



FEATURE

The extinction of experience and (re-)cultivating wellbeing and sustainability through garden-based learning

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The extinction of experience and (re-)cultivating wellbeing and sustainability through garden-based learning

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Abstract

In the context of children and young people's decreasing experiences of, and exposure to, natural environments, increasing mental health concerns and growing worries about global environmental problems, this paper examines the role of school gardens in addressing some of these issues. Drawing on the experiences of three initiatives stemming from the original pilot school garden programme, the paper presents evidence indicating how garden-based learning can positively contribute to better health and wellbeing, learning and environmental awareness.

The extinction of experience

Children are experiencing an "extinction of experience" (Pyle, 2003, 2011) which is described as the phenomenon that fewer and fewer people, especially children are "becoming less likely to have direct contact with nature (natural environments and their associated wildlife) in their everyday lives" (Soga and Gaston, 2016, p.94). There are a number of reasons why this is the case and a number of potentially negative consequences including deteriorating public health and well-being, reduced emotional affinity toward nature, and a decline in pro-environmental attitudes and behaviour (ibid).

Nature and health and wellbeing

The reduction in children's experiences of nature also corresponds with increasing time spent in front of a screen, computer, laptop, tablet or mobile phone, and less access to green space in urban areas (Oswald et al., 2020). Such increased screen time and reduced green time can affect psychological outcomes (including mental health, cognitive functioning, and academic achievement) (ibid). This is particularly exacerbated in areas of poverty which tend to have less green space than more affluent areas (McCormick, 2017). This was also highlighted in a Public Health England Report (2020) which stated that:

"evidence also shows access to good quality greenspaces such as parks, woodlands, fields or allotments varies greatly depending on where we live. The most economically deprived areas often have less available public greenspace, meaning people in those communities have fewer opportunities to reap the benefits" (p.10).

Concomitant with this extinction of experience and reduced access to green space there is also an increase in mental and physical health problems in young children and young people with the incidence of mental health problems (either emotional, behavioural, hyperactive, or other) in England increasing from 1 in 10 in 2004 to 1 in 9 in 2017, in children aged 5-15 (NHS Digital, 2018). The same report

pointed out that young people aged 17-19 were three times more likely to have a disorder than pre-school children and the Department for Education's *State of the Nation 2019* Report, found a decline in wellbeing amongst adolescents as they get older (Department for Education, 2019). This phenomenon is not restricted to England with similar issues occurring in other parts of the UK indicating concern with adolescent mental wellbeing (Neagle et al., 2018; Scottish Government, 2018, 2019) and the number of university students seeking support for mental health issues increasing by two-thirds over five years (Hashemi, 2018).

So, what we are seeing over time is a decrease in exposure to natural environments and urban green space, and an increase in physical and mental health problems among children and young people. While there are many variables that can influence the health and well-being of young people there is mounting evidence that exposure to natural environments and green spaces can play a significant role in minimizing adverse health effects. Jimenez et al. (2021) in their review of the evidence found there were "associations between exposure to nature and improved cognitive function, brain activity, blood pressure, mental health, physical activity, and sleep", and that "results from experimental studies indicated protective effects of nature exposure on mental health and cognitive function" (p.1). A survey by Gray and Sosu (2022) also found evidence that childhood exposure to nature appeared to have a protective effect, helping to develop a certain resilience in young adults and inculcating a better subjective sense of wellbeing.

Food awareness and food security

While, historically, there have been many instances where food, or food scarcity, has been a humanitarian concern, resulting in extreme famine and malnutrition for local populations, there is, today, a more pervading and insidious aspect of food insecurity. The Food and Agriculture Organisation point out that basic food security is under threat from climate change, and this goes along with increased demand for food, rise in food prices, higher fuel input cost and loss of agriculture skills and human resources (FAO, 2010). They also go on to state:

"Environmental protection is now an imperative, forcing attention onto fuel and water conservation, soil enrichment, reforestation and organic approaches to horticulture, even at the micro level of the school back yard and the home food garden" (ibid., p.7)

