Food for Life Partnership Evaluation

Garden Enhanced Education: report on the growing skills support programme

for flagship schools

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Garden Enhanced Education:

report on the growing skills programme in FFLP flagship schools

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in collaboration with
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Report Summary

Research shows that a diet rich in fruit and vegetables is associated with a decreased risk of many chronic diseases and can form part of an effective weight management strategy. However, only one in five children consume the recommended daily intake of fruit and vegetables - and there are wider concerns about the steady increase in childhood obesity.

Garden enhanced education in schools is increasingly recognised as a promising strategy for promoting healthier eating for children. It may also have other benefits, such as promoting environmental awareness. Whilst a growing body of research indicates the positive impact of focused interventions led by external experts, less is known about the effectiveness of multi-component programmes sustained by stakeholders from the school community.

The Food for Life Partnership Flagship growing skills programme is one part of a whole school food reform initiative in England in which schools are assisted to make comprehensive changes to their garden based educational work. Drawing upon the reports of lead teaching staff, this report focuses on 76 participating schools (55 primary, 19 secondary, 2 special) from the year prior to enrolment to approximately 18 months into the programme. Prior to enrolment, the majority of schools lacked the basic facilities needed to deliver an effective garden enhanced education; staff with applied horticultural skills; specific safety guidelines; or multiple links between growing activities and the curriculum.

The FFLP growing skills programme is associated with a range of positive changes for schools:

- New training in horticultural education for staff in over three quarter of cases.
- Newly developed areas for growing that have expanded, on average, by a third the size of a full size allotment per school.
- Better resourced growing areas for nearly all schools in terms of the facilities that are prerequisites for effective educational work.
- A considerable rise in the local production and the diversity of groups of crops grown.
- An average three fold increase in parent and community volunteer active participation.
- In primary schools, a rise in participation in growing activities from an average of 28.6% to 74.4% of pupils. For the schools sampled this equates to an additional 6,701 children participating in growing activities per annum.
- In secondary schools, a considerable increase of pupils in growing activities, albeit from a very low baseline. Initially less than 1% of pupils took part in growing activities in the schools sampled. This rose to an average of 12.3%: or an additional 1,960 students per annum.
- An increase in the active involvement of pupils in practical aspects of food growing.
- An increase in pupils taking part in growing activities that are linked to multiple aspects of their curricular studies.

The majority of school leads attribute these changes to effective engagement with the FFLP approach. Qualitative feedback indicates that this effectiveness connects to the strategic, integrated and visionary character of the FFLP growing skills programme.

External research shows that these short term programme outcomes will support sustainable work to promote healthier eating for children. Further evaluation, currently in progress, will provide supplementary evidence to examine these associations more fully.

Introduction

The Food for Life Partnership (FFLP) mission is "to reach out through schools to give communities access to quality local and organic food, and to the skills they need to cook and grow fresh food for themselves". FFLP wants "all young people and their families to rediscover the pleasure of taking time out to enjoy good food that makes them feel healthy and connected to the changing seasons."

By 2012, FFLP will have selected 180 Flagship schools in England based on their commitment and enthusiasm to improve food culture in the school and in the wider community. Flagship schools must be willing to take the fast track towards the FFLP Gold Mark award and to achieve the Bronze Mark award within two years. FFLP select a wide range of schools for the Flagship scheme including those with little previous track record in practical food education.

This is an interim report on the growing skills component of the Food for Life Partnership programme. It draws primarily upon data collected via the work of the Garden Organic and Health Education Trust teams in their work to enhance the food policy and gardening related delivery in flagship schools.

The study forms one part of a wider evaluation of the FFLP initiative. This study aims build an understanding of how the programme can deliver changes from the perspective of school staff. In order to track how the programme might deliver key outcomes in terms of healthier eating, food sustainability awareness and take home influences, this report explores the links between school aspirations, programme inputs, outputs and short term outcomes. It is, therefore, one stage in developing a more comprehensive analysis.

Context

Whilst schools develop garden related activities for a wide range of reasons, in recent years a major driver has been increased interest in their perceived value in the promotion of healthier eating, in particular fruit and vegetables. A diet high in fruit and vegetables is associated with a decreased risk of many chronic diseases including some cancers, heart disease, stroke, high blood pressure and diabetes (World Cancer Research Fund, 2007; Hu, 2003; He, Nowson & MacGregor, 206; Fung et al, 2008; Montonen, 2004). Research also indicates that increased fruit and vegetable consumption can be one part of a weight management strategy (Rolls et al, 2004) However surveys show that only one in five boys and girls consume the recommended daily intake of five servings of fruit and vegetables (Health Survey for England, 2009). This reflects wider concerns about the health of children and the steady increase in childhood obesity. Almost a third (30%) of children aged 2-15 years are overweight or obese and of these, nearly one in five is obese (ibid.). By 2020 the British Medical Association predicts that over one quarter of children will be obese and they will have a shorter life expectancy than their parents.

With most English children attending school daily, schools are in a unique position to influence and promote fruit and vegetable intake among students. Research drawing upon focused interventions in school settings indicates that garden enhanced education is a promising strategy for promoting children's interest in healthier eating.

Children's consumption behaviours are associated with direct experiential opportunities (Blanchette & Brug, 2005) and gardens in school settings offer the chance for children to develop a personal connection with their food. Research suggests that education with primary-school aged children about diet and nutrition should focus on such concrete experiences with food (Contento, 1981). Such participation is associated with: increased ability to identify fruits and vegetables (Somerset & Markwell, 2009); willingness to taste vegetables grown in the garden (Morris et al, 2000); and willingness to try vegetables in school meals (Morris & Zidenburg-Cherr, 2002).

Food preferences and peer influences have also been associated with fruit and vegetable consumption. Children participating in structured educational courses on growing express more positive preferences for fruit and vegetables (Libman, 2007; McAleese & Rankin, 2007; Morris & Zidenberg-Cherr; 2003, Birch, 1999). The school setting may also be important because they offer opportunities for positive peer influence and social support (Brug *et al*, 2008). Through practical work, teachers can model healthy behaviours to reinforce nutrition and health messages. There is also the prospect of a positive take home influence. School-based hands-on experiences with fruits and vegetables can enable children to prepare these foods at home with their families and influence the quality of the food their families buy and prepare (Heim et al, 2009; Demas, 1998).

Clearly school gardens can provide a wide range of benefits in addition to the promotion of healthier eating. Through creative outdoor learning, children have the opportunity to develop a wider range of practical life skills in addition to more generic social skills, such as teamwork. These broad opportunities for children's development have helped advocates align school gardens to the Every Child Matters Agenda. Whilst proponents feel that outdoor learning has been marginalised within mainstream education, school gardens clearly have a wide range of applications to the curriculum. Gardening activities provide hands-on study of nutrition and science concepts as well as a range of other subjects such as literacy, mathematics, history and the arts. Hands-on experience of local food production can help build a mandate amongst both pupils and staff for ecological improvements - thus contributing a wider agenda on well-being and sustainability in the school setting (Story *et al*, 2009).

Finally school gardens may contribute towards an agenda on community cohesion by offering opportunities for parent and the wider community involvement and the celebration of school life (Blair, 2009; Ozer, 2007). These effects can be longer term. Other studies have found an association between gardening and fruit and vegetable consumption, even when the gardening activity occurred in the past (Alaimo et al, 2008; Devine et al, 1999).

