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Neuromarketing: Discovering the Somathyc Marker in the Consumer´s Brain

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***Abstract*—**The present study explains the somatic marker theory of Antonio Damasio, which indicates that when making a decision, the stored or possible future scenarios (future memory) images allow people to feel for a moment what would happen when they make a choice, and how this is emotionally marked. This process can be conscious or unconscious. The development of new Neuro-marketing techniques such as functional magnetic resonance imaging (fMRI), carries a greater understanding of how the brain functions and consumer behavior. In the results observed in different studies using fMRI, the evidence suggests that the somatic marker and future memories influence the decision-making process, adding a positive or negative emotional component to the options. This would mean that all decisions would involve a present emotional component, with a rational cost-benefit analysis that can be performed later.

***Keywords*—**Emotions, decision making, somatic marker, consumer´s brain.

I. Emotions and Consumer Decisions

SINCE the first studies to the 70s, the research on the mechanisms that control human decision-making, has been focused on rational processes. Emotions were impediments, that emerged and sometimes prevented a correct decision, based on procedures that used human reason, to maximize the full benefit pursued by each person [10], [15], [38]. This view is still very common in the thoughts of people that are not familiar with these issues, being widely believed the idea that emotions hinder good reason and, therefore, good decisions.

Mainly in the late 70s, major studies emerged that suggest that decision-making is very directly influenced by the emotions of each person, [16], [20], [42].

II. Influence of Emotions in Decision-Making

Reference [14] outlines that information processing is often excluded in other areas of choosing options, as emotions and values allow some options to be considered rationally, but it tends to shortens deliberation. In the same vein, reference [19] argues in that sense the heuristics emotion model: a theory of how emotions influence and guide decision making. They facilitate the integration of information on judgments and decisions, guide reasoning and prioritize between goals. According to the authors, each individual is different emotionally, has a different way of reacting, own background, and different conditions.

The heuristic emotion is a mental shortcut, as emotion leads to knowledge and choice. Reference [16] argues that people have clear preferences on topics that are familiar to them, simple, and directly 'experienceable'. This allows them to perform trial and error operations, and justify the answers to decision-making as a matter of values, such as habits and traditions, that's why the study of preferences in decision making is complex and variable. Reference [42] also highlights the importance of emotions in consumer behavior, particularly in the post-purchase period, considering that the extent of satisfaction depends on the ability to represent the emotional content of the consumption experience.

Reference [20] considers that some important attributes are not used by a decision maker, unless they can be moved precisely to an emotional frame of reference. He also proposes that positive emotions improve problem solving and decision making, leading to a flexible, innovative, creative, thorough and efficient cognitive processing, and further believes that emotions play an important role in cognitive processes and greatly influence the thoughts. It also states that there is no evidence that people with positive emotions see their cognitive ability reduced, as in contrast, they are more open, organized, and with clearer thoughts. The effects of these in decisions are observed more in important and interesting decisions than those that are boring or unimportant. The implication of the decision maker in this regard is crucial for its influence. In the same vein, also [41] argues that emotions play an important role in human behavior. In this sense, researchers have been interested for its effects in decision-making, even suggesting in some cases that most of the values are derived from emotions [42].

According to [41], emotions or feelings are defined as physical or mental sensations of the decision maker with positive or negative character, and influence the decision in two ways: in the decision process (information processing) or in structure (representation of the decision problem), i.e., the attractiveness of the information. Reference [41] suggests that somatic or affective markers accelerate decision, with a meaning of survival and saving energy. Reactions and emotional responses can accelerate the decision, but they can also deaccelerate if the emotional reactions are in conflict with one another or with their cognitive components.

Reference [37] considers that the strict criteria for decision making of rationality in the way of consistency and coherence does not seem as important as in the practice of personal

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satisfaction. When the context changes, the preferences change.

