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Understanding consumers' psychological behavior through Neuroscience.

Case study: NeuroFocus, Inc.

Thesis

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We live in a world of substantial inequality, and the gap between the rich and the poor does not seem to decrease. In fact, this gap continues to spread, and one of the reasons lies on how multiple multinationals dominate the market in their respective fields.

There are many reasons why these companies are successful. Understanding part of it would help smaller companies gain more confidence in their marketing strategies. How familiar are companies with Neuromarketing technologies and techniques? Answering to this question could be a step forward for smaller companies to gain confidence in their products and to advance in their respective market fields.

A company specialized in the Neuromarketing field, called NeuroFocus, is studied in order to better understand consumers' behaviour. Various companies are researched to check their use of Neuromarketing techniques in their marketing campaigns and to suggest the possible use of Neuromarketing technologies. Therefore, this study could possibly help them discover a new path of opportunities of improving their brand loyalty. The main literature used to write the theoretical part is "The Buying Brain" from Dr. A.K. Pradeep.

This thesis work would not be a solution to considerable inequality, but it could constitute one step closer towards more balanced and less monopolized global trade.

Keywords: Neuromarketing, Electroencephalography, fMRI, Mirror Neurons

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1. Theoretical Framework

1.1. Introduction

For decades many professional marketers and strategists have been focusing in just the tip of the iceberg of what would be the understanding of consumer's buying decision factor. It is demonstrated that 95% of the buying decisions are made by the subconscious (Zaltman 2003, Preface) and, in order to better understand the subconscious, different tools and methods should be taken into consideration and implemented, if its efficiency is proven.

The world of Neuroscience is a fascinating field of study that would be able to lead us to a whole new perspective of how the human brain works. It will help us reformulate the questions that have been crawling in marketers' minds until today and provide us with the possibility of finding answers to questions that we have not been able to figure out yet.

The problem that is intended to be addressed with the writing of this thesis consist on why the customer loyalty is increasingly considerable towards some brands more than others. We all are aware of how multinationals like Apple owns most of the market share of electronic devices. We all are wondering what makes them and their products so special: Is it the simplicity, the software, an appealing design...? All of these are speculations and probably some of them real reasons of why brands of this category can position themselves so high in the market, but to better understand how these factors influence so deeply in our subconscious, Neuromarketing could be the beginning of uncovering the rest of the iceberg.

In the twentieth century we have witnessed a plethora of great discoveries, from the understanding of the generation and conduction of the nerve impulse, of neurotransmitters and the rules of neuronal communication to the identification of many of the genes that determine neural development or whose alteration

modifies the behavior. Getting to the bottom of this, could lead us to some answers that could explain how and why decisions are made and why most of the times are so spontaneous. (Hunter 2017, A Very Brief History of Neuroscience) The results that are aimed to be obtained with this research consists on spreading the use of Neuromarketing among all those businesses and companies that need it the most in order to create a less monopolized market and somehow lead to a more balanced and fair international trade in the near future.

Billions are spent every year in the global economy to better understand the human brain: what factors are more appealing to the public when designing a product, which factor will be determinant for the purchase (shape, color, brightness...), but still just a few can make accurate predictions. In the 20th century, we have learned more about the human brain than all the years of human history combined (Hunter 2017, A Very Brief History of Neuroscience). Even considering all these recent advances in the field of neuroscience, still many enigmas remain unanswered regarding the functioning of the mind that is still considered a complete mystery. The appliance of neuroscience will lead to a whole dimension of discoveries of directly applicable marketing knowledge.

1.2. Neuroscience and Marketing

Advances in neuroscience and the knowledge of the reactions of the brain to external stimuli are beyond doubt, and its applications in the field of marketing are one of the keys that most expectations open in the near future. Studies, congresses and seminars on neuromarketing attract more and more the interest of communication experts. The biometric techniques and tests developed for neuromarketing are becoming habitual to try to reduce the chances of failure and learn to improve the effectiveness of the marketing actions.

Neuroscience has confirmed something that was already known: what people say and think does not always coincide, and even less what they say they are going to do and then do, or what they say they feel and feel in reality. Likewise, it is known that the vast majority of purchasing decisions are made by more emotional than rational processes or, in any case, consumers rationalize decisions that

have been taken before emotionally. A study by Millward Brown indicates that the winning strategies in marketing campaigns are those that mix the rational and the emotional, and in the most established brands, the pure emotional strategy has a better result than the rational one (Admap magazine – Millward Brown 2017).

If our mind was a computer, we could say that the subconscious is capable of processing information at the speed of 11 million of bits per second that it captures through the senses. Scientists have calculated that when we read silently we process up to 30 bits of information per second. In short, the processing capacity of the conscious part of the human mind is, at most, 50 bits per second, which is nothing comparable to the 11 million processed by our subconscious without us knowing. (Pradeep 2010, 4)

The main challenge will be turning around the idea of how would we shape to our will this 50 bits per second of conscious information. The next challenge would be answering the following commonly asked question: How do I turn all this brain science into directly applicable ideas?

In the next chapters, the bases of brain functioning will be set. These bases will be used in further chapters to try to explain the previously formulated questions.

1.3. Perception

1.3.1. Neurons and functionality

Neurons are cells that are part of the nervous system. The most basic role of neurons is to receive information and transmit it through electrical impulses along large communication networks, throughout the nervous system. So that the functions of the neurons can be developed, different parts are needed:

- Soma: Body or main part of neurons. It is where its nucleus resides.
- Axons: It is a nerve fiber that allows electrical signals to be sent to other neurons. At its farthest end to the soma, it has many nerve endings that connect with many neurons at once.

- Dendrites: Prolongations of the neuron in the form of twigs, through which the neuron receives information from another neuron.

The way that neurons communicate (send and receive information from other neurons) is through the synapse. It is a process that occurs when the axon of a neuron sends information to the dendrites of another neuron (the channel between both parts of the neurons is known as the "intersynaptic space").

There are many tasks that our body performs and a lot of information that has to go from the brain through our entire nervous system. Consequently, neurons must specialize. For this reason, although the function of neurons is to receive and transmit information, there are many types of neurons, based on:

- Motor or efferent: They are responsible for transporting information in the form of electrical impulses from the central nervous system to the muscles or glands.
- Sensitive or afferent: Neurons that connect our brain to the outside world. Those that receive information from the senses, such as pain, pressure, temperature ... Even some more specialized ones that "speak" of flavors and smells.
- Interneurons / intercalary or association neurons: Neurons responsible for communicating afferent neurons with efferent neurons.

(Healthline 2018)

1.3.2. The power of the five senses.

Sensory marketing is widely used and also highly recommended for those companies that want to be exclusive, original and transmit a different and positive experience to the client. Its objective is that the client leaves satisfied and with an experience that will not be easily erased from his memory.

As human beings we are endowed with five senses. In the next paragraphs we will see how marketing plays with us through our senses:

1. Sight.

Marketing applied to the sense of sight is called visual marketing and this approaches colors, shapes, distance and size of items. Wherever we look we will find visual information, its main objective is to remain in the mind of the consumer in the form of an image, Photographic memory.

90% of the information that our brain perceives is visual. Marketing tries to play with our senses and the star sense is sight.

For 85% of customers, the color of the product acts as a trigger in the purchase decision. Color is the main attribute of brand recognition for 80% of consumers.

Large companies present some of their products with the help of video screens. The new technologies of flat screens are now an effective means to promote sales and are an intangible proof of the evolution of visual marketing. In fact, if we think of two leading cities such as New York or Japan, great "decorated" buildings come to mind with huge screens where numerous products or services are advertised through it.

2. Smell.

The stimulation of smell is a marketing tool with great potential. The use of scents is interesting to identify a product, or even a brand or company. The development of smell is also used to stimulate buying impulses at points of sale.

It is difficult to hit a large number of clients, but you can create a personified smell, something soft and that is able to convey comfort and safety. Odors create sensations, although in certain cases they can be unpleasant.

When making a purchase or when contracting a service, we go through a sensory process. Once captured by the senses it goes to the cerebral cortex where the intensity of the sensations that we experience will be what indicates us if we like or dislike. Let's say that through the sense of smell we create an image of the brand and that image directly influences the purchase decision.

3. Hearing.

Marketing applied to the sense of hearing is known as auditory marketing.

Music is a fantastic tool to create the image of the point of sale in the mind of the client, as well as the identity of the brand that responds to its integral set. The same happens in advertisements. It is easier to remember the song than the product, or in other words, we associate the music with the advertised product. Music, in the case of advertisements, helps to identify the brand.