Whilst this research has considerable bearing on the role of garden enhanced education for public health, it is not without limitations. Research conducted on school gardening programmes has focused on primary schools whereas secondary school settings remain under researched. The research, largely North American, is not necessarily transferable to the UK setting. Such studies tend to focus on heavily structured, specialised and externally delivered interventions (CDC, 2010). Reports based upon these initiatives may not necessarily reflect their performance under 'ordinary' conditions (Nutbeam, 1998). Finally, other less research-based reports suffer from a surfeit assertion over empirical evidence (See Scott et al, 2003 for commentary).

Nevertheless, some research has started to examine the conditions under which garden enhanced education can become integrated into mainstream school practice. Some of the pre-requisites clearly include adequate space, facilities, equipment and partnerships to enable experiential lessons on fruit and vegetable production, preparation and storage. Other issues such as the threat of vandalism can be important considerations.

Others argue that other factors may be more critical for success. Whilst gardening remains a popular hobby, the effective management of growing projects over the course of a school year requires horticultural skill, enthusiasm and commitment. Previous research indicates that staff need professional development in this area, especially given that it has little place for this in contemporary teacher training. Whilst professionals from outside the school may play a part, in the longer term, schools need to develop in-house skills (Scott et al, 2003) drawing upon either staff or adult volunteers. This in turn requires buy in from the school leadership team, administrators and others such as grounds maintenance staff.

School gardens are also likely to have greater impact as part of a combined effort across a number of dimensions of school life. Thus their links to school food policy, educational cooking, food preparation and tasting activities, lunchtime food provision, and reinforcement through visits to farms or allotments and so forth can all contribute to the synergy and integration of an initiative.

Other potential issues remain under explored when understanding how schools implement and embed garden enhanced education. Our earlier primary schools case study research (Jones et al, 2010) suggests that children's regular and structured participation can be difficult to achieve particularly where there are practical obstacles to running group based outdoor learning and integration into schemes of work. Whilst there remain many attractions to school gardens, some of these obstacles may account for their patchy and uneven adoption in English schools.

Food for Life Partnership's Growing Skills Programme

FFLP's growing skills programme is led by the Garden Organic's team of Garden Education Officers (GEOs) with the active support from partner staff in the Health Education Trust, the Soil Association's Regional team and the Focus on Food Campaign. Whilst FFLP staff offer a menu of support that can be tailored to individual schools, all flagship schools are likely to participate in a process with common elements for the growing skills programme:

1. *Building a shared vision with the school*. FFLP officers learn about the school's priorities, interests and capacity for change.

2. *Developing clarity and realism of purpose*. GEOs help make an assessment of needs, consult with stakeholders and develop a garden plan as part of the wider whole school policy.

3. *Developing clear & robust working arrangements.* Working with an action group (pupil representatives, staff, parents, community volunteers), FFLP officers help to embed planned changes within the whole school.

4. *Training and development to inspire and build confidence.* GEOs provide training to staff and volunteers in areas such as organic horticultural skills, project development, curriculum links, safety and risk management.

5. *Assistance to achieve agreed inputs.* GEOs help deliver specific projects. GEOs largely offer specialist support time and dedicated educational resources. Some grant funding is available to improve growing facilities.

6. *Making links.* GEOs help connect garden activities with experiential learning from farms, use of produce in food in classroom activities, school meals, and wider -for example - environmental-learning.

6. *Celebrating achievements.* GEOs encourage schools to value their achievements through celebrations – and also to monitor progress and link changes to the FFLP Award framework.

7. *Sustaining and consolidating work.* GEOs help plan for the future through networking with like minded schools, advice on further funding opportunities, community engagement, voluntary support and the active participation of students.

A newly established school garden area

Children sow peas in a raised bed

Typically the HET policy officers work with a new flagship school over the course of the first term to develop a whole school food policy and an action plan. Meanwhile, with a focus on school gardening, GEOs work with their lead contacts to link in with the action planning. GEOs may have up to ten planned visits with each school over the period of eighteen months. At the end of this period GEOs draw up a hand over plan with the school and the FFLP Regional Coordinator. This marks the close of the main support period: although GEOs will continue to advise individual schools on an ad hoc basis. In this process GEOs do work directly with children, but largely in the role of modelling best practice with school staff or as part of a consultation and celebration event.

An FFLP Garden Education Officer runs a parent and child workshop

Schools selected for the Flagship programme are unlikely to have implemented a whole school approach to food reform. However, some schools may be performing at a high level at the outset in specific areas such as in garden based education. GEOs therefore tailor their work to meet the needs of the school. As the programme has progressed the process has remained largely unchanged, although GEOs have increasingly focused their efforts on community engagement and cluster working with locally affiliated schools.

Methods

Methodology

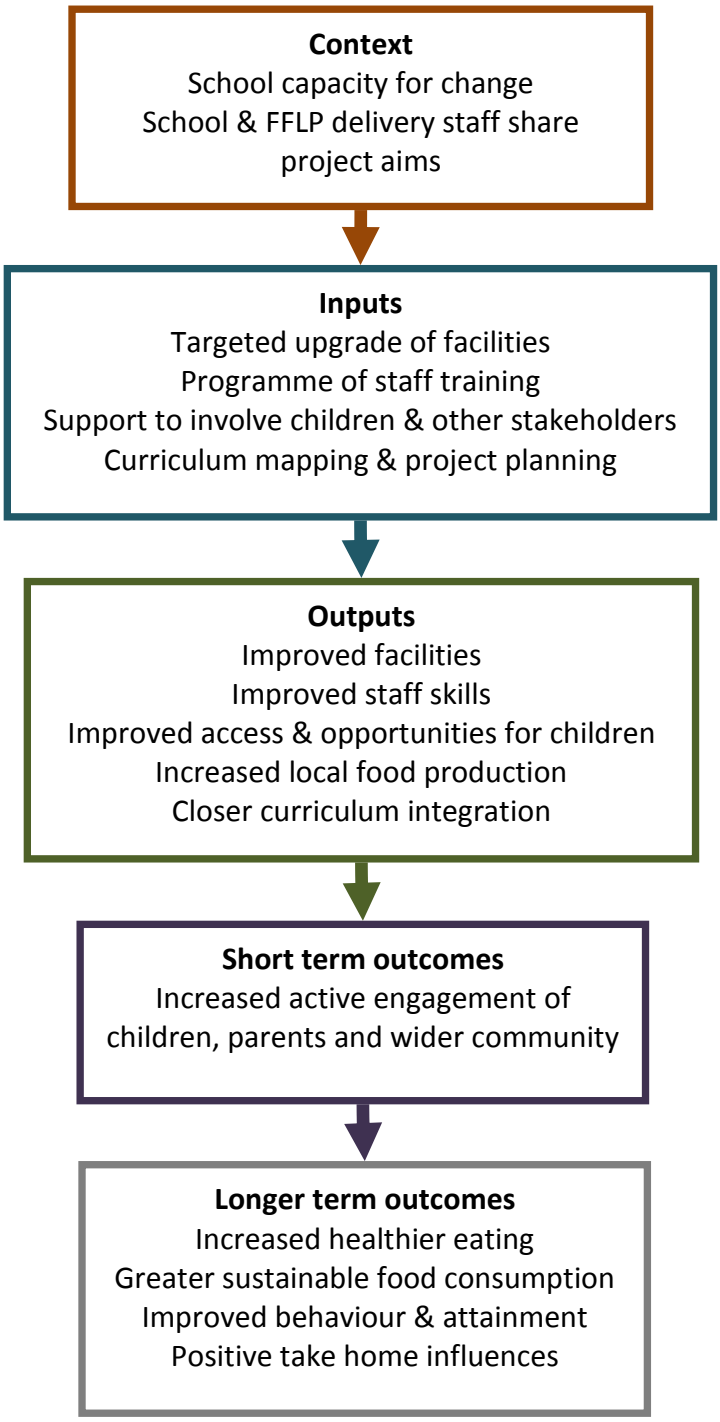
This study draws upon principles of the Connell and Kubisch (1998) 'theory of change' methodology inform the data collection and strategy for analysis . Drawing upon programme documentation, delivery staff feedback and external research a framework was developed for interpreting the links between programme context, inputs, outputs, short term and longer term outcomes. A simplified representation is set out in Figure 1.