Food insecurity is particularly exacerbated in areas of poverty and has been particularly impacted during the covid pandemic. There are now over 2,200 food banks in the UK (Tyler, 2020) and the Trussel Trust distributed 221,554 emergency three-day food parcels in Scotland between 1 April and 31 March 2021 (ibid). This situation has profound implications for young people. In the UK, estimates since 2014 suggest that around 10% to 15% of people aged 15 or over are moderately to severely food insecure (Scottish Government, 2016) and at risk from over-consumption of ultra-processed food, with evidence linking poor physical health and poor nutritional quality with social, economic and educational inequalities (Public Health England, 2016). However, as stated by Colucci-Gray, Cassidy et al. (2021):

"concerns about food security add to the widespread lack of understanding of the general population about the origins of their food. One in ten UK secondary school pupils believe that

tomatoes grow underground, while 18% had never visited a farm. The consumption of food is largely separate from the process of growing and so is the eating, separate from the wider agricultural process that connects human communities with the depend” (p.5)

Environmental awareness and attitudes

As well as the widely documented links between access to, and engagement with, natural environments and health and wellbeing, there is a considerable volume of literature that has examined the links between experiences in nature and the development of what has been variably called nature connectedness (e.g. Mayer and Frantz, 2004) or nature relatedness (Nisbet et al., 2009). A general hypothesis is that the more people feel connected to nature, the more likely they are to engage in pro-environmental behaviours. And, indeed there is evidence that experiences in nature, as well as being associated with better health and wellbeing (Oswald et al., 2020), and improved cognitive functioning (Wells, 2000) resulting in better academic achievement (Matsuoka, 2010), also results in more pro-environmental behaviours (Chawla, 2007). However, evidence suggest that the type of nature experience that children and young people have is important in the development of pro-environmental attitudes and behaviours, so activities with friends that focus attention on nature appear to be significant (Gray and Sosu, 2018; Gray and Sosu, 2022).

Nature-based learning

The term the extinction of experience is used in the title of this article and refers to the loss of experience of natural environments that young people experience today. However, the extinction might also refer to the loss of nature-based learning, which, at the turn of the 20th century was embraced by the prominent nature study movement, and endorsed by the well known pragmatist and educational philosopher John Dewey (Ralston, 2011; 2012). The study of nature, for Dewey, included gardening as “*activity that channels students’ native interests in all things living into a genuine appreciation of, and even a scientific curiosity about, their environment*” (ibid., p.7). In the intervening years however, the embodied and practical experiences encountered in nature-based learning became less in favour and gradually, in many if not most schools, disappeared completely.

However, in recent years there is greater recognition of the role of outdoor, nature-based experiences, illustrated by the introduction of outdoor learning as a key element of Scotland’s Curriculum for Excellence (Learning and Teaching Scotland, 2010). However, while recognised and incorporated into many schools, it is arguable as to whether this is widespread and/or effectively practiced. Further research needs to be done. Nevertheless, there is a growing body of evidence that nature has a significant role to play not just in health and wellbeing but also in learning and sustainability. Kuo et al. (2019) for example state:

“converging evidence strongly suggests that experiences of nature boost academic learning, personal development, and environmental stewardship.” (p.1)

Similarly Jordan and Chawla (2019) suggest that:

“Evidence is mounting that nature-based learning (NBL) enhances children’s educational and developmental outcomes” (p.1)

So, we have historical recognition, research verification and policy acknowledgement of the importance of outdoor, particularly nature-based, learning. Now, we need concerted action to enable such pedagogical practices to be enacted in schools.

Implications arising from the research literature

Based on the extensive range of literature which, as has been pointed out, covers areas from health and wellbeing, cognitive development, learning, achievement and environmental behaviours, the question is how do we, educators, health professionals and wider society, respond to this? In a nutshell, as Soga and Gaston (2016, p.94) state,

“researchers and policy makers need to focus more attention and effort on planning how best to reduce the extinction of experience and reconnect people with nature, which contributes greatly both to achieving healthy societies and overcoming a wide range of environmental issues”.