In stores, music can achieve so much prominence that it helps to change the mood and create sensations that help customers to be more prone to buy. This statement is based on studies that show that different types of sounds or music are able to exert a certain power of psychological influences on most of the clients.

In audio marketing as in olfactory marketing, you can create something unique with the demands of the brand. For example, in gymnasiums you will usually find motivating music, which transmits energy and positivism, in order to encourage the client to keep exercising.

4. Taste.

This sense can be considered as a "mix", since it combines the characteristics of those mentioned above. The sense of taste helps awaken the other senses to create an image of the brand.

A product is characterized by taste. If we do not like a certain food, we will remember it more easily than if it produced a pleasant taste, since if we did not like it, we will be careful not to consume it again.

People remember 15% of what they taste. It is a level of retention much greater than that offered by the other senses. Therefore, the sense of taste is one of the main demands of the hospitality and food sector.

It is very known by all the fact to see in a supermarket free samples of certain foods, normally they are new products that are launched to the market and if you finally buy the product you receive a discount, raffle, instant gift, etc.

5. Touch.

Skin, the largest sensory organ, drives the sense of touch. It favors the identity of the brand by being a double interaction of the consumers with the products. This means that not only the product is visible, but if they allow us to touch it, they make the customer-product relationship much closer, thus favoring the possibility of purchase.

The sense of touch has become very important and significant in recent years within the business world. This importance leads the industries to look for materials and forms that respond to the expectations and tactile demands of consumers, hence the birth of tactile marketing.

In conclusion, we can firmly determine that the success of a sale depends of an accurate combination of the previous sensorial elements that is only applicable to an individual or a group of individuals with similar mental processing patterns.

(Sensory Marketing – How To Appeal To Your Customers Through All 5 Senses, 2017)

1.4. Neuromarketing Analysis

1.4.1. Neuromarketing Technology

EGG

The basic technology behind all the brainwave analysis and testing is the Electroencephalography (EGG). It consolidates one of the main pillars of brain exploration.

The EGG was developed by the German physicist Hans Berger at the end of the 20s, it is also common in the clinical field, with a solid scientific basis and economically accessible, although not without a noticeable complexity.

What is the EEG? How does it work and what are its scientific basis? What are the advantages and disadvantages? These questions will be answered in the next paragraphs.

The EEG is a method that monitors and records the electrical activity of the cerebral cortex, the surface of the brain. In the cortex, a special type of neurons can be found: pyramidal neurons. These are arranged parallel to each other and perpendicular to the cortical surface. Like any other neuron, they have an intracellular and extracellular space. During the rest phase, the intracellular space presents a negative charge and the extracellular space a positive one, which creates an electrochemical gradient. The reason of this reaction? Very simple. In the outer space there are sodium ions with positive charge. Inside, the charge is negative, there are positively charged ions (potassium) but negatively charged proteins predominate. (Kompoloti 2010, 441-444)

Neurons have ion channels, which connect the intracellular and extracellular space. During the rest phase, the channels remain closed. However, when

you perform an action, such as typing a word on your mobile phone, the networks of neurons involved in the action are activated by the passage of an electrical signal, the action potential. To allow its transit, the ion channels of each involved neuron open up allowing sodium ions to enter the intracellular space, changing the voltage (from negative to positive) and producing the depolarization of the neuron. When the signal has passed, the process is reversed and repolarization occurs. The ion channels open and let the potassium ions pass with negative charge to the extracellular space, restoring the previous equilibrium. (Kompolti 2010, 441-444)

In a complex mental process, the potential action can go from neuron to neuron thanks to connections called synapses. When the charge of ions jumps between neurons and the process of depolarization and repolarization continues, it will be an excitatory synapse. When jumping between neurons, the ion charge becomes hyperpolarized making it difficult to continue, it will be an inhibitory synapse. (Kompolti 2010, 441-444)

Each pyramidal neuron generates an electric dipole whose polarity varies according to the type of synapse-excitatory or inhibitory, that occurs during the phase of the action potential. Because of their disposition, the joint activity of the pyramidal neurons and their differences in action potential at the level of the cortical surface, the succession of depolarizations and repolarizations in one area can be detected with sensors. (Pradeep 2010, 7-12)

The process that allows the record of brain activity results is described by the following points:

1. The EEG consists of a helmet or headset equipped with sensors. These electrodes or sensors are arranged strategically in certain locations along the scalp to capture brain activity. Headsets may have more or fewer sensors, which in turn may be common in some clinical and neuromarketing studies. The greater the number of sensors, the more information is recorded. If wet sensors are used, the conductivity will be higher, the signal quality better, but also the discomfort for the subject will be greater.

2. The brain activity induces slight electrical currents on the sensors that are transported in the form of an analog signal through the cables connected to the EEG device.
 3. This analog signal passes first through an amplifier to improve its clarity and later through a filter to eliminate noise. Aspects of the amplifier such as bandwidth, sampling rate or the number of channels supported will influence the result.
 4. Next, an ADC (Analog-to-Digital-Converter) is used to convert the analog signal into digital. As a result, the digital signal will be reflected on the screen of our computer in the form of brain waves in a time-voltage graph.
3. After the session, we can save the record in a device of our choice (Hard Disk, DVD, EEG ...), which may be processed later by an appropriate software.

(Farnsworth 2018, What is EEG and how does it work?)

Reading and correctly interpreting EEG data is an art. In addition to the necessary technical knowledge, a good mentor and a lot of practice are necessary to learn how to do it. When assessing the registered activity, 4 factors are considered:

1. Time-domain characteristics: the wave is evaluated according to its amplitude, frequency, morphology and repetition patterns. Depending on the frequency, 5 types of wave are distinguished: gamma (more than 30 Hz), beta (13-30 Hz), alpha (8-13 Hz), theta (4-8 Hz) and delta (1-4 Hz). In general, the higher the frequency, the higher the neural activity in an area.
2. Spatial distribution: brain activity is not uniform. Depending on the task or process, some regions will be more active than others. In an EEG this fact is

reflected in time-domain differences between the different channels. Remember: each channel represents the activity recorded by a sensor located in a specific area. Thus, when an action generates a high activity in the occipital lobe, the sensor placed there will capture this particularity, which will be manifested in the brain's natural wave and, therefore, in its representation in the corresponding channel.

3. Context: An EEG channel should not be analyzed in isolation, since it only captures the activity in a region at any given time. By the principle of continuity, its previous and subsequent evolution of the signal from other channels must be taken into account. On the other hand, we must also consider the psychophysiological characteristics of the subject. It is not the same that the person is a 40-year-old woman or a 20-year-old athlete. In addition, in a neuromarketing study, the characteristics of the stimuli or tasks must be examined.
4. Technical aspects: a problem with the amplifier or the conductivity of the sensors can spoil the results. It is advisable to check everything in advance to make sure that the device is in order. On the other hand, it is necessary to avoid that the environmental noise of the body and other devices (computers, light bulbs, etc.) interfere in the signal. In this sense, it is usual to use an ear clip (a pincer in the ear) that acts as an earth electrode, it allows the tuning of brain waves.

(Farnsworth 2018, What is EEG and how does it work?)

Luckily, today the analysis of many EEGs in a neuromarketing study can be systematized thanks to computer models. These models are constructed by calibrating and learning the emotional responses of the subjects, based on psychophysiological patterns, translatable to metrics that represent the valence and level of arousal caused by a stimulus or when performing a task. The EEG is a technique that presents 3 important positive aspects:

1. It offers an excellent temporal resolution: the activity changes in the brain can be recorded almost immediately (in a matter of microseconds).
2. It is comfortable: the headset does not limit the mobility of the subject and can be worn for prolonged periods of time, as long as ergonomics have been taken care of in its design.
3. It is portable: an EEG device can be transported easily, which gives greater operational facilities when organizing a study.

