



Study of the perception of consumers in relation to different ice cream concepts



Vanelle Maria da Silva^{a,*}, Valéria Paula Rodrigues Minim^b, Marco Aurélio Marques Ferreira^c, Pedro Henrique de Paula Souza^b, Liliane Elen da Silva Moraes^b, Luis Antônio Minim^b

^a Instituto de Ciência Exatas e Tecnológicas, Universidade Federal de Viçosa (UFV), campus UFV Florestal, 35690-000 Florestal, Minas Gerais, Brazil

^b Departamento de Tecnologia de Alimentos, Universidade Federal de Viçosa (UFV), 36570-000 Viçosa, Minas Gerais, Brazil

^c Departamento de Administração, Universidade Federal de Viçosa (UFV), 36570-000 Viçosa, Minas Gerais, Brazil

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ABSTRACT

The assessment of consumer perceptions towards foods is of paramount importance in the development and marketing of products. Seven ice cream concepts: Traditional, Light, Zero Sugar, Zero Fat, Fiber Enriched, Enriched with Bioactive Proteins and Enriched with Omega 3 were presented to 224 consumers who were asked to rate them according to the word association methodology, their perception of health and their intention to purchase the ice cream. The influence of awareness regarding health was considered in the analysis of the results, enabling a systematic evaluation of consumer behavior. Nutritional enrichment of ice cream proved to be an effective strategy to increase the perception of health among all groups formed, and for maintaining the intent to purchase in relation to traditional ice cream for a specific group. The results of the word association allowed for an understanding of the expectations and desires of consumers considering the new concepts, indicating that both the sensory and non-sensory characteristics (related to the product or consumer) should be considered for the success of the product on the market in comparison with that expected for a traditional product.

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Introduction

Ice cream is a complex colloidal system, usually formed by four structural compounds: air bubbles, fat and ice crystals dispersed in a matrix consisting of a solution of sugars, proteins, stabilizers, emulsifiers, dyes and scents (Clarke, 2004). Due to its complexity, ice cream has been studied by many researchers who seek to elucidate the influence of using different ingredients and the micro-structure formed at the end of processing on the physical chemical, structural and sensory characteristics of the product. Many of these studies seek the nutritional enrichment and/or reduced calorie count of ice cream while maintaining sensory quality, in order to change the paradigm that ice cream is just a treat and make it a more healthy and nutritious so that it may be associated with the prevention of diseases and good eating habits (Akalın & Erişir, 2008; Akalın, Karagözlü, & Ünal, 2007; Cadena, Cruz, Faria, & Bolini, 2012; Chauhan, Lim, Powers, Ross, & Clark, 2010; Friedeck, Karagul-Yuceer, & Drake, 2003; Lim, Norziah, & Lu, 2010; Lim, Swanson, Ross, & Clark, 2008; Lum & Albrecht,

2008; Padiernos, Lim, Swanson, Ross, & Clark, 2009; Rossa, Burin, & Bordinon-Luiz, 2012; Sun-Waterhouse, Edmonds, Wadhwa, & Wibisono, 2013; Yilsay, Yilmaz, & Bayazit, 2006).

This interest arises from the increasing concern regarding the impact of diet on health and quality of life of consumers, seeking to meet a market increasingly interested in healthier food products (Grunert, 2006). However, these efforts require a better understanding regarding the determinant factors for healthier eating habits and the identification of market segments interested in the claims of health benefits of the products (Ares & Gámbaro, 2007; Aström & Rise, 2001; Chrysoschou, Askegaard, Grunert, & Kristensen, 2010; Conner, Norman, & Bell, 2002; Povey, Conner, Sparks, James, & Shepherd, 2000).

According to Lähteenmäki (2013), interest among food manufacturers may be fueled both by pressure from the public sector to produce “healthier” options and by increased consumer attention to healthy eating. Using health as an important quality criterion in a product assessment may further be exploited as an indication of socially responsible corporate behavior that looks beyond profit making. Health claims in products seek to respond to consumers’ interest in health by conveying messages about product-specific benefits that potentially add value to products.

* Corresponding author. Tel.: +55 31 3899 3810; fax: +55 31 8607 8317.

E-mail address: vanelle.silva@ufv.br (V.M. da Silva).

Previous studies have suggested that consumers may find enrichment of non-healthy food more justified than enrichment of food that are perceived as healthy (Bech-Larsen & Grunert, 2003; Krutulyte et al., 2011; Lähteenmäki, 2013). Development of new foods by adding functional ingredients to carrier foods provides new market opportunities for food producers as well as potential benefits for consumers' diet and general well-being (Krutulyte et al., 2011).

Vidigal, Minim, Carvalho, Milagres, and Gonçalves (2011) and Urala and Lähteenmäki (2003, 2004) showed in their studies that consumer attitudes towards health have been identified as a major factor in the acceptance of some functional foods.