Reference [28] suggests that the body uses emotional information when the decision-making process is significant, and minimizes its influence when it is not so. Also [27] considers that the deliberative decision strategies have historically been regarded as the safest way to effective decisions. However, recent evidence and theory suggest that affective strategies can be equally effective: focusing on feelings rather than details do make higher quality complex decisions. These results suggest that emotional decision making strategies can be more effective than the strategies of rational deliberation that are need to make some difficult decisions.

III. The Somatic Marker Theory

References [4]-[7] consider that emotional factors, far from disrupting or disturbing the operation of rational processes, are an essential part of themselves.

Born in Lisbon in 1944, Antonio Damasio is a Doctor of Medicine from the University of his native city (1974). He is a distinguished Professor and Director of the Department of Neurology at the University of Iowa, where he holds the professorial chair M.W. Van Allen, and he teaches at the Salk Institute in La Jolla (California).

His contributions have been influential when understanding the neural basis of decision making, emotions, language and memory.

A.Body, Brain, Mind and Behavior

Brain and body are inextricably integrated by biochemical and neural circuits that are mutually connected. This connection can be done in two ways:

Using peripheral sensory and motor nerves that carry signals from each part of the body to the brain and from the brain to all parts of the body.

Through the bloodstream, carrying chemical signals such as hormones, neurotransmitters and modulators. These chemicals are released into the bloodstream, and act directly on the body part of them.

The body, set up by the association of the brain and the body, interacts with the environment as a whole, not being the only interaction by only the body or the brain. But besides interaction, meaning to generate spontaneous or reactive (behavioral) outside responses, internal responses, some of which are images (visual, auditory, somatosensory, etc.), which are the basis of the mind.

In the brain there may be many intermediate steps in the circuits that mediate between the neuron that produce the stimulus and the one that produces the answer (a high number of intermediate neurons, for example), and still lacking a mind, if a critical condition is not met: the ability to render images internally and arrange them in a process called thought. These images are not solely visual; they are also sound, olfactory images, etc.

According to [4], the key is the process that allows for invisible microstructural changes in the neural circuits (in cell bodies, in neurons), to be transformed into a neural representation, which in turn becomes an image that every human being feels it belongs to him/her. If the body and brain interact with each other intensely, the body that is formed interacts no less intensively with its environment, by stimulating neural activity in the eye (retina), ear (cochlea and vestibule) in nerve terminals in the skin, in taste buds and in the nasal mucosa. The nerve endings send signals to entry points situated within the brain, called initial or early sensory cortices of vision, hearing, somatic sensations, taste and smell. Each initial sensory region (early visual cortices, early auditory cortices, etc.) is a set of several areas. These sectors are closely interconnected, they are the basis for topographically organized representations (found in a single map, at a single center), and the origin of mental images. There are also sectors of the brain in which arise the driving and chemical signals (brainstem, hypothalamic nuclei and motor cortices).

B. Images of the Present (Now), Images of the Past and Images of the Future

The knowledge goal required for reasoning and decision making comes to mind as images. When looking at a landscape, or listening to a song, or touching a fruit or reading a book, you are having perceptions, and thereby forming images of different sensory modalities. The images thus formed are called perceptual. But if you stop paying attention to the landscape or music, or surface or text, and you get distracted, you can think of nothing else. Any of these thoughts also consist of images, regardless of whether they are composed mainly of shapes, colors, movements, tones or words. These images that appear when a memory is evoked are known as memorialized images, to distinguish them from the perceptual. When using memorialized images, you can remember a particular type of past image, one that you formed when planning something that has not happened yet but trying to happen, like cleaning up your office for next weekend. As this action was planned, images of objects and movements were formed, and you were consolidating a memory of this fiction in the mind. Images of something that has not happened and, indeed, may never happen, are no different in nature from the images that remain of something that has already taken place. They constitute the memory of a possible future rather than the past that was. These constructions in the form of images are forged through complex neural machinery composed of perception, memory and reasoning. Sometimes the construction is set by the body's inner world inside and around it, with a bit of help from the last memory, as when perceptual images are generated. Sometimes the construction is entirely directed from inside the brain, through the thinking process, such as when a song is remembered, or visual scenes with eyes closed or covered are recalled, whether repeated scenes of a real event or one that you imagined, thus generating memorialized images.