This report is limited to an initial analysis of contextual, input, output and shorter term outcome data. Supplementary data will inform an analysis of the links to longer term outcomes and synergy with other components of the FFLP programme.

Procedure, sample, tools and data analysis

All schools selected to become FFLP Flagship schools complete some key forms that cover self assessment, planning and evaluation data collection. The school lead completes a baseline School Food Policy Fact Finder form with the assistance of an HET Policy Officer. Meanwhile a garden lead in the school, usually a member of staff but occasionally a volunteer, complete a Baseline Growing Skills Fact Finder form. A Review Growing Skills Fact Finder is then completed by the school garden lead after approximately eighteen months.

Figure 1. The Growing Skills Component of FFLP: a simplified theory of change



The tools were developed jointly by the evaluation team and FFLP delivery teams. The measures were largely generated on the basis of FFLP programme documentation, and feedback from FFLP staff and school staff. The tools were first piloted jointly in schools. After eight months of use, the Review Growing Skills Fact Finder tool was revised to include some additional performance measures and to simplify some of the questions. Where possible, we checked missing or ambiguous data with school leads directly or with the GEOs.

At the time of writing this report, 109 baseline questionnaires and 76 review questionnaires have been completed. This report focuses on the matched 76 baseline and review data. Over a third of the baseline and review questionnaires were completed by multiple members of staff. In a majority of cases a member of the SMT contributed to the completion of forms and 28 forms were completed with the assistance of the head teacher. The majority (64 out of 76) of the baseline and review forms were completed by the same member of staff.

All the data was entered onto SPSS Version 17, a statistical software package. Quantitative data were used to generate the frequencies and cross-tabulations in this report. Qualitative data were transcribed and analysed thematically (Mason, 1996).

Findings & Analysis

Profile of the sample

Seventy six schools from the nine England regions completed both baseline and review questionnaires. Table 1 shows the distribution across regions.

Table 1. Regional distribution of schools in included in the analysis

England Region	Frequency
West Midlands	12
South West	12
North East	7
East England	9
East Midlands	7
South East	6
London	6
Yorkshire & Humber	6
North West	11
Total	76

Of these 55 were primary schools. The average number of pupils enrolled in these primary schools was 287. This is somewhat higher than the England average of 228 (Riggall & Sharp, 2008) although the sample figure masks a considerable range (min.48; max.671; SD 137.5).

Nineteen were secondary schools with an average of 1077 on the pupil roll (min.675; max.1640; SD 241). Whilst the sector has considerable variation, this is somewhat higher than the England average (Newman, 2008). Finally, there were two special schools in the sample.

Where distinct trends in the data exist for primary, secondary and special schools these are noted in the following sections. Where no distinctive patterns were found findings from the whole sample is reported on.

At the outset 49.3% of the schools had Eco Schools flag status. This is in the context of 38.6% schools having Eco School flag status nationally (EcoSchools Statistics). Also at the outset, 75% had National Healthy Schools Status. 73% of the schools' catchment areas are in urban settings with populations over 10,000. Ten per cent of schools are located in rural (village/ dispersed settlement) catchments.

School goals & perceived barriers at the outset of the programme

This section reports on the aspirations and perceived barriers of school leads at the point of enrolling onto the FFLP Flagship programme.

Goals and aspirations

At the outset of the programme, school leads were asked to set out their vision for their school's growing activities. It was notable that many schools set out high ambitions for this area of work: 85% (n=65) including reference to the following in their vision statements:

- Making the link between growing and healthier eating
- Promoting learning about food and environmental sustainability
- Promoting active child learning and high levels of engagement and fun
- Promoting greater community engagement and parental interest in the school

These ideals were, on the whole, clearly congruent with the overall mission statement of the FFLP. Of course as part of the selection and enrolment process, schools had had to demonstrate a commitment to the programme goals. Nevertheless, the interest and motivation of staff and the wider school community is a strong prerequisite for successful project delivery. For example, one primary school had almost no track record in garden education prior to enrolment. Their initial vision was certainly ambitious:

> We'd like to see a growing area that is run by children and supported by parents. We'd like a school where the produce is being used in the kitchen. Growing-related events would be planned and run by the children – and parents are working with the children to produce the food. [#7]

Over the course of eighteen months, this school transformed the garden area, established a volunteer led garden group and increased tenfold the involvement of pupils in this area of school life.

When asked about who the schools would like to involve it was clear that the majority (86% n=65) felt that the school garden should be seen as a whole school community initiative; 48% (n=36) mentioned parents and families in particular; and 20% (n=15) specifically mentioned widening participation to include 'harder to reach' families- often in an informal and relaxed context.

School leads were asked how GEOs could help with the school's vision. Here the main themes reflected strong emphasis on training and coaching. Schools expressed the need for expertise, advice and support in relation to:

- Horticultural (general) training
- Horticultural (organic) training
- Inspirational examples

- Motivation and structure
- Community involvement
- Practical educational links
- Improving school meal take up
- Grants and access to further funding

Barriers to sustaining school growing projects

At the outset, school leads were asked to rate the significance of a list of issues that might affect the sustainable delivery of the growing skills programme in their school. Areas that were rated as most problematic were: freeing up staff time to dedicate to growing projects, equipment, running costs, and parent and community support: 'human resource' issues figure strongly. Other issues were rated as significantly less important. These included a suitable space within the school, links to the curriculum, parental consent and support from the SMT and governing body.

Table 2. School lead rating of potential barriers at the outset of the programme Percentages rounded to nearest whole figure (N=76)

