

SAPERE SYMPOSIUM  
Intellectual Forum, University of Cambridge  
24<sup>th</sup> and 25<sup>th</sup> October 2019

“Preference and Change”

How can a child’s food habits change for the better? And what is the role of Taste Education?

*In honour of the late Roelof Huurneman, co-founder and former chair of Sapere International  
Co-hosted by TastEd and Sapere Intl.*

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Thursday 24<sup>th</sup> October: Plenary talks

**Lucy Cooke:** Encouraging a preference for vegetables in children: the ‘Tiny Tastes’ method.

**Professor Corinna Hawkes:** ‘Preference and Policy: How Can Food Policy Encourage Healthy Preferences?’

Friday 25<sup>th</sup> October : Scientific papers chaired by Valérie Almlí

**Gurpinder Lalli** ‘Come dine with me!’ School dinner halls and the act of commensality

Institute of Education (IoE), University of Wolverhampton, glalli@wlv.ac.uk

The purpose of this presentation is to investigate the impact of food upon social learning at a school that I have chosen to call the Peartree Academy. The main research question addresses the impact of food on learning in schools. The focus lies on exploring the social and life skills which pupils develop through meeting, making choices, eating and talking together in an inviting ‘restaurant culture’ rather than the traditional school canteen. Research questions include, 1) How do eating behaviours impact on learning development? 2) How do teachers promote social learning and learning opportunities within a food environment? Connotations of the school canteen and restaurant are introduced alongside the notion of commensality. The school restaurant is subject to power relations and there is much to think about when participating during school mealtime.

Keywords: Social learning, commensality, interaction, power relations, mealtime

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**Elizabeth Kim** ‘Can we change children’s portion size preferences?’

Despite existing research on teacher modeling and parent involvement increasing children’s vegetable intake, evidence shows that children tend to trust peer models more than adults when selecting or sampling foods. It is important to understand the role of peers because of their increasing influence over time and even small changes in

children's food portion selections can have positive health benefits. This presentation explores the reasons why food portion selection is important, who influences food portion selections, and how remote peers can influence preschoolers' healthy food portion selections.

In addition to food choice, food portion selection is important because it has been shown to be an important predictor of actual food consumption. Adults typically consume most of the food they apportion themselves and portion size is also a predictor of energy intake for children aged 2-5 years-old. Individual-level, food-level, and population-level strategies have been explored to reduce portion sizes (Almiron-Roig et al., 2019) with less emphasis on how peer-level strategies (i.e. social modeling, social conformity) can modify eating behaviors.

In a recent study (Kim, Chen, & Cheon, 2019), 3-6 year old Singaporean children exhibited conformity to the portion sizes of healthy peers for both high-energy-dense (ED) and low-ED foods, but not for unhealthy peers. Moreover, children in a follow-up study demonstrated change in actual drink consumption after social pressure by peers. These studies provide support for peer modeling of food portion selection and consumption among young children, although the extent of social modeling may be contingent on characteristics of the food. Peer groups are key social reference figures for eating behavior, and future research should explore how to use positive peer influence to inform intervention methods to promote healthier eating.

Key words: portion size, preschoolers, peers, social influence

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**Leigh Gibson** 'The ToyBox study and changing children's preferences for healthy snacks. What is the evidence?'

Department of Psychology, Whitelands College, University of Roehampton, London SW15 4JD; l.gibson@roehampton.ac.uk

This presentation describes the six-country ToyBox-Study ([www.toybox-study.eu](http://www.toybox-study.eu)), a multifactorial evidence-based approach using behavioural models in understanding and promoting fun, healthy food, play and policy for the prevention of childhood obesity. The ToyBox-Study intervention focused on improving four key energy-balance related behaviours in 4-6 year-old children: drinking water, healthy snacking, physical activity and reducing sedentary behaviour, with each behaviour targeted in kindergartens for 4 weeks with a further 2-week refresher period. The focus of the presentation is on how to encourage healthy snacking in children. However, to understand this behaviour, I first describe the innate and learned influences on development of food and drink preferences in children. Human beings are born with an innate liking for sweetness and dislike of bitter and sour tastes, conferring survival value in encouraging selection of energy sources and/or suckling (sweet taste), and avoidance of unripe or poisonous plants. There are genetic variations in taste sensitivity and reactivity, linked to particular taste receptor polymorphisms, which can affect food and drink preferences in later childhood. Moreover, epigenetic mechanisms allow maternal diet during pregnancy to influence their children's eating behaviour and growth. Beyond this, preferences are acquired through learning, e.g. Pavlovian flavour-nutrient/consequence learning (energy being the primary reinforcer), or social modelling, e.g. by observation of parents and peers. However, flavour preference learning can also occur through exposure to flavours in the amniotic fluid or in breastmilk. During weaning, exposure to different textures before 10 months is critical to encourage acceptance of a varied diet. Despite the resources committed to the ToyBox-Study intervention, there were only modest improvements in diet quality, including healthier drinking but not snacking. Snacking is an essential part of every child's diet, but due to inherited and

rapidly learned dispositions, persuading children to snack on less energy-dense healthier foods is not easy.