C.Image Storage and the Formation of Memorialized Images

When a given object or scene is recalled, you do not get an exact reproduction but rather an interpretation, a finished reconstructing of the original version. As age and experience changes, versions of the same thing evolve. These mental images are temporary constructions; replication attempts of memory tidbits that were experienced at another time. The probability of accurate replication is low but it may be substantially higher or lower, depending on the circumstances in which the images are being learned and memorialized. Memorialized mental images arise from the synchronous activation and transient activation of neural firing models that are largely found in the same initial sensory cortices where once occurred the firing models corresponding to the perceptual representations, as previously mentioned.

The topographically organized representations that are required to experience memorialized images are built under 'dispositional' neural commands learned in other parts of the brain, which exist as potential patterns of neural activity in small groups of neurons that [4] called 'convergence zones', i.e. a set of neurons that fire dispositions (a means to execute a purpose) within the group. The dispositions related to memorable images were acquired through learning, and that’s why we can say that they constitute a memory.

What the dispositional representations have stored in their small community of synapses is not an image per se but a means to reconstruct an image. If a person has a dispositional representation of a relative’s face, this representation does not contain the face as such, but firing patterns that trigger the momentary reconstruction of an approximate representation of the face of the relative’s face, in the early visual cortices. The same dispositions would apply also in the realm of hearing.

D.Knowledge and Dispositional Representations

Dispositional representations constitute the entire repository of knowledge, comprising both the innate and the acquired experience. The innate knowledge is based on dispositional representations in the hypothalamus, the brain stem and the limbic system. They are orders on biological regulation that are necessary for survival, such as the control of metabolism, and instincts. They control many processes, but in a general way they don’t become images in the mind.

The acquired knowledge is based on dispositional representations in the higher-order cortices and in the many nuclei of gray matter below the level of the cortex.

The reconstructed images from inside the brain are less vivid than those externally triggered. They are ‘tenuous’, in comparison with ‘vivid’ images (generated by stimuli from outside the brain), but they are still images.

E.Primary Emotions

Reference [11] conducted an investigation, asking subjects unfamiliar with western emotions, to choose between photos of people expressing various emotions, the photo that fit better with a story that he told them. Today this theory has broad support among emotion researchers, with the established thesis that at least some emotions are not learned, but rather innate and universal. Reference [11] called them "basic" emotions, which would be joy, sorrow, anger, fear, surprise and disgust.

Neither animals nor humans are innately prefigured to fear bears, or lions. They are prefigured to respond with an emotion, prearranged, when they perceive certain characteristics of the stimuli in the external world or the body, alone or in combination. Examples would be the size (large animals), height and reach (an eagle in flight), the type of movement (reptiles), certain sounds (grunts), or certain states of the body (pain felt during a heart attack). These features, whether felt individually or together, are detected by a component of the brain, the amygdala. Its function is to assign emotional significance to an environmental stimulus. When a new stimulus is presented, it makes a rapid assessment of it and tells the rest of the brain if that stimulus is a danger or a benefit for the body [39].

The process does not stop with the emotional response, with the bodily changes that define an emotion. Its next step is feeling the emotion, what [4] defined as feeling, in connection with the object that provoked it, realizing the relationship between the object and the emotional state of the body. Thus the body gets a greater protection system. "Feeling" the emotional reactions, means that we can generalize knowledge, and decide, for example, to be cautious with something that looks like a potentially dangerous element, like a snake. The evidence that the amygdala is the key player in the prearranged emotion comes from observations in animals and humans: [4], [25], [26].

