or taken forward by pupils. **Six key themes were identified across the approaches that PRUs took**:

- Regenerating an outdoor space.
- Promoting social cohesion, teamwork and working together amongst pupils.
- Gardening as an entrepreneurial activity.
- Promoting pupils' individual ideas and independence.
- Gardening as an intrinsically beneficial or healthy process in itself.

Each theme is discussed in more detail below.

Regenerating an outdoor space

Two of the PRUs had shaped the project with the aim of **creating an attractive area that could be of permanent benefit** to the whole PRU and its pupils, for example by making an additional space available for therapeutic use. Participants described taking an unattractive or unused area of the school and using gardening to make it more appealing and usable for both pupils and staff, focusing on the eventual purpose of the space.

Example: PRU A

The PRU planned to create an area that could eventually be used by the Emotional Literacy Support Assistant for conversations with pupils, meaning the space could sustain a positive use.

> *"We thought that [over] there would be really good for… pupils to feel that they were improving the school site and creating something that everybody would benefit from, so it's a work in progress."*

Promoting social cohesion, teamwork and working together amongst pupils

One theme that emerged was gardening as a social activity; approaching gardening in a way where **pupils could work together and communicate with one another**. Three participants highlighted that their pupils often had challenges in this area or found communication with their peers difficult, so felt that using gardening to facilitate joint projects was very helpful in this respect. One setting had not been able to have pupils gardening at the same time due to risks associated with pupil behaviour in the outdoor setting (see *3.2. Enablers and Challenges*), but noted that there had still been a collective effort even though pupils were working at different times.

Example: PRU C

The project lead commented that gardening to promote togetherness encouraged pupils to respect each other's work and efforts, as well as the plants themselves. They compared this to elsewhere in the PRU, where pupils may not respect 'random things', and would instead damage them.

> *"Everybody knows they're all putting effort into it... they all respect their own stuff whereas, if it was just random things in the school, they might break them or throw them or whatever... When there's plants... there's a real respect for that."*

Furthermore, one project lead compared the approach of gardening to promote social cohesion and teamwork to a previous gardening project led by an external group, where pupils were gardening individually. They explained that the current project had encouraged collaborative work, which they felt aligned more to what was needed regarding supporting pupils' social and communication skills.

Gardening as an entrepreneurial activity

Several PRUs had been inspired by the idea of **approaching gardening as an entrepreneurial activity to make money either for the PRU or for charity**. This theme was clearly quite motivating for both pupils and staff. Ideas included **selling produce, seedlings or young plants**, and also **selling on young trees after one or two years of growth**. One PRU had sold seedlings to members of the public on a market stall, with a resulting benefit to pupils' confidence and social skills (see *4.1 Positive impacts on pupil wellbeing and associated outcomes*). This also introduced an element of building connections between PRU pupils and the wider community. PRU A, who were primarily focusing on gardening to develop an improved space, also talked about setting up a stall to sell produce to members of staff.

Figure 3: Plant sale

Example: PRU C

Pupils at PRU C were encouraged to sell produce that they had nurtured and grown as part of the project to the public to raise money. This idea of selling had helped to galvanise interest in the pupils.

> *We basically went down with a stall in the market… and they went and sold their produce at the market… It was actually quite an amazing opportunity for them."*

Promoting pupils' individual ideas and independence

Some participating PRUs had **approached the projects flexibly for pupils, promoting the pupils' individual ideas and independence**. This emerged where project leads had been keen to give some autonomy to the pupils to decide how they would personally like to be involved in the project and what they would do during the gardening sessions. This gave pupils the agency to input their own creativity or ideas into the process. Project leads noted that some pupils liked to engage with nature specifically, while others were keen to use the session to do more physical activity (for instance, digging out tree stumps). Other pupils preferred to do activities relating to the project, but not engage with gardening hands-on. Project leads supported this flexible approach, because it maintained pupil engagement with the project.

Example: PRU D

Some pupils did not want to do the 'mucky' tasks and get directly involved in gardening and planting. Project leads gave them the option of doing other tasks, which allowed pupils to remain engaged in the project and work with their peers towards a common goal. Therefore, by promoting pupils' independence, the project lead could ensure that the social cohesion and teamwork aspect of their approach was not lost.

> *Where students have not wanted to get involved with the actual planting… they are really keen on writing labels and that sort of thing. So finding them other jobs that aren't mucky… is how we've dealt with that. They've had an alternative task to do that's still part of the team, it's just not the main activity."*

Gardening as an intrinsically beneficial or healthy activity in itself

Although PRUs were asked to come up with specific gardening for wellbeing purposes for the project instead (such as regenerating spaces), several participants still highlighted that their approach orientated around the concept that **gardening is an intrinsically beneficial or healthy process in itself,** regardless of the end aim of the activity (e.g. selling plants). The rationale could be expressed as gardening for the purpose of 'doing gardening', alongside any specific plant-generated outcome: *"My philosophy was to get them outside and just so they can get that fresh air, which is beneficial for them and appreciating nature"* (PRU B). This included the benefits of simply being outdoors, the exposure to fresh air, as well as the opportunities that gardening offers for one-to-one conversations. Alongside being perceived as beneficial in itself, gardening was also seen as valuable in that having a garden space itself then generated the need and opportunities for future gardening. This underlines the sustainability of the project in PRUs and, therefore, the long-term intrinsic benefits.

Example: PRU A

This PRU's project focused on improving a space, but the project lead was also mindful that this space, once developed, would inevitably need future maintenance and would therefore require future gardening involvement from pupils. They acknowledged this will help with long-term engagement.

> *[The space] would actually be quite therapeutic to maintain because sometimes… it's hard to get children to engage in… offloading and having one-to-one… but actually doing something at the same time… that will be a good way to get them in to engage."*

Other approaches

Other approaches and drivers for implementing the project that PRUs described included **using recycled materials, growing things to take home or eat for lunch**, or **gardening with a view to encouraging wildlife.** Ideas were sometimes aligned to the RHS project ideas, but sometimes had been formulated independently.

Example: PRU A

The PRU decided to garden with the purpose of growing food, such as lettuces and radishes. This could be used by both the pupils involved directly in the project, or by their peers as well as part of activities elsewhere in the PRU.

> *We could use that in the food technology classes that they do here, or we've even discussed whether… when everything's ready, they could have a little bag to take home."*

3.2. Enablers and Challenges

The project leads in the focus group and interviews were asked to discuss any motivators and enabling factors that supported how they implemented the project in their PRUs, as well as any barriers and challenges they faced. The table below outlines key themes that emerged from these conversations.

Motivators and enabling factors	Barriers and challenges
▶ Ideas, resources and guidance provided by the RHS for the project specifically. ▶ Other RHS resources that weren't designed specifically for this project. ▶ Internal factors of staffing and organisation. ▶ Form / structure of the RHS project itself. ▶ Ability to make contact, form links, and share ideas with other participating PRUs.	▶ Pupils' behavioural and mental health needs. ▶ Environmental or logistical challenges. ▶ Project timing and point of joining the project. ▶ Financial barrier at the start of the project relating to payment of funds.

Table 5: Enablers and challenges

Motivators and enabling factors

All four of the focus group and interview participants were **very positive about the project structure and teaching resources provided by the RHS designed specifically for the Feel Good by Growing project**. Aspects highlighted included the one-to-one sessions, project workshops, project teaching resources, emails, session ideas and a general sense of *"having direction"* from the RHS. One project lead highlighted the session plans that had encouraged pupils to taste different herbs explaining that they had found this very useful and been positively surprised by pupils trying new tastes.

Example: PRU B

The project lead expressed how busy they can be, but noted that the 1:1 sessions helped them to keep focused on the project and made them feel supported to run it.

> *"The one-to-one sessions really helped a lot… They just help provide me with a bit of confidence… and taking the next steps, what to do… I get swamped sometimes and… they just help me focus."*

Moreover, this gratitude towards the project elements and resources was reflected by the positive scores in the staff survey. **82% of staff found, on average, the teaching resources to be very or extremely useful, while 71% found, on average, the project structure elements to be very or extremely useful**, as illustrated in Figure 4. This suggests that, if the project was to continue, the RHS should continue offering the same – or similar – project structure and teaching resources. It should be noted that the sample sizes portrayed in Figure 4 account for all responses given for the questions, spread across sub-questions (10 for teaching resources, six for project elements). The number of respondents per sub-question ranged from 10 to 13.

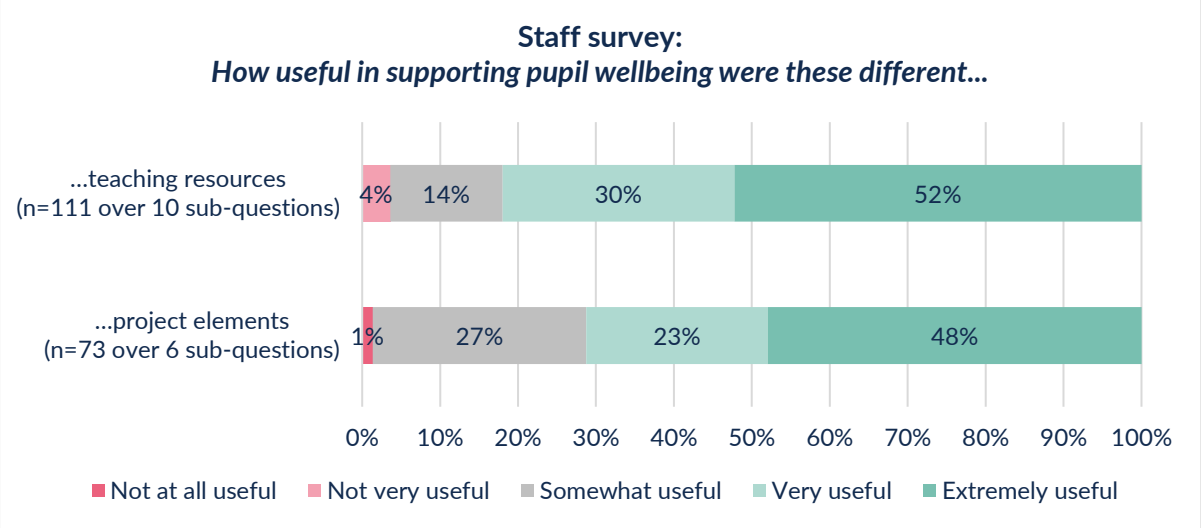


Figure 4: Staff survey – distribution of responses, project elements and RHS resources

Further reflections on the usefulness of these resources on supporting pupil wellbeing can be found in sections *5.1. Usefulness of Project Elements* and *5.2. Usefulness of Resources.*

In addition to the support provided that was directly linked to the project, some project leads also **spoke very positively about wider RHS resources**, for example resources that were available to the general public. Specific resources mentioned included the RHS calendar setting out 'What to grow when' and the RHS website.

While participants foregrounded the support provided by the RHS, they also highlighted **internal factors of staffing and organisation** that enhanced the successfulness of the project. This point could largely be categorised by two enablers: firstly, being generally well staffed so that they could provide support with pupil behaviour, and secondly having a key member of staff (often themselves) with gardening knowledge, expertise or prior experience.

Example: PRU A

The project lead was not delivering sessions themselves – a member of staff who was a keen gardener at home was. Their knowledge of gardening supported delivery.

> *"I'm very lucky with [staff member] ... he's done these kinds of projects before... definitely useful knowing some ideas."*

Three participants highlighted factors around the **form or structure of the RHS project** itself as a motivational and enabling factor in the gardening work. One common theme was that **having the project established by an external organisation** motivated project leads to make progress with the gardening activities, even when barriers had arisen: *"I can imagine if it hadn't been a structured kind of setup, you'd look at the weather wouldn't you and think, 'we won't do that this week'"* (PRU A). Other reasons varied across participants, and included:

- The **group approach** being far more suited to pupils than a previous (non-RHS) project which encouraged pupils to garden on an individual basis.
- **Timetabled sessions** that ensured some activity related to the project took place, even when the weather was bad or there were other barriers that occurred.
- The **adaptability of the RHS project** that had allowed PRUs to tailor it to their pupils.

