

A VIDEO-BASED ANALYSIS OF SCHOOL WORKSHOPS AT NEUCHÂTEL'S BOTANIC GARDEN



Hosting school classes at the Botanic Garden is an important part of an institution's educational mission and a common task for educators. How can they best be designed and delivered? Based on an analysis of video recordings of four workshops for 6-8 year old children, our research highlights three ideas for successful workshops...

Left: Cooking and tasting plants (Giuseppe Pocetti)

Below: Long-term collaboration with school: growing vegetables with allophone teenagers (Giuseppe Pocetti)

Why take a particular interest in school workshops, among the many educational activities offered by botanic gardens? Here are ten reasons to do so - and thus strengthen the collaboration between schools and botanic gardens in raising public awareness of the plant world and its conservation:

a) Botanic gardens offer many opportunities for much-needed plant education in the 21st Century.

1. Plant blindness in modern societies leads to a deficit in conservation efforts for the plant world: plants suffer from a lack of recognition, recall, interest and preference for animals (for a review see Blading & Williams 2016). This has been well-documented in literature under the name of plant blindness, or human inability to notice plants in one's everyday life (Wandersee and Schussler, 1999). This unfortunately results in conservation bias against plants. To overcome the zoocentric focus of conservation efforts, it is important to strengthen plant conservation and education - and botanic gardens are uniquely placed to do so (Heywood, 2017).





2. Young children struggle with the concept of plants being alive (Brulé et al. 2014). Plants must therefore be the focus of special awareness-raising and educational efforts.

3. Botanic gardens are, by design, biodiversity hotspots, offering a huge variety of species in a small space. These species are well-known and well-documented. They are cared for by dedicated teams of gardeners, conservators and passionate volunteers. All this represents a concentration of educational opportunities to meet, learn about and experience the botanical world.

4. Botanical gardens are urban or peri-urban places, accessible to an urban population disconnected from daily contact with nature.

b) School workshops offer opportunities to extend plant education to diverse audiences.

5. Thanks to the social diversity of the school, the school workshops reach a wide audience, especially children who might not otherwise have come to the garden with their families.

6. Emergent research (Joly & Poli 2014; Zwang & Zakhartchouk 2021) shows that the activities carried out during nature outings with schools can also have a positive impact on the child's family, which is encouraging. The workshops have a direct impact on the participating children and a possible indirect impact on their families.

c) Long-term partnerships between botanical gardens, teachers and schools are mutually beneficial.

7. Working with classes requires collaboration with teachers and schools. There are costs involved in establishing these links. However, it's well worth it if the collaboration is built up over the long term with a network of partner teachers and schools. The trust built up during previous workshops can be transferred to new classes of children and new educational programmes at the botanical gardens. There is an interesting cyclical dimension to working with schools: the children change every year and the classes may come back.

8. The workshop at the botanical garden can be part of a year-round programme in the classroom: it's no longer an isolated event, but forms part of a coherent programme, at the beginning, middle or end of a series of lessons, to which it also helps to give meaning through a concrete approach to plants.

Building homes for wild bees
(Giuseppe Pocetti)

*Botanic gardens are still “under-researched educational contexts.”
Sanders 2007*



The movements of wild bees capture the attention of school children (Marion Picard)

*“Despite plants comprising the majority of the federal endangered species list (57%), in 2011 they received less than 3.8% of federal endangered species expenditures”
Havens et al. 2014*



9. The long-term dimension is also interesting for longitudinal research: the children usually stay at the same school for several years and can therefore be followed. Different age groups can also be compared.

10. Going one step further, the workshops can be co-designed with motivated teachers. Inter-professional collaboration in the co-construction of educational proposals improves their relevance.

However, the success of these school workshops depends on the performance of experienced professionals or volunteers, in particular on their ability to interest children in the world of plants: this involves designing workshops that are attractive and instructive for both teachers and children, choosing themes and activities, managing time, combining the transmission of knowledge with an emotional and sensitive experience of plants, balancing the children's pleasure and freedom with control over time and the group. The activity of the educators is therefore in a state of tension between different objectives. The teacher's attitude, the pupils' mood, unforeseen circumstances such as the weather, the activities of other human and non-human living beings during the workshop, etc., all contribute to its success. Will we find the bees sleeping in the flowers? Can we hear the worm in the soil, or smell the fragrance of elderflower? The educators lead the school workshops with great capacity to adapt to the unexpected, while keeping firmly in mind the common thread of the workshop. This requires sophisticated skills and professional gestures. In our research, we identified some effective professional gestures during school workshops, using a methodology based on the analysis of video-recordings of four 2-hour school workshops with 6-8 years old children (two workshops on seeds and the life cycle of plants, one on wild bees, one to discover the forest through the senses).

We identify three critical dimensions of children's connections with plants during school workshops.

(a) Multi-sensoriality: touching, smelling, tasting, listening to nature

"Close your eyes, I'll put a seed in your hand, you can taste it and try to guess what it is..." "You can put your hand in the bag, touch it and guess what vegetable it is... But for now, keep it a secret, we'll talk about it later!" In the school workshops, the children are invited to combine a cognitive and playful activity (identifying, guessing) with a sensory activity (touching, tasting), all within a social framework: everyone experiments, then we discuss it all together. By limiting the use of sight, the information conveyed by the other senses becomes more salient and sometimes makes it possible to establish a different relationship with nature.

Touching soil (Marion Picard)

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"Before we plant the seeds, you'll be the seeds, and we'll understand the plant cycle..."



Acting as a plant (Stefan Walter)



Sensory approaches are being developed in botanical gardens for all kinds of audiences, and our research shows that they also work very well with children in school workshops, bringing their attention to living beings that they might not have been interested in based on their appearance.

(b) Embodied imitation: acting “as if” to promote interest, understanding and empathy

“Before we plant the seeds, you’ll be the seeds, and we’ll understand the plant cycle... At the beginning we are just little seeds in the ground, it’s the end of winter, it’s cold and we are well protected in our soil... We have a shell that protects us, and inside we have plenty of food reserves for the next plant that grows...”. By imitating the movements of the mediator, who physically re-enacts the cycle of the plant emerging from the earth, by presenting their leaves to the sun and their flowers to the pollinators, by bearing fruit containing seeds, the children experience with their own bodies the connection between the seed, the plant and the fruit, and gain a better understanding of the explanations given earlier.

(c) Anthropomorphism as a resource for learning and connecting to nature

“But when the bee is born, it will be alone, without its mother?” In this didactic situation, two little girls listen attentively to the mediator’s explanations on the life cycle of the wild bee, worried and perplexed by this “orphaned baby bee”. Anthropomorphism can be an obstacle to science education, but it can also open up a discussion, bridge worlds, change children’s perspectives and make them realise how different the life cycle of wild bees is from their own.

Further analysis will undoubtedly reveal other aspects of these workshops, which the educators combine brilliantly with their intention to build up the children’s knowledge, in order to achieve a dual objective: to improve the children’s knowledge of plants, while at the same time allowing them to marvel at the plant kingdom, to develop their interest in plants and to experience the pleasure of meeting them.

Free exploration searching for wild bees
(Marion Picard)

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Creative part of our spring school workshop on seeds (Giuseppe Pocetti)

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