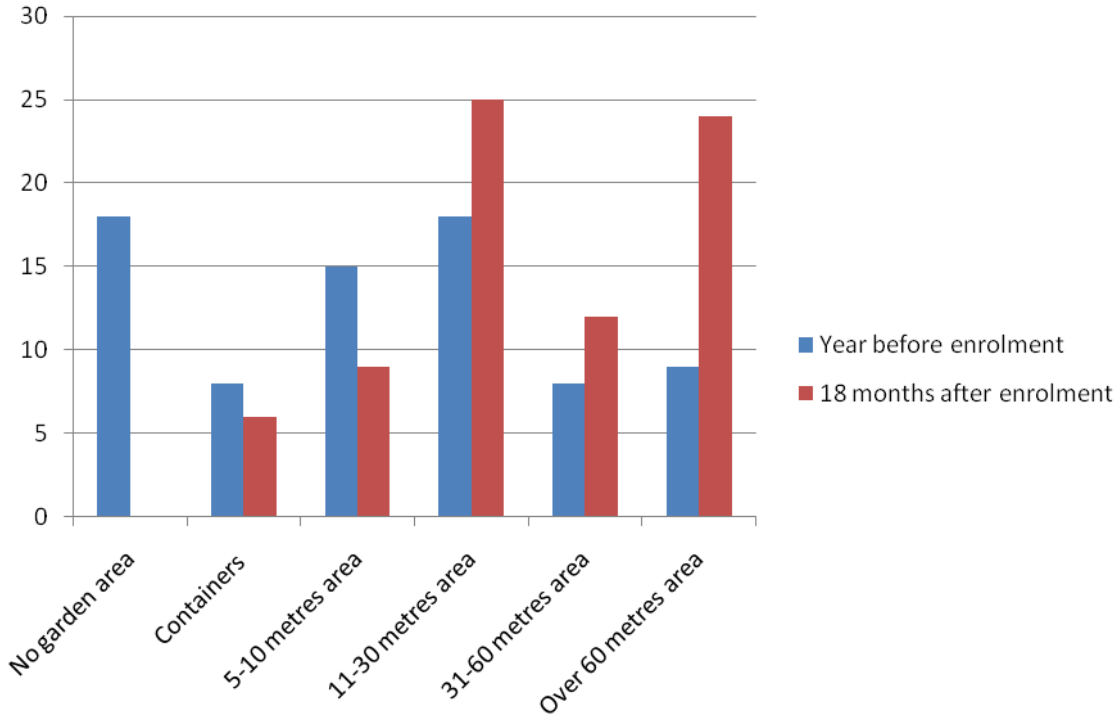
	Major issue 5	4	3	2	Not an issue 1
Freeing up staff to dedicate to growing projects	32%	28%	21%	5%	14%
Lack of equipment for growing projects	9%	29%	21%	20%	21%
Difficulty covering the costs of running a growing project	6%	26%	21%	18%	27%
Lack of parent or community support	13%	25%	24%	21%	17%
SMT and governors have not been able to prioritise growing project	5%	12%	19%	24%	40%
Difficulty in linking growing projects to the National Curriculum	4%	3%	25%	19%	48%
Lack of suitable space on the school site or nearby	3%	3%	8%	9%	78%
Doubts about the wider educational value of growing projects	0	4%	11%	8%	78%
Parental and Guardian Consent process	0	0	4%	12%	84%

School gardening infrastructure

This section covers changes in the facilities, equipment and key resources required for garden based education in the study schools. Seventy six per cent of schools (n=58) had some form of school garden before they enrolled with the programme. Secondary schools were less likely to have a garden: with only 57% (n=11) having some form of garden before enrolment.

Whilst most schools appear to rely upon relatively small areas of land, Figure 2 shows how the schools have considerably expanded the plot areas of their school gardens over the first eighteen months of participation in the FFLP Flagship programme. For the 76 schools as a whole, we estimate that this is the equivalent to the creation of 27 full size allotments. However, this may be a cautious figure given that orchard and supporting wildlife areas are excluded in this estimate.

Figure 2. Changes in the Size of the School Garden



Schools generally had good access to basic facilities such as changing rooms, hand washing, toilets and accessible paths. However at the point of enrolment the majority of schools lacked a full array of specific facilities to deliver a whole school programme of garden based education. Schools were likely to identify specific problems in relation to access to water, protective cover (such as a greenhouse), composting facilities, garden storage, tools, site security, and protection from animal pests.

The majority of schools had strategies for conserving or attracting wildlife. At least 40% of schools had a pond, a bird feeder and bird boxes alongside more general features such as insect attracting plants. It was noteworthy that a significant fraction, almost a third, lacked green space features on site such as hedges, trees, shrubs and wild flower or rough grass areas.

At review, the majority of school leads reported improvements in their gardening facilities (See Table 3). Basic improvements to the growing area, new tools and equipment and composting facilities stand out as areas that have seen the greatest levels of improvement.

Table 3. Changes to School Growing Facilities and the Green Environment

N=76. Note: percentages have been rounded to the nearest whole number

	New or improved	No change	Less good	Missing data
Standard of the growing area, eg soil quality, layout of beds	88%	12%	-	-
Access to services that support growing activities: changing facilities, storage, paths, fencing, hand washing, toilets	45%	54%	-	1%
Water collection, storage & conservation arrangements	63%	34%	3%	-
Composting facilities	76%	24%	-	-
Glasshouse, cold frame, cloches, polytunnel	66%	34%	-	-
Garden tools and equipment	83%	16%	-	1%
Features to attract wildlife (pond, wildlife areas etc)	65%	25%	8%	1%

Staff professional development & educational delivery

Prior to engagement with the Flagship programme the majority (57% n=43) of leads reported that their school staff had had no specific skills in growing or the use of produce in educational cooking. Similarly no members of staff in the majority (55% n=42) of schools had undertaken any specific training in a formal course of horticultural education. Only 11% of schools closely followed guidelines and principles for organic gardening practice, although 32% felt that they adopted some elements of organic gardening practice.

The overwhelming majority (85% or higher) of schools had policies in place for child protection, the use of photography in schools and working with volunteers. However schools were less likely (17% or lower) to have policies in place for supporting more growing specific aspects of work such as use of garden tools, risk assessments for use of garden produce in school meals or activities by ponds or making compost.

At review this picture had changed quite significantly in terms of skills development:

- 76% of schools had arranged for staff to undertake new training in horticultural education.
- 84% of school had adopted new principles and systems for organic gardening.
- 55% of schools had adopted new policies and risk assessment procedures for working in the garden, using tools and so forth.

School garden fruit & vegetable produce

Crop diversity

Leads were asked what vegetables their school had grown in the last twelve months. The questionnaire gave options organised into fifteen groups of crops, with options to specify further details:

> Salad plants; roots (carrots, parsnips etc); cabbage family; chilli, aubergines or peppers; leafy vegetables (spinach etc); soft fruit; peas or beans; tree fruits; onions, leeks or garlic; mushrooms; potatoes; tomatoes; pumpkin, courgette, squash or cucumber; herbs; other (specified).

Before enrolling with the FFLP Flagship programme, the majority (55%) of schools had only grown five vegetables or fruit from five groups. This very restricted range included the usual plants commonly employed in curricular study, for example, in primary schools these tended to be broad beans or cress (as part of KS1 science). Many schools lacked evidence to show that these were actually grown to the point of harvest. By contrast a minority of schools (20%) were already growing ten or more groups of crop in the year prior to enrolment.

The position had changed considerably at the point of review. Three quarters of schools were growing fruit and vegetables from over ten groups. This diversity included many unusual types of garden crops such as mushrooms, callaloo, chilli, squash, traditional English apple varieties, heritage plants (as part of the Garden Organic scheme for promoting older vegetable varieties). At review, a minority (9%) of schools were not growing much variety of crops (five groups of crops or less).

Use of produce from the growing area in the last year

The use of the garden produce might be a good indicator of how integrated the growing work into wider aspect of school life. Figure 4 shows a considerable shift towards actively making use of crops in school meals and classroom activities, as well as other socially useful ends in the extended school community.

