

## Chapter 4

# Measuring Cognitive and Emotional Processes in Retail: A Neuroscience Perspective

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### ABSTRACT

*The purpose of this chapter is to share scientific methods for the quantitative measurement of emotion through the recording of physiologic and cerebral variables of consumers in relation to advertising stimuli and during the purchase in the store. For this reason, the authors describe the way to estimate the emotion along the visit of a shop by using the approach-withdrawal index. It demonstrates how it is possible to describe the variation of the appreciation of a shop visit by two groups of persons. The specific contribution to the scientific literature is the use of such approach-withdrawal index and the estimation of the emotion linked with the visit of a large point of sale (e.g. a supermarket). The proper use of these methodologies can provide information related to cognitive and emotional aspects of persons involved in the appreciation of products in retail points of sale.*

### INTRODUCTION

It is well known from neuroscience that the cerebral systems related to emotion in humans play a vital role and often unconscious (that is subtracted from the conscious cognitive control) during the

decisions that we generate every day. Very often the emotions perceived during sensory stimulation to which we are subjected in everyday life do not manifest themselves in our conscious control, while driving our behavior instead perceived as “spontaneous” or natural.

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Often we are not able to rationally justify our purchasing behavior, which often differ greatly from our original intent in favor of a purchase “decided on the spot” on the basis of purely instinctive motivations. The reason for this behavior of “decision-making” seemingly out of control during the conscious rational choice of goods or services is based on the fact that the different emotional systems in the brain of humans can easily access to the centers of decision behavior without be subjected to the filter of the cognitive part of the brain. The emotion is therefore a very important factor in the decision to purchase a good or a service, as well as plays a vital role in the perception of a product. It therefore seems clear that the possibility to understand and to measure the emotion induced by an advertising, as well as to measure the emotion induced by the vision of a logo can be extremely important for a company that invests on advertising.

To measure the emotion induced by a product or an image in a consumer, however, can be a difficult exercise. In fact, there may be a problem of “self-perception” of the emotion itself: as we have already said a perceived emotion cannot simply become apparent to our conscious attention while instead is inducing a precise behavior. When this happens it is typical to collect verbal reports from the consumers such as “I cannot explain why I made this choice,” or similar. Another problem related to the perception of the emotion in the consumers is related to the ability by the consumer to describe properly the emotion perceived during the observation of a product or a service. Another possible issue is related to the will of the interviewed to share with the others the own emotion related to the product or service consumption. It appears clear from these previous possible issues, that an objective measure of the emotion could be of some help in the evaluation of the correct proposition of goods and services in the retail to the consumers.

The technological and methodological innovations of this paper is that the emotions (and the related processes in the brain that occurs during such emotions) can be measured during the exposition of the subjects to the advertisements or during the purchase decision in the store. In addition, this can be performed in ecologic conditions close to what happens in the normal life. This is possible thanks to advanced technological devices able to measure brain and emotional activities outside of the scientific laboratories of the universities or the research centers.

The real advantage of the quantitative measure of emotional during the use of advertising in selected groups of users is the possibility to better modulate the advertising message on the point of sale recognizing its strengths and weaknesses. The relevance of this contribution for companies lies in the information that the quantitative measure of emotion:

1. It is possible out of scientific laboratories and universities;
2. It is able to operate effectively for the improvement of the advertising messages and the corporate communications;
3. Is able to provide information not directly obtainable by the processes of explicit verbalization of the respondents.

The measurement of emotions and the relative brain processes associated with the instinctive perception of advertising can thus provide additional evidence to the measurement of the efficacy of the advertising obtained via other typical methods of marketing research.

The purpose of this chapter is then to share scientific methods for the quantitative measurement of emotion through the recording of physiologic and cerebral variables of consumers in relation to advertising stimuli and during the purchase in the store. For this reason we describe the way to estimate the emotion along the visit of a shop by using the approach-withdrawal index, described in

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