

## **Neuromarketing and Theoretical Debates about Neuroscience and its Link to Other Fields of Knowledge**

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### **Abstract**

A challenge of the field of neuromarketing is its multidisciplinary nature and therefore the knowledge derived from this field of study. In order to provide a holistic view of the field of neuromarketing in this highly theoretical paper, we aimed to integrate some of the knowledge that the field of neuroscience delivers and integrate it into several areas of knowledge for augmenting information that serves neuromarketing. Neuromarketing can help companies and businesses by identifying and creating brain pathways that positively (and, in some cases, adversely) stimulate customers' perceptions of brands, products, and basic images of interest that elicit positive emotions. This research includes a survey of the previously available literature about neuromarketing and its link with other fields of knowledge. This article aims to increase the perspective of marketing practitioners, who do not have much information in the field of neuroscience, as the field of neuroscience is much more complex and requires specialized education. In this direction, we aim to provide a theoretical framework that integrates the syncretism of the fields of psychology, sociology, anthropology, art and economics that provide us with a holistic view of consumer behaviour and decisions of interest to the field of neuromarketing.

**Keywords:** Neuromarketing, neuroscience, marketing, psychology, economy, sociology, art, anthropology.

**JEL classification:** M31.

### **Introduction**

Measurement of neural and physiological signals to get an insight into the decisions, motivation, understanding, and preferences of consumers is referred to as 'neuromarketing'. The most common methods used for neuromarketing are physiological tracking which includes facial coding and measurements of eye movement (eye-tracking) (Araujo, 2007). Looking globally, marketing together with sociology, psychology, economics and other fields of knowledge are social science disciplines or science of society. Jonassen (1959), argues that the impact of sociological thought and research on economics, psychology and marketing has brought fundamental changes to the nature of the individual and their marketing behaviour (Jonassen, 1959). Florescu (1992), argues that marketing has developed extensively in both practice and theory. Therefore, marketing has moved in the direction of extensive and intensive development. Extensive development is the extension of the scope of marketing into new fields of activity, new organisations or new geographical areas (Florescu, 1992). Intensive development of the marketing field consists in a continuous improvement of techniques and methods used in organisations, in the development of modern concepts of the role of the

marketing field in the economy and society. In order to provide a comprehensive knowledge of the marketing field, neuromarketing applies neuroscientific strategies to examine and comprehend human conduct comparable to business sectors and showcasing trades (Lee, 2017).

We consider it important to distinguish between consumer neuroscience and neuromarketing. Plassmann and colleagues (2012), believe that "The goal of consumer neuroscience is to adapt methods and theories from neuroscience – combined with behavioural theories, models, and tested experimental designs from consumer psychology and related disciplines such as behavioural decision sciences – to develop a neuropsychologically sound theory to understand consumer behaviour. ". On the other hand, "Neuromarketing is a new marketing discipline that uses medical techniques to understand how our central nervous system reacts to marketing stimuli." (Orzan, Zara & Purcarea, 2012). Although, consumer neuroscience and neuromarketing are treated as definitions of neuromarketing (de Oliveira & Giraldi, 2017), from our point of view there are two different fields of study. At the same time, the field of neuromarketing is supposed to be "a new marketing discipline" of study, but Remete and Bacali (2020), believe the field of neuromarketing may have taken shape before it had a verbal label attached, given that early research (Krugman, 1964) in the 1960s, conduct pupil dilation studies on subjects exposed to marketing stimuli.

In an interview with the "Marketing" magazine, in 2019, neuroscience researcher Jared Cooney Horvath of Harvard University believes that neuromarketers have no knowledge of neuroscience and have not studied neuroscience, but rather marketing. This may be true, but teams of specialists from both fields can be called upon to conduct neuromarketing studies (Nelson-Field, 2020).

In pursuit of the purpose of this paper, we aim to make a connection between neuromarketing and other fields of knowledge, both to increase the research perspective and to increase information in the field of neuroscience which is the foundation of the field of neuromarketing.