One way to do this, suggested by Soga and many others is through gardening. Gardening is well evidenced to promote both physical and mental wellbeing (Soga, Cox et al., 2017; Soga, Gaston et al., 2017; Stuart-Smith, 2020), learning (Passy et al., 2010; NaWells et al., 2015; Williams and Dixon, 2013) and provide a context for nature connection and environmental and sustainability education (Dyg and Wistoft, 2018; Wake and Birdsall, 2016; Zelenika et al., 2018).

This article draws from recent experiences in a school garden project and initiatives that drew on those experiences. The rest of the article outlines evidence drawn from these initiatives which provides some indication of how they addressed each of the elements elaborated earlier.

The primary project was a school garden project undertaken in collaboration with an external voluntary organisation called One Seed Forward.

The school garden project

It was a fortuitous meeting with Bob Donald of One Seed Forward (OSF), a voluntary organisation providing seed potatoes to schools and community groups, that enabled the initiation of what has become known as the OSF Garden Schools programme. With some initial funding obtained through the Aberdeen Sustainable Cities initiative we supported three schools in three regeneration areas within the City of Aberdeen, to set up and maintain vegetable growing gardens. The initial pilot project took place during the school year 2017-2018 with key achievements of this pilot summarised as:

- 5 P5/P6 classes, 140 pupils took part in pilot
- 4,000 hours of outdoor learning
- Other pupils engaged through tasting sessions, newsletters, assemblies etc.
- Parents/Siblings engaged as pupils took seeds home to grow, then crops at harvest
- Gardens constructed under budget
- 25 different crops grown

- Over 100kg of produce grown since April 2018
- 50 volunteers
- Over 200 volunteer hours
- Community group support from Aberdeen Drug Action, Aberdeen Foyer Healthy Minds, Men's Shed Outreach, Family Learning, HIF, One Seed Forward, Food and Fun groups etc
- Media Coverage in Press and Journal, Evening Express, SHMU, BBC Landward.
- [School] presented project at the Aberdeen Sustainable Development Conference
- Social media presence through Twitter account. (Donald et al., 2018, p.19)

As a result of the initiative a series of learning and teaching guides, linked to a year round garden calendar, was produced by the University in collaboration with One Seed Forward and these are freely available to download from the OSF Garden Schools website (<https://osfgardenschools.co.uk/>). In the intervening years OSF has continued to support schools and has collaborated with the University in providing professional development for students and teachers and continued thinking around the educational provision. At least twelve schools have also completed their self-assessment of where they are on the Garden Schools framework. OSF also recently launched their climate action awards scheme (<https://osfgardenschools.co.uk/climate-action-award/climate-action-award-booklet>).

Following on from the School Garden initiative one of the team members, Dr Laura Colucci-Gray, having moved to a different institution, took forward an initiative under the auspices of the Scottish Universities Insight Institute in collaboration with Dr Claire Cassidy from the University of Strathclyde and other team members from a range of backgrounds and institutions. Full details are available on the project website: <https://www.scottishinsight.ac.uk/Programmes/UNGlobalGoals/FoodActivism.aspx>. As a result of this initiative a learning for sustainability framework and a food activism framework were developed and are available on the website.

