School Gardens and Cultivating Learning

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Abstract.

A strong positive link has been established between children's learning and out of class activities (Bloomfield, P. 2000 & 2001; Humphries, S., Rowe, S. 2004; Palmer J, 1998). In this paper we aim to bring together key concepts from both Education for Sustainable Development (ESD) and Global Citizenship (GC) through a child's experience of learning through growing plants in a range of settings and contexts. These include examples from British Early Years settings to ITE and African case studies. The paper argues for greater emphasis of school gardening in ITE and illustrates a selection of ways forward and work in progress

Rationale

Gardening in the school curriculum can, and arguably must, address most of the ESD & GC concepts whilst simultaneously addressing subject criteria (Bloomfield 2003a), and an example of how this might be done is shown below:

Full of Beans

Beans are often used in science to illustrate germination; the blotting paper and jam jar experiments common to many classrooms. Sadly it is often the case that after germination the bean (usually a runner bean) is discarded. Cross curricular work can capitalise from the start in science. If eight to twelve beans are planted in 15cm plant pots or in the ground, 1.5m bamboos arranged from each plant to form a 'wig-wam' much cross subject learning can be generated:

- Mathematics- measuring weekly growth, counting leaves, flowers and beans, measuring beans number of beans per plant or pod (shape, size, measure etc)

- D&T – structures with bamboo, alternative designs for support, food technology
- Art – colour and texture of leaves and bean pod / seeds, flowers, shapes, design
- Science – full life cycle; rate of growth, differences related to watering, soil, light and shade position, seeds, composting, fair testing.
- English – recording, diary / story of the bean. Writing for purpose, creative writing (Jack and the Beanstalk)
- Geography – position in garden (NSE or West) sheltered or exposed, wet or dry
- PHSE – healthy fresh food
- ESD – Food and seed production, reducing food miles, pollution, interdependence/ citizenship in teamwork for watering, shady wigwam to play inside,
- Local and global citizenship – we *can* grow food locally, comparing with food from other places for example, imported beans, sharing seed with link schools abroad, advantages and disadvantages of growing our own food.

Much of the above appeals to all learners (VAK), is inclusive, develops creativity, transferable life skills and addresses key initiatives; ECM, PNS, outdoor learning, Healthy schools, Food & Farming initiatives. Lorna Howarth commenting on an organic garden at the 2008 Chelsea Flower show suggests a;

> "vision to inspire and educate visitors to replicate techniques… remove paving slabs, grow beet, beans etc…to become a 21C, post-peak-oil supermarket….. helping to reduce carbon footprint"
> (Howarth 2008 pp33)

A survey analysed in Garden *Organic* (2007), found that by growing our own, organically we ….:; "…reduced the carbon dioxide per household by on average by 33% of national average (7.4 compared to 10.9 tonnes) and reduced our ecological footprint to only requiring 2.5 planets to live, compared to the UK average of 3.4 planets" (Davies & Schmutz, 2008 pp 24).

Jim Knight, Schools Minister in November 2006; underpinned support for this rationale;

"Children should be encouraged in school gardening and sustainable development trips" and it is "Important that every child has access to learning outdoors"

The imperative has never been more urgent. The planet surface is finite and space for growing food is threatened by urban development, sea level rise, desertification, soil pollution, increasing population and over-consumption in some developed countries. Increased interest in using food producing land for bio-fuels along with some recent food scarcity has added another dimension when considering the land available for growing food.

Visualising what we've got, the planet as an apple….

Consider **the planet as an apple** and try this demonstration with your students. You will need an apple and a sharp knife. Cut the apple into segments as below, helpful to place discarded segments on an overhead projector or visualiser:

- Cut into quarters through the core; discard 3/4s as unavailable for food production as these represent land covered by water
- Cut remaining ¼ into half, discard one half (1/8th) mountains, desert or ice not good for food production
- Cut remaining 1/8th into four vertical segments (4 x 32ndths) discard 3/32 as rocky, wet, hot, infertile or covered by roads and cities
- 1/32 (only) remains: peel this segment. The **peel** represents the topsoil available to feed whole world.

We contend that ITE must inspire future teachers, children and parents, indeed whole communities to learn to enjoy the benefits of growing their own

food while recognising that they are playing their part in engaging with ESD and GC.

Global links, Global Citizenship

Whilst gardening is generally seen as peripheral to the curriculum in Britain, in other countries it is often central, and linked to science. Much debate is currently taking place regarding 'school linking' and many schools are aspiring toward the International School Award (ISA) which requires a mutual link to be in place and be maintained.

In discussions with schools in The Gambia, West Africa, and their partners in England one common, underpinning foundation emerges for good partnership. This centres on mutual aims, planning and sharing of study topics. Examples of work involving faith, waste management, weather and citizenship have all been successful. With increased interest in gardening and given that it is a taught subject in The Gambia, this makes an ideal partnership topic.

