



From sensory evaluation to sensory and consumer research of food: An autobiographical perspective [☆]



Hely Tuorila

Department of Food and Environmental Sciences, P O Box 66, FI – 00014 University of Helsinki, Finland

ARTICLE INFO

Article history:

Received 1 February 2014
Received in revised form 5 May 2014
Accepted 5 May 2014
Available online 13 May 2014

Keywords:

Sensory
Consumer
Segmentation
Nutrition
Research career

ABSTRACT

During the past decades, sensory evaluation of food quality has evolved and grown into a discipline that covers sensory and consumer research of foods and beverages. The present review deals with those aspects of the development in which I have been personally involved and have considered inspiring and important subject matters in the field. They are consumer responses to (1) salt, (2) fat, and (3) unfamiliar foods; (4) food choice and socio-cognitive segmentation, (5) responses to food in the elderly and young; and (6) genetic origins of food preferences. Perspectives of the field and of these specific areas are discussed, and some “words of wisdom” are offered for the younger generation of sensory-consumer researchers.

© 2014 Elsevier Ltd. All rights reserved.

Introduction

It was a great honor to receive the Elsevier Food Quality and Preference Award. In the following pages, I will discuss a few central research topics in which I have been personally involved during my research career and where I feel that, with my colleagues, I have made a contribution to understanding the field of sensory and consumer research.

Related to the autobiographical nature of the text, a brief description of my background is in order. I first studied nutrition and subsequently social psychology at the University of Helsinki, Finland. Mainstream nutrition science never really turned me on, a situation that probably would push the students of the 2000s into changing their major. In my case however, the background in nutrition offered a good starting point and a frame of reference for the subsequent research that used methods of behavioral sciences. Social psychology also inspired viewing the field of nutrition from a new perspective. Thus, research on the border between disciplines can be a salvation for people who do not feel they belong to a certain discipline. I took an internship in a sensory testing laboratory in the early 1970s, and continued working in that laboratory for the next years. By then I had taken a sensory evaluation course organized at my University, a course established by

Associate Professor Rakel Kurkela after her visit to Rose Marie Pangborn at UC Davis in the 1960s. Since 1983, I have worked at the University of Helsinki and have visited UC Davis, California, US Army Soldier Center at Natick, Massachusetts, and University of Florence, Italy, as a researcher.

Food science in the 1970s considered sensory evaluation of foods as a means to define the quality and competitiveness of a product in the marketplace (Tuorila & Monteleone, 2009). The methodology had turned out to be useful for e.g., dairy and wine industry for many decades (Amerine, Pangborn, & Roessler, 1965), but analytical sensory methods were largely based on difference testing, ranking and quality scoring. The development of methods and better understanding of chemical senses started making progress in the latter half of the last century, first mainly in the USA (Lawless & Heymann, 2010). In the 1970s, no scientific journal specialized in sensory food research, but papers reporting sensory findings were published in food science journals. Going back to 1973, sensory papers were primarily found in *Chemical Senses and Flavor*, although “and flavor” was soon omitted from the journal name. The journal *Appetite* was established in 1980, *Journal of Sensory Studies* in 1986, and *Food Quality and Preference* in 1988.

Importantly, researchers interested in combining their resources for better understanding of the multidisciplinary field of food intake had started organizing scientific meetings and subsequently publishing books that discussed chemosensory perception and motivation to eat from different perspectives. One of these meetings was held in Switzerland in 1979 (Solms & Hall, 1981). Among many impressive presentations, Pangborn (1981)

[☆] Based on the oral presentation at the 10th Pangborn Sensory Science Symposium, Rio de Janeiro, Brazil, August 2013, as the recipient of the Elsevier Food Quality, Preference Established Researcher Award.

E-mail address: hely.tuorila@helsinki.fi

reviewed the individuality of sensory responses, paying particular attention to responses to substances of nutritional significance; Lundgren (1981) reported a pioneering study on information effects on the acceptance of food (fat content of sausage); Rozin described work on likes and dislikes for foods (Rozin & Fallon, 1981); and Olson (1981) pointed out mental processes that may affect responses of a sensory panelist during evaluation, but had gone unnoticed until then. With its broad perspective and ambitious goal, this meeting laid an important cornerstone for the progress from sensory evaluation to research examining the origins of food perceptions and preferences. It was my first international congress.

In this biographical perspective, I chose to cover six research themes in which I have been intimately involved in the course of my career. These are consumer responses to (1) salt, (2) fat, and (3) unfamiliar foods; (4) food choice and socio-cognitive segmentation, (5) responses to food in the elderly and young; and (6) genetic origins of food preferences. The themes have been determined partially by personal research interests based on my background in nutrition and social psychology, as described above, and to a large extent also by funding opportunities, which I believe is an experience shared with many of my senior colleagues. Yet another factor is that, in a relatively new and unestablished discipline, it is tempting to grasp any untouched subject, once a researcher has a reasonable toolbox of methods. Intertwined with these explanations, should we also accept the “random effects” and social aspects? One runs into interesting issues or meets colleagues with whom the collaboration works out and rewards one with feelings of achievement.

Responses to sodium chloride in foods

In spite of the scientific knowledge and proper guidelines available on healthy eating, nutrition counseling struggles with the reluctance of the population to change their overconsumption of sugars, fat, and sodium. Sensory attraction to sodium appears to override individual nutritional goals (Leshem, 2009). Sensory scientists, by studying the perceptions and preferences related to salty taste in foods, can offer insights and solutions to this nutritional contradiction. Such research was conducted, for example, on salt preferences (Pangborn & Pecore, 1982) and on the effectiveness of long-term interventions in modifying preference (Bertino, Beauchamp, & Engelman, 1982; Blais et al. 1986), which inspired the work in my home department in the 1980s.

