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A Theoretical Review on Neuromarketing and Its Evaluation of Emotional Response of The Consumers To Marketing Stimuli

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ABSTRACT

In recent years, the emerging field of neuromarketing, which makes use of brain research in a managerial context, has gained increasing popularity in the academic literature as well as the practical world. Therefore, the purpose of this paper is to evaluate on the emotional influence response to stimuli with the neuromarketing tools on traditional marketing inputs in order to have a properunderstanding of consumer behavior. The increased use of neuromarketing techniques for the evaluation of customer preferences and decision-making processes is considered to be an advantage for customers and marketers simultaneously. This research paper explores the role of emotional processes and neuro scientific research into these processes from a theoretical and practical standpoint. The theoretical review explores the areas of the brain usually attributed to emotions in neuroscientific research, how the study of emotions in influencing behavior and choice has altered behavioral economic theory, perception and preference to elements of the marketing mix, and advertising effectiveness measure.
KEYWORDS: neuromarketing, neuroscience, emotions, responsiveness.

INTRODUCTION

Since the emergence of the field of Neuromarketing in 2002, its importance is constantly growing and its fame is spreading over companies, marketers and advertisers. Although the topic gains increasing attention in the medical industry and psychology, there are certain evidence suggesting that the brain itself is the main mediator of human behavior, expressed emotions and decision-making processes. Additionally, certain evidence shows that in the majority of the cases, people are unable to express their reasons for behavior or the reasons for preference of certain things, consciously or unconsciously. With this in mind, the neuroeconomics takes neural and physiological processes as the basis for the explanation of consumer behavior, seems justifiable. Although neuromarketing is not going to compensate for traditional approaches, there is high evidence that emerging tools such as fMRI (functional magnetic resonance imaging) will upgrade the productivity of marketing strategies. Since branding and advertising are assumed to have relevant impact on consumer preferences for products, it is likely that neuromarketing could contribute and influence these consumer preferences by the application of neuromarketing techniques in a positive way. Consumer's neuroscience is increasingly becoming a field of interest both for researchers and for the business area, because it provides additional, better information than the traditional marketing methods; it also proves useful and effective in understanding the consumer's behavior and reasoning whenever making decisions.

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SCOPE OF NEUROMARKETING

The issue of the effects of neuromarketing for companies and society is important since it is assumed that there is potential to discover implicit and automatic processes which determine the decision making process, and that it will reveal secret information about consumer behavior which was not obtainable by the traditional marketing methods (Hubert, & Kenning, 2008; Tusche, Bode, & Haynes, 2010; Ariely, &Berns, 2010; Senior, & Lee, 2008). Although there are also critical arguments against neuromarketing intervention into the privacy of customers, it is expected that with this method, more effective customer segmentation can be carried out, which in turn leads to improved marketing of products by considering individual product and brand preferences as well as consumer behavior in general

WHERE DO WE FIND EMOTIONS IN THE BRAIN?

The areas that are of interest when talking about emotions are the amygdala and hippocampus within the limbic system (Fig. 1). The limbic system as a whole is associated to controlling feelings of pleasure and pain. The amygdala plays a role in reacting to stimuli. The hippocampus plays a role in short term memory formation. This system interprets the stimulus through previously formed neuronal activity (memories) and tells us how to react. It will determine if we should pay attention to the stimuli, whether it is good for us or bad for us, and whether we should move toward or away from it.

The process of registering emotions and the flow of this information in the brain to the amygdala is illustrated by Ledoux (1998) model of the Low and High roads to the amygdala (Fig 1.) which demonstrates what happens when our senses are exposed to a stimulus. The stimulus first gets sent to the sensory thalamus. At this point the stimulus can either take the ´low´ (for quick reactions) or ´high´road (incorporating prior memories) to the amygdala which will emit an emotional response.

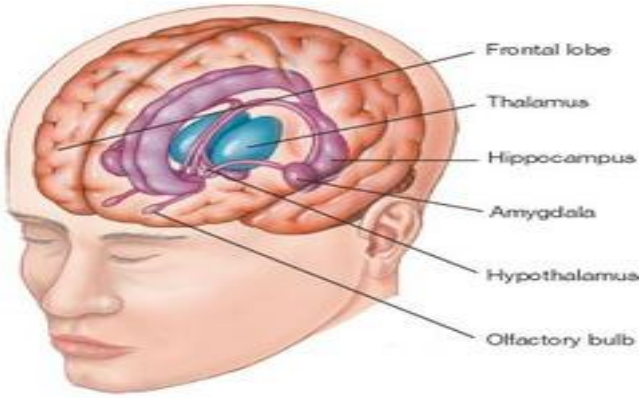

Fig.1 Limbic system. Google source

In the case of danger, the signal will take the low road to the amygdala so that a fear response is emitted to danger as fast as possible by bypassing some of the other memories in the sensory cortex. This will cause psychological changes to our body, such as increased heart rate and freezing, which stops us from walking straight into a dangerous situation. Only after the information has been transmitted to the amygdala is it sent up the high road to access more memories, and sent back to the amygdala to assess the situation to emit a more informed response. This is why we jump in our seats during horror movies only to realise shortly after that there was

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no real danger. These processes are all subconscious, as we do not have time for cognitive thought processes in the face of danger. Due to this stimuli having taken place, the brain tag´s the stimuli as

either being pleasurable or not, and connects the memory of it to other memories which seem to be similar within the brain. The Insula, a cerebral cortex structure has also been linked to diverse functions to do with emotion and the regulation of the body's homeostasis. Some of the functions include perception, motor control, self-awareness, cognitive functioning, and interpersonal experience. Therefore if activation of the Insula is recorded in brain imaging studies, it can indicate avoidance behaviour as a reaction to stimuli.