The EEG has only one big disadvantage: it offers poor spatial resolution. The EEG often encounters difficulties in determining the exact source of brain activity. Each electrode is responsible for covering a huge area of neurons. This is especially problematic when there is activity originating in different regions but close to each other. (Quora 2018)

fMRI

fMRI literally means functional Magnetic Resonance Imaging. This technology is the most iconic research technique of neuroscience. The brain activity maps of their scanners also represent the most popular picture of the discipline. This is nothing unusual if we take into account that this neuroimaging technique has allowed us to deepen our knowledge of memory, language, learning and emotions. Regarding neuromarketing, fMRI is a valuable tool when it comes to investigating the consumer's brain. (Overview of Functional Magnetic Resonance Imaging 2011)

The fMRI is a procedure to measure neuronal activity by monitoring changes in the distribution of blood flow within the brain. The electrical and chemical activity of neurons in the brain is associated with the hemodynamic response. When a part of the brain is activated, its oxygen demand increases. The blood is responsible for providing it through hemoglobin. Depending on the brain activity, some areas will be activated more than others and therefore, there will be differences in the level of oxygenation in blood. (Pradeep 2010, 13-15)

Unlike conventional MRI, which uses magnetic fields and radiofrequency to reconstruct images of the internal structure of the brain, fMRI records the evolution of brain activity. This is possible because oxygenated and non-oxygenated blood do not have the same magnetic susceptibility. Based on the BOLD signal (Blood Oxygen Level Dependent) or oxygenation level of the detected blood, the fMRI is able to detect the differences in activity between different areas of the brain. (Overview of Functional Magnetic Resonance Imaging 2011)

The procedure would start with a scanner of about 6-15 minutes to know the structure of our brain. Then it will be time to see the ads. We will not put compatible headphones with MR to be able to listen to them. The device picks up the BOLD signal every few seconds while the advertisements are being projected in a prism-mirror located in front of our head. The duration of the procedure will depend on the number of stimuli. The staff will indicate the completion and the time to leave. Later, a software (SPM, Brain Voyager, AFNI), will analyze the signal with the evolution of the activation, which will end up being reflected in a neuronal map through color. (Overview of Functional Magnetic Resonance Imaging 2011)

Since its creation, fMRI has established itself as a clinical and research technique due to 4 fundamental advantages:

- It presents a high level of spatial resolution: the fMRI offers a 3D image of the brain. Each voxel-volumetric pixel of the image can cover up to 3 cubic mm of brain tissue. There are few neuroscience techniques capable of overcoming the level of detail of fMRI.
- It offers a large amount of data: the fMRI is able to collect multiple brain activity data simultaneously. Undoubtedly, it is a challenge to work with a huge amount of information, but it means having a wider range of study approaches.
- Access to the deepest regions of the brain: unlike other techniques, it allows to record the activity of the most remote areas of the brain, such as the hippocampus, the amygdala or the nucleus accumbens.

(Overview of Functional Magnetic Resonance Imaging 2011)

However, with the fMRI also has certain disadvantages:

- It is an indirect measure: the hemodynamic response is a consequence of brain activity, but it is not the brain activity itself. When it is very high or complex, there may be problems with the clarity of the BOLD signal.
- Difficulties to study rapid mental processes: the fMRI presents a poor temporal resolution. An explanation to this would be that the peaks in charge of monitoring the hemodynamic response arrive with a few seconds of delay. If it is a specific event, the time lag can be corrected. However, if it is prolonged over time, chaining several mental processes, the result would be blurry and confusing.
- It's expensive: The cost of a market study with fMRI could cost millions of dollars easily.

(Overview of Functional Magnetic Resonance Imaging 2011)

In conclusion, fMRI is a neuroimaging technique that offers high-quality and abundant information about brain activity. It is especially suitable for investigating the passive consumption of audiovisual content and the activity of the deeper regions of the brain. However, like any research technique, it faces technical limitations and its inclusion will depend on the needs of the study. Its evolution will determine if the use of this technique in consumer neuroscience will prosper or fall into disuse. (Brain Box 2015)

1.4.2. Neuromarketing Metrics

Neuromarketing studies are based on the analysis of unconscious behaviors when exposed to different stimuli. This information, which can be very varied, is structured and explained in different metrics.

We can use different metrics that respond to the defined needs, for this it is essential to have clear idea about the objectives of the study. Based on these goals,

the experimental protocol is designed, which will allow us to work always with the focus to respond with one or more specific metrics to these objectives.

Neuroscientific tools will be used in relation to the targeted metrics.

1. Emotional indicators.

•Emotional Activation:

Physiological activation that is produced by a stimulus and can be the result of a positive emotion or a negative one.

•Emotional Impact:

They are the variations that occur during emotional activation.

•Emotional Valence:

It tells us if the emotions felt before a stimulus have been positive or negative.

2. Cognitive indicators.

•Attention:

The environmental stimuli are filtered, detecting those that are essential based on the level of concentration of our activity on the target. According to Neurofocus, they can determine the level of attention you are devoting to analyzing a stimulus and also the event that initiated that "peak" of attention.

•Memory:

It is a brain function that allows coding, storing and retrieving information. Memory is the result from the acquisition of knowledge. Neurofocus claim that they can detect the distinctive pattern of long-term memory creation while the viewer is receiving the stimulus that will cause the creation of long-term memory.

- Engagement:

Indicates the degree of involvement or connection between the participant and the stimulus. It is related to the interest, to the attention, to the working memory, to the cognitive load that the task supposes. It shows the degree of involvement of the participant in the task. The Neurofocus metric is able to determine the activation (arousal), excitation or stimulation that is producing the stimulus.

3. Visual behavior.

- Visual attention:

It allows us to know which are the elements that have captured our concentration being deeply processed.

- Visual trajectory:

Indicates the visual path taken before a stimulus.

From all this metrics there are other derived measurements:

Purchase Intent: A mix between Emotional Impact and Memory. Supposedly it is associated with success in the market. This means, based on the data they have from other customers, Neurofocus states that this variable is related to the success of sales of the products.

Novelty: Combination of Attention and Memory. A measure in which a stimulus is recognized as new and a way to know if the ads are keeping freshness and are still unexpected on by the audience.

Comprehension: Neurofocus recognizes this metric as the extent to which the receiver has understood the message that is thrown at him.

One last metric that Neurofocus uses to combine three important measurements stated beforehand (Attention, Emotional Impact and Memory) is the Effectiveness.

(Pradeep 2010, 103-112)

1.5. Neuromarketing Elements.

1.5.1. Triggering the primal brain.

We all most likely asked ourselves these questions and somehow, we were not able to find a response to it:

- Why do sometimes products with higher prices or worse quality outnumber their competitors?
- Why and how do we sometimes buy certain products with "irrational" and impractical purchasing decisions?
- Why do some brands have a great impact among their followers and others do not cause engagement or loyalty?

Neuroscience and behavioral sciences, such as NLP (Neuro Linguistic Programming) state that It is our subconscious mind that determines how we respond to ads, brands and products and, ultimately, determines our purchasing decisions.

Consumers do not really realize why we buy what we buy. And that's because of how our brain is made. It all goes back to about 100.000 years of evolution.

According to neuroscientists, the human brain is made up of three main parts, but each one functions as a brain itself. These three "brains", interlocked in each other, are the following:

1- The "Human" brain, New or External: It is the most evolved part of the mind, known as "cortex". It is responsible for logic, learning, language, conscious thoughts and our personality.

2- The "Mammal" brain, medium: Also known as the Limbic System. Responsible for emotions, moods, memory and hormones. Its most representative element is the cerebral amygdala.

3- The "Reptilian" brain, the old and the internal: It controls the basic functions for survival, such as the sensation of hunger, breathing, the instinctive decisions of "run or fight" and keeps us out of danger.

Although Neuromarketing is still in its infancy and has a lot of ground to explore, one thing is clear: It is the reptilian brain, the old one, that directs our purchasing decisions.

This is determined by Erik du Plessis, in his book "The warnings mind", which states that the reptilian brain is responsible for making quick decisions in our mind. To build loyalty to a brand, you have to know how to unleash the response of the "old" reptilian brain. A message type: "we reduce the price by 20%" is aimed at the logical brain, the cortex, but not the reptilian. And on many occasions the "old" brain ignores the logical ideas of the cortex and makes purchasing decisions without us noticing at a conscious level. Knowing and understanding what mechanisms turn on the lights of the reptilian brain will make our brand much more successful.

Paul McLean is an American neuroscientist who created the evolutionary theory of the triple brain, the triune brain, where he states that the human brain is, in reality, three brains in one: the neocortex, the limbic system and the reptilian. According to the theory, the brain has experienced three major stages in evolution: first the reptilian, followed by the limbic or emotional and, finally, the cortex.

Therefore, the three brains, or the triple brain, is only possessed by higher mammals. The lower mammals own the limbic and reptilian systems. The rest of the vertebrates only has the reptilian brain.

Thus, the oldest part of our brain, the reptilian, is the one that possesses the basic instinctual capacities related to survival, the one that has kept us alive until today (sexual desire, search for food, fight or escape, etc.)

It acts when the body asks for it: breathing, hormonal control, hunger, heart rate, blood pressure, thirst, etc. This part is unable to learn. There is no past or future, only the present, the right now. It does not think or feel emotions. It is purely impulsiveness. It is what gives us the formation of habits through the repetition of actions, until they become routines.