## **1. Neuromarketing and sociology**

Jonassen (1959), reminds us that population studies have long been a branch of sociology. Accurate knowledge of the factors that pertain to the nation enables the marketing practitioner to determine how many and what kind of people there are and where they are. Or this allows for future predictions in population and provides a grace period for future requirements for a scientific marketing approach. In terms of consumer motivation, significant marketing knowledge has emerged from sociological research on class, voluntary association, leisure activities and attitude measurement. Araujo (2007), informs us that it is well known that the construction of markets requires the mobilization of bodies of expertise in law, economics, accounting and marketing. Law helps to provide the regulatory framework under which property rights, contracts, etc. can be exchanged and enforced by third parties. Accounting provides calculating agents that allow costs and prices to be determined, providing the possibility to use money as a means of exchange, make investments and the like. On the other hand, Diaz Ruiz (2012), argues that the disciplines of sociology of markets and economic sociology observe markets as social mechanisms, but neoclassical economists consider the market to be devoid of social interaction. At the same time, Yiannakis (1989), brings to our attention that, marketing takes place in a variety of environments where both threats and opportunities are made up of interactions of various forces such as; technology, socio-cultural changes and attitudes, demographic and political changes and possible effects of legislation. Evidence from the literature (Burgos, 2013), suggests that meeting needs are learned by individuals in distinct ways, depending on their socioeconomic and cultural profile. In this

respect, many communication campaigns aim to achieve desired social goals in order to persuade young people not to engage in undesirable behaviour, present behaviour that is in line with societal values. The association of the brand with these behaviours congruent with society's values gives consumers a strong group affiliation based on the ideology of the group, strengthening the emotional bond. At the same time, the field of neuromarketing can provide more precise information, taking into account both sociological and psychological profiles of customers as well as cognitive profiles.

To study social cognitive processes and the neural systems that support these processes, Meshi (2015), proposed a framework for using social networks. Based on the idea that individuals are driven to connect with others and manage their reputation, they gain significant adaptive advantages. This is explained by the fact that the ways in which we meet our needs to belong to a social group are of paramount importance to our survival, this being as important as meeting basic biological needs. Managing one's reputation within a group improves survival rates by fostering successful social connections. Social connections also enhance psychological well-being by protecting individuals from negative feelings. In short, social networks provide individuals with a platform to satisfy fundamental social needs. Activity in brain regions, such as dorsomedial prefrontal cortex (DMPFC), bilateral temporoparietal junction (TPJ), anterior temporal lobes (ATL), anterior frontal gyrus (IFG), posterior cingulate/precuneus cortex (PCC), are linked to the exchange of information and the reception of information shared by others (Meshi, 2015).

Most sellers resort to direct advertising on social media, investing huge amounts of money to become recognisable, and sometimes these practices do not generate credibility. Furthermore, Diehl (2016), demonstrated that the experience individuals have when taking photos is a positive one. This is explained by the fact that immortalizing the moments forms a greater commitment to the experience. Individuals who take photographs enjoy the moment more and are happier. This is based on the focus of attention, in that, pictures lead to increased attention to visual aspects, relevant to the associated experience (Diehl, 2016). These findings, lead us to conclude that the benefits of appealing to user-generated content would have a two-way line.

## **2. Neuromarketing and psychology**

As early as 1952, Alderson talks about the need for a psychological perspective in marketing and economics. The researcher brings to our attention the fact that in the psychological analysis of human behaviour, in general, there is a main line consistent with marketing behaviour. Marketer problems stem from uncertainty about the outcome of established or proposed marketing plans and programs, but a marketing perspective alone cannot solve this problem (Alderson, 1952).

The field of neuromarketing draws on advanced neuroimaging techniques, which provide greater precision in identifying certain brain regions that develop specific neural responses of interest in marketing. Specific brain regions activate certain cognitive and emotional functions, and an anatomical source localization gives us insight into the representation of certain types of attitudes consumers may have when interacting with the product (Wilson et al., 2008).

