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Effect of Information on Food Evaluation and Willingness to Buy

A study from a neuromarketing perspective

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At the research center of the neuromarketing Behavior and Brain Lab (IULM University), we conducted a study adopting both traditional and neuroscientific techniques to test the emotional reaction of consumers tasting a food conserved with a new edible gel, which avoids the presence of artificial preservatives.

In this article, we will focus only on the influence of communication on the consumption experience. The results showed a significant effect of communication on the sensorial perception of food products, in terms of conscious evaluation and unconscious response during the food tasting.

Neuromarketing grounded on both consumption psychology and marketing allows biological signals to be measured in order to study the physiological responses to communication stimuli to detect their emotional effect, which is a key aspect for the identification and approach to the product (Codeluppi, 2010; Olivero, Russo, 2009, 2013; Russo, 2015; Siri, 2001). Regarding food, only limited literature has contributed to the topic. However, empirical analyses have shown that information and brand (Arcia et al. 2012), packaging (Ares et. al., 2013; Milosavljevic et.al., 2011), the aesthetics of the product (Itti, Koch, 2001; Mannan et. al., 2009), and possibly smell, positioning and price (Ares, Giménez, Deliza, 2010) are key variables that orient emotion, and hence purchase.

Sample, experimental design and measurement methods

Sixty Italian subjects, equally distributed in terms of age, gender and socio-economic level participated in the experiment. All the sample participants tasted the same Italian snack (named "Saccottino", a typical and well-known Italian snack) in three conditions, in the same sequence: blind tasting (no information about the

product), tasting with the product visible (participant saw just the product without logo and brand), tasting with the product visible and information about the product (before tasting they watched a video about the natural composition of the coating).

During each experiment session, the EEG and skin conductance of the participants were recorded using FlexComp Infiniti Technology. After each of the three tastings, the participants rated the pleasure, perceived healthiness and their intention to buy the product on a five-point Likert scale.

Analysis and results

According to the theory that a greater inhibition of the alpha band in the left prefrontal cortex predicts a trend of approach, desire and appreciation while a greater inhibition of the alpha band in the right region of the same cortex predicts a tendency to reject, dislike and avoidance (Sutton and Davidson, 1997; Harmon-Jones, Gable, Peterson, 2010; Price, Peterson, Harmon-Jones, 2012), an Approach-Withdrawal (AW) Index was computed as the difference between the power of the EEG signal in the right and left regions of the prefrontal

cortex. A positive value means a greater activation of the left hemisphere, indicating an appreciation of the stimulus, while negative values reflect an aversion to the stimulus.

The index was compared for the whole sample of participants, during the three conditions of tasting. The results are shown in table 1 and figure 1. The AW Index shows a positive value in the blind tasting phase, which increases considerably when the tasting is accompanied by being able to see the product. In the third condition, the AW Index remains positive although slightly lower than the second phase. These results support the claim that information positively affected the experience of tasting and the effect is particularly strong for visual information.

CONDITION	AW INDEX
Blind	1.997
View and taste	4.189
With information	3.918

Tab. 1 mean AW index values in the three phases of the experiment

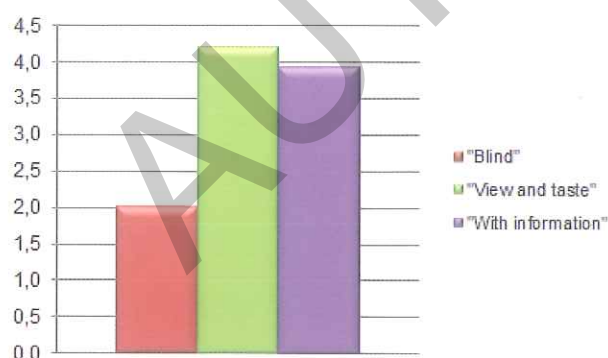


Fig. 1 comparison of AW index values in the three conditions

The skin conductance signal shows different reactions during the tasting due to the information about the product. The value increases in line with the availability of more information.

CONDITION	SKIN CONDUCTANCE
Blind	1.838
View and taste	2.976
With information	3.172

Tab. 2 mean skin conductance values in the three phases of the experiment

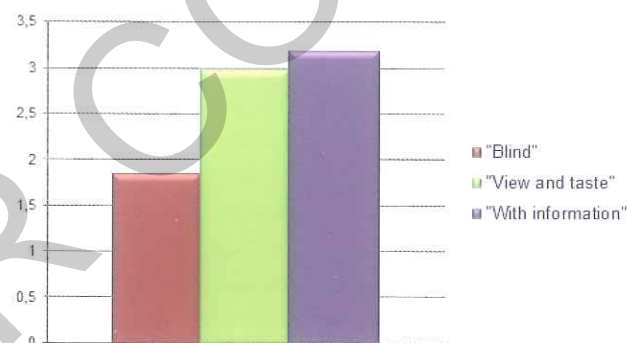


Fig. 2 comparison of skin conductance values in the three conditions

The growing trend of the activation of the subjects in different experimental phases is consistent with the results of the study conducted by de Wijk and colleagues (2012) that showed how the visibility of food causes a relatively low arousal that grows as the sensory information such as smell and taste is increased. The addition of positive information about the food product has the effect of further activating the subject. This activation in terms of arousal reflected by the skin conductance can be interpreted as a positive emotional reaction according to results obtained from electroencephalographic measurements (AW index). The results of skin conductance levels for each experimental condition are shown in table 2 and figure 2.

Self-report results

The participants were asked to evaluate the pleasantness of the taste, the perception of healthiness and the

willingness to purchase on a scale ranging from one to five points after every tasting. Table 3 shows the mean values for the evaluation of the product. The condition of tasting with the sensory information only was compared with the phase of tasting with all the information about the product. The evaluation given by the participants was higher in the last condition, showing that the gathered information leads to a perception of better flavor, increased healthiness and a greater intention to purchase for the same product when the subjects have been exposed to more information about the health-beneficial characteristics of the product.

	VISION AND TASTE	WITH INFORMATION
Taste	3.95	4.56
Healthiness	3.41	4.27
Willingness to purchase	3.63	4.39

Tab. 3 mean self-report evaluation in the three phases of the experiment

Conclusions

Our vision is to integrate traditional techniques with innovative neuro-scientific approaches, where possible. This serves to verify whether the two methods show similar trends or not. If the two methods did provide different results, a decision to widen the research could be taken. In this case, the neuro method did not lead to different conclusions compared with the self-report data.

The results show that the subjects' evaluations were more positive when the participants were aware of the genuine characteristics of the product tasted, compared with the blind tasting condition without any information. The most interesting result is that information on genuine features about the product compared with similar foods not only affected the perception of healthiness and the willingness to purchase, but the evaluation of taste as well.

This improvement of the experience of taste, due to information about the product, also occurs at a subconscious level, with a change in the spontaneous response of the participants during the different phases of tasting. These results show the impact of information on the food consumption experience, both at a rational level and in the spontaneous response, highlighting the importance of communication for food products. It should be noted that there was an increase in activation (skin conductance) and evaluation (self-report) resulting from the increase in information about the product, and that the AW Index in the third phase was higher than in the blind condition, but not different to the tasting with visual information. To enhance this result, further analysis will explore the response of the participants while watching a related informative video.

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