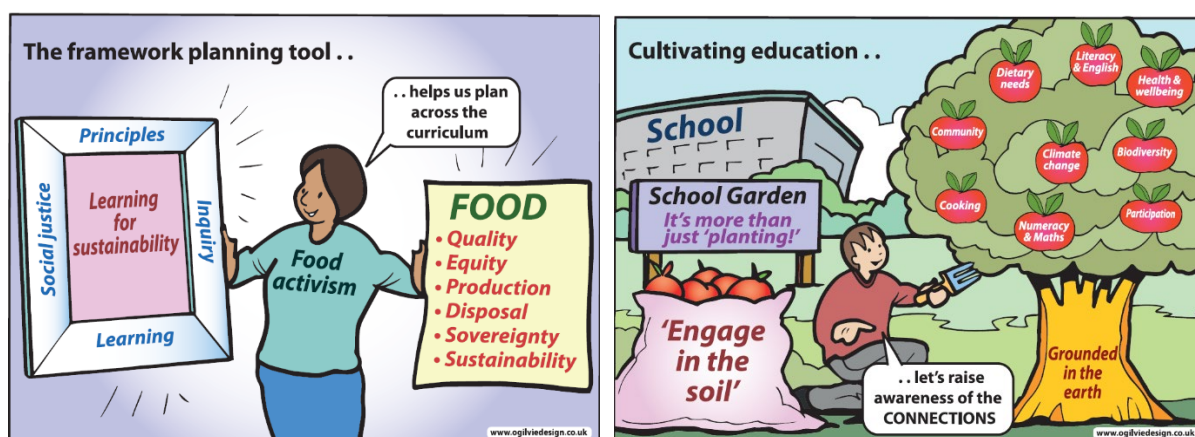


Figure 1: Vignettes produced by the graphic facilitator during the Scottish Universities Insight Institute Food Activism in the Schoolyard project.

The final element contributing to this article arose from the Scottish Attainment Challenge, which, in a collaboration between the University of Aberdeen and the University of Edinburgh, enabled some further data collection in relation to the school garden project to be undertaken.

A summary of the key findings are presented in the following paragraphs.

Health and Wellbeing

From interviews with teachers and pupils who have participated in the garden initiatives it was clear that a very obvious benefit related to health and wellbeing. One child, unprompted stated,

“I got my mental health better”!

One of the teachers also mentioning the very positive impact the garden had on an autistic child in her class:

“one of my autistic kids, he literally swears by this, he loves it and he’s so exact about everything and he has just taken that ownership and that responsibility, it’s good for him. I definitely, definitely think this is something that he...I don’t even think he knew much about gardening before, I don’t think he knew anything at all because he wouldn’t have done it at home, but he can tell you a lot more about gardening than I can, he’s really...and even he takes his learning outside. He’ll talk about the flowers in his garden at home or this, that and the other. So that’s really, really great, he’s just excited by it”.

Many of the teachers and headteachers interviewed pointed out that the pupils actively caring for and nurturing plants, as well as caring for the wider garden space, was of particular significance with regard to both physical and emotional health and wellbeing.



Figure 2: Engaging with plants in the garden

“I think they actually, really enjoyed being in the garden and being outside and some of them said it was quite relaxing and therapeutic... How calm the children were in the garden. I think it was quite a calm place for children who were maybe quite heightened and find being in the classroom tricky at times”

Learning

While no attempt to measure pupils' learning was made during the pilot project, it was clear from the responses given by teachers, headteachers and the pupils themselves that there were considerable benefits to be gained from the activities undertaken in the garden, which contributed to both the teachers' and the pupils' learning. Learning was facilitated because pupil engagement was substantially increased and poor behaviour became much less of an issue than in some classroom routines. As stated by one of the teachers:

“Best thing? Seeing the responsibility and maturity of the children in my class. Been out here 40 minutes and they're still engaged and interested and really care about it”.

While much emphasis was placed on the nurturing and wellbeing aspects of the garden, teachers did recognise and acknowledge the curriculum learning that did, and could, take place.

“The project links in with eating and nutrition, the designing was maths and science, learning about germination, it all linked in with our science curriculum.”

“I think it's been really, really beneficial for the children. Right from the beginning where it was designing a garden, so there was all the design elements, through to learning about how plants actually grow and germination to then the actual planting and they've been really, really responsible in how they've actually taken care of the plants, which has really impressed me. I think it's been really good for them.”

In addition, several of the teachers mentioned the opportunities for cooperative learning and communication that the school gardens provided.

“A lot of group work, cooperative learning, listening and talking, communicating about the healthiness of the vegetables while you're growing them, what do you think we're going to do with them, how do you think we're going to harvest them.”

One thing that did materialise during the interviews with the teachers was the lack of preparedness of many of the teachers at the beginning of the process, and a recognition of the need for further training and CPD as learning for the teachers.

“I think it could be a good context for CPD for sure, in just showing like what sort of stuff that you can do in the garden other than directly gardening, how to use it for different things...”

“So I definitely think quite an active CPD would be good... you've probably been on loads of CPD's as well, when someone is just talking at you, ... but I definitely think quite an active CPD, just to see how it's done...”