Miclea (1999), points out that both auditory and visual stimuli that have motivational and/or adaptive value will be the ones that enter our attentional field. The selective processing of visual stimuli will determine eye movements, and the gaze will be moved according to the individual's area of interest. In identifying these visual stimuli with motivational value, the field of neuromarketing uses eye-tracking technology. Moreover, De Martino (2006), concluded that the attached verbal label produces an emotional response and a corresponding tendency to accept or avoid buying a product. Increased activity in the anterior cingulate cortex (ACC) was

evident when study participants resisted the general behavioural tendency. Also, although there are significant links between the medial and orbital prefrontal cortex (MOPFC) and the amygdala, these brain areas have distinct functional roles in decision-making. The OMPFC incorporates input from the amygdala and is thought to be associated with the motivational value of choices, integrating emotional and cognitive information that guides our future behaviours (Miclea, 1999).

It is true that, in marketing campaigns, the consumer may be put in a situation where they experience a confrontation when they have to make a purchase decision that involves positive and negative motives at the same time. This confrontation is called motivational conflict, which occurs at the point of purchase or when we intend to buy a product and choose between several products (Breiter et al., 2015). Davidson (2004), suggests that the left side of the prefrontal cortex (PFC) is a salient area of a large circuit that mediates approach behaviour, and the right side of the PFC forms a cardinal makeup of a neural circuit that instantiates withdrawal.

Studies (Einhorn, 1985; Ellsberg, 1961), show us that decision making and emotionality are closely related, suggesting that decision making is influenced by affect. The literature (Barrett, 2017), points out to us that, the anatomical structure of the human brain is designed such that no decision or action can occur in the absence of interoception and affect, no matter how rational we are. According to Cherubino (2019), studies conducted in the psychology field pointed out that a great part of the cognitive process occurs at an unconscious point, as well as the customers' choices. Because of unconscious actions, people tend to fail when they are predicting their future choices. In other words, what we think we need has a small impact on the choices we really make. Bechara (2000) scrutinizes the reality that the part of feelings in decision-making has been thought little of for a long time, or that information and thinking are not adequate traits to assist us make great choices. Front cingulate has been related to the involvement of inner strife between elective choices, and its actuation may reflect the struggle between cognitive and enthusiastic inspirations (Cherubino, 2019).

Very interestingly, emotions can be transmitted from individual to individual, and this concept is called emotional contagion. Emotional contagion is multi-determined by psychophysiological, behavioural and social factors, thus, we refer to a multilevel phenomenon. Emotional contagion is relatively automatic, occurs in the absence of intention, cannot be controlled and cannot be accessed at the level of conversational consciousness. Emotional contagion/Enthusiastic disease has been characterized as the propensity to naturally mirror and synchronize facial expressions, vocalizations, stances, and developments of another individual, continuously driving to emotional "conversion"/enthusiastic "change" (Hatfield, 1994). Also, Schoenewolf (1990) defines emotional contagion as the strategy by which one person or bunch impacts the emotions or hones of another person or assemble through cognizant or careless acknowledgement of eager states and behavioural states of intellect. This fact, transposed to the field of marketing, suggests that we are not only attentional and consciously influenced in the purchase of a product or service, but we also take over the behaviours of other individuals. These studies are congruent with Zaltman's (2003) studies which explain that there is a need for modern marketing techniques to at least partially understand consumer behaviour.

Bechara (2004), demonstrated that in decision making, emotional processing and reward-related motivational information, the dorsolateral prefrontal cortex is the main brain area that is activated. At the same time, Erk (2002) differentiates primary from secondary rewards. Secondary rewards are financial and social rewards, entering our area of interest. The authors suggest that social rewards have specific brain areas that activate the anterior cingulate cortex, occipital cortex and orbitofrontal cortex. Rewards induce subjective feelings of pleasure and contribute to the construction of positive emotions. The reward system is important to consider

because it can convey information about the design of the product or brand preferred by consumers, and these attributes act as a rewarding stimulus in the consumer's brain triggering psychological motivations, which in turn will influence buying behaviour.

