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The effect of the research setting on the emotional and sensory profiling under blind, expected, and informed conditions: A study on premium and private label yogurt products

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ABSTRACT

Although sensory and emotional evaluation of food products mostly occurs in a controlled laboratory environment, it is often criticized as it may not reflect a realistic situation for consumers. Moreover, products are mainly blind evaluated by participants, whereas external factors such as brand are often considered as key drivers of food choice. This study aims to examine the role of research setting (central location test versus home-use test) and brand information on the overall acceptance, and sensory and emotional profiling of 5 strawberry-flavored yogurts. Thereby, private label and premium brands are compared under 3 conditions: blind, expected, and informed (brand information). A total of 99 adult subjects participated in 3 sessions over 3 consecutive weeks. Results showed that overall liking for 2 yogurt samples was higher in the laboratory environment under the informed evaluation condition, whereas no effect of research setting was found under the blind and expected conditions. Although emotional profiles of the products differed depending on the research setting, this was less the case for the sensory profiles. Furthermore, brand information clearly affected the sensory perception of certain attributes but had less influence on overall liking and emotional profiling. These results indicate that both scientists and food companies should consider the effect of the chosen methodology on ecological validity when conducting sensory research with consumers because the laboratory context could lead to a more positive evaluation compared with a home-use test.

Key words: context, brand, consumer, EmoSensory Wheel

INTRODUCTION

Overall acceptance is widely used as a sensory measurement to gain insight in food choice and preference (Lawless and Heymann, 2010). But although this measurement has been widely applied by both scientists and industry, the food industry is still confronted with high market failure rates despite sensory research before product launch (van Kleef et al., 2005; Ryynänen and Hakatie, 2014). Therefore, additional measurements by consumers such as emotional and sensory profiling are gaining interest as a way to better understand consumers' motivations for food choice (Varela and Ares, 2012; Meiselman, 2013; Jiang et al., 2014).

When consumers perceive an object such as a food product or food brand, conceptual associations will be generated, triggering an emotional response that may be positively or negatively rewarding (Thomson, 2015). Conceptualizations can be broadly classified into 2 categories based upon their connotations: emotional or functional (Thomson et al., 2010). It is important to notice the clear distinction between emotional conceptualizations and emotions as this has implications both on the scientific level (research methodology) and industry level (product development and marketing). Although a clear scientific definition of emotion is lacking (Lane and Nadel, 2002; Thomson and Crocker, 2013; Köster and Mojet, 2015), the consensus is that an emotion is something short term experienced by a person, whereas emotional conceptualizations have more permanence (Thomson and Crocker, 2015). Further, conceptualizations are also more related to the object instead of the individual, whereas emotions are highly dependent on the mood of the individual (Thomson and Crocker, 2015).

In recent years, several tools have been developed and applied for conducting the emotional profiling tasks with food products ranging from explicit self-report instruments to implicit methods such as autonomic measures of emotion (e.g., skin conductance, hearth rate)

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and brain states (e.g., functional magnetic resonance imaging; Köster and Mojet, 2015). However, the major studies in food science have worked with self-report instruments (Gutjar et al., 2015a) such as the EsSense Profile (King and Meiselman, 2010), PrEmo (Gutjar et al., 2015b), best-worst scaling (Crocker and Thomson, 2014), bullseye (Thomson and Crocker, 2014), EmoSensory Wheel (Schouteten et al., 2015b), and EmoSemio (Spinelli et al., 2014). During a self-report consumer test, participants are instructed to indicate which emotional terms they are experiencing or associating when consuming a food product. The emotional lexicon can be either from a standard list (e.g., EsSense Profile; King and Meiselman, 2010) or a consumer-defined lexicon specific for the product category under study (Jiang et al., 2014). One could stipulate that these self-report methods are reflecting emotional conceptualizations rather than specific emotions (Köster and Mojet, 2015; Thomson and Crocker, 2015). The measurement of emotional conceptualizations has gained momentum as it provides additional information to discriminate between food products, even when overall acceptance is similar (King and Meiselman, 2010; Ng et al., 2013a) and to improve food choice prediction (Dalenberg et al., 2014; Gutjar et al., 2015a).