Another enabling factor noted by participants was **access to project funding** – project leads were very appreciative of this and recognised the key role it had in supporting staff time, purchasing equipment, and getting the project started: *"it gives you kind of a really nice funding base to start as well"* (PRU C). However, depending on when the PRU joined the project, the funding had sometimes not stretched far enough if, for example, they needed to purchase sets of tools. This is discussed further under *Barriers and challenges*. Nevertheless, overall the funding was a positive, enabling factor alongside the project support.

One staff member also commented positively on the funding in the staff survey, where one question gave respondents the opportunity to add anything else they wanted to share about the project: *"The inital [sic] grant money was really good to get a PRU without any resources going. Now that we have got some pots and tools the expense should be minimal"* (staff survey). This indicates that, as the focus group and interview data reflected, the **initial funding was beneficial in getting the project started**. It also suggests that although there is some ongoing expense after this initial phase, this cost may be less than the upfront funding needed.

One project lead in the focus group and interviews highlighted the benefit of being able to **make contact, form links, and share ideas with the other PRUs** that were participating in the project, via the project sessions and workshops. Contextually, there is typically only a small number of PRUs in any one local authority area. These units are also likely to cover different age ranges or needs, so it can be hard for teachers or other members of staff to meet with others in a similar role or position. Therefore, this gave them a somewhat unique opportunity to collaborate with others.

Example: PRU D

The project lead highlighted the usefulness and importance of being able to communicate with other participating PRUs to enhance the success of the project.

> *"Talking to other PRUs and find out their ideas as well was really helpful because we're often quite isolated... [there's a] network of people here in the same sort of position."*

Barriers and challenges

All four participants in the focus group and interviews mentioned that they had experienced **challenges relating to pupils' behavioural or mental health needs** during the gardening project sessions, which could hinder the progress of the gardening work or restrict the number of pupils who could get involved at any one time. However, it was acknowledged by all participants that these challenges should be anticipated in PRU settings. This point was multifaceted:

- The consequence of behavioural challenges experienced in any other lessons.
- Managing pupil behaviour alongside the additional risk factor of using gardening tools.
- The sensory challenges for some pupils around handling compost, mud, or natural materials meaning they had to proceed more slowly.
- Pupil behaviour / risk factors restricting the number of pupils who could get involved at the same time, therefore resulting in slower progress.

Example: PRU B

When discussing how many pupils they allow to participate in the project at any one time, the project lead explained how this was limited due to the risk factors relating to pupil behaviour involved, and the careful supervision required.

> *"Not much more than five tops. Yeah, because … remember they've got sharp tools and… these kids… so we need to make sure we can keep an eye on them."*

All project leads also highlighted some of the **environmental or logistical challenges** that they had experienced when first implementing the project in their PRU, and noted that some also hindered the amount of progress they wanted to have made. These factors were mainly beyond their control, nor something that could be explicitly solved by the RHS project support. Examples included persistently poor weather, limited suitable space for gardening, and difficulties created due to staff being needed elsewhere.

There were also two **site-specific issues** that affected the implementation of the project in individual PRUs. In PRU A, the area that was most suitable for gardening was not easily accessible to other staff (due to the location of doors) for essential backup in case of behaviour incidents occurring or pupils leaving the site. Therefore, due to location, it was only possible for a member of staff to work with pupils on a one-to-one basis. Meanwhile, in PRU D, the PRU itself had needed to temporarily relocate during the year causing subsequent disruption to the project. Although, it should be noted that the Feel Good by Growing project itself was found to be helpful in managing and overcoming the social and emotional disruption of the move.

Two project leads noted **challenges relating to the timing of the project, and their point of joining**. Both of these PRUs were late to join the project compared with other PRUs, and

explained that the secondary impacts of this made them feel behind the other participating PRUs when they attended sessions. They also felt like they were behind in terms of the optimum growing season for gardening and were having to catch up.

Example: PRU A

PRU A joined the project in December, later than the majority of others. They felt like this made them behind other PRUs, which was particularly apparent when they attended meetings with other PRUs.

> *"I was a bit behind everybody when I was doing the workshops… Everybody was already talking about some of the things they'd managed to plan, and they were all seeing wonderful things, and we hadn't even got started."*

One project lead also mentioned that there had been a **financial barrier at the start of the project, relating to the payment of funds**. As a maintained education provision, the funds had been paid to the local authority and not immediately allocated to the delegated budget of the PRU. While this was an administrative problem, it had delayed the start of the project as they could not begin allocating the time of the dedicated staff member due to lead it. As previously stressed, the project funding itself was highly appreciated by all project leads, but the time taken for any funding to be received by the PRU – and the potential for any delays in this – should be considered when determining the 'kick-off' schedule for the project.

3.3. Exposure to plants and gardening

In the pupil survey in each data collection window, pupils were asked if they had touched a plant or seed in the last month. In the baseline survey, administered either just before the project began or at the very start, 60% of pupils indicated that they had touched a plant or seed. This increased to 73% in the midpoint survey, and 79% in the final survey, as illustrated in Figure 5. This implies that **over the duration of the project, a larger proportion of pupils participating in the project were connecting with nature directly**.

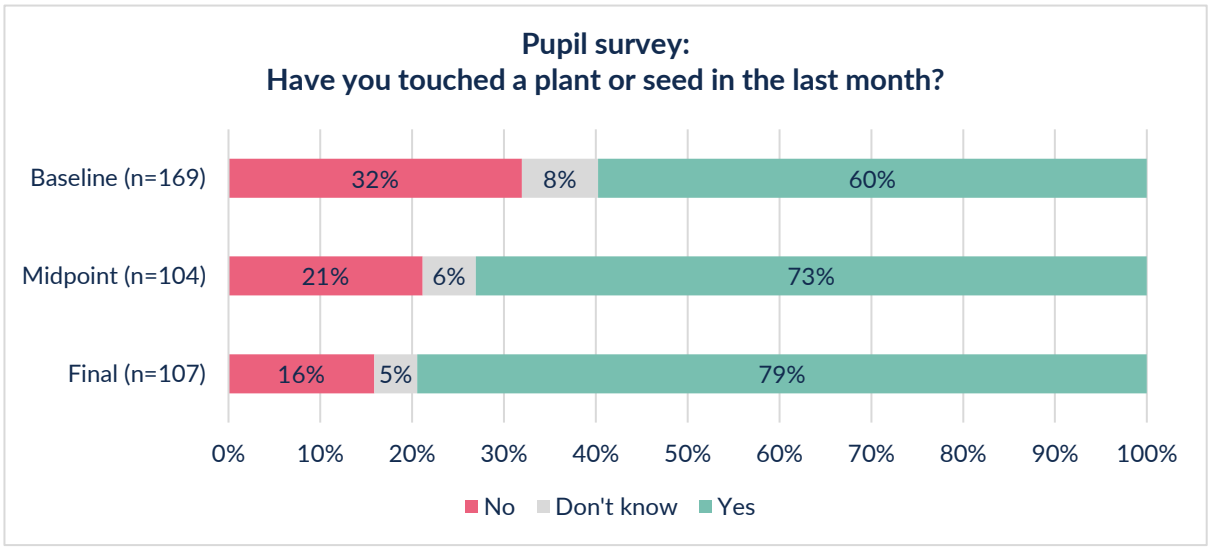


Figure 5: Pupil survey – distribution of responses, exposure to plants over the last month (unmatched responses)

Figure 6 illustrates the distribution of pupil responses to the question *'Do you want to keep gardening or growing plants?'*, offering insight into whether pupils wanted to maintain this connection with nature. Examining unmatched data, although the proportion of pupils who answered 'Yes' increased from the 51% at baseline to 65% at the midpoint, this dipped slightly in the final survey to 61%. This implies **that the proportion of participating pupils who wanted to keep gardening or growing plants decreased later in the project, although this was still a greater percentage than that at baseline**.

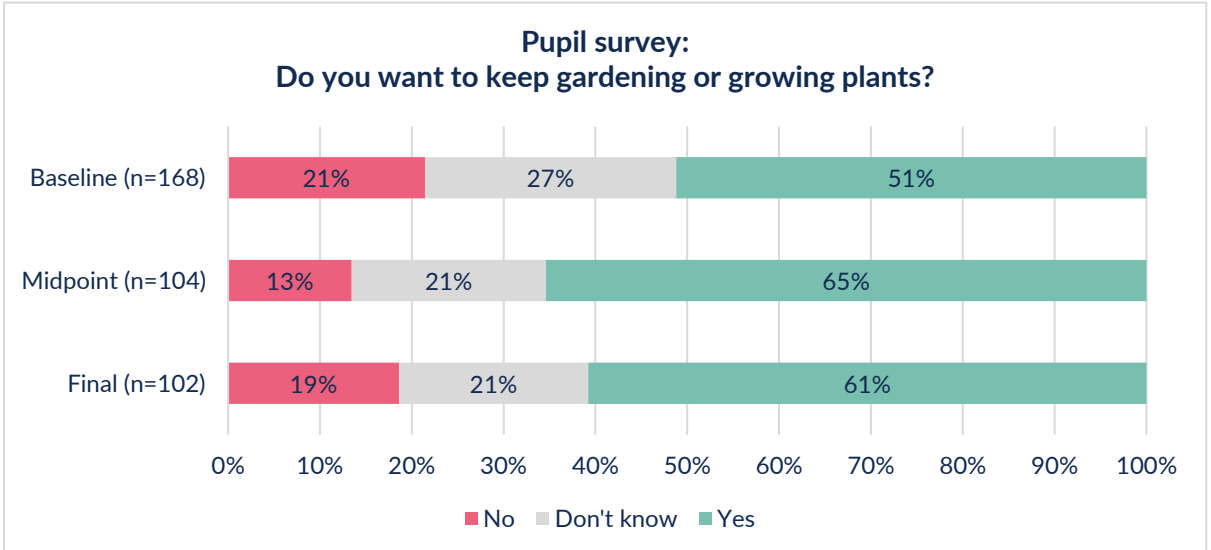


Figure 6: Pupil survey - distribution of responses, desire to continue gardening or growing plants (unmatched responses)

In the staff survey, participants were asked *'How often did / have / will you garden or grow plants with pupils?'* for each of the school terms between (and including) Autumn 2022 and Autumn 2024. Note that the project took place in Autumn 2023 and Spring 2024, as indicated in Figures 7 and 8.

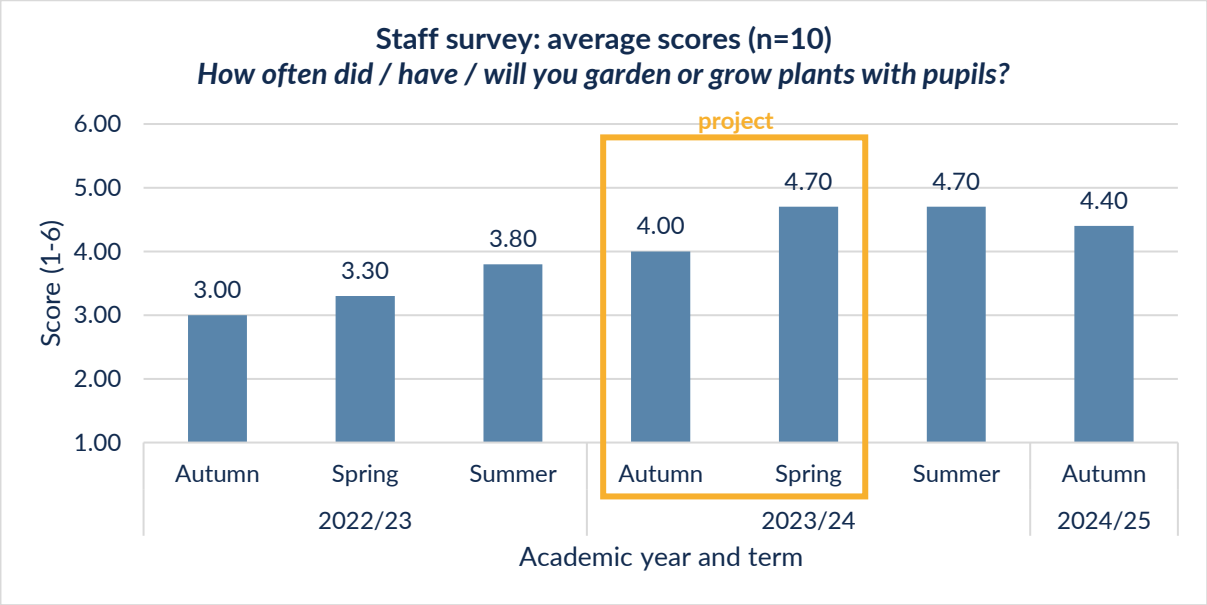


Figure 7: Staff survey – average scores, how often they grew / will garden or grow plants with pupils

In matched responses (discarding staff who had not responded for all terms, or answered 'Unsure' for any of the terms), **the amount of time staff spent gardening or growing plants with pupils had notably increased** since the Feel Good by Growing project started compared to the previous academic year – from Autumn 2023 to Autumn 2024, on average staff had increased the amount of time they spent gardening or growing plants with pupils from one a month to once a week. Furthermore, **staff anticipate this amount of time to remain steady heading into the Summer term** – the first full term post-project. Although there is predicted to be a slight decline in how often PRUs will garden and grow plants with pupils in the Autumn 2024 term compared to the previous Summer term, it would be typically expected that less gardening happens in the Autumn compared to the Summer because of the impact of the seasons.

