

Science café evaluation report



“Tropical fruits

- geographical origin and how to grow them”

Big Picnic



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UiO : Natural History Museum
University of Oslo

Introduction

The Natural History Museum (NHM), University of Oslo, consists of a large Botanic garden and several museums. Biodiversity is the main theme for all research and outreach at NHM. This encompasses biological and geological research describing the diversity and variation in nature, and aims to explain the processes leading to this. The Botanic garden was founded in 1814 and displays a wide variety of plants from Norway and other parts of the world. Through research, education and plant conservation, the garden seeks to increase public awareness of the importance of plant diversity. One of the goals of the strategic plan of the NHM is to stimulate young people to study science. The BigPicnic project is linked to the Department of Outreach at NHM.

Vision: Nature diversity in the past, present and future with quality and innovation in focus.

The Natural History Museum shall be a competence and documentation center of high international standard in biological and geological diversity, where collections, dissemination, research and teaching are integrated. The institution shall be in the service of society and manage and disseminate scientific information to a wide audience as well as to scientific colleagues at home and abroad.

This science café was co-created with the staff at Biblo, a nearby library specialized for children (www.deichman.no/biblo-toyen). The library invites schoolchildren age 10-15 to visit the library every day after normal school hours to do homework, attend activities, read or just hang out. In April and May 2018 botany was going to be the theme for their activities and they contacted us for collaboration. In order to reach a wider audience and stimulate young people's interest and knowledge about botany and edible plants this was a good opportunity to start our series of science cafés with something new for us: conversation with children outside school hours and at a location outside our garden, beyond our walls.

Topics and numbers

Which topic was addressed?

Tropical fruits – geographical origin and how to grow them

How many people showed up?

The experts were three botanists from our institution, and three employees from the library assisted with practical issues. The employees at the library had to do some normal duties in between.

This café concept was used twice at different week days since most of the children normally don't visit every day. 27 children participated the first day and 23 the second.

All the children were between 10-15 years old. We received equal amount of boys and girls. All children except four were immigrants from countries outside Europe.

Goals and Questions

Which goals did you want to achieve?

To make children reflect on where their food comes from before it gets to the shop we wanted to create a concept that works as an arena to talk with children about fruits; how they are grown and from where they originate.

- How do the activities work to create a conversation and interest about the topic?
- What do children know about cultivating plants?
- What do children know about the origin of tropical fruits?

How did you find out whether you were on the right track (TBI)?

After the cafés we took field notes from our observations and from the conversations; what the kids knew and what they asked us about. The staff in the library also provided us with information on the aftereffects of the events.

Agenda and Experience

What did you do?

The café was developed in co-creation with staff members at the children's library (picture 1). They could contribute with inside knowledge and experience with the group in target, and we are knowledgeable in the topic. Meetings were held both in our garden and at the library which was going to be the location for the event (picture 2).

In order to have a conversation with the children we didn't want to have lectures and heavy discussions. We had to create an event that was stimulating and practical. Tropical fruits were chosen as a theme since we expected it to be a good icebreaker for conversations with children that mostly are immigrants who originate from many of the same areas as the fruits.

Two identical events took place at the library 24.04.2018 and 03.05.2018, but with different children attending. Each event lasted about 2,5 hours.

Three stations with different topics and activities were made. In groups of three, the children visited each of the stations for approximate 15 minutes. Since the library is a "drop in place", the staff invited the children to participate in the activities as they arrived and organized

them into groups. The groups were randomly put together with the result that many of the groups consisted of just boys or just girls.

Most of the time, a staff member was present at each station.

At station 1, they were introduced to a large basket with many different fruits, mostly from tropical areas. The botanist asked them what they knew about the fruits and discussed with them if they knew where these fruits grew wild in nature. They attached laminated photos of the fruits on a big world map (picture 3). From this station the kids brought some fruits and proceeded to the second station in a kitchenette. Here they peeled the fruits and took out the seeds (picture 4). The botanist, at that station, started a conversation about what is a fruit and what is a seed. Meanwhile, they made a smoothie with different fruits. From this station they brought the seeds (labelled with the name of the fruit) to the last station where they saw the seeds and made mini-greenhouses in big soda plastic bottles (picture 5). The conversation was about how to cultivate plants. What does a plant need to grow? Can we grow these species in Norway?

