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Static vs. dynamic liking in chewing gum: A new approach using a background task and a natural setting

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ABSTRACT

Chewing gum is a particular product, consumed during long periods of time and usually while doing something else. Therefore, traditional hedonic tests might not provide sufficient information. The aim of the present work was to compare the liking scores resulting from asking consumers whether they liked the product only once (static liking, SL) to those obtained when asking repeatedly during consumption (dynamic liking, DL). For this purpose, three different mint chewing gums were evaluated by two groups of 50 consumers. In both cases, consumers evaluated the samples at home using an Internet application specifically designed for the experiment. In the SL, consumers were prompted to rate their liking only after 5 min of chewing. During this time, consumers were presented with a series of curious facts ("Did you know...?") which they would read from the screen as a background task. For the DL, consumers were asked to rate the samples every 45 s during a period of 10 min while performing the same background task, having a maximum of 10 s to answer.

Comparing the results obtained by both techniques at the same moment of consumption (5 min), ratings were found to be significantly higher with the SL for all samples. This could indicate that, when asked once, consumers gave their overall liking score and not their liking at precisely 5 min. Nonetheless, at that moment, the sample ranking was the same for both methods. Moreover, DL showed that when taking into account preference throughout consumption time, a significant product ranking inversion could be found, revealing that preference was time dependent and also that this change was different among products.

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1. Introduction

Conventional sensory methods, such as quantitative descriptive analysis or other forms of profiling, implicitly regard the sensory properties under investigation as a static phenomenon (Dijksterhuis & Piggott, 2000). Nonetheless, it is well-known that the perception of flavor is not a single event but a dynamic process (Piggott, 1994) where every step must be considered to fully understand it. For this purpose, many sensory techniques have been developed attempting to describe the sensations generated by food taking into consideration its dynamic aspect. Time-Intensity (T-I) technique (Lee III & Pangborn, 1986; Neilson, 1957), Dual Attribute Time-Intensity (Duijzer, Bloom, & Findlay, 1997), Progressive Profiling (Jack, Piggott, & Paterson, 1994), Temporal Dominance of Sensations (TDS) (Pineau et al., 2009) and Sequential Pro-

file (Methven et al., 2010) showed the importance of the temporal dimension in sensory evaluation.

Therefore, if perception changes as a function of time, it might also be expected that hedonic responses would modify during consumption. The first work to investigate temporal liking was done by Lee and Pangborn (1986): they proved that liking changed along time, and that these changes could be measured using the T-I methodology. Later, Taylor and Pangborn (1990) measured the degree of liking of chocolate milk continuously along a consumption period of 80 s, finding that hedonic responses showed systematic changes during tasting, and that these changes were product dependent. At this point, it was suspected that changes in the hedonic response could be a mere reflection of the variation of the intensity of different attributes. Veldhuizen, Wuister, and Kroeze (2006) worked with orange juice lemonades and found that intensity and pleasantness responses did not occur simultaneously; the intensity response happened before the pleasantness response and also had a different duration time. Therefore, time-hedonic curves were different from the time-intensity curves,

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