Analysing the data by looking at corresponding terms (e.g. Autumn) across multiple academic years accounts for control of seasonality. Therefore, it is positive to see that despite the dip between Summer and Autumn 2024, the amount of time that PRU staff anticipate gardening and growing plants with pupils in Autumn 2024 is still expected to be even more than Autumn 2023, when the project was first being implemented, as well as in Autumn 2022. The same trend was observed in both Spring and Summer terms, where there was / is anticipated to be (respectively) an increase in the amount of time staff spent gardening and growing plants with pupils year-on-year.

This increase and expectation to sustain exposure to plants mirrors the themes that prevailed in the focus group and interviews, for example around gardening to develop a space (see *3.1. Approach*). This involved creating a space which would need to be maintained in the future, meaning there would be an ongoing project acting as a core focus for gardening activities: *"The idea that we take them into a discarded space and we work on it, and then in a couple of years' time, it'll be a space the kids will be proud of"* (PRU B).

Furthermore, when examining the distribution of responses for this question in each term, it is evident that **since the project started, all staff members had gardened or grown plants with** pupils at some point, and intend to do so at least once a term moving forwards, as displayed in Figure 8. Exposure to plants and gardening was at its greatest in the Spring term 2024 – the latter term of the project – where most staff members were gardening or growing plants with pupils at least once a week (77%).

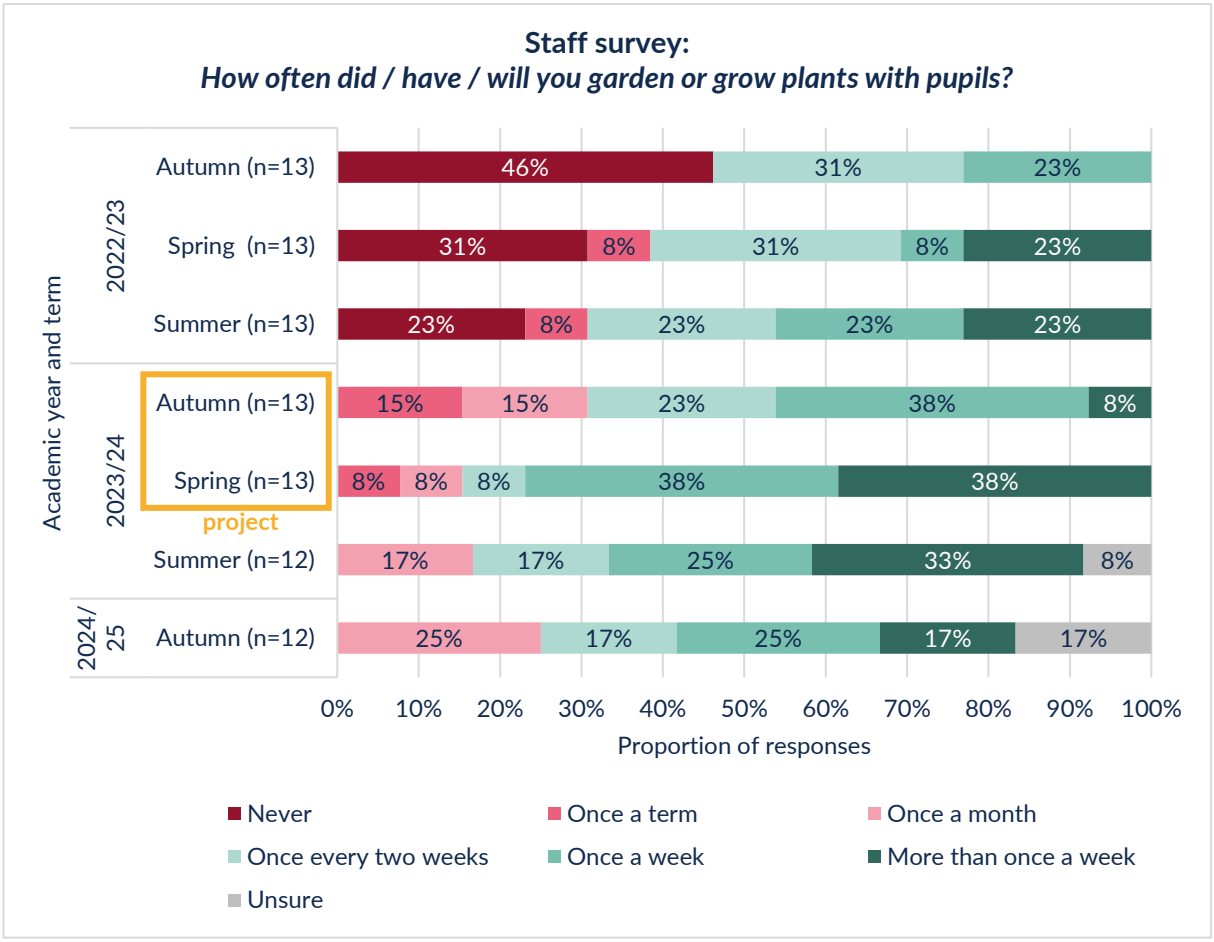


Figure 8: Staff survey – distribution of responses, 'How often did / have / will you garden or grow plants with pupils?'

4. Impact on Pupil Wellbeing

4.1. General impact on pupil wellbeing

16 percentage points

increase in pupil wellbeing, baseline to final (matched, n=27)

The Feel Good by Growing project's core aim was to support and improve pupil wellbeing by increasing their connection with nature. As such, pupils completed a wellbeing survey in all data collection windows.

In the baseline window, participating pupils (unmatched) were statistically significantly below national average, with a score of 2.98 ($p<0.001$) compared to a benchmark of 3.27, as illustrated in Figure 9. However, **during the project in the midpoint survey, the average scores in pupil wellbeing had increased to be in line with the national average**, at 3.28. Pupil wellbeing then **remained steady**, with pupils having an average score of 3.29 in the final window. It should be noted that the scores in both the midpoint and final surveys compared to the benchmark were not statistically significant ($p=0.88$ and $p=0.79$ respectively), indicating the participating group's scores were statistically similar to the benchmark and their level of wellbeing was on par with the broader population.

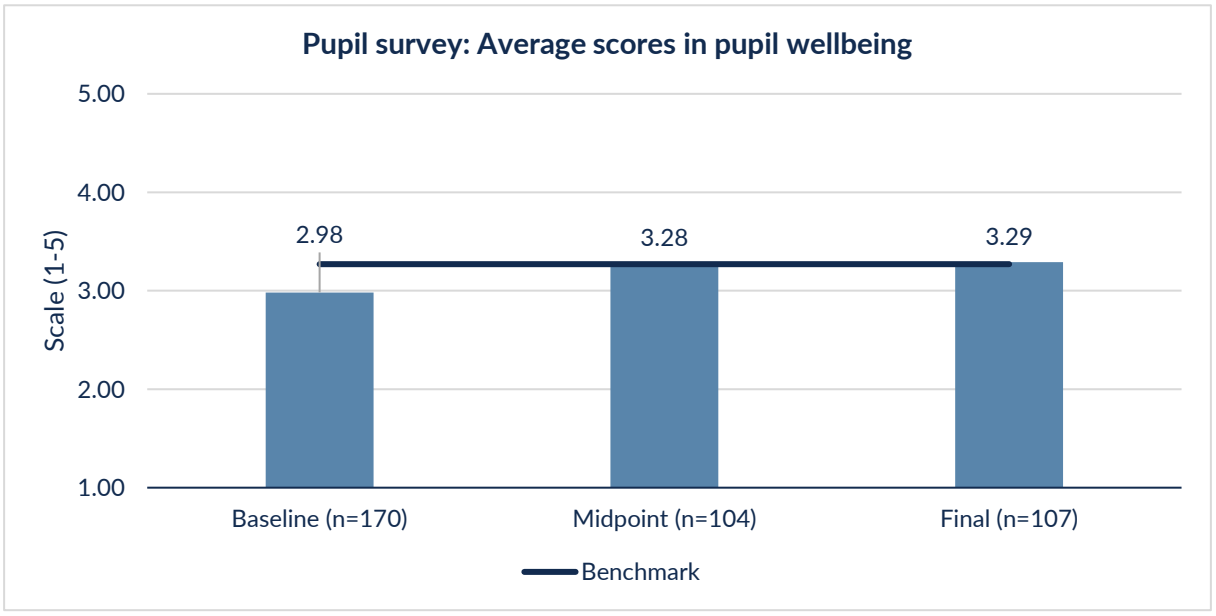


Figure 9: Pupil survey – average scores, pupil wellbeing (unmatched responses)

The average change observed in wellbeing between the baseline and midpoint surveys in the unmatched pupil groups (scores for which are displayed in Figure 9) was an increase of 7.5 percentage points ($p<0.001$), while a much smaller increase was observed between the midpoint and final surveys, of 0.2 percentage points ($p=0.94$). Overall, the change recorded in unmatched pupils from the start to the end of the project was 7.7 percentage points, an increase that was statistically significant ($p<0.001$). This indicates that it is unlikely that this change was due to chance.

The lesser improvement between the midpoint and final survey, compared to the baseline and midpoint, was a result of seeing midpoint-to-final decreases in five of the seven questions in the question set (in unmatched pupils), as well as a smaller increase than observed at baseline-to-midpoint, as shown in Table 6. Therefore, **while the indication is that the project evidently improved wellbeing, it would be beneficial if possible to evaluate the long-term impact of the Feel Good by Growing project on pupil wellbeing**. These dips in scores at midpoint-to-final were only slight, with the largest being a decrease of 2.8 percentage points (*'I've been feeling relaxed'*), so it is possible that this point is where pupils' wellbeing plateaus. This would imply that **in its initial phase, the project would improve pupils' wellbeing, before this impact shifted to supporting and harnessing their wellbeing – in line with national average**.