The reptilian brain works by the stimulus-response mechanism. Emotions are unconscious and automatic responses to sensory stimuli. The sight of the ocean, a sunrise, the smell of coffee, the touch of a rose ... all trigger an unconscious emotional response. Emotions play a decisive role in buying decisions. In a market saturated with products, it is emotions that drive decision making. Knowing how to appeal to consumers' feelings will determine the success of a brand. A whole field to develop has a name and it is called Emotional Marketing.

The greater the senses that a brand reacts with respect to its products or services, the more emotions it will arouse in users and the better it will be able to influence them in their purchasing decisions.

We are all constantly looking for two fundamental aspects: finding satisfaction and avoiding pain. But we react much more to the sensations of fear, loss or threat than to those of seeking pleasure. In "How to master the art of persuasion", Kevin Hogan states that consumers base their purchasing decisions more on avoiding pain than on the pursuit of pleasure.

The beginning and end of an event is what determines our perception of the whole experience. The initial impression acts as a filter through which we will see the rest of the message. And the end is the closest memory of the event and has a great weight in the lasting effect left by what we have experienced.

Therefore, so that our message is conveniently accepted, it is vital to leave a strong first impression. It is what will hook the audience. From a welcoming smile

to a good question asked at the beginning, the first few seconds are critical for our brain to determine what is coming next.

It is believed the way or manner in which we receive and process information is 65% due to visual patterns. Likewise, the first impression of a person is due to his physical appearance. And it is because in all cases, the old brain responds to visual stimuli, not words. Words enter the "new" brain field and are secondary in the buying process.

For this reason, we must promote the main message of a brand and transmit it in a visual way (as in the design of the product, images in the advertisements, wrapping or packaging, etc.). In this way, consumers' emotional connections with the brand will be strengthened.

As Patrick Reinvoise points out, in "Neuromarketing: is there a " buy button " inside the brain", the old brain is constantly looking for what is familiar and tangible. It does not understand numbers or abstract concepts as "integrated approach" or "integral solution". (Morin 2005)

Therefore, in Marketing, to talk to the old brain, we must use tangible benefits. So, for example, a promise of "enormous happiness" is a nonsense to our old brain, while the use of metaphors helps in a better way to reach its attention. Always show the benefits of the product or service in a tangible way.

As Patrick Reinvoise explains, 99% of our decisions are not made by reason, but by instinct. The reason is what looks for the excuses to justify those actions, which the reptilian brain has chosen. He does not understand abstractions, only the tangible that is deeply emotional and visual.

Having all these concepts set, now we will categorize the six stimuli of the reptilian brain:

- 1- The instinctive brain is centered on itself. Everything that is not for itself, it is not important. It has no empathy or patience.

2- The lower mind seeks the contrast. The contrasts allow the brain to decide: With / without, much / little, all / nothing. Without a clear message of contrast, decision making is slowed down.

3- The reptilian code is tangible. Clear, concise and recognizable messages. There is no room for abstractions and complexities.

4- The reptilian brain prioritizes the beginning and end. Clear message at the beginning and repeat at the end. The reptilian brain does not pay much attention to the one in between.

5- The "archaic" brain is visual. The visuals immediately reaches the reptilian brain and activates decision making. This has allowed us to remain alive in the face of dangers or potential imminent dangers. The reptilian brain determines something like "danger" and makes a decision before the information even reaches the new brain.

6- The reptilian brain responds to emotions. Emotions cause reality to be perceived differently and modify decision making.

(Pradeep 2010, 17-31)

(7 Ways to Engage Your Customer's Reptilian Brain, 2015)

(305: Neuromarketing: Sell More by Finding the "Buy Button" in Customers' Heads, 2018)

1.5.2. Influencing the consumer's brain.

NeuroFocus, Inc. has developed an idea of a sales process based on everything we've seen before, a 4-step process that helps navigate and influence the brains of potential customers. By following these 4 steps, a powerful message is created and delivered that triggers a decision in record time.

1st Step: Diagnose the pain.

There are innumerable examples of products and services marketed without a clear and definite understanding of the specific pains that they are supposed to eliminate. These types of products, even with multimillion-dollar advertising campaigns, finally fail. Although we can not reduce the complex and mystical paradigms that are behind every human decision, buying patterns are more predictable than is generally believed.

The reptilian brain is centred on itself. Under the stress of making a purchase decision, it plays a central role in controlling the final decision. That is why you need to quickly identify the pain of the audience if you want to get immediate attention. (DMACC Marketing Program Blog 2016)

2nd Step: Differentiate the message.

Without differentiating message there is no success. If you are not selling something that is clearly unique, the sales efforts that are made will help both you and your competitors, since the product is "the same".

There is a uniqueness to highlight what makes your solution unique in order to be successful:

The correct message solves the objections to the purchase that potential customers may have, in the same way that what makes your brand or products unique should resolve the basic pain of your potential customers.

3rd Step: Demonstrate gain.

You can think that if the benefits of a product or service are greater than what it costs, customers would be stupid if they do not buy it. But it does not always work that way.

Why? Because the 'Reptilian Brain' is sceptical. You need clear concrete evidence before you can commit to a decision. This means that instead of "talking" about the value, you must "prove it". Selling the Reptilian Brain is a game of demonstrating the gains that are going to be obtained.

Most sales books focus on accelerating the purchase decision, not on "consolidating" the commitment to buy. If the message received by the client implicitly carries the clear proof of the profits, it is not necessary to create an artificial purchase urgency. It will be integrated into the message. (How to Market to the Reptilian Brain 2015)

4th Step: Reaching the Reptilian Brain.

Being unique in differentiating yourself in messages and proving your value in demonstrating gain are vital steps in influencing your audience. But by themselves, they are not enough. A solid and logical message, although it may be of interest to your potential client, will not trigger a purchase decision unless the "reptilian brain" understands it quickly and effortlessly.

We must deliver the message, with the maximum impact, to influence the real decision-maker: The Reptilian Brain.

(How to Market to the Reptilian Brain 2015)

(5 Psychological Tactics Marketers Use To Influence Consumer Behavior, 2014)

1.5.3. Neuromarketing: The Woman's and Man's Brain

Women think, feel and buy differently than men, and it is fascinating that from Neuromarketing we can see some of the functional and structural differences of the brain between both sexes, when it comes to directing our communication efforts.

When we speak to our target audience, we want to create a powerful message that seduces and differentiates itself from others, and for that reason, the most important part is to begin by segmenting that audience. However, sometimes we forget that the first great segmentation has been done by mother nature by separating us between men and women. Knowing and identifying the differences between both genders when buying or interpreting a message can make a difference in its effectiveness.

Women are better communicators than men, emphasizing both verbal and non-verbal communication. According to Mindcode, women speak between 14.000 and 16.000 words a day, while men speak only from 3.000 to 5.000 words a day. They have years of evolution being responsible for socializing in the tribe, and apparently the existence of a "language protein" (according to Science magazine) that is found in women and is not present in men, helps them to interact with better social and communication skills.

This is the reason why women have the innate ability to send metamessages to men. They send these indirect messages in the hope that men will decode them, but usually, they miss these hidden messages because they are not at the same level of communication.

Therefore, when men need to communicate with a woman, they have to pay attention to their body language, listen to the tone of their voice, and generally, not interpret their words in a literal way.

On the hand, women, when communicating with men, have to be specific about what they want or need to achieve a better result since men do not enjoy small talks, they want to get to the facts as soon as possible and without detours. When a man communicates, normally he eliminates the feelings from the equation because it is seen as irrelevant. And this is where communication noise usually occurs, as women enjoy these small talks and include all the details of the story because they believe that everything is relevant, because being more emotional, they need more words to translate those emotions.

This difference in thinking is due to the way our brains are designed. Men have most of the brain connections within the same hemisphere to optimize motor skills. That is, they have more neural connections vertically in each hemisphere. On the contrary, women have a greater number of connections between the hemispheres (horizontal connections). This allows them to combine analytical and intuitive thinking.

For this reason, on average, women may have better verbal memory and social cognition, while men may have better motor and spatial abilities due to their larger parietal lobe.

According to Neurofocus, the woman's brain is formed by a larger prefrontal cortex and hippocampus, which affects emotions and how they are regulated. Because of this, emotions are the most effective way to talk to women. Men on the other hand, have a larger amygdala and more testosterone, making them to react more aggressively.

The principle of dispersion of elements, a biological evolutionary characteristic, also comes into play. Men have tunnel vision, which is a primary characteristic of hunters, since originally this was our function. Contrarily, women had to take care of their children and be attentive to the threats while they were harvesting fruits. For that reason, they have a more peripheral vision.

In terms of communication, it is better to include several elements, details and colors in order to appeal these primal characteristics.