Teachers on recent visits to the village of Mandinari in The Gambia met with their counterparts, discussed the possibilities and set up a timetable for implementation of a gardening project between reception classes. The Mandinari School was just getting to grips with a small banana plantation behind the classroom and were planning to dig more land so that a wider variety of vegetables could be grown. First the area had to be enclosed to prevent wandering goats from eating everything in sight! The children made drawings of the crops they were going to grow and sent these to the school in Hertfordshire.

Howe Dell school, Hatfield, had recently moved into a state of the art ESD building on a brown-field site, an ex airfield. The teachers had worked hard to incorporate ESD into as much of the curriculum as appropriate and a gardening club was already in existence prior to the move. The reception teacher who had visited The Gambia was now faced with a similar situation to the school in Mandinari. A rough piece of land, level and left in a reasonable

condition by the builders has been turned into raised beds for every class in the school. The children just managed some spring planting, which has been recorded and sent to Mandinari. The teachers will co-ordinate further in-class work to share and compare.

This is not the place to set out all the curriculum possibilities for the Hatfield school (see Bloomfield 2001, 2002, 2003a & b) but on a personal note, some carrot seeds I had taken to another school The Gambia in early December 2007 had been sown, tended, harvested and sold in the local market by the children before I returned in February 2008! Learning possibilities for children in Hatfield involve soil type, climate and weather, plant care, harvesting, weighing, pricing, mental maths at the market, all reinforcing Knowledge and Understanding of the World, contrasting localities and a host of mathematics and English possibilities.

Ideas to inspire

A research project by Bowker and Tearle at Exeter University in conjunction with the Eden Project, has proved to be an inspiring concept and one with some interesting and useful findings. The project, Gardens for Life, involved 67 schools in India, Kenya and the UK in rural and urban areas with both primary and secondary schools.

The findings were interesting and useful to our project at Roehampton and effectively demonstrated the differences in perceptions of school gardens between children in the UK and Kenya and India. In the UK;

1. children perceived gardening a form of **pleasure** and **recreation**
2. children rarely recognised of the importance of gardening for **production** of actual food
3. **few** children made **global links**
4. there is **little** awareness with children of the **appropriateness of tools** used in gardening nor in **soil science** and the **effect of the weather and climate.**

...while in India and Kenya the children.....;

1 perceived gardens as a place of **learning, community, security and peace**
2 were very **aware** of the **productivity** of their gardens
3 had a **clear** idea of **appropriate tools** and **impact of weather and climate**

(Bowker and Tearle, 2007)

These factors may well influence the students desire to become involved in such a project and develop their motivation, so enhancing their learning. It also provides the opportunity for further research into such global and cultural differences for both staff and students.

Research findings; work in primary schools

A small-scale research project in 2002 in three St Albans Primary schools was based on how they would make use of a modest grant from the county council in order to set up school gardening. The three head teachers met with the researcher on a regular basis and, whilst approaching gardening from different perspectives, were enthusiastic and developed unique plans for their respective schools.

The plans ranged from developing a full allotment (300metres from the school) into the curriculum; using a plot of land adjoining another school for small plots to be shared with ethnic minority parents and children and the third plan entailed re-developing part of a school grounds plot with the help of grandparents and senior citizens. All heads produced detailed plans for their projects, hand drawn and time related. Over the span of the project neither of the heads involved or delegated work to other colleagues. Some colleagues saw the project as an unwanted extra to their already crowded timetable; others 'had their own gardens to dig, thank you'!

One head enlisted a willing caretaker and parent helper on the allotment. Here children proudly grew large quantities of strawberries, 'bucket-loads',

which they shared in school via the Breakfast Club. Exciting experiments comparing shallow and deep burrowing worms took place, but they weren't exciting enough for Ofsted to step across the road to observe and record! Even though the adjacent plot at another school was repeatedly rotavated by the council the mix of parents and children did not materialise but progress continued along the walled garden border in the thirds school.
In the short term two of the Head teachers had to retire due to ill health and those projects folded. (Bloomfield 2000, 2003c a)

However, seeds do germinate. Currently (2008) while the allotment has been handed back to the council the school plans to continue gardening within its grounds. The site adjacent to the second school now boasts a poly-tunnel, square foot gardening for curriculum use and several parent-children plots and is an integral part of school life. The walled garden project continues and is linked with school projects in Uganda.

The lesson from this research for anyone in ITE or school or parent's association is not to work alone. Form an inclusive group of enthusiasts, look for continuity from pre-school to year 6, teachers and support staff and local senior citizens and involve children at all levels. Start small, develop a whole school approach embracing partnerships, local and global, and crucially, embed the gardening work into the curriculum

Work in progress in ITE

As with work in schools, time and continuity are always crucial factors in ITE. We offer two contrasting models, both in their infancy and both seeking to embed ESD and GC into the work of our departments.