Statement	Change (raw | percentage points)					
	Baseline to Midpoint		Midpoint to Final		Overall: Baseline to Final	
I've been feeling optimistic about the future	+0.44	+11.1	-0.07	-1.6	+0.38	+9.4
I've been feeling useful	+0.28	+6.9	-0.02	-0.5	+0.26	+6.4
I've been feeling relaxed	+0.40	+10.0	-0.11	-2.8	+0.29	+7.2
I've been dealing with problems well	+0.21	+5.4	-0.03	-0.8	+0.18	+4.6
I've been thinking clearly	+0.32	+8.0	+0.09	+2.2	+0.41	+10.2
I've been feeling close to other people	+0.23	+5.7	-0.06	-1.6	+0.16	+4.1
I've been able to make up my own mind about things	+0.22	+5.5	+0.26	+6.5	+0.48	+12.0

Table 6: Pupil survey - Change in average scores in wellbeing questions (unmatched pupils)

For matched pupils (those who had recorded a wellbeing score in the baseline, midpoint and final windows), **the positive difference between the baseline and midpoint windows was also reflected, with pupils increasing by 11.2 percentage points**. Furthermore, this change was statistically significant ($p<0.001$), implying that this change was not likely observed due to chance. This matched set of pupils observed a further increase of 4.8 percentage points between the midpoint and final surveys, again mirroring the trend observed in unmatched pupils of increasing less between the midpoint and final survey. Nevertheless, this culminated in a total average increase of 16.0 percentage points over the whole duration of the project. While the change recorded in the latter half of the project was not statistically significant ($p=0.32$), **the overall change of 16.0 percentage points was ($p<0.001$)**. Although, the smaller sample size here should be noted, and therefore all statistical significance should be interpreted with caution.

The survey also asked pupils how they felt when they gardened or grew plants. Figure 10 shows a word cloud representing the frequency of the most popular responses in the final pupil survey. This visualisation indicates the popularity of responses. The **most common emotion that pupils expressed was 'happy'**, with 'good' and 'ok' also being popular responses. When asked what it was about gardening and growing plants that made them feel that way, some pupils who indicated that they felt happy gave responses mentioning specific activities, such as *"making the flower beds"* and *"watering"*.

Figure 10: Pupil survey – word cloud of responses to 'How do you feel when you garden or grow plants?' in final survey (n=103)

However, some pupils did mention that gardening or growing plants made them feel 'bored', 'rubbish' and 'tired', indicating that there was a small proportion of pupils who did not engage with or enjoy the project. Of the pupils who said 'bored', no pupils gave an explanatory answer to the follow up question 'If you answered the last question, what is it about gardening and growing plants that makes you feel like that?'. For example, responses included *"its boring"* [sic] and *"don't know"*, with one pupil stating that *"I'd rather play football"* but not giving a reason relating directly to gardening and growing plants.

> *[I] dunno [how it makes me feel]. its alright but I don't like creepy crawleys"* [sic]
>
> - Pupil survey (final)

> *It makes me feel happy… They are pretty and it can be calming."* [sic]
>
> - Pupil survey (final)

Staff members were also asked to reflect on the project's impact on pupil wellbeing through the survey. On average, staff scored 3.84 out of 5, indicating that **the project helped most of their pupils' wellbeing.** This triangulated with data collected from the focus group and interviews, where project leads were asked about the impact on pupils' wellbeing, including whether or not there were any negative impacts. Overall, **participants' accounts of impact on wellbeing were overwhelmingly positive**, with minimal response on negative impacts. In responding, the project leads took a broad view of the term 'wellbeing', encompassing social, personal, physical and emotional aspects of development in their responses. These have been discussed in *4.3. Positive impacts on pupil wellbeing.*

4.2. Impact on wellbeing by subgroups

Key Stage

Pupils in **KS4 were the only pupils who showed consistent improvement in wellbeing throughout the project**, with a baseline score of 2.95, a midpoint score of 3.30 and a final score of 3.48, as illustrated in Figure 11. Before the project, these pupils were below the national average of 3.27, but by the midpoint window were in line with this benchmark and at the end of the project had exceeded it – the only Key Stage subgroup to do so in any of the evaluation windows. This is particularly impressive when considering the national benchmark is comprised mostly of pupils in mainstream settings, who generally would be expected to have higher levels of wellbeing compared to those in PRUs.

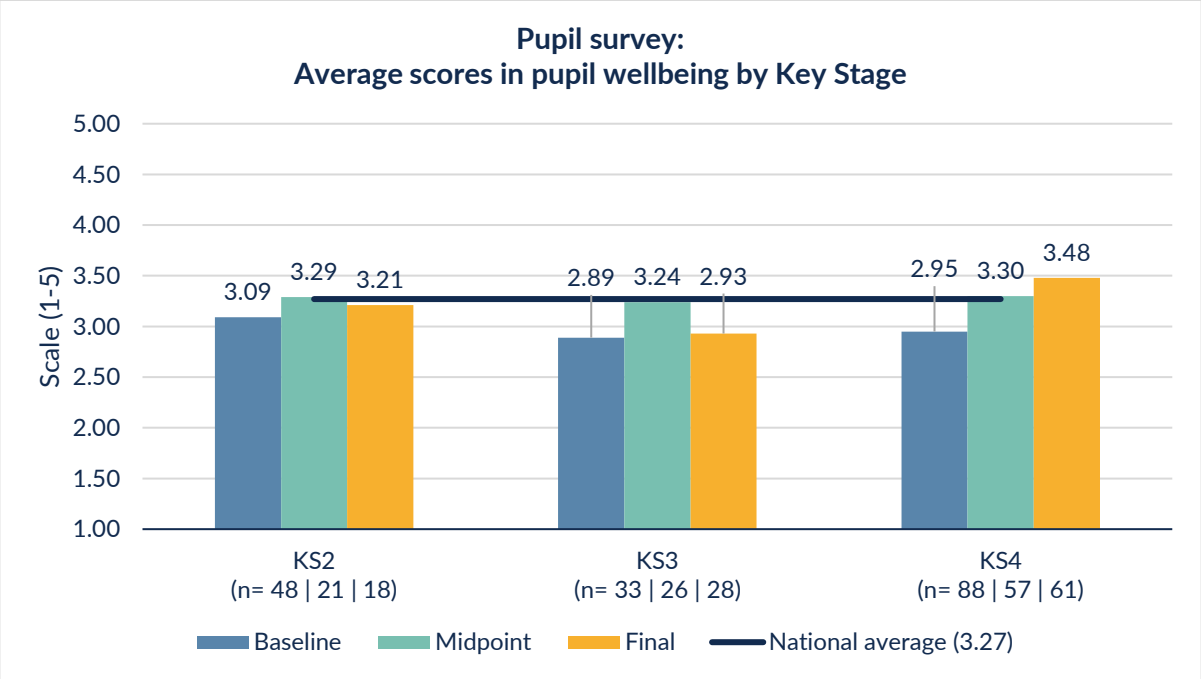


Figure 11: Pupil survey – average scores, pupil wellbeing by Key Stage (unmatched)

Pupils in both **KS2 and KS3 also improved between the baseline and midpoint windows**, by 0.20 and 0.35 respectively, mirroring the trend observed in all pupils (see *4.1. General impact on pupil wellbeing*). However, they both recorded a decrease in wellbeing between the midpoint and final windows, by 0.08 and 0.31 respectively. This indicates that for these pupils, the project had a more short-term impact. Nevertheless, it is positive to see that in the midpoint window, **all Key Stage subgroups were in line with the national average**.

Gender

It should be noted that this set of analysis uses the gender that pupil's self-identified as in the pupil baseline survey, or the first survey that they completed if they did not complete a baseline survey. There were some pupils who selected 'Prefer not to say', however the sample sizes were not large enough to comment on.

As shown in Figure 12, **both male and female pupils' wellbeing improved between the baseline and midpoint windows to be slightly above the national average**. This increase was more prominent in female pupils, who improved by 0.55, than in male pupils, who still improved by a respectable 0.24. Although, it should be noted that female pupils' wellbeing was below that of their male peers at the baseline, at 2.77 and 3.09 respectively, but the groups had similar scores in both the midpoint and final surveys. This implies that **the project helped female pupils achieve a level of wellbeing that was in line with their male peers.**

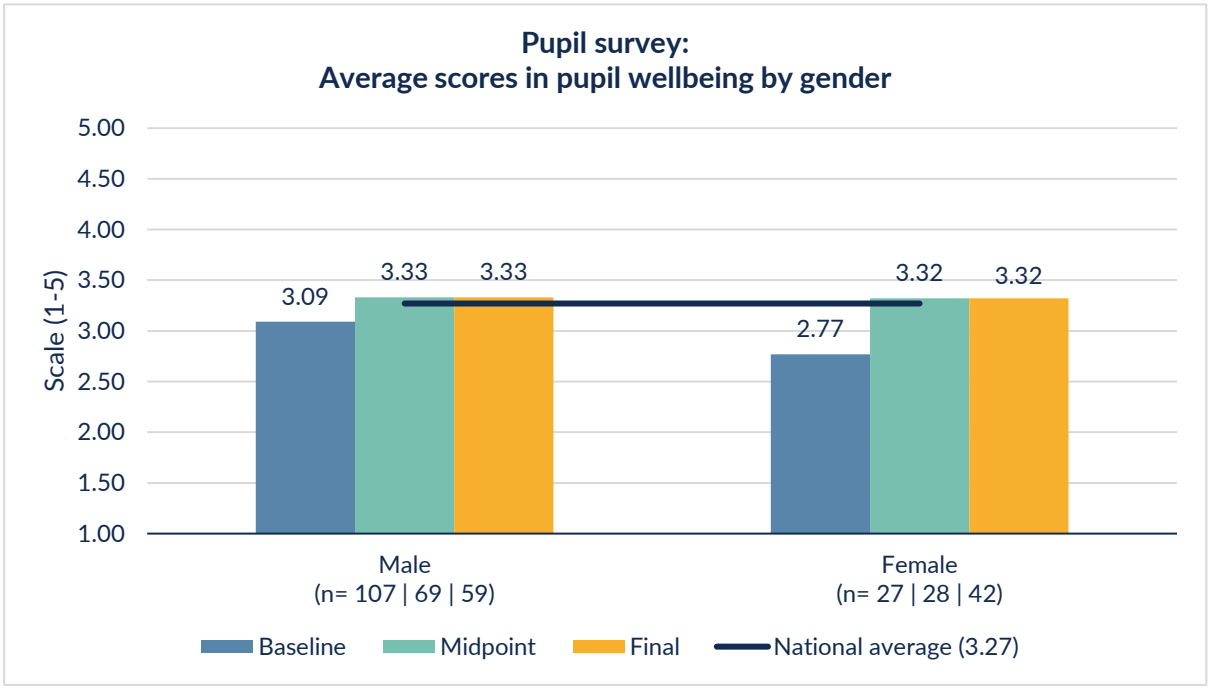


Figure 12: Pupil survey – average scores, pupil wellbeing by gender (unmatched)

Between the midpoint and final windows, neither group of pupils recorded a change in wellbeing, with male pupils maintaining a score of 3.33 and female pupils maintaining a score of 3.32. This indicates that the project helps to improve both female and male pupils' wellbeing, reflecting the trends seen in all pupils (see *4.1. General impact on pupil wellbeing*), and then helps pupils to sustain a level of wellbeing that is slightly above the national average.

Whether pupils touched a plant or seed in the last month

These subgroups were created based on how the pupils responded to the question *'Have you touched a plant or seed in the last month?'* in each respective survey. For example, a pupil could have responded 'Yes' in the baseline survey, 'No' in the midpoint survey and 'Don't know' in the final survey, meaning their wellbeing score was aggregated as part of different subgroups for each window. The analysis below discarded data for those who responded 'Don't know' due to small sample sizes.