We showed that food items served together (bread and butter) compensate for each other's saltiness. This compensation may be useful in moderating sodium intakes (Tuorila-Ollikainen, Salovaara, & Kurkela, 1985). Low-salt bread topped with normal- or high-salt butter is equally or better liked than normal-salt bread with such a topping; however, the resulting sodium intakes will be lower (Fig. 1). In another study related to liking for saltiness, we examined the role of spices and herbs in compensation for sodium (Tuorila, Hellemann, & Matuszewska, 1990). We used *ad libitum* mixing (Pangborn & Braddock, 1989) of beef broth with different flavoring systems and found that, regardless of the system, the task to produce a mixture of optimal saltiness resulted in similar sodium contents of chemically analyzed mixtures (Fig. 2a). Yet a richer flavor system (more spices and herbs) resulted in better liking for a mixture (Fig. 2b). Even though added flavors do not directly substitute for salty taste, other favorable characteristics of the product may enhance the quality and thereby help to overcome the reduced saltiness.

In the present day, sodium intakes continue to be a major public health concern (e.g., Kilcast & Angus, 2007). Therefore it is surprising that the compliance to reduced-salt diets has received very

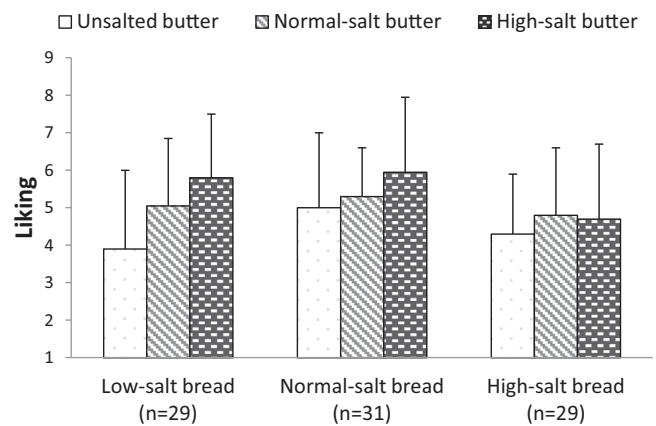


Fig. 1. Mean ratings of liking (+SD) for combinations of bread (22 g) and butter (6 g) in three groups of male students. The NaCl contents vary from 0.18 g (left) to 0.57 g (right). The 1st, 2nd, and 3rd bar represent samples with 0.18–0.31 g NaCl; the 4th, 5th, and 6th bar represent samples with 0.31–0.44 g NaCl; and the 7th, 8th, and 9th bars represent samples with 0.44–0.57 g NaCl. From Tuorila-Ollikainen et al. (1986).

limited attention in research. Current research interest in children's responses to salt, such as the study reported by Bouhlal, Chabanet, Issanchou, and Nicklaus (2013), will hopefully help to focus on the topic again. Extensive and generalizable consumer studies, including sensory and hedonic perceptions of individual foods and the entire diet, are needed for understanding the barriers to salt reduction and for finding health-promoting solutions that are feasible from the consumer point of view.

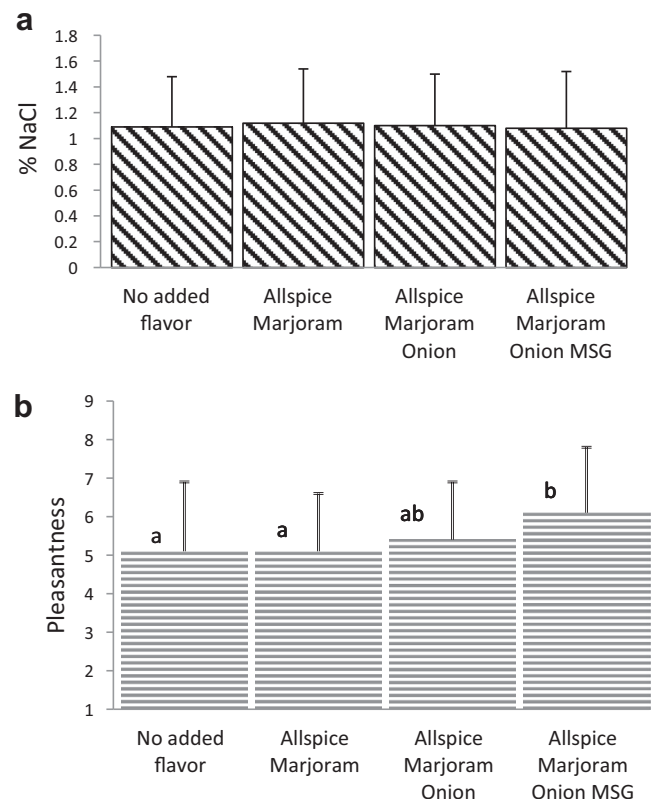


Fig. 2. Means (+SD) of (a) NaCl contents in *ad libitum* mixtures and (b) ratings of pleasantness of the resulting mixtures. Each bar is based on 68 individual results (34 respondents, 2 reps). Letters refer to significant ($p < 0.05$) differences by Tukey's test. From Tuorila et al. (1990).

Download English Version:

<https://daneshyari.com/en/article/4317037>

Download Persian Version:

<https://daneshyari.com/article/4317037>

[Daneshyari.com](https://daneshyari.com)