Food awareness and food security

Many arguments presented for food growing activities in school gardens revolve around the need to address food awareness and food security. As mentioned earlier many children and young people are unaware of where their food originates. In addition, children from communities in areas of multiple deprivation often have to rely on poor quality, cheap, processed foods which exacerbates already existing health problems and increases the incidence of obesity in children and young people. There

was evidence of some success in raising food awareness issues in the schools that participated, as well as enabling children to reach out to benefit the community.

I've seen what the outcome has been as well, we've been up to [school]. The children are really proud of what they've got up there, they could speak about the crops that they've grown, and what they've done with it and what they've made and giving the excess food to the community.

The food that's on their plates, it just doesn't appear like magic. You've actually got to grow it, you've got to look after it... And actually looking after something else and caring for something else, like that's obviously a big part of the benchmarks for health and wellbeing.

They're very proud. If they harvest something and they bring it along you can see that they've been delighted to have grown it. And they've had cooking sessions whereby they might not have originally thought they would have liked to have eaten it, but they tried it and given it a go, and I think that's all about developing confidence as well.

Linking back to the Food and Agricultural Organisation report mentioned earlier, which stated that “*Environmental protection is now an imperative... even at the micro level of the school back yard and the home food garden*” (FAO, 2010, p.7) we need to recognise that food activism and cultivation in school gardens sits within the broader field of Learning for Sustainability. This was the focus of the Scottish Universities Insight Institute project on *Food Activism in the Schoolyard*. In this project a graphic facilitator was employed to capture key issues raised in the first and final sessions and experiences of working with children in the second workshop were recorded. From these and the workshop discussions a Framework for Learning for Sustainability and a Food Activism Framework were developed. These Frameworks have been designed to support practitioners in their planning of Learning for Sustainability and can be used across early years, primary, secondary, Further Education and Higher Education sectors (Colucci-Gray, Cassidy et al., 2021).



Figure 3: Tasting the produce in the school and a vignette from the graphic facilitator in the SUII Food Activism in the Schoolyard project.

Environmental Awareness

Finally, it was very clear that the gardens had a positive role to play in raising awareness of environmental issues. This was often linked to the idea of a nurturing, caring, practice towards other

living things. In response to a question about whether the experience was positive or negative one teacher emphatically stated:

“Positive definitely, I think responsibility and taking ownership and actually caring for another thing...”

Such a view did not just come from the teachers, with one child indicating the nurturing as well as learning aspect, stating:

“[we learned]...like how to plant them carefully, and not just go, oh yeah, like, there’s a hole and just shove it in. You do it nice and gentle.”

And other teachers:

“When they grow up they can take these skills with them wherever they go. Hopefully it’ll give them a love for growing their own food, looking after nature, looking after the environment.”

“Climate change, that’s quite a massive thing just now. Getting the kids actually to see that they are responsible for their future. I think if we can teach them how to grow their own vegetables I think that’s amazing. And it’s something they can actually practically do at home by themselves.”

And another child pointing out how the garden helped to provide a safe place for wildlife, in this case frogs:

“Because like it’s good for nature and frogs, ’cause I think a lot of frogs have gone, and that can keep them like living, but like the dry ones, well they do go into water sometimes, maybe, but they...the ones that like being in water, it’s good for them ’cause like they know...so like they don’t die.”

Final Comments

From this necessarily brief overview of literature and evidence from a range of projects, it is clear that there is a significantly greater role for nature-based learning (NBL) in schools than that which currently takes place. While nature is often not as visible or readily available in many city schools, it is a relatively straightforward process to introduce gardens, even in schools which have predominantly tarmac covered playgrounds, through the use of raised beds which can be placed in any situation which has reasonable access to water and sunlight. Focussing on vegetable growing gardens also helps to satisfy a number of criteria relating to nutrition and health and wellbeing, as well as increasing awareness around environmental issues linked to biodiversity and climate change, not forgetting the many curriculum links that can be made to enhance learning through direct experiential pedagogies.

There is now a global movement to enhance learning in schools through school gardens and now is the time for children to learn about the interconnectedness of the living world. This can be done by paying close attention to, and caring for, a school garden.

A modest garden contains, for those who know how to look and to wait, more instruction than a library.

Henri Frederic Amiel (Swiss moral philosopher, poet, and critic)

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