



Sensory perception and understanding of food uniqueness: From the traditional to the novel

Sara Favalli ^{*}, Thomas Skov, Derek V. Byrne

Department of Food Science, Faculty of Science, University of Copenhagen, Rolighedsvej 30, DK-1958, Frederiksberg C, Denmark

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ABSTRACT

This study investigated the overall consumer experience of a common complex food product by comparing its traditional and modern form. The aim of the study was to uncover the mechanisms, occurring in the consumers' perception, responsible for defining the key elements of the product and therefore its uniqueness. Descriptive analysis was carried out for 59 sensory descriptive attributes covering odour, appearance: colour and shape, basic taste, flavour, texture, mouth feeling and after taste. Moreover, conceptual measurements of the descriptors, familiar, common, complexity, harmonious, balance, luxury, elegant, inviting, interesting, feminine and masculine were also measured for all sandwiches. Sensory, conceptual and design relationships were analysed by ANOVA Partial Least Squares Regression (APLSR).

The conjoint results indicate that the combination of appearance, and texture sensory attributes were able to affect the overall conceptual understanding of this culturally defined complex food product and were considered key modalities in terms of the product quality assessment. Thus, the results stressed the fact that the overall consumer experience is a multisensory process in which cross-modal associations play a predominant role. Further the findings confirmed that cognitive processes, and therefore conceptualisations are responsible for this cross-modal associations and therefore of the overall consumer perception. However, retro nasal perception similar in both traditional and modern versions could be considered as core to the products' implicit definition in terms of uniqueness.

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1. Introduction

Understanding the consumers' food experience means both defining the product's uniqueness and the consumers' food identity. Where for stating a product as unique for a certain consumer, we intend addressing the characteristics, or key elements, which differentiate it from other products of its category and therefore constitute its exclusiveness. Since food consumption is strictly related to the consumers' identity, while uncovering the uniqueness of a product for a specific consumer, the consumer food identity is also revealed. "Tell me what you eat, and I will tell you what you are." Jean Anthelme Brillat-Savarin (1755–1826), "Man is what he eats." Ludwig Andreas von Feuerbach (1804–1872), and accordingly to Fischler "You are what you eat, you eat what you are". In fact when we consume food we incorporate, on the real level, the nutrients and, on our personal imaginary level, all of its proprieties. Therefore from this perspective, our identity is represented by what we eat; in other words, we are what we eat. By eating the food we imparted a particular meaning to we hope to become more what we are or to become what we would like to be. We eat what we are (Fischler, 1988). The consumers' food experience and their understanding of food products are strictly

related to their identity and therefore food culture. In fact, culture may be one of the most powerful determinants of food attitudes and behaviour (Rozin, 1990). Thus the product uniqueness is not an intrinsic characteristic of the product itself but it is defined by its users (family, regions, countries, social classes and social environments).

What are the unique food products which tell about food identities in the market place? Following James' (1996) observations, we could group the unique food products found in the market place in four groups. Precisely represented by "multinational fast food chains" (Coca-Cola, McDonald's and other kinds of brands), "expatriate food" (Provence, Tuscany and other foreign cuisines), "nostalgic foods" (traditional food products), and "creolising products" (combination of various food cultural patterns, as ingredients cooking methods, spices etc., according to local conditions).

As Mattiacci and Vignali (2004) highlighted, for consumers, unique food products seem to have a distinctive and superior quality with respect to the general ones and thus producers can position their unique food products in the premium price range and gain a higher profit margin. This translated into the increasing spread of unique food products in the market place and in the increased business turnover from them being generated. Apart from the perceived high quality, in the last years the consumers' demand for unique food products has increased rapidly, as a consequence of food scandals, health concerns and excessive homogenisation due to the industrialisation and

^{*} Corresponding author. Tel.: +45 35333173; fax: +45 3533 3509.
E-mail address: sfa@life.ku.dk (S. Favalli).

globalisation processes. Therefore, through unique food products the consumer attempts to differentiate himself with qualitative aspects, for example organic food consumption, veganism, vegetarianism and cultural identification and ethnocentrism (Chambers, Lobb, Butler, Harvey, & Bruce Traill, 2007; Fandos & Flavian, 2006; Fischler, 1988; Parelli, 1996).

Consequently to the increased consumers' demand and spread of unique food products in the market place raised, both at a governmental, commercial and research levels, the need to characterise and define the elements constituting unique products and at the same time the need to understand the consumers' concepts related to unique products and their consumption behaviour. Thus, an incrementing number of studies concerning unique food products, identities and eating are found in the literature. Studies investigating 'unique' products found in the literature deal with traditional food definition, innovation and improvement (Almli, Verbeke, Vanhonacker, Næs, & Hersleth, 2011; Guerrero et al., 2009, 2010, 2012; Kühne, Vanhonacker, Gellynck, & Verbeke, 2010), motives of traditional food consumption (Pieniak, Verbeke, Vanhonacker, Guerrero, & Hersleth, 2009), traditional food and global market (Jordana, 2000), sensory quality of traditional food (Cayot, 2007), objective sensory characteristics of traditional food products (Guàrdia, Aguiar, Claret, Arnau, & Guerrero, 2010; Inarejos-Garcia, Santacatterina, Salvador, Fregapane, & Gomez-Alonso, 2010; Rason, Martin, Dufour, & Lebecque, 2007), and local food (Stolzenbach, Byrne, & Bredie, 2011; Trichopoulou, Vasilopoulou, Georga, Soukara, & Dilis, 2006). Studies concerning identities and eating focus on cultural patterns of food consumption (Askegaard & Madsen, 1998), European diets vs. traditional foods (Behar, 1976), gender (COUNIHAN, 1988; Shafer, 1979), personal traits (Lindeman & Stark, 1999; Sadalla & Burroughs, 1981), ethnicity and region (Bradby, 1997; Devine, Sobal, Bisogni, & Connors, 1999; Kalcik, 1984) vegetarianism (Jabs, Devine, & Sobal, 1998; Jabs, Sobal, & Devine, 2000), organic food use (Shepherd & Raats, 1996; Sparks & Shepherd, 1992), beef eating (Sapp & Harrod, 1989), and dietary change for health promotion or illness management (Cohn, 1997; Fries & Croyle, 1993; Lindeman & Stark, 1999). The identity concept has also been applied to the study of weight, body image, and eating disorders (Cordell & Ronai, 1999; Stein, 1996).