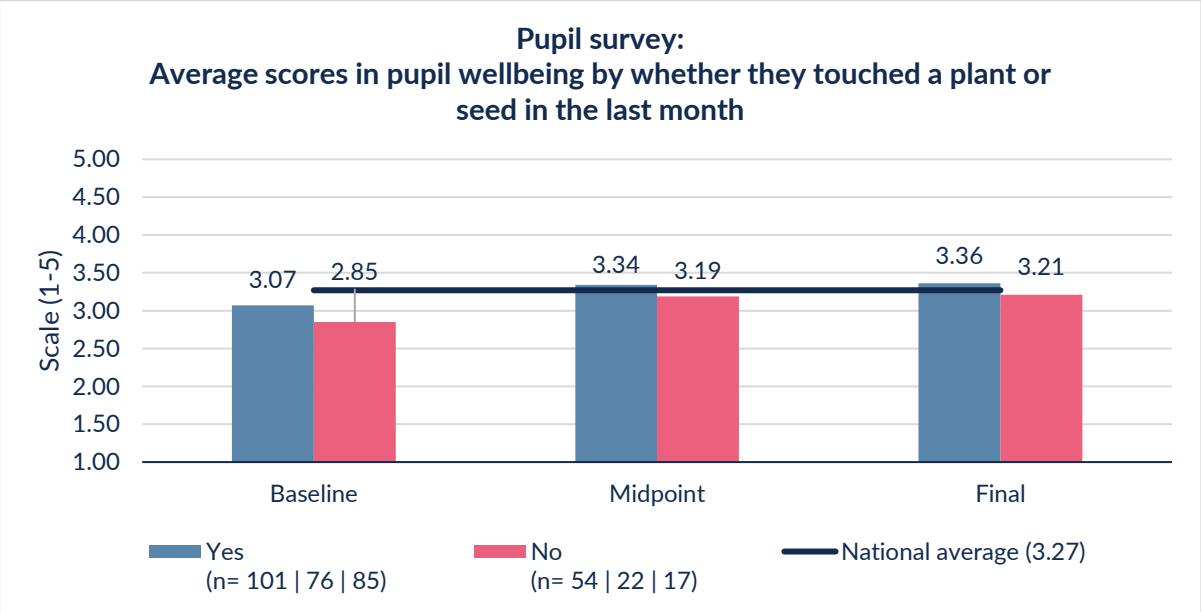


Figure 13: Pupil survey – average scores, pupil wellbeing by response to 'Have you touched a plant or seed in the last month?' in the respective window (unmatched)

In the baseline survey, **pupils who had touched a plant or seed within the month leading up to the survey had a higher wellbeing score than those who had not**, with scores of 3.07 and 2.85 respectively. This trend was also observed in the midpoint survey, however the difference between the two groups was much smaller, with scores of 3.34 and 3.19 respectively. The trend was again seen in the final survey with the same difference as the midpoint survey, with scores of 3.36 and 3.21 respectively. This meant that while pupils were below the national average of 3.27 in the baseline survey regardless of whether they had touched a plant or seed, pupils who had touched a plant or seed in the midpoint and final survey were slightly above the national average, and those who had not touched a plant or seed in these windows were only slightly below.

This **persistent trend implies that pupils who engage directly with nature have a higher wellbeing than those who do not**. Regarding the project specifically, all pupils represented in the graph participated in the project, aligning with information collected from teachers that not all pupils engaged with nature directly, with the structure of the project allowing for some to instead do other activities relating to plants and gardening (see *3.1. Approach*). As there was evidently some increase in wellbeing in pupils regardless of whether they had touched a plant or seed or not, this implies that **the project supported the improvement of wellbeing in all pupils irrespective of whether the structure PRUs implemented involved direct contact with plants or seeds or not**.

4.3. Positive impacts on pupil wellbeing and associated outcomes

Increased confidence, achievement and self-esteem

All four participants in the focus group and interviews also described an **increased sense of confidence, achievement and self-esteem** in pupils throughout the project. This included a sense of accomplishment and the confidence boost gained from *"trying new things"*, such as new tastes when using the RHS herb kits. Project leads highlighted the benefit of pupils seeing something physical and tangible as a result of their work in the garden, for instance a plant that had grown from a seed or fruit that had been produced. The opportunity for **practical, visual and tangible achievement** was set against the nature of the academic curriculum, which typically uses grades as intangible measures of a pupil's performance and understanding. For some project leads, the opportunity to offer pupils the experience of learning in a practical way was a personal, quasi-political philosophy, while having the ability to adapt methods to best suit their pupils.

> *I enjoyed it.*
>
> *Way you can plant something and when its grown you can say i grew that."* [sic]
>
> - Pupil survey (baseline)

Figure 14: Seedlings

Example: PRU B

The project lead explained how digging out tree stumps increased pupils' sense of achievement. These were pupils who don't engage in learning or have low self-esteem. Pupils were able to tangibly see their success and were proud for accomplishing it.

> *To just see the sense of accomplishment that happened, just digging out a tree stump into lifting it above their head… It's incredible… One of the kids was telling me that he's got it at home next to his bed, the tree stump."*

Two project leads in the focus group and interviews highlighted that the project allowed pupils to do **physical exercise, particularly outdoors, in an informal setting**, rather than in structured PE lessons which pupils had not always previously enjoyed or felt successful in. This meant that the project enabled pupils to experience the wellbeing benefits of physical activity. Project leads again reflected on how this was different to the curriculum, which was considered as more *"academic"*, *"traditional"* or *"formal"*: *"the students really do like getting outside and looking at nature and doing something a bit different from just sitting down and sort of the traditional learning they do a lot of… the only opportunity to go outside a lot of the time is things like PE… where they didn't enjoy it"* (PRU D). Furthermore, many pupils in the baseline, midpoint and final surveys noted being outside, linking this to feelings such as *"chilled"*, *"happy"* and *"free"*.

> *Enjoy the fresh air and happy to see things grow.*
>
> *I don't have a garden at home in my flat block. So I enjoy being outside"* [sic]
>
> - Pupil survey (final)

Pupils feeling important and having increased self-esteem was also observed by the project leads. For example, individual pupils who had prior experience of gardening were able to use and share their expertise. This **helped pupils who were newly joining the PRUs**, as staff were able to subtly guide the pupils through the project in a way that improved their confidence during a transition period where they may have had particularly low wellbeing. Several project leads also mentioned that pupils may be neurodiverse, so change can be unsettling and more challenging for them than other pupils. The project could be used to support these pupils during transition periods.

Example: PRU A

A new pupil had previously done a gardening intervention but had not been able to continue with it when they were permanently excluded. This project worked well for them because it suited their skillset, giving them the opportunity and space to use their expertise and increase their confidence.

> *He was doing some measuring of the area… a design… [We were] acting a little bit like we didn't know what we wanted… so then it was his idea… He's built his team and… his confidence because he was thinking really low and rejected."*

This positive reflection was paralleled in the staff survey, where respondents were asked how many pupils the statement *'The project has helped pupils gain confidence by developing new horticultural skills'* applied to. This included **10 of the 13 respondents who believed the project had helped develop most or all pupils' confidence**.

Improved social and communication skills

All four project leads in the focus group and interviews described a **positive impact on pupils' social and communication skills, whether that was one-to-one, in small groups or with members of the public**. By working closely with a member of staff, pupils could socialise with an adult who was a general role model of social skills and one-to-one interaction. A couple of pupils in the pupil surveys (midpoint and final) noted their teacher as being a reason they felt positive about gardening and growing plants, for example one pupil felt *"happy and pleased"* because *"my teacher love plants and make her happy"* [sic]. Project leads from PRUs where pupils had been working in small groups also stressed the **teamwork element of the experience**, explaining that pupils working together on gardening helped them to cooperate and bond as a team.

Example: PRU A

Pupils had needed to work one-to-one with a member of staff. Pupils benefitted from this close social interaction, and the staff member became a role model for the pupils.

> *"It's that one-to-one time with a key adult, that's a positive male role model as well and also knowing that it's not all about being academic."*

It was also highlighted that pupils **selling grown produce to the wider community enabled them to develop their social and communication skills**, as it required interaction with the public which they had never had the opportunity to do before.

This trend was highlighted in the pupil survey. One of the wellbeing statements that participating pupils had to respond was *'I've been feeling close to other people'*. The trends observed in unmatched pupils for this statement mirrored the trend seen in the overall average scores for the pupil wellbeing survey, where there was a noticeable increase between the baseline and the midpoint windows, but a slight dip at the final – for this statement, pupils scored 3.07, 3.30 and 3.23 respectively. Nevertheless, this indicates that **pupils felt closer to others at the end of the project compared to when it was first implemented**, echoing the data recorded in the staff survey and qualitative data.

Furthermore, in the staff survey participants were asked how many pupils they felt the project had helped make pupils feel closer to adults, as well as their peers. The responses were generally positive, particularly regarding **how close pupils felt with adults where nearly half believed the project had helped all pupils involved**, as shown in Figure 15. The distribution of responses for pupils feeling close to other pupils was more spread, although this may be because the staff could not perceive these relationships as strongly as the ones they had with individual pupils. Nevertheless, 23% of respondents felt that the project had helped all their pupils feel closer to other pupils, with another 23% believing this impact was had on most of their pupils.

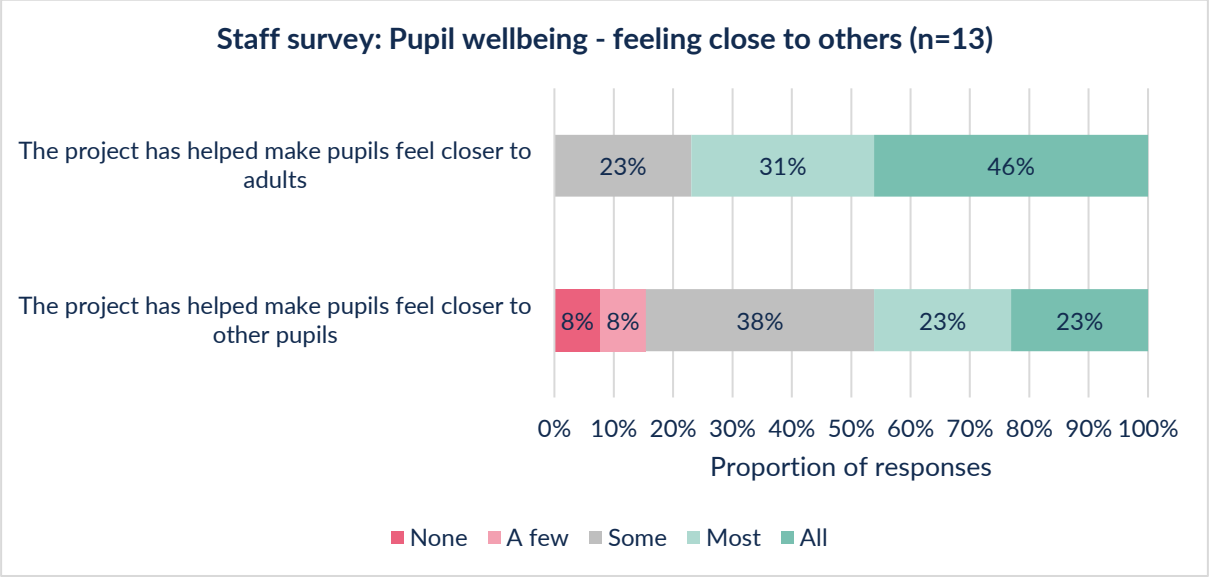


Figure 15: Staff survey – distribution of responses, pupils feeling close to others

Enjoyable, relaxing and mindful aspects of gardening

Another impact on pupil wellbeing that all project leads in the focus group and interviews commented on was the enjoyable, relaxing and mindful aspects of gardening. For example, the **project gave pupils the opportunity to become engrossed in an activity, allowing them to *"switch off"*** from the intensity of the PRU environment and **simply enjoy the process of gardening or to be calm**. Project leads explained that because pupils enjoyed the gardening activity, they looked forward to it – often asking when they were going to be able to do it again, and getting involved with gardening at home as a result of the project.

This theme was also evident in the pupil surveys. When asked 'How do you feel when you garden or grow plants?', 'relaxed' was one of the most popular responses in all of the three surveys (baseline, midpoint, final). When asked what it was that made them feel that way, responses included *"the way i connect with nature"* [sic], *"its quiet"* [sic] and *"it give me something to focus on"* [sic].

> *It's very relaxing.*
>
> *I gets stuff off mind. I stop thinking about things. It makes me calm"* [sic]
>
> - Pupil survey (midpoint)

Project leads emphasised the **calming impact on pupil wellbeing in different subgroups**. For example, the project lead at PRU D teaches pupils with mental health needs, and flagged that it was particularly beneficial for these pupils to have the opportunity for peace and relaxation. For secondary-aged participants, it was implied that the **enjoyment of gardening developed through the project could spark an interest into potential career pathways**, or certainly a long-term interest: *"we say it too about how important GCSEs are… but actually there are other avenues you can go down, and finding something that you can succeed at, so I think that has been key for sure"* (PRU A). One pupil even commented, when asked how they garden or grow plants in the pupil survey, that *"I like it. I'm going to do it at college"*. When asked why they felt like that, they wrote *"I like growing things and eating them"* (pupil survey).