F.Secondary Emotions

The process begins with conscious attention to a stimulus. It is expressed as mental images, organized into a thinking process, that are closely related to the person itself, reflections on the current situation and its consequences for oneself and others. Then, at an unconscious level, neural networks of the prefrontal cortex (cortical) respond in automatic and involuntary way to signals arising from the processing of said images. This response comes from dispositional representations that contain the knowledge pertaining to how certain types of situations are paired with particular types of responses, in the person’s individual experience. That is, it comes from dispositional representations that are acquired and not innate, though the former are obtained under provisions that are innate. What the acquired dispositional representations contain is the unique experience of the relationships in the person’s life, which is different from the rest, though the relationship between type of situation and emotion are largely similar among individuals.

The response described that comes from the prefrontal cortex is brought to the amygdala and the posterior cingulate cortex.

The stimulus can still be processed directly through the amygdala, but now it is also analyzed in the thought process and can activate the front bark, which acts through the amygdala. In short, secondary emotions use the machinery of the primary emotions. The frontal cortices depend on the amygdala to express their activity. Nature uses old structures and mechanisms in order to create new mechanisms and new results.

G.Feelings

At this point it is important to clarify that the definitions of [4] of "emotion" and "feeling" can be used by other authors differently, or maybe they don't not use at all the term "feeling" and divide "emotion" in expressive and experienced components, instead.

The somatosensory cortices of the insular and parietal regions continually receive information on what is happening in the body, meaning that they get a "general look" of the ever-changing landscape of the body during an emotion. This landscape is obtained by using neural signals and chemical signals from hormones and released peptides in the body during the emotion, reaching the brain through the bloodstream.

If an emotion is a set of changes in body condition, connected to certain mental images, that have triggered a specific brain system, the essence of an emotion, according to [4], it the experience of such changes, in juxtaposition to the mental images that initiated the cycle. That is, a feeling depends on the juxtaposition of a body image with an image of something else, like the visual image of a face or the auditory image of a melody. The image of the body itself appears just after the mental image is formed and remains active.

H.The "as if" Loop

In many situations, the emotions and feelings arise in the body, but the brain has also learned to develop the weaker image of an "emotional" body condition, without having to represent it in the body itself (the activation of the neurotransmitter nuclei in the medulla and its responses avoid the body). There are thus neural devices that help you feel "as if" you had an emotional state, as if the body was being activated and modified. Such devices allow the body to ignore and avoid a slow process that consumes energy. Some semblance of sense is only evoked within the brain, though it doesn't feel like they are coined in a real body state.

The "as if" devices are being developed and adapted to the environment, by repeatedly associating the images of certain entities or situations with bodily states. So for an image to be in this process, it is necessary to pass through the bodily loop first, one in which the body participates.

Feelings offer a glimpse of what happens in the body when juxtaposed a momentary image of the images of it to the images of other objects and situations, and thus they modify the comprehensive notion of such objects and situations. Through this process, the body images give to other images an appreciation of pleasure or pain (good or bad condition).

I.The Somatic Marker Hypothesis

Each decision making event is formed by multiple imaginary scenes, not really as a continuous film, but rather as pictorial flashes of key images of those scenes. The mind of a decision maker is not blank at the beginning of the reasoning process. It contains a repertoire of images generated by the complexity of a particular situation, which escapes the consciousness of the decision maker in a process that is too complicated for the person to be consciously aware of it.

The hypothesis of [4] argues that when the poor response option of decision making comes to mind, it is briefly experienced an unpleasant feeling in the gut. This feeling marks an image and has to do with the body (soma), which is why it's called somatic marker.

The somatic marker forces the attention to the negative result that a certain action may lead to, and functions as an alarm that warns you on how that option leads to that result. Then you can immediately reject this option, which allows you to choose from fewer alternatives. There would still be a margin for using a cost / benefit analysis and use your deductive capacity, but only after the somatic marker drastically reduces the number of options. This final deductive process will arise in many cases, but not all. Somatic markers increase the accuracy and efficiency of the decision process. Their absence reduces them.

Somatic markers are a special instance of feelings generated from secondary emotions, which have been connected through learning to predictable future performance of certain assumptions. When a negative somatic marker is juxtaposed to a particular future outcome the combination functions as an alarm, while when it's positive, it's an incentive.