Mental workload, is an index of interest to cognitive psychologists, referring to mental activity that is closely related to attention and information processing. This explains that individuals have a finite capacity to process information, and different tasks require different degrees of capacity consumption (Reid, 1988). Much of the neural and sensory information is processed in the unconscious, even when decisions are conscious, the process is heavily influenced by unconscious factors, or this makes the influence of instinctive and learned behaviours greater. These truths are based on the literature (Miclea, 1999) which argues that we are exposed to a huge amount of information (10,000 bits/second), but conscious processing can absorb a maximum of 100 bits/second. The possibility of activating the pattern depends on the individual's interest in the stimulus. Information selection is automatic, without the individual selecting the information to be processed in detail, attention is the effect, not the cause of information selection. This index, in marketing research, could be measured when consumers are engaged in a specific operational task; when using websites, when searching for a landing page, when visiting a store, or generally for any cognitive task relevant to marketing research (Cherubino, 2019).

The appeal to neuroscientific methods and techniques with applicability to the marketing field, aims to gain, a better understanding and provide insights into how any process that is a constituent part of marketing affects the brand systems themselves. The field of neuromarketing also provides valuable insight into the neural mechanisms and neural correlates that underlie consumer choice and decision making.

### **3. Neuromarketing and economics**

Plakhin (2018), begins from the thought that in today's economy there's no company or organization that does not need to coordinate the item with the buyer, attempting to discover out what consumers' wants are and how they may fulfil them. It isn't sufficient for the sales representative to get it and oversee estimating arrangement alone, because it is vital to know the character of a person, counting their feelings. This is often critical, given the reality that buyer request is expanding. Organizations have caught on to that, the item isn't as it were a collection of properties and administrations, but moreover, feelings and sentiments that are included in buy and utilize, or this truth is one of the reasons for financial development. Of interest is the truth that individuals in Russia are more uncovered to neuromarketing than Europeans. For case, the use of certain sounds in promotions within the West is anticipated to extend deals by 10%, whereas in Russian organizations deals are anticipated to extend by a third. Being touching to neuroeconomics, neuromarketing is based on such areas as neuroscience, financial matters and brain research (Lee, 2017). Both disciplines have borrowed a number of strategies, strategies and apparatuses from neuroscience. In this way, in examining decision-making, a developing number of analysts are turning to a run of apparatuses that record electrical movement and metabolic movement within the human brain, utilizing electroencephalography (EEG), transcranial magnetic stimulation (TMS), magnetic resonance imaging (MRI), positron emission tomography (PET), etc. These instruments give answers to questions of intrigue in both the commercial region of showcasing and the scholastic zone. Through these tools, the neurobiological mechanisms of decision making are understood and explained objectively (Pradeep, 2010). In this direction, psychology studies (Mehta, 2015), suggest that testosterone and cortisol fluctuations are associated with social and financial worry. Thus, when cortisol levels fall and testosterone levels rise, monetary rewards are maximized. If testosterone and cortisol levels have an inverse trajectory, while individuals are

involved in a negotiation, social worry entails financial costs. Another study by Boksem (2014), tests willingness to pay by applying neural (EEG) and declarative measures to see whether or not they have a contribution in predicting individual behaviour and commercial success at the population level. The researchers tried subjects' reactions, to film trailers, to acquire understanding into members' inclinations, just as anticipating film deals in everyone. Results propose that beta oscillations are identified with singular inclinations past revelatory inclinations. As for the declarative measures, which were made immediately after viewing movie sequences, participants were asked how much they were willing to pay for that movie, and the response was predictive and consistent with the neural measures. The gamma oscillations evoked by the movie trailers suggest to us that, these movie sequences have the ability to capture viewers' attention, and this increases the memorability of the material viewed, leading to an increased likelihood that viewers will go to see the movie, resulting in increased box office returns. The authors of the study conclude that beta and gamma oscillations of EEG measurements capture information about individual and populace wide inclinations, and in this manner can be utilized as a neural marker for anticipating business achievement. Referring to the principle of loss aversion, Bateman and Willis (1999), call equivalent gain (E.G.) as the increase in funds that a person treats as equivalent to gaining a certain amount of a certain good. In other words, we expect that what we pay for is equivalent to what we get in return. Tversky and Kahneman (1991), on the other hand, refer to the willingness to accept (WTA) and willingness to pay (WTP). This symmetry refers to the acts of giving up goods when sold for money and giving up money to buy goods, both of which are considered losses. Nobel laureate Kahneman and researcher Bateman (2005) join forces to reach a common conclusion, attempting to answer the question of whether money spent on buying goods is perceived as a loss or whether the theory of equivalent gain applies. In general terms, the results of the experiment favour the hypothesis that spending money is treated as a loss.