This theme of enjoyment and relaxation directly relates to a couple of questions in the staff survey, which asked staff how many pupils the project had helped to feel more relaxed, and how many pupils enjoyed the project. On average, **staff perceived that more pupils enjoyed the project**, than pupils who found it relaxing. **On modal average, staff indicated that all pupils enjoyed the project**, as illustrated in Figure 16, in contrast to most pupils perceived to have felt more relaxed.

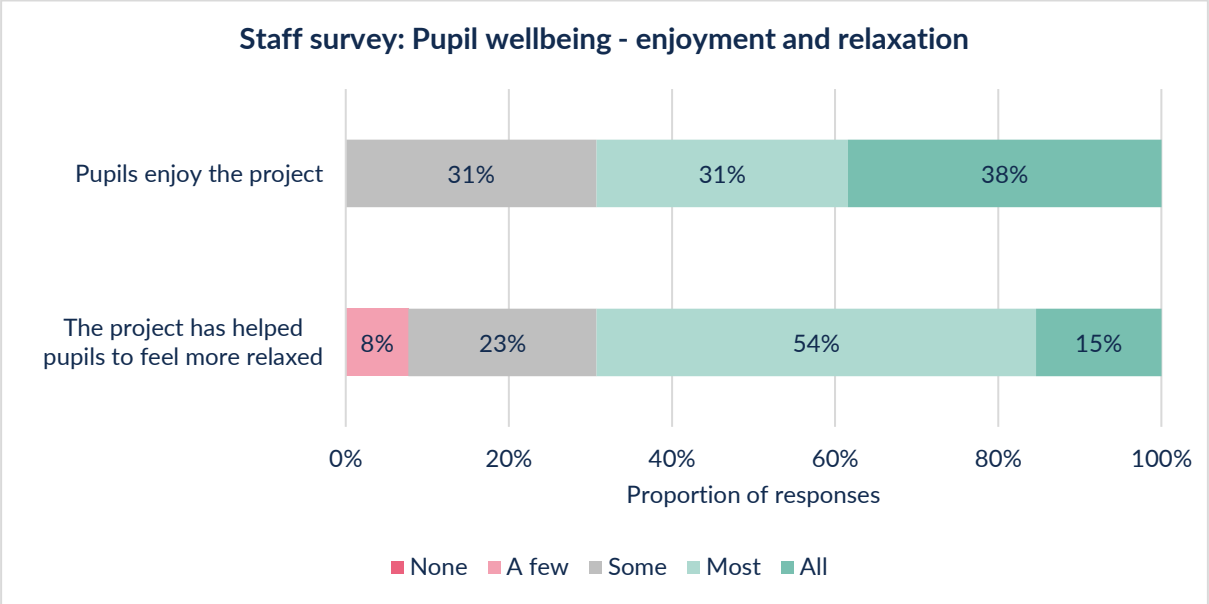


Figure 16: Staff survey – distribution of responses for pupil relaxation and enjoyment

Furthermore, the fluctuating trend of the pupil wellbeing score across the baseline, midpoint and final pupil survey was again echoed in the statement *'I've been feeling relaxed'*: pupils (unmatched) recorded their lowest score for this question in the baseline survey, at 2.95, then peaked in the midpoint survey, at 3.35, before dipping slightly in the final survey, to 3.23. The **overall change in the extent to which pupils felt relaxed throughout the project was positive**, supporting the perceived impact by staff in the focus group and interviews, and staff survey.

4.3. Negative impacts on pupil wellbeing

Participants of the focus group and interviews were asked if they had observed any negative impacts of the project on pupil wellbeing, however they **all agreed that there had been nil or very minimal negative impacts on wellbeing**, and felt that the impact had been overwhelmingly positive: *"There's just been no negative impacts on the students' wellbeing… why would there be?"* (PRU B).

Some pupils had initially been reluctant to handle dirt (earth, compost or mud) because of, for example, sensory reasons. This was also echoed by some pupils in the pupil survey, with a few mentioning their dislike for dirt and mud. However, project leads stressed that adaptations were made for pupils, such as wearing gloves or trying different tasks, which meant that the pupils were happy to get involved. The nature of the project allowed pupils to work at their own pace which helped to manage – and in some cases, overcome – some of these issues.

> *[When I garden or grow plants, I feel] good but not always [because] I don't like getting dirty"*
>
> - Pupil survey (midpoint)

Example: PRU D

Some pupils had sensory issues which needed to be managed throughout the project. Pupils found this particularly challenging at the beginning of the project when first introduced to different aspects, but the project lead reflected that the ongoing connection with nature and the materials was beneficial.

> *We've just had to manage some of the sensory issues… by giving them a bit more of a choice, some of them… who started off hating the idea of soil and dirt actually were fine at the end. Which is nice… I think the exposure did help, and not forcing them to do it, and doing it gently."*

5. Project Feedback

5.1. Usefulness of project structure

The project's structure had multiple different elements that PRUs could use and get involved with, such as the project website and 1:1 meetings with dedicated RHS staff. Staff were asked to indicate how useful they found these various aspects of the project in the staff survey. As shown in Figure 17, the responses were very positive – **for every project structure element, at least 45% of respondents found it very or extremely useful**.

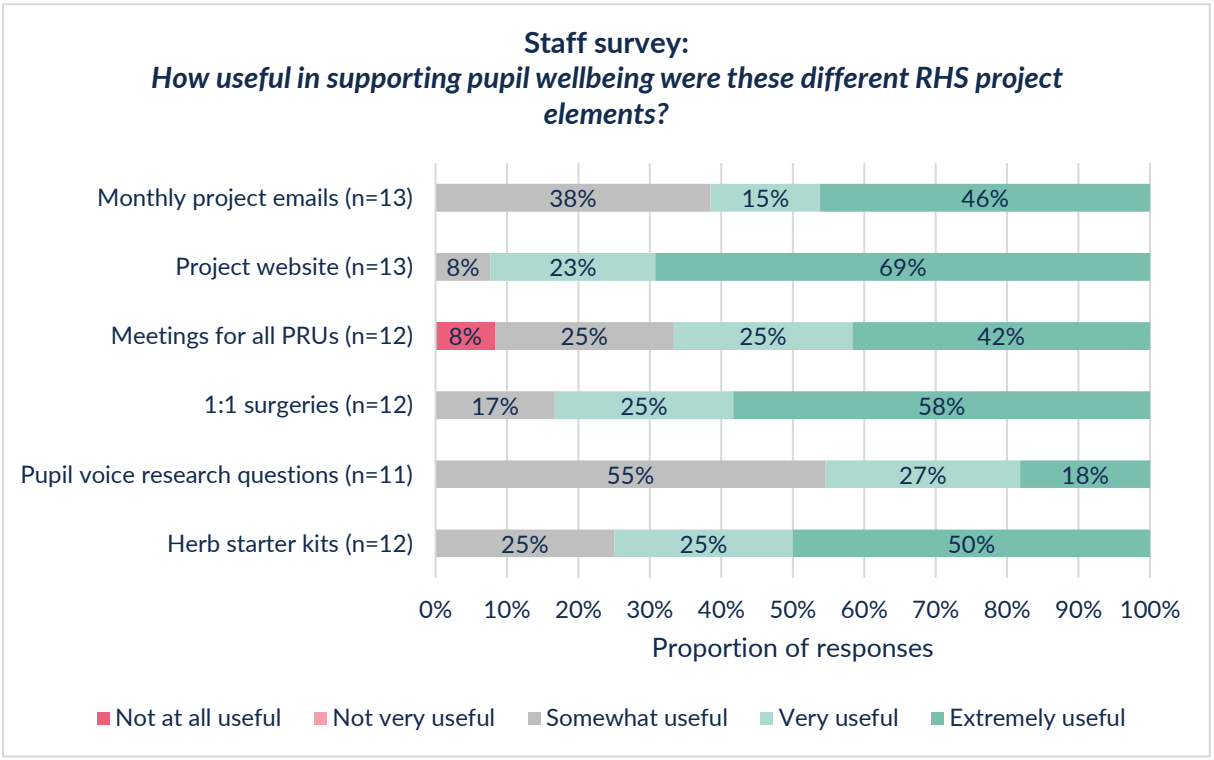


Figure 17: Staff survey - distribution of responses, usefulness of project elements

Staff found the **project website to be the most useful**, with over two thirds of staff finding it extremely useful. In the staff survey, one respondent highlighted the website alongside the monthly project updates, saying *"I think keeping the PRU website open and keeping monthly updates with ideas of what do would be good"* (staff survey). This **desire for project elements to remain available not only highlights how successful they were deemed to be, but also the perceived longevity of them.**

Figure 18: RHS Feel Good by Growing website

In the focus group and interviews, staff noted the **one-to-one and meetings for all PRUs as being particularly useful**, and noted the RHS staff's kindness and valued expertise: *"the one-to-one was really nice, having a chance to have a chat with people…who know what they're talking about and having advice and the fact [they] posted me seeds…so kind"* (PRU D). The **herb starter kit** was also mentioned by staff *"they sent us… different tasting herbs, and smelling the herbs and feeling them and making tea out of them and those sort of things, things I haven't done before… it was really good"* (PRU D).

Figure 19: Herb a' licious Kitchen Garden

In the focus group and interviews and the staff survey, the **creativity that the elements and resources (see *5.2. Usefulness of teaching* resources) had prompted** was mentioned by several participants. While the funds had given PRUs the ability to purchase new equipment and materials, the elements and resources gave staff ideas of how to garden and grow plants with pupils. Similarly, a comment in the staff survey also indicated that creativity was sparked in the pupils as a result of the project, too: *"it's sparked some great creativity from the students which has led to some unexpected and amazing opportunities. It has also resourced us to do more intersting activities which the students wouldn't normally have"* [sic] (staff survey).

While **one staff member found the meetings for all PRUs to be not at all useful, all others found them to be at least somewhat useful**, and the negative sentiment was not mentioned by the focus group and interview participants – as discussed above, the meetings for all PRUs was an element that project leads in the focus group and interviews indicated they valued highly. Although, one staff member in the survey said that *"a timeline of the meeting dates at the beginning of the year/term so cover can be found"* (staff survey).

5.2. Usefulness of teaching resources

As part of the project, the RHS also provided various resources which the PRUs could choose to use. PRUs were not restricted in how many they could use and had the autonomy to decide how exactly they used them. Similar to the feedback about the project elements, the responses in the staff survey regarding how useful these resources were gave an overwhelmingly positive outlook – **each project resource being found very or extremely useful by at least 58% of the staff who had used them**, as shown in Figure 20. The **vastness of resources available was praised** in the focus group and interviews: *"the resources were really helpful, there's a really wide range of them"* (PRU C).