Figure 3. Groups of fruit & vegetables grown by the school, from baseline to review. N=76

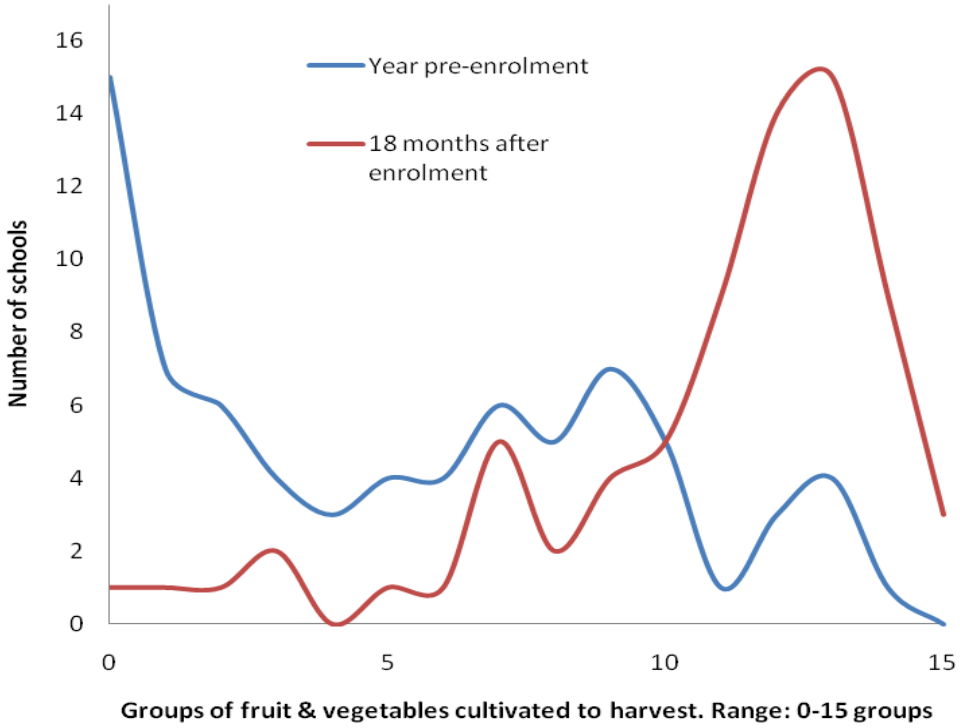
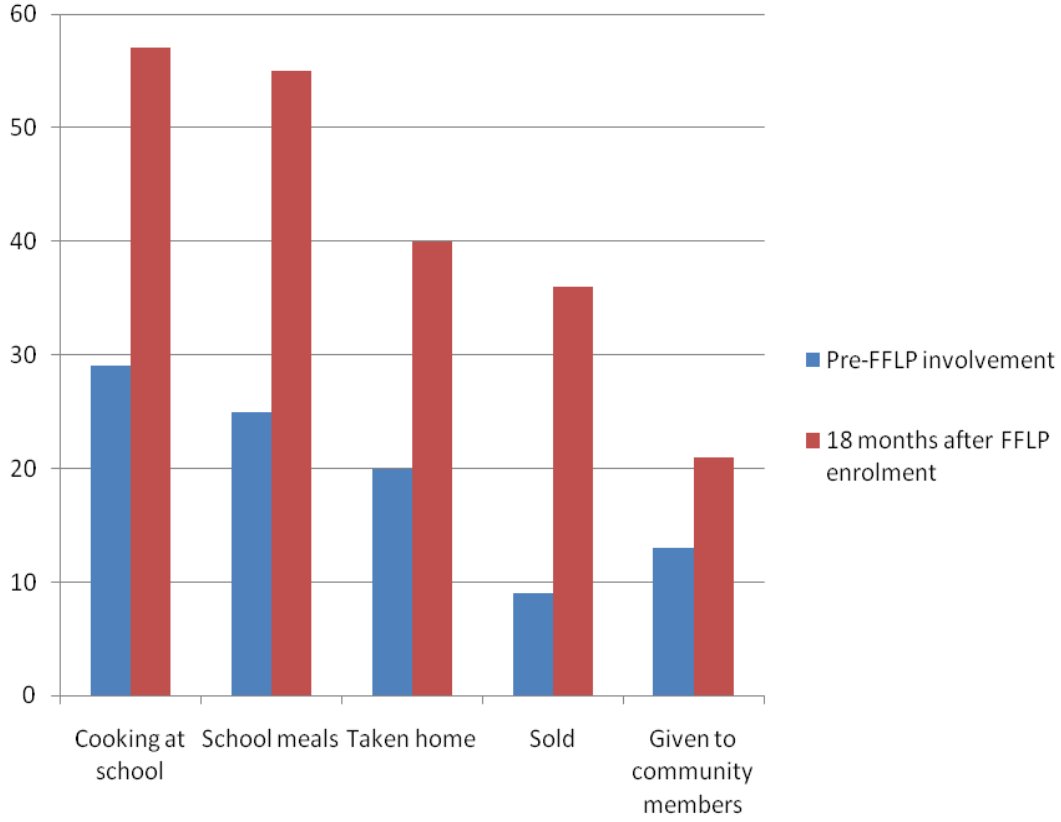


Figure 4. How produce from the school garden area is used: from baseline to review N=76



Integration of growing activities into the curriculum

Integration into curricular schemes of work is likely to be an important factor in the longer term sustainability of garden enhanced project work. School leads were asked to categorise the status of their curriculum links at baseline and review. They were also asked to provide supplementary evidence in terms of a summary statement, schemes of work and school improvement plans. At review a majority of schools had improved their links at either specific or multiple levels within the curriculum (Figure 5). At baseline, school leads tended to report rather limited connections, this was in contrast to the more clearly worked out programmes of work expressed at review. For example at baseline , one secondary school lead reported:

> We link our garden area to aspects of KS3 science, but this is actually a bit sporadic. (#63)

… and at review the school lead reported:

> We make use of regular flexi-weeks for all Years 7 and 8 and have made the garden area a central resource for Design and Technology.

Similarly at baseline, a primary school lead reported:

> We have some links to KS1 science- but that's about it. (#5)

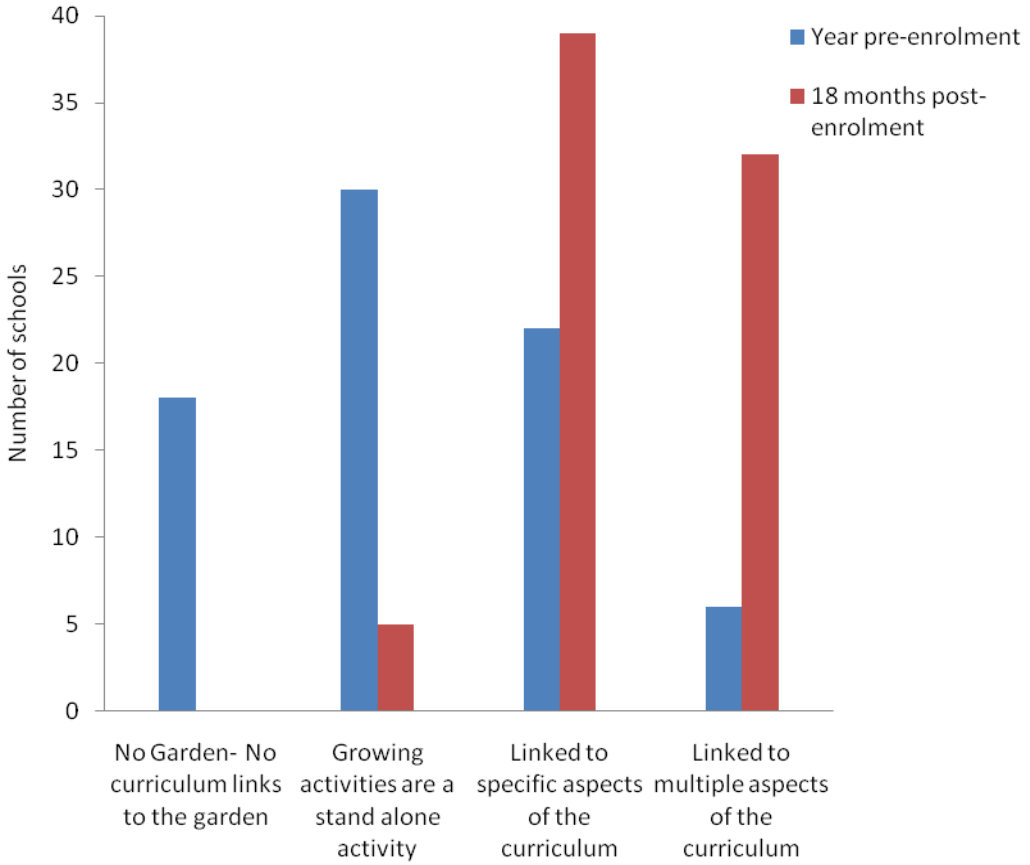
… and at review the school lead reported:

