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Beyond sensory characteristics, how can we identify subjective dimensions? A comparison of six qualitative methods relative to a case study on coffee cups

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ABSTRACT

This article compares six qualitative methods used to identify consumer perceptions: the sorting task with verbalization, the repertory grid method, the projective technique of word association and sentence completion, the projective technique of image association, a method based on the self-explanation of preferences and the focus group. We applied these methods to a set of coffee cups. For each method, eight different consumers assessed the same eight cups. The terms thus elicited were classified into two pre-established categories: product attributes (*this cup is modern*) and evocations (*this cup reminds me of family time*). We then proposed sub-categories: ten for product attributes and five for evocations. The methods were compared according to the number of different variables generated in each sub-category. The ease of implementation and pragmatic considerations relative to the methods are also presented. The test methods enabled the elicitation of different subjective dimensions distributed into several pre-defined categories. According to our criteria, the word association and sentence completion method appeared to be the most comprehensive technique to identify subjective dimensions.

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1. Introduction

Understanding how consumers perceive a product and how their opinions on that product are linked to these perceptions is important to the process of new product design. In sensory science, we usually seek to explain consumer preferences through the sensory characteristics of products, using techniques such as external preference mapping (Blumenthal, 2004). The assumption behind such approaches is that preferences can be linked directly to well-defined sensory characteristics of the products when they are tested blind. It is also generally assumed that these sensory characteristics are sufficient to explain preferences. However, the application of external preference mapping may sometimes suffer from the small number of consumers who can be fitted significantly (Faber, Mojet, & Poelman, 2003). Several reasons have been given for this situation. As Jaeger, Wakeling, and MacFie (2000) explained, ‘for preference mapping to be successful it is essential that the product space, derived from the sensory description, contains dimensions which pertain preference [...] It must provide a meaningful view of stimuli differences as perceived by consumers’. In order to improve the Preference Mapping technique, Jaeger et al. (2000) proposed to take account of the behavioural processes associated with preference formation. They suggested that consumers compare their perceptual representation of stimuli with a set of idiosyncratic rules governing preference, and then transform this affective evaluation into a preference score. In order to better understand the construction of consumer preferences, we therefore proposed to investigate more subjective variables relating to consumer perception.

As pointed out by Varela and Ares (2012), an increasing number of sensory descriptive studies are being carried out with consumers in order to capture their perceptions of products. Although these studies aim to measure sensory characteristics, these authors observed that naïve subjects tend to refer to dimensions that are more subjective and complex than sensory attributes. The most frequently reported dimensions of this sort in the sensory literature are *Natural* (Ares, Giménez, & Gámbaro, 2008; Ares, Varela,

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Rado, & Giménez, 2011; Mireaux, Cox, Cotton, & Evans, 2007; Moussaoui & Varela, 2010; Piqueras-Fiszman, Velasco, Salgado-Montejo, & Spence, 2013; Raz et al., 2008; Roininen, Arvola, & Lähteenmäki, 2006; Soufflet, Calonnier, & Dacremont, 2004; Veinand, Godefroy, Adam, & Delarue, 2011), *Artificial* (Ares et al., 2011; Ares et al., 2013; Veinand et al., 2011; Vidal, Ares, & Giménez, 2013) and *Healthful* (Ares & Deliza, 2010; Ares et al., 2008; Mireaux et al., 2007; Raz et al., 2008; Roininen et al., 2006; Russell & Cox, 2003; Vidal et al., 2013).

Different terms are used in the literature to define these notions: *complex perception* (Labbe, Gilbert, Antille, & Martin, 2009), *hedonic terms* (Soufflet et al., 2004), *image attributes* (Moskowitz, 1998), *symbolic benefits* (Madzharov & Block, 2010), *experience attributes* (Rebollar, Lidón, Serrano, Martín, & Fernández, 2012) or *meta-descriptor* (Frøst & Janhø, 2007). These perceptions are obviously based on different determinants. As explained by Moskowitz (1998), it is difficult to develop a definition for image attributes because the essence of such attributes cannot be captured readily. Labbe et al. (2009) explained that complex perceptions such as *refreshing*, *fatty* or *natural* are based on multiple sensory determinants, as well as physiological, psychological and social factors. Westerink and Kozlov (2004) explained that *freshness* depends on different sensory, physiological and cognitive factors. In addition to this, it is reasonable to hypothesize that they often bear a hedonic valence.

Indeed, these percepts may be decisive in the construction of consumer judgements. But neither a pure sensory description nor hedonic testing can take full account of these percepts. Some authors working in the sensory field have actually tried to capture such percepts: Guerrero et al. (2010) studied the perception of *Traditional* food, Labbe, Pineau, and Martin (2013) explored *naturalness* perceptions with respect to dehydrated soup, Labbe et al. (2009) studied the sensory determinants of *refreshing*, and Moskowitz (1998) studied the image attributes of soup (such as *hearty*, *quality*, *unique*, *sophisticated*, *for males* and *for females*).

