

Children's science café

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Not only adults appreciate the science café initiatives worldwide, also children are enthusiastic about their own science café Zabuki¹. What is so special about it?

From 1998 onwards, with the start of the first Café Scientifique in Leeds in the UK, worldwide many initiatives followed^{2,3}. In the Netherlands too, in various towns, science cafés are successfully organized often attracting over 75 participants per evening as was measured for a special series of cafés about nanotechnology in 2010⁴. In November 2008, organizers of the regular science café for adults in a Dutch town called Deventer⁵ did start, on special request of one of the initiators' kids, a science café for children. They called it Zabuki. The first café, with about 70 kids attending, was a success and since then, each month, 9 times per year, about 70 children visit the Zabuki cafés on Wednesday afternoons. In addition, once a year a two-day festival is organized in collaboration with the local teacher's training schools which attracted 800 children, last year. As in regular cafés, and opposite to activities offered in science centres worldwide, engaged volunteers only, often parents, organize the cafés. The children deliver input for the themes.

Stimulating initiative

Of course, children undergo learning experiences during the cafés. They learn by doing. They gain knowledge about topics they sometimes did not hear of, and learn about bacteria, molecules or black holes, but education is not a main goal. Rather, its aims at offering a challenging, low key experience in a different, stimulating context. Thus, children can – voluntary, but on a regular basis – explore themes they would not necessarily investigate or discuss at school or at home.

In addition, the cafés could be called a 'hands-on learning experience' not only for the children but also for future primary school teachers and their assistants. Several times a year they are involved in preparing, designing and organizing the cafés. Some students assist during the cafés as part of their assignments. It is one of the outcomes of the close co-operation with the primary schools, the teacher's training schools, and companies in the area. Various other towns are now also thinking of organizing children's science cafés as well and are asking for advices on the organisational set up.

Characteristics

The children's science café has many characteristics that are the same as for science cafés for adults. However, some aspects differ due to the special age group: children from 7 till 12 years of age are welcome. As in a regular science café it is organized from within the community and volunteers run the café. A permanent group of people prepare and organize the cafés, take care of the public relations and so forth, while a group of other volunteers – preferably parents to induce personal engagement – help on a (irregular) basis during the cafés only. Local companies are asked to offer materials and expertise on

a voluntary basis tool. A suitable venue was found in a café-bar where the children in one afternoon 'explore' in two hours the theme of the month.

For each café, a theme is worked out - in cooperation with an expert - in various topics and workshops. These are selected based on actual developments and input from the children. Themes are not restricted to science issues strictly, but they can offer broader perspectives on developments that affect the science-society relationship⁶. A speaker is invited to give a short introduction or demonstration of maximum 20 minutes. One of the organisers and the speaker check the presentation to make sure it is lively and understandable for children, and to ensure there is sufficient time for questions. After the introduction, the children work in turns on the different distinguished topics and perform various tests or undergo experiences. This can be eight smaller workshops of each 8 minutes, four smaller workshops of 8 minutes and one bigger one of 32 minutes, or six workshops of 8 minutes and one of 16 minutes.

For example, in a café on robotics in four smaller workshops children discussed the principle of programming a Lego robot and tried to let it work, the working of a sensor was experienced and explained, with a robot arm they tried to replace draughts. The working of a 3D printer was demonstrated by an expert. In a larger workshop of 32 minutes they fabricated a robotic hand with paper, straws, tape and strings. After the workshops, in a few minutes a summary is given and the speaker and other involved experts and volunteers are thanked for their contribution, and the children can leave.

Parents or other caretakers bring their children, leave them at the venue and pick them up. In order to ensure safety and control, children have to register beforehand and at the entrance the names of the children are ticked on the list. The kids pay 4 Euros for expenses and a drink; they get a colour mark on their hands to indicate which group they are in and are seated to wait for the plenary introduction. Groups exist of a maximum of 8 to 10 children, and a total of about 70 children can attend. At the end, the children have to deregister and they are handed over to their parents before they can leave.

The main group of attending children is between 8 and 10 years. Probably, when they are becoming older they more often have other things to do or do not find it cool anymore. As in the regular café, about one third of the children are joining in for the first time⁷. Some children are regular visitors. Girls and boys are equally represented. Mostly, the cafés are highly valued which is indicated by the children's enthusiasm and speed the next café is fully booked. More than once, the café has been overbooked. In some cases even more than 50 over bookings were registered. Regularly, children come with a group of friends for their birthday parties.

Leading to?

In sum, the cafés are received enthusiastic by the children as well as by other involved parties. And although, in a sense, doing tests in workshops and experiencing scientific themes is not new, aspects that make the cafés unique are the bottom-up organisation, the own contribution children have in bringing in themes, the broader societal questions that are asked and discussed, and the interest and engagement the café induces from other parties. In our eyes, this personal engagement from children, parents and other interested parties can help to place science and technology in a broader perspective within society, so often pleaded for nowadays^{8,9,10}. Discussing science and technology issues at a young age might even contribute to the new scientific citizens of the future^{3,9,11}.

¹ More information can be found at www.zabuki.nl.

² Dallas, D. (1999). The Cafe Scientifique. *Nature*, 399(6732), 120-120.

³ Dallas, D. (2006). Café Scientifique-Déjà Vu. *Cell*, 126(2), 227-229.

⁴ Dijkstra, A. M. (2010). Resultaten project Nanokaravaan. Een analyse van bijeenkomsten van Nederlandse Science Cafés en van opvattingen van het publiek over nanotechnologie. Enschede: Universiteit Twente in opdracht van Nederlandse Science Cafes.

⁵ Deventer is an old Hanseatic town in the Netherlands where Descartes wrote his *Dioptrics*, Van der Waals lectured, and Erasmus went to school.

⁶ Past themes: Ask it doctor Zabuki. Design your own dream house. Are you a Sherlock Holmes? How fire works work. To the stars with Zabuki. Sustainable solutions for our world.

⁷ Dijkstra, 2010; the new children are asked to raise their hands

⁸ Adams, J. U. (2004). How to start a science café. *Scientist*, 18(10), 50-51.

⁹ Millar, R. & Osborne J. (eds.) (2000). *Beyond 2000: Science education for the future*.

¹⁰ Wilsdon, J., & Willis, R. (2004). *See-through Science. Why public engagement needs to move upstream*. London: Demos.

¹¹ Mutheu, J., & Wanjala, R. (2009). The public, parasites and coffee: the Kenyan Science Café concept. *Trends in Parasitology*, 25(6), 245.