> We have dedicated curriculum time every week and part of our planning. Each class has a plot and classes do research do [horticultural] research for the garden in terms of conditions needed for growth, plant families and so on. This feeds into theme weeks around the topic of food.

For many schools at review the emphasis had shifted to integrated and holistic links between the garden area and many aspects of school life. Staff employed topic webs, thematic planning, focus weeks, the creative curriculum and whole school topics to realize this goal. GEOs played an important part in developing these schemes of work working alongside the teaching staff. As one school lead explained:

> Every teacher has downloaded a pack that the Garden Lead developed (in consultation with the GEO) on how to link their own curriculum area with organic food growing. All staff have had a joint session training them how to do this. *#56*

Figure 5. How growing activities are linked to the curriculum



Pupil, parent & community engagement

At baseline and review, school leads were asked to report the number of pupils taking part in a growing activity in the past twelve months. Here growing activities were defined as the school based cultivation of fruit and/or vegetables with the aim of producing a harvestable crop. School leads were encouraged not to include science based projects that did not have this aim – although in practice a 'fruit and vegetable growing activity' is not necessarily simple to define. The following figures include some cases where school leads have made best estimates. These are interpreted with caution, for example, where school leads reported the involvement of all pupils, a figure of no higher than 95% was recorded to allow for absences and pupil turnover.

In the primary schools an average of 28.6% of pupils took part in some form of growing activity in the twelve months prior to enrolment. In the twelve month period prior to the review this figure rose to 74.4%. In these schools this is the equivalent of an additional 6,701 children participating in growing activities per annum.

These overall averages disguise wide variations. At baseline, pupils in smaller schools (i.e. those in the lowest national quartile for pupil roll) were significantly more likely to be involved in growing activities. Children in schools with lower quintile of FSM entitlement were also more likely to participate in growing activities.

Patterns of participation are considerably lower for secondary schools. In the year prior to enrolment an average of less than 1% of pupils in the secondary schools had taken part in any form of growing activity in the last twelve months. At review this average rose to 12.3%. In these schools this equates to an additional 1,960 participating in growing activities per annum.

Overall, school size is clearly a significant factor in predicting participation in growing activities. This reflects wider research that shows that smaller school size – at least in the secondary school sector – is associated with more opportunities for flexible and personalised learning.

In addition to an overall pupil assessment of pupil participation, school leads were asked to assess the level and character of this involvement. At baseline only 16% of school leads reported that children were actively involved in most aspects of food growing including planning and maintenance of the garden area. At review 65% of school leads reported that pupils had taken on this more active form of engagement.

At baseline 12% of school leads reported that children in their school were able to actively make use of garden produce in school or extra-curricular activities, for example, for cooking activities. At review 52% of school leads reported that children had this opportunity.

Parent and other volunteers from the community can play a crucial part in the development, planning and maintenance of school gardens. School leads were asked to estimate the involvement of these adults in the twelve months prior to enrolment and review. Table 4 shows a considerable shift in the number of parents and the wider community volunteers with regular involvement in school garden activities. Assuming an average of seven adults for the five plus category, we estimate that on average this equates to a three fold increase in the active participation of core volunteers per school (from 77 to 230 people).

Table 4. Adult involvement: parents and community volunteers

N=76 Note: percentages have been rounded to the nearest number.

	High 5+ adults with regular involvement	**Medium involvement** e.g. 2-4 adults with regular involvement	**Low involvement** e.g. One adult with occasional involvement	**No involvement**
Baseline	2 (3%)	16 (21%)	18 (24%)	40 (53%)
Review	19 (25%)	27 (36%)	13 (17%)	17 (23%)

Effectiveness, success & challenges

Progress against the FFLP Mark Award Criteria

With regard to the growing skills component of the FFLP Flagship scheme, the schools in this study were very diverse at the point of enrolment. Whilst GEOs rated over 68% to be below the FFLP Bronze Mark for their growing skills, over 30% were already achieving quite a high level of performance.

The picture is very different at review. The majority of school were scoring highly for growing skills criteria and only a minority were under the FFLP Bronze Mark. The considerable progress made by schools against the growing skills criteria reflect FFLP staff reports that growing skills were some of the more achievable criteria in the FFLP Award scheme.

Table 5. GEO staff rating of school growing skills against FFLP Award Mark Criteria

	No rating	Bronze	Silver	Gold
Baseline	52	22	2	0
Review	12	21	31	12

Perceived effectiveness and fit with school priorities

As a later addition to the review questionnaire, a new set of measures asked a sub-sample of 40 school leads to rate the overall effectiveness of FFLP in addressing a number of areas for reform. Each rating was also matched against a school priority rating. Overall the effectiveness ratings are positive or very strongly positive and lend support to the empirical evidence of change set out in the earlier sections. Some ratings clarify areas that fell largely outside the remit of GEOs, for example in the assignment of school staff to project work. The ratings also highlight some areas that were clearly more challenging. These include engagement from parents, community volunteers and external organisations.

Table 6. With regard to the following areas (1) how effective has FFLP been in assisting your school? (2) how important has this area been as a priority for your school?
N=40. Note: percentages have been rounded to the nearest whole number, therefore percentages may not total to 100%.

	Perceived effectiveness of FFLP in assisting the school				Level of priority for the school			
	Very effective	Effective	Neutral	Ineffective	Very Important	Important	Neutral	Unimportant
Identifying or developing suitable sites for growing activities	60%	20%	10%	10%	53%	25%	15%	7%
Organic horticulture training and advice	70%	28%	-	2%	70%	20%	5%	5%
Health, safety and practical advice on management of growing areas	38%	35%	20%	7%	37%	43%	10%	10%
Linking growing projects to the curriculum and wider educational goals	34%	37%	27%	2%	53%	30%	8%	9%
Running costs for projects and activities	73%	20%	7%	-	63%	17%	13%	6%
Freeing up staff to dedicate to growing projects	15%	13%	25%	45%	53%	22%	8%	17%
Leadership support for growing activities from SMT, Governors & Council	40%	20%	28%	12%	55%	28%	5%	12%
Actively involving pupils in decisions	50%	25%	13%	10%	65%	20%	10%	5%
Actively involving parents of wider community	30%	37%	25%	9%	53%	33%	8%	7%
Support from other organisations and school networking	28%	37%	17%	18%	35%	45%	8%	5%

Perceptions of success and challenges

School leads were asked to identify the key aspects of the growing skills programme that they felt had worked well or were successful and those that had been less successful or challenging. Whilst there was a lot of common ground, primary and secondary schools were somewhat different in their emphasis.