School of Education, Roehampton

A project has been proposed at Roehampton University in which a model school garden or allotment will be created, maintained and developed by students and staff. The proposal is that the students become an integral part of the project and through the experience understand the benefits of learning

in a different context and replicate the benefits in the schools in which they teach.

Many of the Roehampton students are affiliated to Froebel College, named after Freidrich Froebel, who was a major proponent of learning outside the classroom and indeed saw it as an essential form of learning. Froebel perceived two forms of 'garten' – a garden **for** children where they could interact with nature and a garden **of** children where they could grow and develop fee from political and social pressures. The physical garden was seen as an essential component of the metaphysical whole of a child's education explaining areas of the curriculum, which were otherwise inaccessible and developing a holistic and interconnected education for each individual child. (Weston 2002). This does still have resonance and could play a role in motivating students and enabling them to make connections between what they are learning to teach and what they are being taught about learning.

When surveyed, the students recognised many benefits of outdoor learning and in particular the concept of the school garden, not just to their own learning but to their ability to deliver the curriculum and offer children a wide range of different learning experiences. This had the effect of motivating them and encouraging them to learn more about the opportunities. (**Fig 1)** .

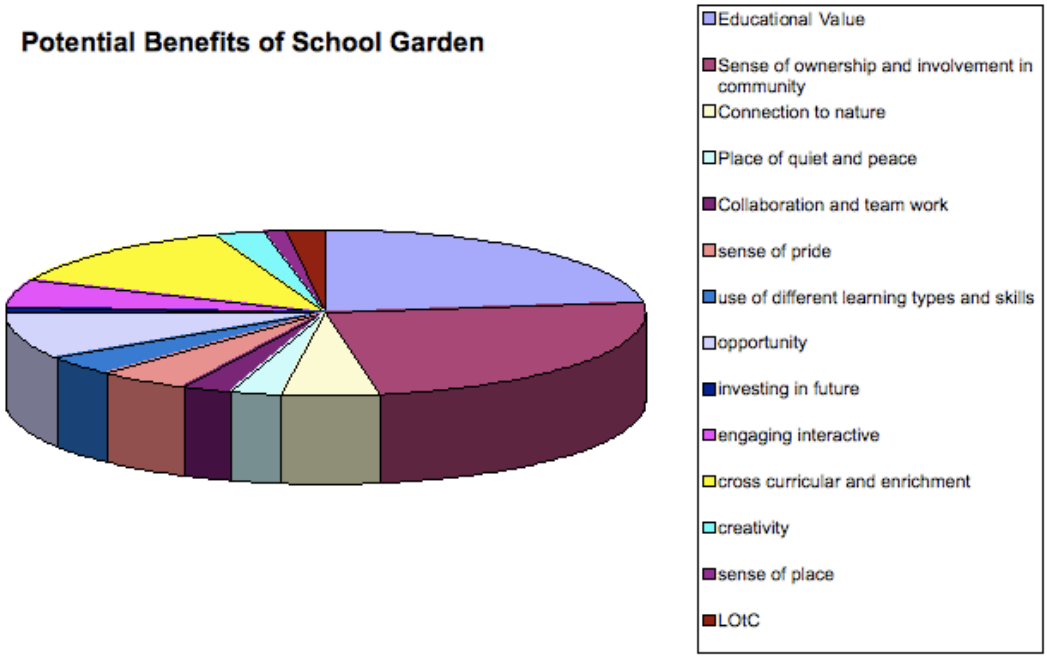

Fig 1: Perceived benefits of school garden

Students were also very realistic about the possible drawbacks of having a school garden and how, in some cases this could prove to be stressful so reducing the potential of enhancing learning. These were perceived to come from a number of different areas: (**Fig 2)**