In the study performed by Hoefkens, Verbeke, and Van Camp (2011), it was observed that the perception of nutritional value is important in the selection of foods by consumers, where "high quality" nutrients are most influential in this decision. The biggest influence was perceived especially among women, the elderly, persons performing diets and those most concerned about their health.

It is expected that the replacement of conventional foods for functional foods will only occur if they are perceived as healthy. Consumers' perception of health in relation to products, processes and enrichments involved in the production of functional foods is crucial in determining consumer acceptance of these products (Bech-Larsen, Grunert, & Poulsen, 2001).

Projective techniques (PTs) are useful for studying consumers' perception of food products and for determining the key drivers of consumer choice for a particular product category. These methodologies are capable of revealing internal thoughts and feelings of consumers, since use of ambiguous and unstructured stimuli allow participants to project their subjective or deeply held beliefs regarding other people or objects (Morrison, Haley, Sheehan, & Taylor, 2002). In the case of a new concept, PTs are suitable tools for revealing how consumers view and perceive undefined concepts such as functional ice cream. The more traditional PTs include ink blots, picture response, sentence completion, dialog bubbles, shopping lists, thematic apperception tests, mental scenarios and word associations (Rook, 1988).

Word association is a methodology widely used in the fields of sociology and psychology, allowing for evaluation of concepts, beliefs and attitudes related to human behavior. The method is based on the assumption that by providing a stimulus word and asking the respondent to freely associate ideas coming to his or her mind, there occurs relatively unrestricted access to mental representations of the stimulus. It is proven that the ideas expressed within a word association procedure are spontaneous productions subject to fewer restrictions than typically imposed in interviews or closed questionnaires, thus obtaining less biased results (Wagner, Valencia, & Elejabarrieta, 1996). Thus, it is considered an exploratory research technique, where the researcher presents the interviewee with an ambiguous stimulus as a method to discover hidden motivations from the first images, associations, thoughts or emotions that come to the mind of the respondent.

Gámbaro, Dauber, Ares, and Ellis (2011) used word association to evaluate consumer perception with respect to Uruguay vegetable oils (olive oil, soybean oil, corn oil, rice bran oil and sunflower oil). Moreover, other studies (Ares & Deliza, 2010a, 2010b; Ares, Giménez, & Gámbaro, 2008; Guerrero et al., 2010; Roininen, Arvola, & Lähteenmäki, 2006) have demonstrated that the first associations that come to the consumers' minds maybe those most relevant for selection and purchase of food products. Thus, they demonstrated the usefulness of the application of word association for evaluation of consumer behavior.

The use of exploratory studies, such as word association, has great applicability in product development and marketing. Evaluation of health perception and intent to purchase also

provides an understanding of the consumers' willingness to purchase the product. Therefore, the combination of these different methodologies allows a systematic assessment of consumer perceptions, permitting the identification and characterization of market segments interested in the consumption of functional products. In the specific case of ice cream, there are no studies in literature that have conducted such an assessment, providing incentive for the present study.

Based on this information, the objective of the present study was to evaluate the relationship between health concerns of the consumers with perception of health and intent to purchase the following ice cream products: Traditional, Light, Zero Sugar, Zero Fat, Fiber Enriched, Enriched with Bioactive Proteins and Enriched with Omega 3, along with the associations established in the Word Association methodology. It was therefore possible to obtain useful information for targeting the ice cream market with the addition of nutrients and/or reducing calories and the functional food market in general.

Material and methods

Participants and data collection

The study was conducted in the city of Viçosa, MG, Brazil with the participation of two hundred and twenty-four collaborators who were randomly recruited in public places such as the Campus of the Federal University of Viçosa, squares and shops between 8:00 am and 6:00 pm in order to obtain a heterogeneous profile of ice cream consumers using a convenience consumer sample. Convenience samples are usually used in qualitative studies when they seek to obtain an approximation to a research subject and involve recruiting available participants who meet specific criteria (Kinnear & Taylor, 1993).

All participants consumed ice cream at least once a month. Among the consumers, 58.5% were women and 41.5% men. Ages ranged from 16 to 68, with average age of 28.34 and a standard deviation of 11.05 years. Table 1 reports the characteristics of the participants according to gender, age group, education, and marital status.

In this study, the data collection stage was divided in two subsequent sessions.

In the first session, respondents evaluated seven different ice cream concepts: traditional, light, omega 3 enriched, fiber enriched, enriched with bioactive proteins, zero% sugar and zero% fat. Each concept was presented with an identical and inert image

Table 1
Demographic details of the achieved sample.

	Total (n)	%
<i>Gender</i>		
Men	93	58.5
Women	131	41.5
<i>Age</i>		
16–24	114	50.9
25–34	68	30.4
34 years and more	42	18.7
<i>Education</i>		
Primary school only	32	14.3
High school	77	34.4
University	115	51.3
<i>Marital status</i>		
Single	163	72.8
Married	52	23.2
Divorced	7	3.1
Widowed	2	0.9

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