As well as the food itself, packaging can also communicate positive aesthetic, experiential, functional, symbolic and informational benefits to consumers (Madzharov & Block, 2010). For example, Rebollar et al. (2012) studied the effect of the colour and format of chewing gum packaging on consumer expectations regarding its functional (e.g., *practical, comfortable, etc.*), sensory (e.g., *Menthol, Fresh, Intense, light, etc.*) and experience attributes (e.g., *Explosive, Sensual, Elegant, Innovative, etc.*). They found that experience attributes had the most influence on willingness to buy. And finally, the subjective dimensions of fragrances were studied from a cross-cultural perspective by Ballay, Sieffermann, Danzart, and Gazano (2006) using a descriptive methodology derived from Flash Profile.

The presence of these dimensions is even more important in consumer research for industry. For instance, Moskowitz (1998) pointed out that "*market researchers in many food companies often use many more image attributes (Subjective dimensions) than sensory attributes in their questionnaires [...] they often constitute the basis for claim testing, and marketing platforms*". Interestingly, Raz et al. (2008) conducted a study in that setting that was based on the qualitative and quantitative assessment of drinks by consumers. The authors argued that such measurements would secure the choice of product parameters in new product development. Overall, it can be seen that these dimensions that are more subjective and complex than sensory attributes are important for the industry in many respects. Yet different terms are used in the literature to refer to these dimensions. In the following, we will make reference to "subjective dimensions".

However, before these dimensions can be measured and analysed with respect to preferences, it is first necessary to identify the subjective dimensions that consumers may associate with a product. We therefore decided to investigate the applicability of a series of qualitative methods to eliciting subjective dimensions. Studies which compare the type of attribute information provided by different qualitative methods, their relative performance, and their convergent validity are scarce and only apply to the elicitation of sensory dimensions (Steenkamp & Van Trijp, 1997; Vidal et al., 2013). Steenkamp and Van Trijp (1997) compared three attribute elicitation procedures that are commonly applied in marketing research: free elicitation, hierarchical dichotomization and Kelly's repertory grid. They found that free elicitation yielded more attributes and was evaluated more positively by the respondents than the two other techniques. However, to our knowledge, the comparative ability of qualitative methods to elicit subjective dimensions has not yet been studied.

During this study, we focused on methods classically used in either sensory science or marketing research to enable consumers to generate vocabulary. In addition, we chose to select methods that do not require extensive training in psychology. The methods we thus targeted were the sorting task with verbalization, the repertory grid method, word association and sentence completion, image association and a method based on the self-explanation of preferences where consumers declare what they like or dislike in a product. We finally compared these methods with the findings of a focus group.

Sorting task with verbalization is a sensory method used to identify consumer perceptions of products (Faye et al., 2004; Soufflet et al., 2004). This technique consists in asking subjects to group samples according to their similarities and then to describe the groups thus formed in order to associate vocabulary with the stimuli.

The repertory grid method originates from applied psychology and marketing and it has been used to investigate perceptions of food in sensory science (Baxter, Jack, & Schröder, 1998; McEwan & Thomson, 1989; Mireaux et al., 2007; Russell & Cox, 2003). This technique involves triadic comparisons of products in which participants elicit their own set of constructs in order to describe similarities and differences between products. Following construct elicitation, the assessors are required to rate the products on each of their constructs.

We also tested projective techniques that are frequently used in qualitative market research: namely, word association, sentence completion and image association. These techniques are based on the assumption that giving a stimulus to a respondent and asking him/her to freely associate what ideas come to his/her mind might provide relatively unrestricted access to mental representations of the stimulus (Donoghue, 2000).

Word association is being used increasingly in sensory science to investigate consumer perceptions of food products (Ares & Deliza, 2010; Ares et al., 2008; Guerrero et al., 2010; Roininen et al., 2006). The consumer is simply asked to indicate the first words that come to mind when presented with a product.

For sentence completion, the subject is given an incomplete sentence and asked to finish it (Donoghue, 2000). Image association is another projective method where subjects are given a number of pictures and then asked to associate them with a product and explain their choices (Donoghue, 2000).

For the method based on the self-explanation of preferences, consumers first of all rank products according to their preferences and then declare what they like or dislike in each product.

Unlike the methods described above, which are based on individual interviews, it is also possible to study consumer perceptions with a group of participants. The focus group is certainly the best known of these methods. It is a qualitative exploratory technique that consists in gathering a small number of persons (generally 6–12 participants) around a table and asking them to discuss a given topic. This offers a means to better understand how people feel or think about an issue, product or service (Krueger & Casey, 2000).

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