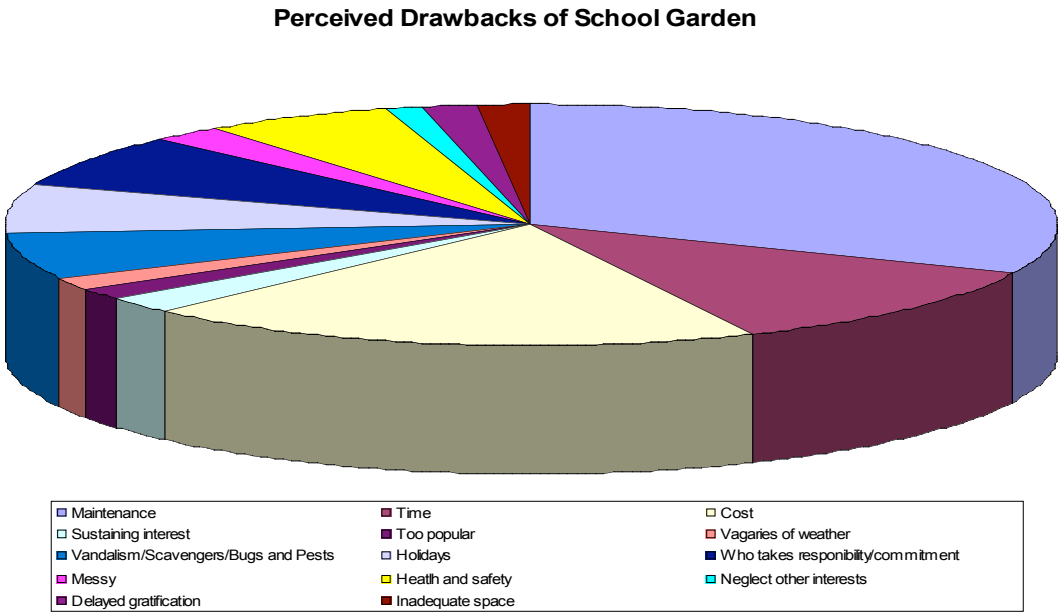

Fig 2: Perceived drawbacks and de-motivating factors

Despite the realities and awareness of the drawbacks, the overwhelming results were very positive and by far the greater majority felt that they would like to be involved in more outdoor work and in particular helping to run or even establish a school garden based on the model we hope to develop at Roehampton (**Fig 3**)

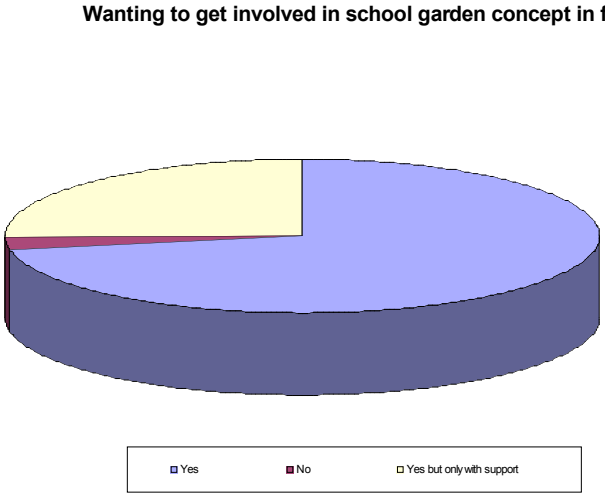

Fig 3: Desire to get involved in similar project in future

It will be interesting, once the project is up and running to assess how the results meet the expectations and the degree of potential impact it has on encouraging student teachers to initiate or maintain gardening in their future schools. It is hoped that the experiences will be further enhanced by a residential visit to the Magdalen Project in Somerset where many of the processes and concepts can be further demonstrated and put into action as they are with children visiting the centre (Willy 2006).

School of Education, University of Hertfordshire

Before moving to our new campus there had been convenient space to develop square foot gardening with an on-site nursery to use as a model for students on BEd and PGCE courses. On the new campus this is more difficult but we may be able to engage with our neighbour, Howe Dell School, in their new gardening venture. However, all BEd students will have some gardening input through geography modules. This is common with the PGCE course where a Food Miles workshop progresses into 'What can we do about it?' and school gardening using some of the materials quoted above.

New for 2008/9 PGCE students will be an ESD and a GC themed week where school gardens can be examined in greater detail across all ITE subjects. One keynote lecture will set the outline for the week and this will be discussed, investigated, used across and between subjects for the rest of the week. Our trips to The Gambia are an option in the second year of the BEd and this allows reflection on development of global education and common school curriculum including gardens.

On a broader scale, using EEDEN (East of England Development Education Network) funding the Hertfordshire School of Education is auditing its ESD / GC input into all courses with the aim of supporting colleagues in an attempt to ensure a genuine, considered approach to these issues.

Ways forward

We believe that teachers for the 21C need to recognise that the world in which children are growing up in is changing rapidly. Education needs to embrace these changes by including a whole portfolio of life skills to deal with the economics and stresses that will accompany climate change, peak oil and population increase. Teaching children how to grow their food is just one of many ways we can help them adjust to the changes ahead whilst developing a positive outlook, rather than a 'doom and gloom' approach. We also believe that incorporating gardening in the curriculum engages all children with differing learning styles, addresses ECM and PNS; Excellence and Enjoyment and provides the opportunity to make the school a more central part of the wider community. It will give schools something to share, celebrate and include on their SEF form for Ofsted who are now more interested in inspecting outdoor education, ESD and GC.

This being the case we must lead from ITE. We must use our institution's strategic plans, cite the Stern Report when economics are mentioned; promote our contrasting localities and overseas links in the international forum and prepare the teachers for tomorrow.

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