Somatic markers do not deliberate for people, they help highlight some options, whether for or against, and so they remove them from the following consideration. It is an automatic rating of predictions that acts, whether you like it or not, to assess the assumptions of the future. Somatic markers are acquired with experience, under the control of a system of inner preferences and under the influence of a number of external circumstances including situations with which the body interacts, and ethical and social standards. The neural basis for an internal preference system consists of regulatory provisions, most innate, formulated to ensure the survival of the organism, which is achieved with the eventual reduction of unpleasant body states and the consecution of balanced states.

According to [4] there are two mechanisms for the process of somatic marker, under the basic mechanism.

First, the body is required by the prefrontal cortices and amygdala to assume a certain profile status, which result is indicated to the somatosensory cortex, as it pays attention to it and is made aware.

Secondly, the mechanism alternative, in which the body is overlooked and the prefrontal cortices and the amygdala tell the somatosensory cortex to be organized in the pattern of explicit activity that it would have assumed, if the body would have been placed in its desired state and had received that signal. The somatosensory cortex works like it was getting signals on a certain body condition, and though the pattern of activity "as if" cannot be exactly the same as the pattern of activity generated by a real body condition, it influences the decision making.

The somatic marker can act inside or outside the consciousness. Depending on the actual or "as if" body states, the corresponding neural pattern can be aware and builds a feeling. However, though many important choices involve feelings, a number of seemingly everyday decisions are made without feelings.

Out of consciousness a set of explicit images would be generated, related to a negative result, but instead of producing a detectable change in body condition, it would inhibit the regulatory neural circuits located in the nucleus of the brain that mediates the approach or avoidance behavior.

With inhibition of the tendency to act, or promote it itself, the chances of a potentially negative decision would be reduced.

One way or another, according to [4], emotions form part of the "rational" decision-making mechanism.

IV. Other Neurobiological Contributions on Somatic Marker

Reference [39] argues that the results of neurophysiological and neuropsychological research force to question the decision-making mechanisms to take into account the emotions, which are defined as an essential part of the nervous mechanism responsible for designing an appropriate response to environmental stimuli relevant to survival.

Reference [39], supported by [26], states that emotion has three components: assessment of the stimulus, expression of emotion and experience of body changes. This experience is what [4] calls 'feelings', differentiating them from other components of emotions.

According to [39], assigning emotional significance to a stimulus may be unconscious, and also the production of bodily reactions to emotional content (genetic and body care factors).

Reference [39] defends the vision of [4] of the somatic marker hypothesis. The 'rational' processes are not those who are responsible for themselves to solve most of the decisions of everyday life, as they are unable to give a quick and adequate response. A rational solution would require a long time to imagine possibilities, costs calculation, benefits ... It would require memory and time that you don't have or that you don't use. The 'rational processes' are very powerfully assisted by other mechanisms that are basically of emotional nature. The somatic marker is not a simulation in the abstract, but a kind of general rehearsal, with a particularized evolution and tuned to the personal history of each person, allowing a personal assessment of the choices presented [39].

References [1], [2] defend the theory of the somatic marker by [4]. They conducted a study of normal individuals and patients with lesions in the prefrontal area and the amygdala, who were subject to different card games, with several mounds, some in which much money is earned but also much is lost and others in which you gain a lot but little is lost. While these games were played, the subjects had their SCR (Skin Conductance Response) measured; normal people generate SCR before card selection, when they are thinking of which deck to choose. Patients with lesions in the prefrontal area, generate a SCR of reward and punishment, though smaller than normal. Instead, those with lesions in the amygdala do not generate SCR before choosing a card. These results suggest that when the amygdala is damaged, the patient no longer registers how painful it is to lose money, cheating the prefrontal cortex. The conclusion obtained is that decision-making is guided by emotional and somatic signals generated in anticipation of future events. Without the ability to generate these emotional signals, the patient does not prevent the cards that lead to losses, and keep choosing until they lose, as they do in their real life decisions. Thus, the amygdala and prefrontal cortex are involved in rational decisions, generating anticipatory somatic signals of what will happen before you choose.