As for the Customer Experience approach, the stress hormone, cortisol, remains in the body of women for longer than men. Because of this, women may be less receptive to conflict and stress, so we must make sure to keep both outside of the message and marketing strategy.

Recent research shows that women's buying behavior is unconsciously influenced by their hormones. Specifically, it was found that women who are ovulating buy and wear more attractive clothes, and their decisions are less influenced by men and more by the need to overcome the female competition. This is just another evolutionary argument when it comes to perpetuating the species.

When we look more closely at the differences in the brain, we find that, for example, the hormones responsible for care and attachment (as family / group), but also for the softness (oxytocins and estrogens) play a role much more important in the female brain than in the male brain.

These hormones of union and care generally lead women to be more interested in the construction of a nest and, consequently, social matters such as family and welfare are of a greater importance compared to their male counterparts. It could seem unattainable for any company outside the large multinationals to develop a strictly differentiated communication strategy for men and women. Actually, it is about making a correct segmentation, knowing exactly who our Buyer's Persona is, who is the one who makes the purchasing decision (as an additional data, 75% of the women identified themselves as the main buyers of their homes and are responsible for 85% of all gifts in most cultures) because that way we will have better results since the message will be more direct and unambiguous.

If we had to summarize this whole chapter in one sentence, the sentence would be: In general, women buying decisions are more guided by olfactory stimuli than auditory stimuli, while men are primarily visual.

(Neuromarketing & the Science of Marketing to Women vs. Men, 2013)

(Marketing to women, male brain vs female brain, 2018)

1.5.4. Neuromarketing: Face

One of the most important emotions when engaging with others is trust. Trust is everything, and when you buy, you only do it if you are sure. According to researchers at the Charles University in Prague, they did an investigation whose results showed that brown eyes inspire more confidence than other colors. The participants had to rate the degree of confidence that a face inspired, and their choices were for round faces, and big mouths. In fact, the brain perceives the rounded shapes better than the square ones.

The eyes are the most attractive part of a face, and it is the first thing we look at, since the intentions are reflected in it. When someone looks at us we can determine if it is a threat or not. On the other hand, depending on where someone's gaze is directed, then our attention is directed towards that place. Most people are impulsive by nature and their eyes move very fast and are less willing to wait. The speed of the eyes is related to the way the brain lets time pass when it comes to assessing a reward and making a decision. The interaction between brain, hand and eye, when we take an object, are involved in the reasoning of if something is correct, and if the eye patterns are controlled, then you can influence decisions. For example, if you can keep your eyes on a specific target, then you are more likely to choose that target. Large or dilated pupils can be identified as the willingness to do something. We also know that when pupils dilate, it happens because something has awoken our interest.

There are several types of buyers, those who buy for habits, those who buy promotions, those who seek to obtain maximum benefits according to price and often analyze a lot, those who like to try several options, and those who let themselves be influenced. All aspects that are behind buying decisions rebel in the movement of the eyes and are influenced.

When we first see a person, we make a judgment subconsciously based on what we see on his face, and then decisions are made based on that judgment. On the face you can see the level of competitiveness of a person, if a person has the power and ability to influence and also the degree of confidence that person can provide. For example, a female face is more often perceived as more reliable and a male face is associated with strength and power. In the long run, a type of face is the one that decides the level of confidence that someone has, whether we judge it for good or for bad, whether we buy or not. Instinctively we get carried away by appearances and this tendency can change when we have more information. The more you know someone or something, the less you get carried away by appearances.

(What you need to know about faces in neuromarketing, 2018)

1.5.5. Neuromarketing: Packaging

Despite all those moral lessons that we have all learned throughout our lives that state beauty is inside and that we should not judge anything by its external appearance, the truth is that in a subconscious way we are still taking decisions based simply on the appearance and the ideas we have associated with it. In the case of consumer, products and the relationship with brands, the importance of appearance is much greater and the weight that consumers give to how they see things is much higher. Companies have to be absolutely clear that consumers see things through their eyes and that their strategy has to depart from that reality. This makes it crucial to work on the visual presentation and the approach used to launch the product on the market. What does all this mean? The most direct conclusion to be drawn from this is that, as with many other elements, brands have to take absolute and total care of the packaging of the products they launch to the market. The packaging is decisive and can completely modify how a product is perceived.

Therefore, brands must carefully finalize the design of the packaging and have to be able to use the latest developments and most recent advances in science to create the most attractive offer for the consumer. Here neuroscience can be a great ally. Neuromarketing already helps to create more efficient messages and actions when establishing a marketing strategy, but neuroscience can also give some keys to design the packaging of products in a much more efficient way. In fact, there are already those who talk about Neuro-design, the new frontier to success in this field.

The Neuro-design would start from the latest advances in neuroscience to create more efficient designs and would focus on an element as a starting point for their work.

The big question that may arise when trying to establish the design of the product presentation would be to understand before how the consumer's brain responds

to the presentation of the product and how this can help to create better experiences and establish a better contact with the consumers.

Neuroscience has already pointed out certain elements that brands and companies have to deal with when working with the packaging of their products. One of them, and perhaps the one that could be more surprising, is that they have to work at a multisensory level, since perception works in that way. This means: instead of staying with an element or focusing on the usual and obvious ones (as is the visual element) you have to work so that many more sensory elements come into play. The good packaging, which really works, takes into account the color, smell, touch or sound when creating the design.

Using these elements in combination can create much more attractive and much more memorable experiences. Using it wrongly can even make the products work worse.

Of course, despite the importance of visualizing the product in a multisensorial way what should be done, visual elements should never be forgotten. Typography and color have a very important impact on how we see the product. 90% of our purchasing decisions are modified by our perception of the colors of the product, its packaging and the meanings associated with them. The typography also allows to give information about the product and the brand values, since each of them is associated with certain ideas. Neuroscience can improve this impact thanks to a much more efficient packaging.

The products from animals, for example, are being redesigned to enhance not only the usefulness but the emotional charge: as the relationship with pets becomes closer in society, the emotional charge is more efficient to increase sales.

(Neuromarketing in Packaging, 2018)

1.5.6. Neuromarketing: Fear

One of the most powerful elements when it comes to making consumers react is fear. There is more to think about what can be found in the aisles of any supermarket to understand the power of fear as a motor of consumption. The supermarkets are full of yogurts to prevent cholesterol, of fresh products that sell the idea of a healthy life or dairy with extra calcium to strengthen the bones. The products are selling protection against those things that scare us, because consumers want to shield themselves from these potential fears.

But the truth is that fear does not only work at that level, it can not only make us feel that we must consume certain products, but it can also function as an inhibitor of consumption. And here you can put many fears and many elements that can weigh on the execution of brands. In fact, that same fear of the future that leads consumers to get healthy food and products that are sold as healthy has had a direct impact on other products and other consumer habits. In reality, it is an application of fear of pain, a psychological principle that marks many of the buying patterns.

The fast food chains have experienced in recent times a decrease in sales due to some demographic groups that had internalized the concept of “Fast food is bad” and had therefore changed their consumption habits. But they are not the only ones: we can observe what happens when a food, a product or an ingredient suddenly becomes a cursed element. For example, it has happened to pork, gluten and sugar. These goods have been starring in different articles and different alerts that has generated a climate of fear of this product and has caused consumption to decrease.

Consumers hate the breaks and hate having to throw themselves into the incognito, which creates a certain tension and it is what ends up generating fear.

It is not the only fear that can be imposed. For example, fear of change can block consumers and prevent certain products from being purchased or certain things not being tested. Consumers hate breakdowns and hate having to throw them-

selves into incognito, which creates a certain tension and what ends up generating fear. If brands are not able to establish tools to curb that fear, they will not be able to surpass it and successfully distribute their products. According to neuroscience, the best way to attack fear is to offer information. The more information you have about what is going to happen, the less the consumer will fear the change.

Neuroscience can help to understand very well how certain mechanisms of fear are activated and how they push us to reject certain elements and certain patterns of consumption. Fear and memory of something that has been negative are powerful blockers of purchase decisions. Anyone who has had a bad experience in a restaurant will know what they are talking about: when in a restaurant one suffers from food poisoning, the experience is well recorded in the memory and becomes one of those triggers of fear. When you think about going back to that restaurant, for many new elements that are added, you will always return to that initial memory and that feeling of fear that will imply a rejection of the consumer experience.

This happens because a warning message is being launched from the hippocampus. When something around us recovers a memory of something negative, something that has caused pain, the hippocampus sends a warning to avoid that scenario. What the neuroscientists have just discovered is that on those occasions the part of the brain that activates that scenario is activated (that is, a danger alert is sent). This makes the brain make a very quick decision to avoid what is associated with the experience that caused pain.