Next to emotional profiling, interest is growing in letting consumers perform the sensory profiling of food products to obtain a better understanding on how they experience the different sensory properties of food products (Valentin et al., 2012). Several new methodologies have been developed such as check-all-that-apply (**CATA**), rate-all-that-apply (**RATA**), Napping, and flash profiling (Varela and Ares, 2012; Ares et al., 2014b). These new tools make it possible to cost efficiently retrieve feedback regarding how consumers perceive several sensory modalities such as aroma, flavor, texture, and aftertaste (Varela and Ares, 2012). Although these methods need to be seen as an additional way to provide feedback next to traditional profiling with trained experts, several studies have shown that these tools have been successfully applied for describing and quantifying product differences (Valentin et al., 2012; Varela and Ares, 2012; Cruz et al., 2013; Reinbach et al., 2014).

Although the growing body of literature studying sensory and emotional profiling of food products, questions remain about the ecological validity (Schmuckler, 2001) of sensory research when conducting emotional and sensory profiling using blind-labeled product samples at a sensory facility (Jaeger et al., 2016). In the field of sensory research, 2 different research settings are widely used to obtain consumer data: central location tests (**CLT**) and home-use tests (**HUT**; Lawless and Heymann, 2010). The majority of the tests carried out in scientific and industry take place as a CLT where consumers are evaluating products in isolated sensory booths to control against panelist bias and confounding nonproduct influences (Bangcuyo et al., 2015). Research has found that, depending on the product category, the evaluation context could influence the overall acceptance of food products (Edwards et al., 2003; Boutrolle et al., 2007; Mouta et al., 2016). Also, an evoked context effect has been even reported when consumers evaluated which emotions they experience while imagining a specific consumption context at a CLT (Piqueras-Fiszman and Jaeger, 2014a,b,c). But the question remains to which extent a real difference in testing location influences the sensory and emotional profiling of consumers.

Next to the evaluation setting, the ecological validity also includes the materials that are used (Schmuckler, 2001). Food choice is influenced by intrinsic (sensory properties), extrinsic (e.g., price, brand, packaging size), and credence quality cues (e.g., organic production, fair trade; Oude Ophuis and Van Trijp, 1995). Although the sensory properties of a product are of utmost importance, it is also important to examine the influence of extrinsic and credence quality cues on the sensory and emotional evaluation of food products (Meiselman, 2013; Spinelli et al., 2015; Jaeger et al., 2016). This will not only help to better understand consumers' evaluation of food products, but it also mimics better a real situation compared with the traditional blind sensory evaluation. One of the most important extrinsic cues for food producers is the brand as it is used to distinguish with competitors' products (Di Monaco et al., 2004; Fernqvist and Ekelund, 2014). Although branding is not a factor that has received a lot of attention in the sensory and consumer science field (Spinelli et al., 2015), several studies have found that brand information might influence overall acceptance (Paasovaara et al., 2012; Cavanagh and Forestell, 2013; Gutjar et al., 2015a; Spinelli et al., 2015) and purchase intent (Torres-Moreno et al., 2012). But little is known on the effect of brand labels on the emotional and sensory profiling of food products as previous studies worked with whole packages (Ng et al., 2013b; Gutjar et al., 2015a; Spinelli et al., 2015).

Four main psychological theories have been put forward to explain the effects of disconfirmation, generated by differences between the expectations and actual product performance, on consumers' product perception (Deliza and MacFie, 1996). The assimilation (or cognitive dissonance) theory stipulates that consumers adjust their perception of the product to be in line with the expected performance to minimize the differences between the expected and actual performance. The contrast theory specifies that a person will magnify