In the light of these truths, the contribution that neuroscience makes to marketing is obvious. Through the multidisciplinary approach, which falls under the umbrella of the neuromarketing field, we could offer consumers products that meet consumer needs and thus lead to economic growth in several sectors.

#### **4. Neuromarketing and anthropology**

Seligman (2010), based on the idea that we have a motivational, charged flow in everyday life, theorized that fewer neural resources were allocated to attention, culturally important task compared to a task that was not related to cultural emphases. At the same time, automatic responses (facial expressions) through activation of the amygdala, that is an inflection given by the personification of someone in the group. Moreover, socio-cultural influences seem to affect the style of self or ego, affecting perception. Thus, cognitive priming for independent self-interpretation is associated with the perception of specific visual targets, whereas interdependent self-interpretation is associated with a perception of more global visual targets. Schwarzkopf (2010), supported by Dichter's theories, suggests that the idea of competitive marketing has cultural anthropology as an important tool, that dates back to 1962. This theory was predicted when national cultural differences between consumers worldwide were in terminal decline. This decline was caused by the coming together of individuals from many worlds, so consumer products moved across borders. Dichter's plan to bring consumers and citizens together as a global solution led to the development of research on the motivational component. Lannon (1994) also credits Dichter with major contributions in making the hidden motivations of consumer behaviour visible and accessible to marketers. Lannon (1994) explains that anthropology studies symbols, myths, rituals and value systems, psychology studies individuals and sociology investigate social groups. Referring to symbols, the consumer

branding process requires an understanding of consumption and exchange rituals. The fragmentation of the social fabric that is common to modern life has weakened social bonds and diminished personal obligations and reciprocity, leading to the consequences of emotional disconnect, which is why companies may exploit relationship building with consumers. It is claimed that the model underlying many marketing theories is a mental model whereby the active producer manipulates the passive consumer, whereas goods are symbols of exchange and not products with utilitarian values. Thus, trade is the premise of the social associations of people, gatherings, foundations and connection organizations (Lannon, 1994). Reference is also made to the emotional charge that a brand holds, with brands being referred to as 'charismatic' brands, or these brands act like a cult. Graffam (2010), suggests that design anthropology contributes to the innovation of goods by exploring functionality in a social and cultural context. In doing so, it assists designers by highlighting our understanding of the motivations, through which individuals use technology and the form of technological innovation, to achieve particular ends. At the same time, ethnographic sites position design anthropologists in a perspective that provides insights into motivational behaviour and the central issues that create design success. Losin (2009), brings to our attention the fact that the literature in anthropology and neuroscience has as a core concept, cultural experiences that produce patterns in the human brain. Anthropological theories have as their core, cultural learning through imitative learning which is explained by learning biases, mental state attribution and reinforcement learning. These discoveries have been made using neuroscience techniques. This cultural learning is transmitted both intraculturally and interculturally. Northoff (2010), confirms that different cultural environments have an impact on the brain and neural activity, but also on the subject itself. The researcher reported that specific cultural experiences, which are object-targeted, play an important role in modulating perceptual processes, in the prefrontal cortex. The brain not only provides an interoceptive link and assigns values, but it also helps us make decisions by imprinting the environment with ways in which decisions become advantageous. In this sense, the decision refers to motivations, knowledge, the subject itself, intentions, goals, etc. and not only to stimuli. Through their decisions, individuals manipulate the environment according to their own needs, creating cultural, biological, social and linguistic environments that are the subject of anthropology. Neuroscience has its limitations, and the empirical-experimental approach is complemented by the social and conceptual methods of anthropology.