Therefore, applying it to what brands and companies can do, negative experiences become a terrible element for their future results, because when the consumer tries to relate to the brand again he will feel bound to what It happened in the past. Returning to food poisoning, every time the consumer confronts that restaurant and even the type of food he ate there, his hypothalamus will send him a warning of danger and he will recreate himself in the two days he had to spend in bed recovering. After this signal, the consumption decision is clear: the subject will not return to that place. (How to Market to the Reptilian Brain 2015)

(Neuromarketing: The anatomy of fear, 2018)

1.5.7. Neuromarketing: Curiosity

One singular characteristic of human beings that we can not omit is the curiosity. We want to know, meet, discover... It can be described as an intrinsic primal need that leads us to want to discover the reasons of why things happen around us or ourselves.

In fact, we perceive ourselves as great strangers of everything for several reasons. Among these reasons, is that there is too much to do and discover.

During the process in which we want to transmit a concept to the market as brands, we have to take this into account. This is highly recommendable since we have variables perfectly attached to curiosity such as consumer preferences, their needs or wishes, their expectations, their previous experiences, their level of previous satisfaction, their longing to discover something new, etc.

Curiosity can be perceived under this prism as a fundamental and incredible factor for the whole process of marketing and, if we manage to use it efficiently, our strategy will be endowed with a differentiating and motivating component of sensations and perceptions that are impressive to the consumer's eyes.

It is clear that curiosity has to play a role in its proper measure and we should not push its use to the limit. Small doses of curiosity generate small uncertainties and sparks that are able to awake mental activity, in which the consumer has the feeling that something positively unexpected will happen.

In a neuroscientific approach, curiosity activates the brain's reward system, which secretes dopamine. Dopamine is a hormone and neurotransmitter, released by the hypothalamus. Dopamine has the bad reputation of being a neurotransmitter related to addictions, since this hormone is released when smoking, drinking and other addictive activities.

Dopamine is also the substance of feelings, it increases euphoria and pleasure. When we fall in love, the brain secretes also generates large amounts of testos-

terone that increases sexual desire. Knowing how to properly use this information in a marketing campaign could be a clear differentiator between success and failure.

(The Power of Curiosity in Marketing, 2019)

1.5.8. Neuromarketing: Mirror Neurons and Empathy

Mirror neurons are activated when we relate and empathize with others. These cells are located in the lower frontal cortex of the brain, close to the language area and are activated from birth. For example, babies constantly imitate the gestures of adults, which is key in learning. This has been the basis of multiple studies on the relationship between language and imitation of gestures and sounds. Basically, these neurons are essential in the development of our social life. It creates the necessary mechanisms when it comes to understanding the intentions of others.

Because of the close link between these neurons and the action of imitating, these neurons are called a Mirror Neurons. In short, these neurons reflect the actions of one individual in the brain of another.

A clear example of what was explained above is when we observe someone yawning, we most likely end up doing the same action. Clearly these acts of imitation are unconscious and, even though all the behaviors we observe are repeated in our brain, we do not externalize all of them.

After the previous explanation of what mirror neurons are, we can deduce that thanks to them it is possible to empathize with other people. When applying it to the field of marketing and advertising, the function and activation of mirror neurons is clearly defined when we get excited by testimonial advertising, feeling sad when a person cries in an advertisement, smiling and feeling joy when a boy or a girl appears smiling in any graphic advertising, feeling buying impulses when we see images of people satisfied with a product, ... All these situations are influential and determinant in the purchasing processes. With this in mind,

situations that activate our mirror neurons are created so that as a final result there is a situation that facilitates the action (for example, the purchase act).

The search for empathy channels is a key strategy that today is used in the world of marketing to achieve objectives. Empathy is the main reason why the body and the brain act in a certain way. This means that the purchase is activated when you want to develop the same activity or imitate the same behavior that is being observed.

How many times have we bought something that we knew we were not going to use but that the character who wore it on TV looks great? Why do we acquire a good / object out of necessity because of what it makes us feel or be? ... And thousands of other questions similar to these could arise when we try to respond to the fact that, nowadays, we are looking for different gratifications in consumption.

(Mirror neurons and your brand – what's the connection?, 2018)

1.5.9. Neuromarketing: The Consumer Journey

The consumer, during the purchase process, performs various activities that have been classified in stages. From a stimulus, which can be internal (as a physiological need) or external (induced by advertising, media or their peers), the consumer experiences a need that leads him to seek information and use the one he already has based on his previous experiences, to consider the available options and make a decision. We can call this process the consumer's journey and it varies according to the business category and the market segment. For example, in impulse purchases, such as the sweets found in supermarkets, consumers do not seek information but use what they have to decide the purchase at the time. It is in those goods and services where the disbursement or the risk of being wrong is high where the consumer looks for information conscientiously and compares options.

The consumer journey has changed radically in recent years. The current consumer has access to information, not only through media and advertising (traditional ways where their role was passive), but from their peers. Now it is an active information seeker and expects the brand support in that process. In many markets there are more available brands and much more information about them. We can also find new ways to search and recommend products. Old models of consumer behavior can lead to wrong conclusions because that consumer trip is rarely a linear process. Knowing the main changes that drive new technologies and a more connected consumer can provide opportunities for the brand. Now we are stating and defining the main steps of the consumer journey:

1. Identification of the need:

The consumer's journey begins with the identification of the need. This need is experienced from a stimulus, internal (physiological need), or external (social context, advertising, etc.). Some entrepreneurs who identify non-attended needs in the market fail because they do not necessarily translate this need into a consumer's desire and, furthermore, into a specific demand for a product or service. Electronic media are important external stimuli, either in the form of interactive advertising or content in digital media. In this first stage of the consumer's journey, electronic media are a means of communication in addition to traditional media, but with greater power due to the volume of content generated by users and their portability.

2. Information seeking:

When the consumer starts his journey, he starts from his previous experiences in order to form a criterion or standard. That is why experiences are key in current marketing, among other reasons. Likewise, this consumer is guided by the recommendations of their friends and family. With the rise of electronic media, however, the scope of these recommendations is greater, extending to people who do not belong to the social circle of the consumer through reviews and social media. Search engines also play an important role in this stage. It can be said that it is at this stage that the impact of electronic media has been greater.

3. Evaluation of alternatives:

Along with the search for information, the evaluation of alternatives is one of the stages where the Internet has had the greatest impact. Not only for accessing more options, but for the possibility of comparing them efficiently. The consumer wants options and therefore many ecommerce sites and applications allow comparisons to be made, which otherwise would be more difficult to perform. In addition, the social component of the network allows the consumer to take into account the opinion of others.

4. Purchase decision:

Once the consumer obtains the necessary information and evaluates his alternatives, he proceeds to make the purchase decision. Current consumers can buy at traditional points of sale or through the Internet. They even interact with different types of channels before deciding to buy.

5. Experience evaluation:

This evaluation by the buyer can be given formally in an ecommerce site or reviews, or informally in networks and social interactions online and offline. This evaluation is fundamental because the recommendations are one of the big influencers of the purchase on the consumers. Unfortunately, nowadays not all these evaluations are reliable since there are companies who corrupt or pay random internet users to provide a positive review and often inaccurate.

In conclusion, consumer's behavior has changed and continues to do so. Knowing properly the consumer's journey in your sector allows you to identify how the brand can support this process in your favor, such as, for example, the development of content that facilitates the purchase decision. Brands must understand what types of content are relevant when making decisions, at what stage they are necessary and in what platforms they should be published.

(Pradeep 2010, 113-117)

1.6. Brand Factors

1.6.1. Brand Essence

Each word has an exact meaning but each of us understands it, associates it and visualizes it in different ways. Even for those terms that seems, at first, there is little interpretation.

Not everyone thinks the same way when they mention the word truck, stone or water. In our mind a “light bulb” is illuminated and in front of that word there is an image that is the result of our own interpretation.

Logically, there are millions of different stones, different types of trucks and the water is infinite and adaptive. However, we have to choose an image that represents it to understand the concept. Then the details will come consequently.

When we speak of intangible terms, the situation is way more complex (loyalty, innocence, sweetness, etc.) What do these words really mean? Why do we find each of these words so attractive?

We can find many definitions of the word Essence. We could take, per example, the one given by Collins English Dictionary: "The essence of something is its basic and most important characteristic which gives it its individual identity. "

In extrapolation, we can say that the essence of things is the equivalent to the spirit of human beings, the inalterable and permanent. In the other hand, we can find a big difference in branding: the essence of a brand can be renewed, evolved, perfected and if it is done improperly, destroyed and reinvented.