Experiences

We had a good dialogue and collaboration with the library Biblo. It was important to be in their arena so we got to know the locality and got a better idea of how they worked. We also achieved a good partnership with a serious partner, the library, which we would like to cooperate with in the future.

Large adult density was important as both organization and implementation required an adult's hand. It was also important that the libraries participated to make it safe and at home for the children and to handle children with different behavior.

We also learned that we had calculated the time spent at the different stations incorrectly, so that there were sometimes queues at stations 2 and 3 that contained more activities.

The boys were more talkative than the girls.

At the third station sharp tools were involved which were a bit stressful.

During the activities we didn't have time to make notes and in the aftermath we realized that we should have planned better for collection information.

How do the activities work to create a conversation and interest about the topic?

All the activities created a dialogue, but the activity with the map was the least engaging.

At the first station conversation was the main activity and perhaps most similar to a typical school task. It was a bit difficult to start a conversation, but the choice to use tropical fruits seemed to be wise. The majority of the children were immigrants and some were happy to tell that they had seen papaya grow in Pakistan, for example.

The children were, not surprisingly, happy to make and enjoy a smoothie. When they were asked about fruits and seeds they spontaneously asked questions back.

Practical work with soil, bottles and seeds made the participants relax and not feel like they were in school. The conversation went swift, they asked about all from why the botanist became a botanist to why the seeds had different looks. All children, both boys and girls, loved to move their fingers into the soil and feel it. They mentioned that it was unbelievable that a small seed could grow into a huge tree. One boy had a mature and interesting reflection: Why do we use plastic bottles? It is better to recycle them and get money. We also found that the children were proud to put their own name tag into the completed mini greenhouse and some wanted to take them home to show their family.

The staff at the library has reported back to us that the children came to the library several times a week after school, and that they eagerly followed the germination in the bottles. Their interest in gardening has been obvious. Children that had sown seeds from watermelon and passionfruit were proud that their plants sprouted quickly.

As a conclusion we will recommend to offer children practical activities not resembling school too much to facilitate for fruitful conversations.

What do children know about growing plants?

We noted observations like some participants understood directly that they had to open the fruits and find the seeds to have possibility to grow new plants that could give more fruits. Other children had difficulties in understanding that a plant is developed from a seed, and that the seeds are (normally) within the fruit. Some children didn't know what a gardener or horticulturist works with, other was proud to tell that they knew some that worked as a gardener. Most children thought that gardeners were the persons mowing the lawns. They knew that light was an important factor for plants, and some mentioned water. Temperature and nutrients were never mentioned as limiting factors.

As a conclusion we can state that the level of knowledge about cultivation differs but is generally low. Whether this is due to age or other factors are not possible to say based on our scarce data.

What do children know about the origin of tropical fruits?

The children had a very unclear perception of what is meant by where a plant grows originally and where it is cultivated. Our intention was that the children should think about

what they eat, where the fruits grow and that they are exported here. We had hoped we would have them say that it was more environmentally friendly to eat locally grown fruit, but we did not experience these reactions.

Recommendation for policy makers:

To follow the process from fruit and seeds to new plants in practice keeps the children engaged over time and will probably increase learning outcomes and understanding. All children should therefore have the opportunity to grow their own plants. The level of knowledge in cultivation is scarce among urban children, and we recommend strongly school gardening, cultivation of edible plants in neighborhoods and more basic knowledge in biology.

What would you recommend to do differently next time?

- Make the stations more equal in time spent by the participants.
- Conversation mustn't be the main activity. Make all tree station practical.
- Maybe try to mix gender in the groups.
- In order to prevent a stressful situation, elements which involve the sharpest tools can be prepared (in this situation making holes in the bottles were done in forehand for the second event).
- Find a creative solution to collect information and evaluations from the participants. It will be recommended to have one person dedicated to this task.



Picture 1: Co-creation event at the library



Picture 2: The botanists were happy to experience how the children use this library that is specialized for children – and adults are not aloud. This retired ski wagon functions as a homework or chatting space.



Picture 3: Worldmap with pictures of fruits that the participants have pinned on the country of origin. The botanist explains pollination that must occur before we can get seeds and fruits.



Picture 4: Participants had to work practically to remove the big seed of the mango fruit.



Picture 5: Mini greenhouses with soil, seeds and labels. Wait two weeks and the seeds will begin to germinate!