Particularly, the extensive literature in the area of unique foods highly indicated the necessity of understanding the key elements defining the exclusiveness of a product for its consumers, the consumers' preferences and their buying behaviour (Askegaard & Madsen, 1998; Cayot, 2007; Guerrero et al., 2012), and contrasting the homologation consequently by the globalisation process perpetuates important elements of our cultural inheritance and thus contributes to the beneficial health of the Mediterranean diet (Trichopoulou et al., 2006). Avermaete et al. (2004) suggested that unique foods are essential for the development and sustainability of rural areas, hence contrasting the actual depopulation process. Moreover, unique foods entail substantial product differentiation potential for producers and processors. Thus, the development of unique products can be seen as an opportunity of global segmentation for the producers of typical products and thus sustainability and development of the small and medium enterprises (SMEs). Concurrently it can also affect it indirectly, throughout tourism, which stimulates the desire to discover products and modality of consumption by visiting the specific products site (Mattiacci & Vignali, 2004).

Despite the existing literature researching on uniqueness and food identity highlighting the different aspects of it, a holistic perspective comprehending all those aspects is missing. In fact while some of the investigations assessed and defined the objective unique properties of specific foods not taking into account the consumer point of view (Guàrdia et al., 2010; Inarejos-Garcia et al., 2010; Rason et al., 2007), others investigated the consumer concepts defining unique food products without linking it with the objective food properties (Almli et al., 2011; Guerrero et al., 2009, 2010, 2012; Kühne et al., 2010).

As Fischler (1988) and Schifferstein (2010) indicated the human relation to food is complex. Therefore only through cross-disciplinary and

multidimensional assessments that the overall consumer experience and the uniqueness concept could be delineated.

The aim of the present study was therefore to investigate and define, through a holistic perspective, the meaning of food uniqueness and the mechanisms responsible for its formulation. In other words, it is understanding which combination of sensory properties and conceptualisations is responsible for the products' uniqueness/authenticity. For doing so, the overall consumer experience of a complex food product, in its traditional and novel form, has been assessed.

Because of its holistic perspective (combination of both objective properties and consumer concepts), the study represents a new approach and an advance to the general knowledge in the area of food uniqueness. Moreover the study constitutes the base for a "preliminary model" of uniqueness, where for "model" we intend a "framework for the different components of uniqueness and identity". The "preliminary model" could be useful as a tool to better understand the overall consumer experience and thus the factors influencing food choices and behaviours. In fact, the understanding of the overall consumer experience is vital for the successful development and commercialisation of food products. Moreover the findings could support the health promotions.

2. Material and methods

2.1. Sensory descriptive analysis

2.1.1. Experimental design/products

Twelve commercially available Danish open-faced sandwiches were analysed. Six types of 'smørrebrød' having as main ingredient meat (pig Danish paté, pork roast, Danish spiced pork meat roll, and roast-beef), or fish (marinated herring and egg and shrimp), were analysed. Each type was investigated in its traditional and a novel form. The traditional samples are industrial based and prepared as the simplest version of the traditional ones (normally with higher ingredients amount and decoration). The novel samples are artisanal products and prepared as the novel version of the classical Danish open-faced sandwiches. Details of the samples are provided in Table 1.

2.1.2. Panel selection

Ten expert judges, four males and six females, nine aged between twenty and forty-two and one aged sixty-three, have been hired to perform the descriptive analysis. The judges were selected from the external sensory panel of Faculty of Sciences, University of Copenhagen, Denmark. The external panel was recruited according to the selection criteria of ISO 3972 (1991).

2.1.3. Sample preparation

The samples have been placed on a paper foil (for food use, rectangular, same size), in transparent plastic boxes, and stored at 14.5 °C for 1 h before serving. References have been prepared every day before the training session at 14.5 °C before serving.

2.1.4. Vocabulary development and profiling

The sensory descriptive analysis consisted of four training sessions (9 h in total) and four sensory profiling sessions (2 h each). The aim of the training session was to develop a consensus vocabulary and improve the panellists' cognitive clarity toward the descriptors discriminating the honeys and the use of the sensory intensity scale. During the training session the judges have been instructed on the procedure to follow when evaluating the samples. Particularly panellists have been instructed to get all the ingredients composing the sample in one bite. Initially the panellists individually generated sensory descriptors by adding them on a pre-existent list. Subsequently, the judges discussed in pair the attributes and highlighted the most important ones to describe the sample. The final vocabulary consisted of fifty-nine attributes (Table 2) developed via collaboration between

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