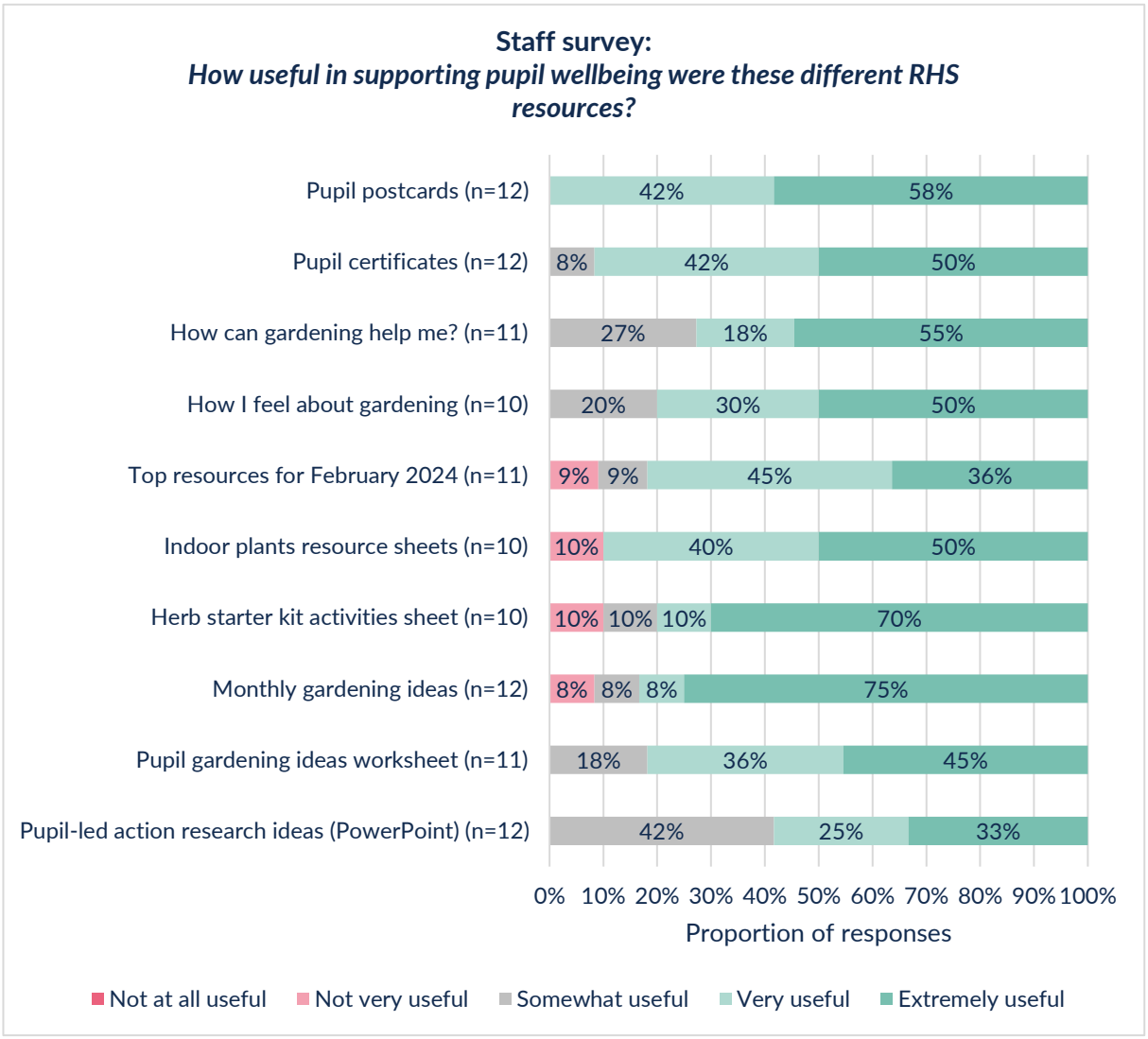


Figure 20: Staff survey – distribution of responses, usefulness of resources

The **pupil postcards were particularly popular**, with all staff finding these very or extremely useful. These were also mentioned by a project lead in the focus group and interviews, with one project lead eagerly showing them to the researcher in high praise: *"Here, Feel Good by Growing postcards… [they are] really nice, they can be sent home to say 'well done', so that's really good"* (PRU A).

Furthermore, **92% of staff in the survey found pupil certificates very or extremely useful**. This idea of a reward scheme links improving pupils' confidence, achievement and self-esteem, identified as a positively impacted (see *4.3. Positive impacts on pupil wellbeing and associated outcomes*). One teacher in the staff survey suggested *"badges (similar to prefect badges) would be a great idea"* as a way to build on this theme of recognition in the future.

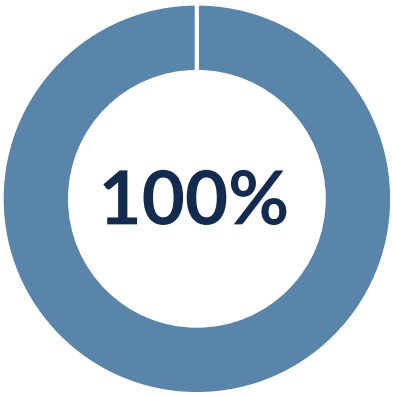
Indoor plants resource sheets were also highlighted as a valued resource, with 90% of staff in the survey indicating them as very or extremely useful. Indoor plants were intended by the RHS to be a key element of the project, as this meant that gardening and plant-related activities weren't constrained to the outdoors, and so the implementation of the project was not reliant on, for example, the amount of outside space available or the weather. Therefore, it is positive to see these worksheets valued so highly.

The **monthly gardening ideas were praised** in the focus group and interviews, particularly for the winter months which staff generally associated less with gardening and growing, and were in greater need of ideas for what to do: *"[it gave] lots of ideas of what kind of things to do in this time of year, that's always been a struggle in the past. Because there's loads to do in the growing season, but in the months that we were doing the project, it gave me loads more ideas of things that I'll do"* (PRU D). Linked to this, there were **suggestions in the qualitative data for the project to be delivered on different timelines**, for example one staff member in the survey suggested between January – September.

Figure 21: Pupil propagating indoor plants

However, the monthly gardening ideas were one of four project resources that not all staff members found at least somewhat useful (refer to Figure 20) – the others being top resources for February 2024, indoor plants resource sheet, and herb starter kits activities sheet. Nevertheless, for all of these resources it was only one staff member who found them to be not very useful, and no qualitative data from the focus group and interviews, nor staff survey, triangulated with this.

5.3. General Feedback



...of teachers said that they would recommend the project to other PRUs

The general feedback from PRUs about the RHS Feel Good by Growing project was exceedingly positive. In the staff survey, **85% (n=11) of respondents strongly agreed that they would recommend the project to other PRUs, with all others (n=2) agreeing**. This consistent endorsement underlines the project's success and its high perceived value among participating PRUs, with **their overall satisfaction suggesting that the project met – or even exceeded – their expectations**.

This positive feedback was buttressed by the qualitative data, both in the focus group and interviews and staff survey: *"the project has been absolutely incredible and has been one of the most engaging projects I have worked with and delivered"* (staff survey). This triangulation highlights participating PRUs' enthusiasm, **indicating the project's credibility and potential for wider implementation and replication across more PRUs**.

In the staff survey, staff were also asked to what extent they agreed that the project had had a positive impact on the wellbeing of themselves and their colleagues, as well as the engagement of the colleagues with the projects and the support received from SLT. As illustrated in Figure 22, on average staff agreed with all statements. **Senior leadership supporting the project recorded the most positive response**, although it should be noted that two of these staff members were members of SLT themselves.

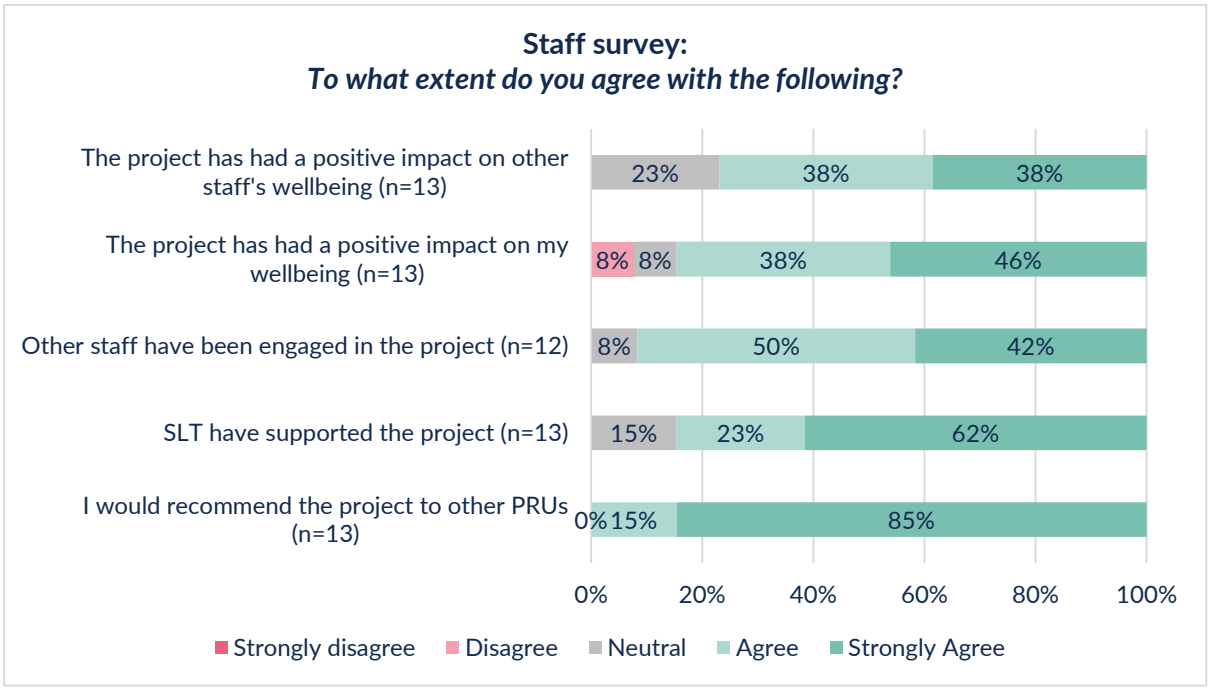


Figure 22: Staff survey - frequency distribution, additional feedback and impact on staff

These encouraging results indicate that not only did the project have an impact on pupils' wellbeing, but it also had an impact on that of the staff as well. This implies that **the project had a holistic impact within PRUs, benefitting more than one stakeholder**.

In the staff survey, staff members were asked if they had any specific comments on how the RHS could improve the project to better support pupil wellbeing. The question had seven responses. A theme that emerged was **collaboration with others, including agencies, charities and other PRUs**: *"it would be nice if there was a forum for school [sic] involved in [the] Feel Good by Growing [project] to share ideas of good practice or ask queries"* (staff survey). This was also something that emerged from the focus group and interviews. For example, one project lead suggested the arranged opportunity to visit other PRUs to understand how they implement the project to cultivate and share ideas, particularly if the project was expanded to more PRUs who perhaps have less experience with gardening and growing plants: *"there'll be a lot of PRUs who just won't have a clue what to do, and I know we live in the world of computers and the internet and social media, but the best way for people to understand and learn is by actually being there"* (PRU B).

6. Conclusion

This evaluation looked to investigate the impact of the RHS Feel Good by Growing pilot project in Pupil Referral Units (PRUs). Firstly, it aimed to understand how PRUs used the autonomy given by the RHS to implement the project within their settings, what enabled them to do this, and what barriers and challenges they faced to achieve it. Secondly, it examined the impact the project had had on pupil wellbeing in PRUs, and whether the project had helped to support and/or improve it. Lastly, it sought to reflect on feedback given by PRU staff regarding the structure and offerings of the project, as well as the impact on the staff themselves.

6.1. Summary of Findings

1 **How did PRUs implement the RHS Feel Good by Growing project, and what were the perceived enablers and barriers for doing this?**

- There were **six key themes that were identified as approaches** to implementing the project within PRUs from the data collected from the four participating PRU staff in the focus group and interviews:
  - Regenerating an outdoor space.
  - Promoting social cohesion, teamwork and working together amongst pupils.
  - Gardening as an entrepreneurial activity.
  - Promoting pupils' individual ideas and independence.
  - Gardening as an intrinsically beneficial or healthy process in itself.

  This **variability in approach, along with the positive feedback, indicates that it was beneficial for PRUs to have the autonomy** when deciding exactly how to implement the project in their setting, and this should be maintained in any future iterations of the project.
- **Motivating and enabling factors** for implementing the project in PRUs included:
  - Ideas, resources and guidance provided by the RHS for this project specifically, as well as other RHS resources generally available.
  - Internal factors of staffing and organisation, partly enabled by the project grants.
  - Form / structure of the project itself.
  - Ability to make contact, form links, and share ideas with other participating PRUs (this in particular could be improved in the future).
- **Barriers and challenges** to implementing the project in PRUs included:
  - Pupils' behavioural and mental health needs.
  - Environmental or logistical challenges.
  - Project timing and point of joining the project.
  - Financial barrier at the start of the project relating to payment of funds.