Keywords: children; preschool; snacking; preferences; learning

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**Caroline Reverdy** 'From sensory food education to healthy food behaviours via "gourmet" preferences: dream or reality?'

Olfaction-Gustation-Vision, Consulting & Training, Rue Edmond-de-Reynier n°2 - CH 2000 Neuchâtel; odoratnews@gmail.com

Nowadays, healthy food behaviour is a general concern in many countries, and especially alarming in childhood.

Healthy food behaviours could be related to 4 aspects: the quality of food ingredients, the quantity of food intake, the variety of diet and the time taken for meals.

How can sensory food education impact on those 4 dimensions? And how can it lead to healthier food behaviour?

How does it work? Are "gourmet" preferences parts of the process?

Firstly, sensory food education can impact on food behaviours at several points:

- Focussing on senses and sensations; discovering the impact of the quality of ingredients during cooking lessons. Then increasing the desire and expectation for high quality ingredients.
- Discovering new dishes and reducing food neophobia to lead to better food variety and better diet.
- Paying attention to food, not feeding but tasting, therefore having time to reach satiety and then being able to adapt quantity of food intake appropriately.

Secondly, changing behaviours can be initiated by shifting preferences.

During the EduSens project (2003-8) measures showed that some of the sensory educated children shifted preferences towards more complex products (very complex aromatic flavours instead of less basic tastes), increased food neophilia and expert criteria (analytic versus hedonic) for the task of spontaneous categorisation of unknown odours and the task for tasting description.

All these elements can be summarised as a "gourmet" attitude, "gourmet" preferences. In that case, changing to "gourmet" preferences is one solution.

To conclude, better food behaviours can be achieved through sensory food education via shifting initial preferences and behaviours to "gourmet" preferences and attitudes.

Keywords: sensory food education, children, gourmet « preferences », healthy behaviours

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**Valérie Almlí** 'The ability of 10 to 11-year old children to identify basic tastes in unfamiliar foods'

Ervina Ervinal<sup>2</sup>, Ingunn Berget<sup>1</sup>, Alexander Nilsen<sup>3</sup>, Valerie L. Almlí<sup>1,2</sup>

<sup>1</sup>Nofima AS, Osloveien 1, Ås 1433, Norway

<sup>2</sup>The Norwegian University of Life Sciences, Department of Chemistry, Biotechnology and Food Science (KBM), Ås, Norway

<sup>3</sup>BAMA Storkjøkken AS, Nedre Kalbakkvei 40, Pb 263 Alnabru, 0614 Oslo, Norway

The involvement of children in sensory evaluation and consumer research continues to increase and has become crucial in the food industry, as children have different sensory perceptions compared to adults. Research on basic taste sensitivity in children provides contradictory results, with most of the studies not considering the familiarity aspect of the food samples. Familiarity can lead children to memories of the food which are able to influence their taste perception and liking. This study aims to investigate the ability of 10 to 11-year old children in identifying sweetness, saltiness, sourness, and bitterness in unfamiliar food samples. The taste identification data was collected from 98 children using 19 food samples representing the four basic tastes of sweet, sour, salty, and bitter. For each food sample, the children evaluated their familiarity, the basic taste(s) they perceived using the check-all-that-apply (CATA) method and scored their liking. Their basic taste identification ability was investigated by comparing their results to trained panellists as a reference. Most of the food samples were unfamiliar to the children (84.4% of the children have not tasted the food samples prior to the evaluation). Results show that children were able to identify the basic tastes of sweet, sour, salty, and bitter in the unfamiliar foods, with a high congruency to the trained panellists. A positive correlation was found between the presence of sweet taste and the children's liking scores, while sour and bitter tastes showed the opposite. However, there was no association found between taste identification ability and children's liking. Further studies are needed to better understand the role of basic taste identification ability in children's food acceptance.

Keywords: Preadolescents; Basic taste; Taste identification; Unfamiliar food