The process of construction, reconstruction, restoration or remodeling of the essence of a brand is at least as complex as the development of the product or service.

Identification, one of the key terms in this discipline. We could assume that what identifies a brand is its name and its logo, but we would be wrong. The maximum identification degree is found in the essence of any brand. The essence is not necessarily always positive, in the same way as that the spirit of a person could not be.

As human beings, our name, represents us. Our features and appearance, our packaging, make us recognizable to the eye. Our character, personality, values, knowledge and other intangible factors identify us in depth. These aspects make us unique, unmistakable and inimitable.

The brand does not live only by its appearance, although it is undeniable that the better it has been taken care of, the better it will be valued. Think of some of the biggest brands of all time and we will realize that their logos and denominations are not particularly a clear representation of its product (BMW, VW, HP, IBM, Samsung, LG, Emirates, Coca-Cola). However, there are geniuses who manage them. They have filled them with a special, unique, attractive, different essence.

In order to construct this essence, NeuroFocus proposes a new approach in which the brain is analyzed while the experience of a product is in progress. The aiming of the brain screening is to identify the peaks in which our subconscious reaches significant high points or maximum satisfaction. With this information, we will be able to track which of these moments during the experience have triggered these brain reactions. Therefore, the brand essence could be built around improving the factors that led to these moments. NeuroFocus labeled these brain imprints as Neurological Iconic Signatures (NIS).

The purest essence of the brand is made up of its values, its intangible benefits and its emotional differentiators.

The intangible benefits are an added factor that makes us dream and multiply the value of an object or a service: exclusivity, elegance, personality...

The differentiators, those that make a brand unique, are the most difficult to acquire. They can be simple nuances or arguments of enormous weight. They can

be the result of many years in the market or the consequence of an unbeatable imagination. They can be extremely hard to describe in a single word or even in a book.

(Pradeep 2010, 119-134)

1.6.2. Brand Loyalty

Within the study of consumer behavior, there is a section called brand loyalty. For many it can be considered an error, but for other brands it works as your cover letter. Brand loyalty is demonstrated through repeat purchases that are the result of a well-grounded link between the business and the customer. The brands that achieve this can presume that they have a powerful influence on the lives of their customers.

When this link is strong, the brand goes from having current customers to loyal customers, who act as ambassadors to promote the products without expecting anything in return.

As previously stated, in order to be loyal to something, you need to have confidence in it, so these two elements go hand by hand. When a brand achieves the moment when the client has the sufficient confidence to acquire one of its products, it is taking a step closer to transform a regular client to a loyal client.

A good practice consists on adding some value in each of the stages of purchase that your client will experience. The more confidence the customer has towards your products, the more loyalty there will be to your brand.

All purchasing process is formed by phases that the client is fulfilling, until reaching the final point that is the payment for the product. Afterwards, post-sale customer service actions take part in order to maintain their satisfaction and thus begin to turn it into a loyal customer.

These are crucial stages in order to develop an effective after-sales strategy:

1. The consumer is still considered a potential customer - At this stage, the customer is in search of the product and has not a clear idea about his best option. He/she is looking for something that makes him keep a brand. Some are probably running away from a brand that has given them poor customer service or because the product has not met their requirements.
2. The consumer has detected your brand as an option. You have appeared on the customer's radar and are now interested in knowing more about your products and what you have to offer to them. Maybe you found some advantage in your business over your competition.
3. The consumer becomes a customer. It is no longer just a person looking for something in your store. Now he/she has found something of his interest and has preferred it over what the competition offers.
4. The customer acquires the product. He/she has decided that you are the best option and has acquired some of your products. At this stage, customer service plays a fundamental role in getting the customer to jump from regular customer to loyal customer.
5. The customer returns to repeat purchases. The customer is a follower of the brand, consumes the products and recommends them. Returning to make a second purchase shows the interest in remaining a client for a longer time. Therefore, it is time for you to apply and pay attention to their behavior, so you can create actions that keep you comfortable with your brand.
6. The customer repeats the purchase and generates recommendations. Now we can say that the customer begins to demonstrate his loyalty to the brand. Maybe at this point you feel that you already have your loyal customer, but that will not be seen until one of your competitors arrives and puts in front of the loyal customer something that can conquer him/her.

By having loyal customers means that the activities that the competition does to achieve their attention will not be successful. In fact, the customers probably do not even consider these alternatives interesting. Therefore, having loyal customers represents a barrier to the competition.

In addition, the costs of searching for new customers can be decreased. We have to keep in mind, that while it is necessary to have promotion strategies for potential customers, it is much cheaper to implement strategies to retain your current customers. And even if there are price changes, loyal customers are less sensitive to these changes which allows the brand to have a slightly wider profit margin. However, the increases in prices can be considered as an abuse and loyal customers can end up turning their back on the brand.

The recommendations that come from loyal customers are free publicity, so consider that any action you take to have loyal customers is an investment in the future to have word of mouth advertising that will not cost you anything. Having loyal customers increases your reputation in the environment. The conversations of happy and satisfied customers make a big impact. Having loyal customers can be the difference that makes your business better positioned in the market.

(McEwen 2005, 99-106)

2. Empirical Research

2.1. Introduction

We have reached the part of the thesis where we are going to be approaching the empirical research. This investigation will be combining qualitative and observational methods. These approaches will be used to face the existing question in the marketing field around the world: Are Neuromarketing techniques feasible and directly applicable? Are marketers open to the idea of including it to their businesses?

Various books and articles have been published but still seems that a considerable amount of businesses are not ready to give it a chance. Logically, with change comes fear and this is an ultimate mechanism of defence from the human brain, that many professionals must overcome in order to advance as marketers.

The qualitative method will provide us with the opportunity of understanding the reasons why these marketers have chosen to join or step back from Neuromarketing technology. It will be based directly on case studies from a number of companies, in order to observe and notice the differences in the implementation of the products and the marketing campaigns. The companies that will be taking part of this research will be announced in the next chapters.

The quantitative approach could have been possible using data collection processes such as surveys. In this academic investigation, the subjects are probably not aware of the Neuromarketing technologies and techniques and it would take a considerable amount of time to get them to understand the concept and familiarize them with it. It will also be possible to deduct more information from the material they have provided and, therefore, make the thesis research well-rounded. For this reason, the quantitative research methods have been discarded.

Pointing back to Neuromarketing technologies, there are some other analysing tools like Eye Tracking and Facial Coding that have been avoided during my research. These technologies can be afforded by small to medium companies and

do not represent a challenge in its use. However, EGG and fMRI are more expensive technologies that few companies can afford but it makes a difference on the quality of the collected information. Moreover, statistics point that the price of these technologies will decrease with the spread of Neuroscience in the marketing field in a very near future. For this reason, modern businesses should consider the incorporation of these technologies to improve their marketing campaigns.

A set of finely implemented questions, backed up with the information that you can find in the Theoretical Framework chapters, will be used as a guideline to assess the products, websites and other marketing tools used in these companies to promote their crafts. These questions will be weighted up with scales that will determine the degree of concordance with the proposed questions.

In the next paragraphs, these questions will be addressed with a previous short explanation of the most important factors to take into account in order to find answers.

Question number 1:

How familiar is the company with Neuromarketing techniques?

Scale used: 1-10

Question number 2:

It is demonstrated through Neuroscience that consumers engage in rational processes before the emotional ones. This means that the emotional processing done by our subconscious has the last word in our purchasing decisions, since it is connected to our primal needs. Which emotions does the product appeal to the consumer? Could the product be attributed with more positive emotions?

Scale used: 1-10

Question number 3:

The "Reptilian brain" is the one in charge of our primal needs. To appeal to this side of the brain, the message needs to be clearly understandable by our sub-conscious. The message needs to quickly demonstrate that the company understood the consumer's pain and are ready to fix it. In this context, is the message clearly and easily understandable? What could be added to the message?

Scale used: 1-10

Question number 4:

Most of the information that our brain perceives is visual. The sense of sight is the most used of our five senses and colours are a part of it that has a big repercussion to our interpretation. The visual marketing is also the most lasting one because of the human's photographic memory. Does the colour of the product represents the ideas behind it? Is the shape and size visually appealing and appropriate for its use?

Scale used: 1-10

Question number 5:

What other sensorial attributes are linked to the product that makes it special (smell, taste, touch, hearing)? Would it be possible to add more?