Primary school leads identified a range of aspects associated with the specific support they had received from FFLP. These included: high quality training, general and specific horticultural advice, online and pack-based resources, small grant funding, curriculum links and so forth. However, more strategic and overarching theme was the role of GEOs in facilitating whole school change. Here leads reported the value of having a clear framework and timescale for action, an integrated perspective and a vision for long term sustainability. The following extracts illustrate some of this type of feedback:

> We've been given greater impetus to develop the project and to become more ambitious. Children have been more widely involved in the project with disaffected learners being enthused and having great pride in the project. It has also helped develop the staff team and community focus in the school. #45

> The 'fruit day' started the community involvement; it linked up the growing with the kitchen and got people involved. It also got the infant school inspired and they replicated what was going on with the growing. #87
>
> Staff workshops really got all the classes involved in growing fruit and vegetables and herbs in containers outside their classrooms. One workshop for student teachers led to seventy families coming to school for a seed sowing workshop. #75
>
> With regular support from the Garden Education Officer who has always been approachable and accessible, they have worked with the Garden Steering Group providing appropriate challenge whilst remaining neutral in the group. #43

Aspects that do not work so well tended to be weighted towards constraints from within the schools such as building works, staff changes, staff release or endemic difficulties involving parents rather than problems with FFLP programme inputs. FFLP administrative paperwork was an issue identified by five schools.

Secondary school leads also identified the strategic nature of the growing skills support programme as a great benefit. Given the basic starting position of most of these schools, the striking feature of the feedback was the rapid and radical change in vision reported in some cases:

> There has been a real thrust forward amongst the students in their understanding of healthy lifestyles and the importance of growing vegetables for consumption on the school site. We found that FFLP has actually slotted easily into a number of curriculum areas. #58
>
> [What stands out as being successful has been] helping to bring together all members of the school community together in meetings and the growing group. [FFLP staff] have given us a different view on how you can make growing really work in a secondary school. #59

However, possibly as a reflection of the scale of the challenges, secondary school leads were more likely to identify difficulties with FFLP model. Internal factors such as staff release and engagement from the SMT were problematic in quarter of cases. Parent and community involvement was a particular issue for some schools:

> We have been given ideas – or models – for involving people. The 'garden support model' didn't really work in our school. We found it much easier and more involving to include as many people as possible -by getting the individual staff involved and giving them encouragement to take pupils into the garden #84
>
> We've had difficulties getting parents and the local community to be on board. Our initial work and meetings showed that there was support for the project from a variety of local people and parents, but this hasn't been developed since. #46

Secondary school leads tended to express more concerns about the sustainability of the growing skills programme. Lack of teaching staff time, student interest, and parent buy in were all mentioned as threats to longer term sustainability. In comparison to primary schools, there were also large organisation issues associated with staff coordination and 'project churn':

> The group needs support from the ground staff for the project to be successful. At present they do not seem to think that they are required to be involved at all . We would really welcome their support and a little of their time. #58

> Each year we run many, many projects in the school. The risk is that the FFLP garden area is just another one that comes, then goes, only to be replaced by the next project. #85

Distance travelled, added value & innovation

This section focuses on three types of school performance evident in the data:

1. Slow track schools
2. Fast track schools
3. Schools performing highly before enrolment with FFLP

In the present analysis, we are concerned to identify lines of enquiry that will inform the main report. The analysis considers plausible trends and statistical associations in the data. The scope for regression analysis will be explored in the main report.

Slow track schools

Depending upon the measure used, between 6 to 8 primary schools and 4 to 12 secondary schools showed little or no progress in terms of:

- percentage of pupils involved in growing activities in the last year,
- growing links to the curriculum,
- staff horticultural training and skills,
- crop diversity,
- parent and community participation.

Slow progress is most strongly associated with the flagship phase of enrolment. For example, staff training outcomes are significantly weaker in Phases 1 and 2 compared to later phases (see appendix for cross tabulation). This lends supporting evidence to the view that the GEO team has made successful innovations to their work as the programme has developed over time.

In addition, participation of pupils and parents appears to be most plausibly linked to the larger scale of secondary schools: schools with over 1200 pupils have the lowest rates for these measures. Scale does not appear to be such a factor in primary schools, although future analysis in the evaluation may identify trends in the larger dataset.

Fast track schools

A number of contextual factors appear to be associated with ‘fast track schools’: those that entering the FFLP programme starting from low baseline and proceed to make significant changes. These include: small school size, lower FSM entitlement, and rural school catchments.

However these associations are not consistent. Some schools in all settings have clearly progressed to meet FFLP Mark criteria and have shown positive changes across measures. This indicates that programme model is applicable across a range of school settings,

especially so in the primary school sector (see below). It also highlights the role of the school's vision for change and stakeholder buy-in to enable change in settings that may be challenging.

Schools performing highly before enrolment with FFLP

About one third of schools were already actively delivering garden enhanced educational projects before they enrolled as FFLP Flagship schools. According to GEO ratings for growing activities using the FFLP Mark criteria, 24 out of 76 were at 'Bronze' standard prior to enrolment as a flagship school.

Clearly there is a question about the added value of the FFLP programme for these schools. According to GEO ratings 17 of the 24 progressed further to 'Silver' or 'Gold'. Meanwhile 7 schools did not progress further on from 'Bronze'. If these proxy measures are valid[1], then the data indicates added value for 70% (n=17) of those schools already performing at a higher level before they engaged with the flagship programme.

[1] This study has not currently assessed FFLP Mark criteria or awards as proxy measures for outcomes or performance

Conclusions

This interim report provides one set of findings and analysis to inform the wider evaluation. There are some limitations to the analysis in the report. These include:

- School lead reports may not reflect the perspectives of other staff in their schools, particularly with regard to the subjective ratings and qualitative feedback. They are, however, likely to reflect the strategic perspectives of the school leadership team.
- Some review reports have been delayed and therefore could not be included in this analysis.
- Some new questions were introduced to the review form during data collection. This means that we are missing some data, for example on ratings of programme effectiveness for earlier phase schools.
- School leads have provided additional information on implementation through programme application forms. This data is not analysed in this report.
- Whilst the study has a pre- and post- design, there is no external comparison with schools outside the Flagship programme. This limits understanding of how schools can make growing skills reforms in the absence of FFLP flagship support. The original evaluation proposal included a matched comparison with non-Flagship schools, however this component of the evaluation was not finally commissioned.

The findings show that the growing skills programme model is highly congruent with the aims, expectations and priorities of school staff themselves. School goals to improve healthier eating, pupil and adult involvement, curriculum links and whole school food integration are also evident in school priorities at the point of review. This might be anticipated when we bear in mind the self selected programme recruitment process. Nevertheless evidence shows that this shared understanding is a critical success factor for health programmes in schools.

Prior to enrolment with the FFLP flagship programme, the majority of schools lacked the basic facilities needed to deliver an effective programme of garden enhanced education. The majority of schools lacked staff with applied horticultural skills. Few schools had specific safety guidelines and only a small minority linked garden-based activities to multiple aspects of the curriculum.