2 What impact did the RHS Feel Good by Growing project have on pupils' wellbeing in PRUs?

- In matched pupils (n=27), **pupil wellbeing improved by 16 percentage points** over the full duration of the project, which was a statistically significant change ($p<0.001$). This significance implies that the change was unlikely to be due to chance, although the low sample size should be noted.
- **Positive impacts on or related to pupil wellbeing** included:
  - Improved social and communication skills.
  - Increased confidence, achievement and self-esteem
  - Benefits of enjoyable, relaxing and mindful aspects of gardening
- There were **very minimal negative impacts on pupil wellbeing**. Some pupils with sensory issues struggled with some aspects of the project, however the project itself helped them to overcome barriers, and the flexibility of the project also accommodated for these challenges.

3 What feedback did PRUs have about the RHS Feel Good by Growing project, and how could it be improved to support the wellbeing of pupils more?

- On average, PRU staff found all project elements and resources useful.
  - **For each project element, at least 45% of respondents found it very or extremely useful**. The website was indicated as the most popular in the quantitative data, but the one-to-one and group sessions were widely commended in the qualitative data.
  - **For each project resource, at least 58% of respondents found it very or extremely useful**. The postcards were the most popular, with the wide range of resources also praised.
- **100% of respondents to the staff survey would recommend the project** to other PRUs. This highlights the perceived success and value of the project, and underlines the demand for it.
- The project had a **positive impact on both pupil and staff wellbeing**, indicating that it has a **holistic impact** within PRU settings.
- 92% of respondents in the **staff survey anticipate that they'll continue gardening and growing plants with pupils in the summer term 2024**, with participants in the focus group and interviews mentioning plans to continue for future years. This indicates that the project has inspired staff to garden and grow plants with their pupils, and **signposts to a healthy project legacy within PRUs**.

6.2. Recommendations

As a result of the findings in this evaluation, recommendations for any future iterations of the project include:

- **Keep giving PRUs autonomy regarding how the project is implemented in their individual settings.** This enabled them to tailor the project to their needs, choosing which RHS elements and resources they wanted to take advantage of to create an experience most beneficial to their pupils.
- **Consider lengthening the kick-off phase of the project**, namely the period between allocating PRUs funding and actively initiating the implementation of the project in PRUs. This is based on one PRU's experience reflected in the focus group and interviews where, as a maintained education provision whose funds are initially directed to the local authority, a delay in funding also delayed when they could properly start the project, including planning.
- **Create additional project structure elements and teaching resources while keeping old ones available**. The project elements and resources proved very popular, and it was explicitly suggested that the project website and monthly updates were maintained post-project as well as, for example, more resources such as seeds and reward badge schemes, and more elements such as more opportunities to collaborate with other PRUs, as this is something already valued and identified as something to build on. If the project continued, this recommendation could involve creating a bank of resources – including those from previous years – that build over time, with some potentially even becoming longitudinal (e.g. designed for longer-term projects in mind that develop as these are ongoing). This would cumulatively increase the supporting materials offered to PRUs, and ensure that PRUs could always refer back to particular resources if needed.
- **Keep offering grants for support in both gardening and growing, and staffing.** These grants were valued by PRUs, with the funding of tools and materials as well as the enablement of staff members spending time dedicated to the project (e.g. attending RHS meetings) really valued by PRUs.
- **Share a complete timeline of project elements at the start**, namely ones that involve scheduling times (for example, one-to-one meetings and meetings with all PRUs). This would help staff with their planning, hopefully driving attendance at these.

In addition, recommendations for any future evaluation regarding the project include:

- **Consider a longitudinal evaluation over a greater time period** to measure long-term impact. Findings from this evaluation suggest that pupil wellbeing increased most rapidly within the first ~10 weeks (baseline to midpoint), but it is unclear whether pupil wellbeing was then sustained or was starting to decline as the amount it increased between the midpoint and final surveys was much lower than the increase observed between the baseline and midpoint. A longer evaluation with additional data collection windows would allow pupil wellbeing to be tracked over a greater duration, investigating whether the impact on pupil wellbeing observed in this evaluation is sustainable.
- **Revisit the need for qualitative questions in pupil surveys.** While there was minimal negative impact of the project on pupil wellbeing, it was suggested by a project lead in the

focus group and interviews that the inclusion of qualitative questions in the pupil survey made some pupils stressed and overwhelmed. In future, consider alternative methods to collect pupil voice.

- **Increase the scale of the evaluation to increase the number of responses and response rate**. This is largely dependent on the size of the project, which in this evaluation was limited to 15 PRUs at a time because it was a pilot. If the project was to be rolled out to more PRUs, the evaluation's reach should also extend to include more participants. Additionally, increasing the proportion of participants who undertake the evaluation's aspects (surveys and focus groups) would improve the robustness of the evaluation.

7. Glossary

7.1. Evaluation terminology

Baseline

The initial assessment of pupils' attainment or social and emotional skills, at the start of an evaluation.

Change over time

The difference between a pupil's baseline result and their final result, either for attainment or social and emotional skills. This indicates progress made during participation in the programme. This will begin to indicate whether the programme has had an impact on pupils, though we must also account for other factors that could lead to this change, which is why we recommend the use of control groups and qualitative analysis.

Control Group

A control group is composed of students who do not participate in the programme and who closely resemble the pupils who take part in the programme in attainment and demographic traits. It is used to get an indication of whether a change in results over the course of the programme can likely be attributable to the programme itself, or whether results were likely to change over time in any case. Also known as a comparison group.

Evaluation

An evaluation is set up to measure the impact of a particular programme. This will involve monitoring the programme over a specified period, for one or more groups, in order to evaluate the progress participating pupils make. One programme can involve multiple evaluations, and we recommend gathering data across multiple time points to ensure valid and reliable results are generated.

Final

The final assessment of pupils' attainment or social and emotional skills at the end of an evaluation.

Matched Pupils

Matched pupils are pupils who carried out a baseline, midpoint and a final assessment at the start, during and end of the evaluation. It can be useful to consider results from matched pupils only because this means only including those pupils who participated in the full duration of the programme.

Midpoint

A window during a project that assesses pupils' attainment or social and emotional skills.

Outcomes
We use outcomes to refer collectively to any social and emotional skills and academic attainment scores that are being measured over the course of an evaluation.

Participating pupils
The group of pupils participating in the evaluation, and not forming part of a control group.

Programme
This could be any intervention, project or programme run in school with the aim of improving pupil outcomes or life chances.

7.2. Statistical analysis terminology

Statistically significant
A result has statistical significance when it is very unlikely to have occurred given the null hypothesis. In other words, if a result is statistically significant, it is unlikely to have occurred due purely to chance.

P Value
A p-value is a measure of the probability that an observed result could have occurred by chance alone. The lower the p-value, the greater the statistical significance of the observed difference. Typically a p-value of ≤ 0.05 indicates that the change was statistically significant. A p-value higher than 0.05 (> 0.05) is not statistically significant and indicates strong evidence for the null hypothesis; i.e. that we cannot be confident that this change did not occur due purely to chance.

Paired t-test
A paired t-test is a statistical method used to compare the means of two sets of data from matched participants (for example, the means of baseline and final data for the same set of pupils). The test determines whether there is a significant difference between the paired measurements. The test calculates a t-value, which is then compared to a critical value from the t-distribution to determine the p-value.

Unpaired t-test
An unpaired t-test is a statistical method used to compare the means of two different groups of participants to determine if there is a significant difference between them (for example, comparing the mean of baseline data for group A and the mean of final data for group B). The test calculates a t-value, which is then compared to a critical value from the t-distribution to determine the p-value.

8. Appendix

8.1. Survey design

Pupil survey

Question	Question style	Options / Scale (if applicable)
Your teacher will have given you a number for this survey. What is your number?	Number	
What PRU do you go to?	Dropdown	[List of participating PRUs]
What school year are you in?	Dropdown	Year 1 – Year 13
What month is your birthday?	Dropdown	January – December
What day of the month is your birthday on? e.g. 21	Number	
What is your gender?	Dropdown	Male / Female / Other / Prefer not to say
I've been feeling optimistic about the future.	Select	None of the time; Rarely; Some of the time; Often; All of the time
I've been feeling useful.	Select	None of the time; Rarely; Some of the time; Often; All of the time
I've been feeling relaxed.	Select	None of the time; Rarely; Some of the time; Often; All of the time
I've been dealing with problems well.	Select	None of the time; Rarely; Some of the time; Often; All of the time
I've been thinking clearly.	Select	None of the time; Rarely; Some of the time; Often; All of the time
I've been feeling close to other people.	Select	None of the time; Rarely; Some of the time; Often; All of the time
I've been able to make up my own mind about things.	Select	None of the time; Rarely; Some of the time; Often; All of the time
Have you touched a plant or seed in the last month?	Yes / No	Yes; No; Don't know
How do you feel when you garden or grow plants?	Open text	
If you answered the last question, what is it about gardening and growing plants that makes you feel like that?	Open text	
Do you want to keep gardening or growing plants?	Select	Yes; No; Don't know

PRU staff survey

Question	Sub-question (if applicable)	Question style	Options / Scale (if applicable)
What is your role?		Select	Senior Leader; Middle Leader; Class Teacher; Other (please state)
What PRU do you work at?		Dropdown	[List of participating PRUs]
Are you an RHS project lead at your PRU?		Yes / No	Yes; No
Have you gardened or grown plants directly with pupils since October?		Yes / No	Yes; No
Thinking about the following terms, how often did / have / will you garden or grow plants with pupils?	Autumn Term 2022	Matrix	Never; Once a term; Once a month; Once every two weeks; Once a week; More than once a week; Unsure
	Spring Term 2023		
	Summer Term 2023		
	Autumn Term 2023		
	Spring Term 2024		
	Summer Term 2024		
	Autumn Term 2024		
How useful in supporting pupil wellbeing were these different RHS project elements?	Herb starter kits	Matrix	I don't know what this is; I didn't do this; Not at all useful; Not very useful; Somewhat useful; Very useful; Extremely useful
	Pupil voice research questions		
	1:1 surgeries		
	Meetings for all PRUs		
	Project website		
	Monthly project emails		
	Pupil survey		
How useful in supporting pupil wellbeing were these different RHS resources	Pupil-led research ideas (PowerPoint)	Matrix	I don't know what this is; I didn't do this; Not at all useful; Not very useful; Somewhat useful; Very useful; Extremely useful
	Pupil gardening ideas worksheet		
	Herb starter kit activities sheet		
	Monthly gardening ideas		
	Indoor plants resource sheets		
	Top resources for February 2024		
	Holiday watering guide		
	Overcoming sensory barriers		
	How I feel about gardening?		
	How can gardening help me?		
	Pupil certificates		
	Pupil postcards		

Question	Sub-question (if applicable)	Question style	Options / Scale (if applicable)
In general, how many pupils would you say the following statements apply to?	The project has helped pupils gain confidence by developing new horticultural skills	Matrix	None; A few; Some; Most; All
	The project has had a positive impact on pupils' wellbeing		
	The project has helped to reduce pupils' anxiety		
	The project has helped pupils to feel more relaxed		
	The project has helped pupils to think more clearly		
	The project has helped make pupils feel closer to other pupils		
	The project has helped make pupils feel closer to adults		
	Pupils are engaged in the project		
	Pupils enjoy the project		
To what extent do you agree with the following statements?	I would recommend the project to other PRUs	Matrix	Strongly disagree; Disagree; Neutral; Agree; Strongly agree
	SLT have supported the project		
	Other staff have been engaged in the project		
	The project has had a positive impact on my wellbeing		
	The project has had a positive impact on other staff's wellbeing		
Do you have any specific comments on how the RHS could improve the project to better support pupil wellbeing?		Open text	
Is there anything else about the project you would like to share?		Open text	

Supporting our purpose driven partners to make better decisions using high quality evidence.

Get in touch

hello@impacted.org.uk

www.evaluation.impactedgroup.uk

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