## **5. Neuromarketing and art**

Different parts of the brain simultaneously perform specialised tasks, reacting to colour, shape or movement. The results of these mental processes, by merging, form a unified image. Thus, different types of art activate different parts of the visual system. The occipital area of the visual canal V5 perceives movement and guides certain eye movements, and kinetic art is specialised in this area. Fauve art is specialized in V4, showing a strong modulation of attention, for frequency, orientation and colour, but also the shape of objects, being an area positioned in the ventral canal. Mondrian's abstract art will stimulate the primary visual cortex, area V1, specialized in feature detection, reacting to vertical lines, processing information of moving or static objects, by recognizing patterns and shapes (Hyman, 2010). Even though the goals of art and advertising have distinct purposes, both rely on specific elements to stimulate the production of new meaning. Both advertising and art are more effective if they cognitively engage the audience in the meaning-making process. This active audience involvement is associated with an increased level of interest in hedonic consumer behaviour, and products are increasingly constructed to respond to hedonic, affective and symbolic values (Van Niekerk, 2016). Sometimes, solving the consumer problem involves paying attention to, weighing and

evaluating the utilitarian attributes of the product. When this is the case, the phenomenon is often called: rational decision preparation. At other times, interest in so-called hedonic benefits will dominate, and the object of consumption is seen as a symbol in terms of emotional responses, sensory pleasures, dreams or aesthetic considerations (Hirschman, 1986). Frequent purchase and consumption reflect a mixture of both the intended uses of products and services in terms of satisfying utilitarian and hedonic needs respectively. If the value of the product is both hedonic and utilitarian there is a possibility that the marketing strategy will work better and product sales will increase.

The visual arts can provide insight into the importance of essential symbolic capital in the search for economic efficiencies to attract contemporary consumers and ensure a sustainable and credible long-term reputation with the brand. In the age of social media, visual artists aim to canton a brand identity and embrace the necessary flexibility in order to ensure brand longevity in the open market, given that, brands are not entirely in the control of the brand owner (Kerrigan, 2014). Also, Crader (2007), talks about the need for marketing to be like art in order to stand out from the visual clutter of the modern world and to arouse consumers' senses to activate emotions. Viewing and discussing art, without reference to marketing, has an impact on the positive attitudes of individuals, leading to lower blood pressure and increased creativity. Thus, art and its sensory aspects have a positive impact on consumer attitudes and well-being, helping marketers to actively engage their customers. These principles would activate emotions that are closely related to decision-making. Emotions such as happiness, control, well-being and peace of mind can be activated through the sense of touch, smell, taste, hearing and sight, with the goal of being in the control of the marketer. For example, the placement of fountains inside shopping malls aims to lift the mood of customers and calm nervous people. In most cases, consumers are not looking for product information, or the application of aesthetic qualities in store layouts is important to distinguish products and attract interest. The importance of visual sense is the most important component of marketing art, as it is the first aspect that connects the consumer to the product. Visual experience forms mental images and impressions that lead to the emotional activation of the consumer, and a first visual impression might be the marketer's only chance to establish a connection with the consumer (Crader, 2007).

With the literature as a basis, the contribution of art to marketing is obvious. Many experts (Hagtvedt, 2008; Schroeder, 2004) stress the importance of visual stimuli and the impact of visible artwork within the belief and assessment of consumer products.

### **Limitations of the paper**

One of the limits of this paper is the impossibility of bringing together all the studies of interest in the field of neuromarketing. At the same time, this paper brings together studies that cross several decades, because past research and information may no longer be of interest but it could be useful for the new researches.

This article aims to increase the perspective of marketing practitioners, who do not have much information in the field of neuroscience, but the field of neuroscience is much more complex and requires specialized education. The human brain and requires further study about this field, and the tools that are used in the field of neuromarketing need a different type of information. Although we may have a solid theoretical basis, in practice it is possible that things may be different or could lead to unexpected discoveries and not those reported in this article.

Moreover, each field of knowledge, approached in this article, has its limitations, that could be of an ethical or practical nature. For example, a practical limit is drawn by Remete and Bacali (2020), that considers that the field of neuromarketing has its limitations, as it is

possible to find some patterns and perhaps some reactions of attraction or repugnance to certain stimuli, without identifying brain areas specifically designed for consumer behavior.

### **Future research directions**

Considering that most of the activities have gone online, not to mention the forced circumstances created by the health context of the pandemic generated by the SARS-Cov-2 virus, we think these studies are of great impact in the marketing field. At the same time, social networks abound with various advertisements by clicking on a link to the seller. Translating this evidence into neuromarketing research could give us insight into how user-generated content about particular products influences consumers. Not infrequently, social media users advertise various products, places or people, even unintentionally. It would be interesting to find out whether these posts have a greater impact on consumers compared to advertisements made by sellers, increasing the credibility of products.