The amygdala and the prefrontal cortex (anterior cingulate) are responsible for recognizing patterns that are repeated or alternated. The prefrontal cortex (anterior cingulate) begins to anticipate a repetition after repetition of a ‘twice in a row’ stimulus. "Thus, when the information is complex and the patterns are not as clear, knowledge can begin to grasp strongly what may be the best strategy, but the somatic signals are the ones that implicitly or explicitly guide the advantageous strategy. In other words, in situations of uncertainty or ambiguity, logic or conscious deliberation can offer options with certainty, but somatic states in the form of hunches or good feelings help choose the most advantageous answer, the solution that makes you feel better. Even when a painful solution is chosen, it's because the rest are even most painful.

Reference [23] predicted the purchasing decisions of a sample of individuals before they made their decision. According to their research, there are three key brain areas when it comes to purchasing decision, the bilateral nucleus accumbens (NaCC); the bilateral insula and the mesial prefrontal cortex (mPFC). According to [23], the amygdala is also very important, which activates autonomic responses to emotional stimuli, including monetary rewards and losses. The amygdala is part of an impulsive system that triggers emotional responses to immediate results [19].

Reference [21] found that working memory was related to the proper functioning of the somatic marker.

Reference [41] suggests that somatic or affective markers accelerate decision-making, with a meaning of survival and saving energy. The reactions and emotional responses can accelerate the decision, and they can also be decelerated if the emotional reactions are in conflict with one another or with their cognitive components. It also has been studied the relation of the striate with the somatic marker, since it represents a mechanism of unconscious learning, assigning associated values of different actions in various contexts [33].

V. Discussion: The Presence of Somatic Marker in Experiments Made with FMRI (Functional Magnetic Resonance Imaging)

In Fig. 1, the oxygenated areas in different experiments made on decision making are shown, with the technique of the functional magnetic resonance imaging. In this sense, Brodmann area 7 has been identified as specializing in the maintenance of representations of working memory that integrate verbal and spatial information [8], [9], [35].

Yet Brodmann areas 10 and 11 have been identified as involved in the production of emotional states and behavior [34], of important associations for the input integration with background knowledge [24], [30], episodic memory retrieval [42] and self-reflection [22]. This particularly active area [29] has been found during the presentation of emotional words compared to neutral words and it is regarded as the area where emotions are processed [3].

Brodmann area 32 plays a critical role in representing the reward value of a stimulus and how this representation guides behavior, based on objectives. It's also considered to be involved in the production of emotional states and behavior [34], [36] and it's closely related to autonomic control, visceral responses, motor reactions and skin conductance changes to emotional stimuli [17] [32].