WHY DO WE MEASURE BRAIN ACTIVITY?

Our brains work extremely hard to perceive process and interpret the millions of inputs they receive from our senses every second. The vast majority of this activity goes on without us being consciously aware of it because we don't need to be, our subconscious expertly deals with the administration for us. However, the subconscious isn't just doing the menial work, it's where our emotions do the talking and call the shots on up to 95% of our behaviour.

Every marketers dream is to speak to this subconscious and make sure it flags their product, in the right light, to the brain's owner on their behalf. If the advertiser wants his website, product, packaging, advertising and brand experiences to speak directly to the subconscious emotional brain, then it is required to measure these experiences directly.

By means of neuromarketing, several commercial effectiveness indicators can be measured. They are: emotional engagement, memory retention, purchase intention, novelty, awareness and attention. We make decisions based on our emotions. The emotional engagement level is triggered by the emotional excitement level. The more intense an experience is perceived, the greater our emotional engagement level is. This is only one accurate indicator of the way in which we respond to certain marketing stimuli and it can also help predict making the purchase decision. The marketing stimuli encoding level can influence the moment when we decide to buy a certain product. This process has been intensely studied and it can be pointed out by measuring brainwaves while stimuli are being presented. The brainwaves' pattern can indicate the success of memorizing that particular stimulus. A high level of emotional engagement and a high level of encoding process activation can predict the purchase intention. The purchase intention appears as a result of the effectiveness of the marketing stimulus, which proved to be persuasive enough to generate this intention. The innovation level of a marketing stimulus can ensure the success of a commercials campaign. Innovation is capable of increasing the attractiveness of a marketing stimulus, thus contributing to the purchase decision. A clear formulation and a good understanding of the message may predict the success or effectiveness of the product.

NEUROMARKETING TECHNIQUES

Neuromarketing specific technology and methodology are based on some very accurate instruments. The researcher thus managed to design an instrument capable of recording the electrical signals naturally issued by the brain. By means of this discovery, nowadays we manage to capture brainwaves' activity. This discovery essentially contributed to the increase of neurological knowledge. Measuring the whole sphere of activity of brainwaves emerging in various cortical areas is essential in order to understand the way the brain responds to various stimuli.

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FUNCTIONAL MAGNETIC RESONANCE IMAGING (FMRI) measures blood flow to various parts of the brain during different tasks, exposure to stimuli, or experiences. But large, expensive equipment and the unnatural or unusual experience of the test limit FMRI to small sample sizes and make it non-scalable. It is an indirect measure of oxygen rich blood influx to an

active part of the brain. It uses magnetic and radio waves to create brain images. Among its many medical applications, FMRI can also be used to study people's preferences and choices. By looking at brain scans it is possible to see which parts of the brain are active while receiving stimuli and/or making a decision. It is still very expensive and immobile, which means that it can be used only in a laboratory setting and an expert is needed to interpret results. This method also raises some ethical issue.

Electroencephalography (EEG) is an electrophysiological monitoring method to record electrical activity of the brain (EEG) uses sensors or electrodes on the scalp to measure electrical Impulses emitted by the brain. It is simpler than brain scanning and good at measuring changes over short time periods.

Eye tracking records what a participant is looking at, in what order, and for how long. It is portable, non-invasive, and relatively easy to use and scale. Some agencies can offer eye tracking with in-home webcams, and kits can be carried to any location.

Positron emission tomography (PET) scanner is a method where researchers inject radioactive ligands into the bloodstream of a subject and record how they accumulate in the brain. This method can be used to understand how substances that affect human behaviour (i.e. dopamine, glucose and serotonin) are distributed in the brain. There are possible negative effects of radioactive material on subjects' health.

Magnetoencephalography (**MEG**) is a functional neuroimaging technique for mapping brain activity by recording magnetic fields produced by electrical currents occurring naturally in the brain, using very sensitive magnetometers. Arrays of SQUIDs (superconducting quantum interference devices) are currently the most common magnetometer, while the SERF (spin exchange relaxation-free) magnetometer is being investigated for future machines. Applications of MEG include basic research into perceptual and cognitive brain processes, localizing regions affected by pathology before surgical removal, determining the function of various parts of the brain, and neurofeedback.

These techniques provide an insight to a consumer brain and help us know the effectiveness of advertisements on our sub conscious mind, how a consumer reacts to packaging of some products or the way an advertisement is portrayed.

DISCUSSION

After the in-depth evaluation of neuromarketing with emotional response to marketing stimuli, the understanding of consumer purchase behavior must be based on knowledge of human emotion and include the paramount influence that emotions have on decision-making. Rich and powerful representations of a brand include its personality. Research reveals that consumers perceive the same type of personality characteristics in brands as they do in other people.Neuromarketing itself is frequently described as a tool to determine internal unknown secrets of the human brain by making use of imaging technology. This can be influenced by the

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fact that researchers increasingly pay attention to emotions and unconscious processes that influence human behavior, and that argumentations and ways of reasoning cannot be regarded as rational anymore.

CONCLUSION

By means of neuromarketing, we will have the chance to understand the basics of the decision-making mechanism. Thus, we will be able to access a superior level of knowledge on the consumer's behavior. They will be the basis of understanding the way in which consumers respond to various marketing stimuli. This approach is going to be a difficult one, given the context, as per the way it is presented in the specialized literature, according to which the decision-making process can activate various cortical areas. According to Lindstrom (2010) by means of neuromarketing we can find out how the consumers behave and make decisions, while accessing the unconscious thoughts, emotions, feelings and desires which trigger in us the purchase decision. Neuromarketing can help us understand how unconscious mind processing influence the decision to purchase, providing a better understanding of the consumers' thoughts, emotions, feelings, needs and motivation in relation to the marketing products.

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