This evidence from anthropology could lead us to some important findings in the field of neuromarketing. It is possible that the decisions we make, depending on the culture we belong to different consumer behaviour. At the same time, it could provide us with insights into the impact of advertising and products in general. Perhaps the failure of some products in some countries can be explained by these theories. Not infrequently, a product that has been very well positioned in some countries has failed in others. The culture of the region should be taken into account when entering the market with products that have been successful in other countries, as the decision-making process may be influenced by distinct motivations, intentions and goals that are steeped in the environment.

For clarity of the importance of visual stimuli, neuromarketing can contribute by identifying and establishing neural mechanisms that positively (and why not negatively) activate consumers' perceptions of a brand, product, and elementary images of interest that induce positive emotions. In this direction, gestalt psychology could be useful.

### **Discussion**

Evidence from the literature has demonstrated that the field of neuromarketing is closely interlinked with other areas of knowledge, which in turn are interlinked with other areas of interest. Thus, the field of neuromarketing is a conglomerate of scientific fields, which interweave both common and specific elements, intending to generate new marketing body knowledge. Marketing processes are classified as social sciences, sui-generis to the fields of psychology, sociology and economics, and a smaller contribution that is beginning to emerge is made by anthropology and the creative arts.

Psychology in turn is distinguished by several approaches, bringing together the basic disciplines of psychology and specialised psychology, resulting in several types of applied psychology, by providing knowledge on psychological activities and implicitly on behaviours.

The methodology of sociological knowledge has developed several orientations providing insight into the social structure, with opinion survey, social observation and interview as the main methods of investigation.

The economy has gone through several successive phases, operating in several sectors, and the three main sectors of activity of the modern economy being, agriculture in the primary sector, industry in the secondary sector and services in the tertiary sector. Thus, given that, these three major areas of knowledge, are an important part of the field of marketing, they cannot be excluded from the field of neuromarketing. Therefore, the relevance of linking the field of neuromarketing to these areas of knowledge is justified. At the same time, both the field of marketing and neuromarketing have been differentiated by subfields and areas of specialisation.

Examining all facets of a product is a must in modern society, and the development of the field of neuroscience allows us to see beyond the functionality of a product and go beyond the propositional attitude we attach to product attractiveness. At the same time, on a conscious level, we fail to accurately identify our own needs. "The 'rational mind' is often at odds with the 'emotional mind'. We put these types of thinking in quotation marks because behind them are embedded several processes that are constructed and are closely linked to various mechanisms that activate several neural centres to shape decision-making. For these reasons, we find it difficult to identify products that meet our needs and give us a good feeling.

### **Main conclusions**

As seen, the body of marketing thought does not reside entirely in marketing concepts, more specifically, marketing's connection to other fields of knowledge through infusion acquires meaning as one considers the likelihood of marketing research becoming scholarship. The concept of marketing is built both from other fields of knowledge, having specific elements, and giving rise to new fields of knowledge.

Marketing is necessary, given the fact that in order to increase the economic level we must increase consumerism.

The evidence from the specialized literature shows us that the decision making as consumers is of high complexity. First of all, not all the decisions we make as consumers are at the conscious level much of the cognitive processing is at the unconscious level. It would be difficult for us to process so much information on a conscious level. Emotions play a major role in decision making, especially as they mediate and influence consumers' cognitive and decision-making processes.

The phenomenon of globalization has offered the opportunity to many companies to expand their sales area across borders, but it remains to be seen to what extent the same product is expected to be desired in all these regions and if anthropological factors contribute to a decrease/increase of sales.

Visual stimuli play an essential role, both in the visual arts and in product branding in general. It is possible that not only the arrangement of the product in the store or at the place of sale will be important but also the arrangement of the visual elements on the product packaging will have an impact at the decision level. As we have seen, the visual has constituent elements and what we see is a final result of several cognitive processes, which identify their stimuli separately.

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