The FFLP growing skills programme is associated with a range of positive changes for flagship schools:

- New training in horticultural education for staff in over three quarter of cases.
- Newly developed areas for growing that have expanded, on average, by a third the size of a full size allotment per school.
- Better resourced growing areas for nearly all schools in terms of the facilities that are prerequisites for effective educational work.
- A considerable rise in the local production of fruit and vegetables and in the diversity of groups of crops grown.
- An average three fold increase in the active participation of parent and community core volunteers.
- In primary schools, a rise in participation in growing activities from an average of 28.6% to 74.4% of pupils. For the schools sampled this equates to an additional 6,701 children participating in growing activities per annum.

- In secondary schools, a considerable increase of pupils in growing activities, albeit from a very low baseline. Initially less than 1% of pupils took part in growing activities in the schools sampled. This rose to an average of 12.3%: or an additional 1,960 students per annum.
- An increase of the active involvement of pupils in practical aspects of food growing, and the use of produce in and out of school.
- An increase in pupils taking part in growing activities that are linked to multiple aspects of their curricular studies.

The majority of school leads attribute these changes to effective engagement with the FFLP approach. Qualitative feedback indicates that this effectiveness connects to the strategic, integrated and visionary character of the FFLP growing skills programme.

These findings in themselves do not in themselves provide evidence that the FFLP programme is associated with healthier eating or favourable attitudes towards sustainable foods. Referenced against external research the findings do, nevertheless, provide a plausible basis for tracking through to these longer term outcomes.

It should be noted that the overall findings conceal important variations and patterns. There are distinct issues in secondary schools to do with organisational scale, project coordination, curriculum integration and stakeholder commitment. These issues help account for the low baseline and slow progress for some of these schools. Whilst not all schools have greatly enhanced their growing based activities, there is evidence that FFLP staff have used these experiences to innovate and enhance their delivery. In comparison to the early phase schools, later phase schools show significantly better outputs in terms of staff training; pupil, parent and community engagement; and growing activities and facilities.

Given that all schools in England can access FFLP online and print resources, one question concerns the added value of the in-person professional support offered as part of the FFLP Flagship scheme. Whilst we do not have a comparator, it appears that the additional contribution of GEO and other FFLP staff support, above and beyond these resources, has been to rapidly accelerate a focused reform process for participating schools. Given the ambitious character of FFLP's 'whole system' approach it is plausible that expert personal coaching and advice has enabled participating schools to realise their vision to link educational work, stakeholder involvement and sustainable food provision. The role of these schools as exemplars would be an additional dividend for the educational sector.

At the point of review, GEOs had only recently tailed off their personal support to schools. Longer term sustainability remains an open question, however the majority of schools were able to show evidence of how they had succeeded in actively skilling up and engaging a wide range of stakeholders in the initiative. External evidence shows that this type of support is a good predictor of sustainable project delivery.

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Appendix: Staff Horticultural Training Outcomes at Review

This cross tabulation shows that staff in Phase 1 and 2 schools are significantly less likely to report good or excellent training outcomes compared to those schools in later phases.

Review question: What best describes state of Horticultural training?

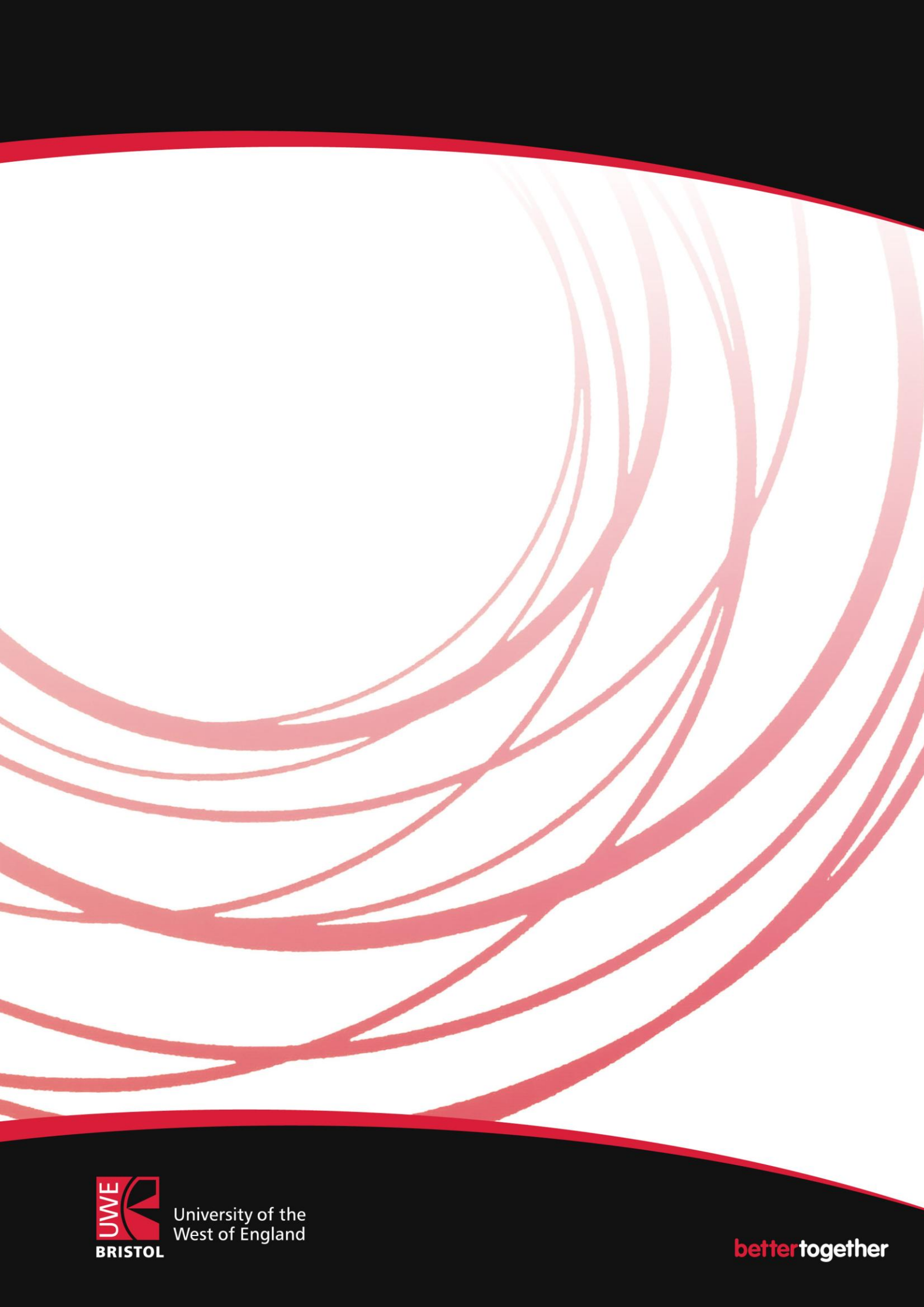
Crosstabulation with Early Phases 1&2 and Later Phases 3,4 & 5

			What best describes state of Horticultural training		
			Excellent or Good	Fair or Poor	Total
Early Phases 1&2 and Later Phases 3,4,5	Early Stage Delivery	Count	4	12	16
		Expected Count	7.1	8.9	16.0
	Later Stage Delivery	Count	12	8	20
		Expected Count	8.9	11.1	20.0
Total		Count	16	20	36
		Expected Count	16.0	20.0	36.0

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.410[a]	1	.036		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.11.

b. Computed only for a 2x2 table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