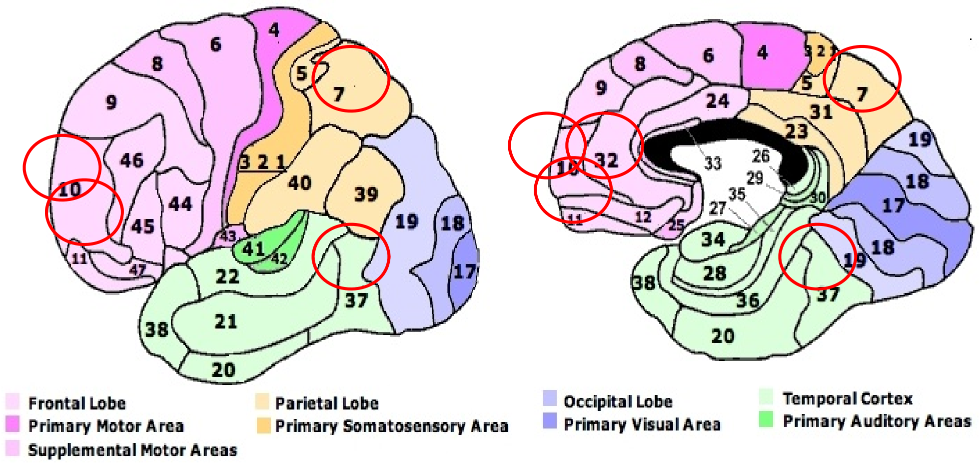

Fig. 1 Oxygenated Areas monitored with FMRI in a purchase task

The cingulate gyrus (BA32) is a part of the limbic system that receives information from the anterior nucleus and the thalamus, as well from the neocortex, and it is also connected to the somatosensory areas of the cerebral cortex. It is considered that is involved in the formation of emotions, basic data processing related to behavior, learning and memory. Oxygenation of the brain area in experiments made with decision making is very common [12], [18].

It is quite notable the activation of Brodmann area 10, which is essential for the integration of emotions in decision making [3], [8], [9], [17]. Damages to this area turn the subjects into people who cannot follow social conventions and show abnormalities when processing emotions [1]. Therefore, it can be considered that the activation of this area means that brain mechanisms that control emotions are being used; recent studies have also linked this area with monetary rewards associated with abstract visual stimuli [31]. Furthermore, just as [8], [9] indicate, this area is particularly important for social behavior, compliance with social norms and processing of emotions. In addition, Damasio and his colleagues also believe that this area is particularly important for storing information about previous rewards and punishments among the different options. In several experiments on people with damage in this area, they found that they did not learn of great rewards or punishments [1], [2]. If they placed two piles of cards with chances of winning and losing money, and in one of them there were many more that had penalties (losing cards) than winning, they did not learn that they must choose another pile of cards, with more gains. According to [8], [9], these areas of the prefrontal cortex may be related to the theory of somatic marker [4], which makes sense, since the somatic marker works by helping highlight some options, whether for or against and thus remove them from the next consideration. Brodmann area 10 has been linked in various articles related to monitoring social conventionality and emotion processing. In this regard, it is also important to highlight the oxygenation in the review of conducted experiments in a meaningful area of the limbic system, such as the parahippocampal gyrus (BA37). The parahippocampal gyrus is an area that responds more noticeable way to scenes that relate to places, rather than other visual stimuli [13]. The activity in this part of the brain is not affected by familiarity with the subjects that appear in the scenes, nor is it increased when the subjects experience a sense of motion in the scene. However, it's higher when they see new scenes versus repeated scenes, and not when they see new faces versus repeated faces. Therefore, it appears to be related with the codification of new perceptual information about the appearance and layout of scenes.

The hypothesis in this regard is that when an individual makes a purchase decision tends to "imagine" the product contextualized in scenes that are related to it (using it, for example...), which would be consistent with the experiment of [13] and the somatic marker theory of [4], in the part that refers to the central role of the "memory of the future" in decision-making. There was also confirmed the presence of oxygenation in the areas of the parietal lobes, which include BA 7/19/3 and BA39 only on its right side. These lobes play an important role in integrating sensory information from different parts of the body, knowledge of numbers and its relations and object manipulation. Some parts of the parietal lobe are involved in visual-spatial processing [40]. The most notable activity in the parietal lobes supports the hypothesis that when the subject is making a purchase decision it perceives contextualized objects spatially as if it were manipulating, using or enjoying it; a very consistent element with the theory of the somatic marker of [4].

In the research on consumer purchasing decisions, there has historically been a constant duality between the presence or absence of emotions and their role. Historically they have been observed as annoyances that interfere with optimal process, as it would be rational and cognitive. Since the late 70s, some researches emerged defending the importance of emotional processes in decision-making. The latest studies also persist in the idea that emotions are present in all product purchase decisions. But, does it occur with the same intensity in all types of products? In this research paper, an experiment is proposed to classify different products in two categories, one that concentrates those that generate a more intense emotional response and another with less intensity.

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