Scale used: 1-10

Question number 6:

Neuroscience technologies, that normally have been used in the medical field until now, are starting to take place in the marketing field. Brain analysers like the Electroencephalography and fMRIs are being used to track brain activity and identify these previous factors we have been talking about. It also can be used to record peaks of brain performance where the maximum brain activity is registered. Knowing in which part of the consumer's experience, the subject reaches these peaks, could most likely give us hints about how to plan the marketing

strategy. Could these technologies improve the current marketing campaigns of these companies? In which way?

No scale used. Purely qualitative.

A standard numerical scale from 1 to 10, being 1 the lowest score and 10 the highest, will be used all over the empirical research to assess the correlation of Neuromarketing elements with each company's marketing strategy. The scale works as follows:

- 0-2: Barely no relation between marketing strategy and Neuromarketing elements.
- 2-4: Little relation between marketing strategy and Neuromarketing elements.
- 4-6: Decent relation between marketing strategy and Neuromarketing elements.
- 6-8: High relation between marketing strategy and Neuromarketing elements.
- 8-10: Excellent relation between marketing strategy and Neuromarketing elements.

In the next chapter, my findings from each of the case studies will be reported using various illustrative and clarifying methods such as statistical charts and tables.

2.2. Findings

The companies that have been selected to tackle this research are as follows:

- Black Eye Lens

- Landola Guitars
- Papu
- Food Duck
- Ägräs Distillery
- Warrior Coffee

All these companies are small Finnish start-ups, some bigger than others, trying to get well positioned in their respective market fields.

First Question:

The aiming of the first question is testing the awareness and familiarity of the chosen companies about Neuromarketing technologies and its use. Some punctual questions might be approached differently depending on the quality and composition of the products and campaigns. Since this is an observational research, special attention will be payed concerning the level of detail of the products and websites in order to notice some differences in its implementation.

In the next chart, the level of awareness of the companies can be visualized in a scale from 1 to 10. The value assigned for each company will be explained in a more detailed way afterwards.

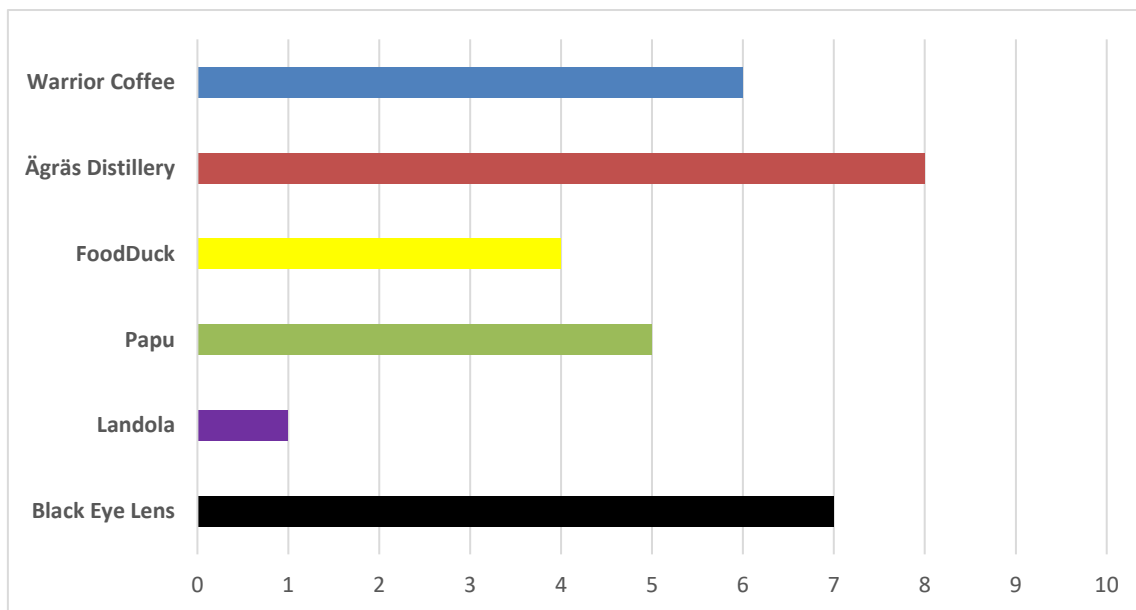


Table 1. Level of Awareness.

First of all, we have a company that makes organic coffee which composition consists on quality coconut oil and clarified butter. The product comes in handy disposable bags that are easy to carry and use. They also offer other products like tea, coffee making related machines and accessories.

Warrior Coffee has a score of 6 out of 10 in the level of awareness. They are aware of neuroscience practices and that can be noticed in the packaging of the product and the design of the website. The main factor behind this is the simplicity. The choice of colours is assertive. Also text, images and graphics were well positioned. Altogether, gives you an impression of neat visualization. All these concepts will be approached in a more detailed way while going through the next questions.

The second company that has been chosen for this research is a distillery located in Fiskars, known by the name of Ägräs Distillery. This distillery offers a line of alcoholic beverages that consists on Gin, Whiskey, Long Drinks and Aquavit, a traditional alcoholic drink from Scandinavia. They also offer experiences for visitors such as tours, tastings and restauration services.

The score that will be given to this company is 8 out of 10. The company seems to have a clear and concise idea of Neuromarketing techniques. When looking at the products and website in particular, you can instantly notice a clean design that provides with feelings of calmness and serenity. This cleanness also provides you with trust towards the product that might lead to a strong brand loyalty, in case the taste is accorded or exceeded to expectations. The focus was mainly aimed towards the sensorial development that would lead to a satisfying experience. All these factors together led this company to obtain a remarkable grade in Neuromarketing awareness. The reason for not obtaining the highest score is that Neuromarketing technologies were not used, although Neuromarketing elements were evidently present in the product and service presentation.

The third company taking part of this research is FoodDuck, a firm that produces spread dispensers for alimentary purposes. The company is mainly aiming to sell their products to hospitality establishments such as hotels, canteens and restaurants, schools, day care centers, hospitals, professional kitchens, etc. For this simple reason, FoodDuck could be considered for the most part a B2B business.

When it comes to assessing this company by its level of awareness, it goes down to 4 out of 10. The dispenser seems easy to use and the website was designed in a way that would easily involve you with the company and its ecological practices. Still it lacks with many components that would make it more convincing and visually appealing to the customer. These components will be addressed in the next questions. By the clean and ecological side, the company tries to connect with the customer through environmental ethics, trying to appeal to the side of the subconscious that defends the idea that we all have a responsibility towards nature.

The fourth company that has been considered is Papu, a clothes seller with online presence and international shipping service. The company main customer target group are new born babies and toddlers from early ages. They also offer clothing products to women and you can choose other complements from a wide range of accessories.

Papu scores a grade of 5 out of 10 in Neuromarketing awareness. The products and website are also designed with a simplistic approach. In comparison with other websites, the predominance of white spaces and areas between items is the main factor that advocates for this simplicity. The clothes are organized by campaigns that have been inspired in many glamorous cities such as Paris, Tokyo and Berlin. This brings to the customer the possibility to experience these fashion trends by just making an online order.

Landola is a Finnish luthier company specialized in guitar handcrafting and selling. They also sell guitar parts and other accessories related to acoustic and classical guitars.

Landola has a score of 2 out of 10 in the awareness of Neuromarketing elements. The guitars are quality crafted instruments with a fine wood choice and well selected electronics. The problem does not lay in here, but in their advertising and online presence. This company has put little to no money in their company and products promotion. No official social media pages could be found, neither any advertising campaigns related to their products. The website is poorly designed and no interest was shown in the brand growth. It is hard to navigate and is visually unattractive. Customers that are not aware of the quality of these products, will most likely not give a chance to their guitars.

Black Eye Lens is a company that produces and sells equipment for professional mobile photography and video making. Their star product is a camera lens that can be attached to your smartphone through an incorporated clip and enhances the capabilities of the phone camera.

Black Eye Lens stands an awareness score of 7 out of 10. The product fixes one important pain that professional photographers and video makers have been facing for a long time: the need to buy expensive equipment in order to have a professional quality in the outcome of their work. With these cheap lenses, your smartphone camera can be turned into a powerful tool that will take photos and videos at a professional level. The website is beautifully designed, with vivid colours and breath-taking pictures. More details will be addressed in the next parts.

Second question:

The main goal of this question is to analyse the emotional involvement consumers will face when experiencing the company's products. Furthermore, a product will be weight up to determine if more emotions could be attributed to the product/s in order to make the experience more fulfilling.

In the next chart, we will be able to visualize if the product is optimized in order to appeal to characteristic emotions that are triggered by our subconscious. Information about these emotions can be reviewed in the theoretical part. Afterwards, already existing emotional sides of the products will be described in a more detailed way. In addition to this, which emotions could be added will be mentioned and, also the means to implement them.

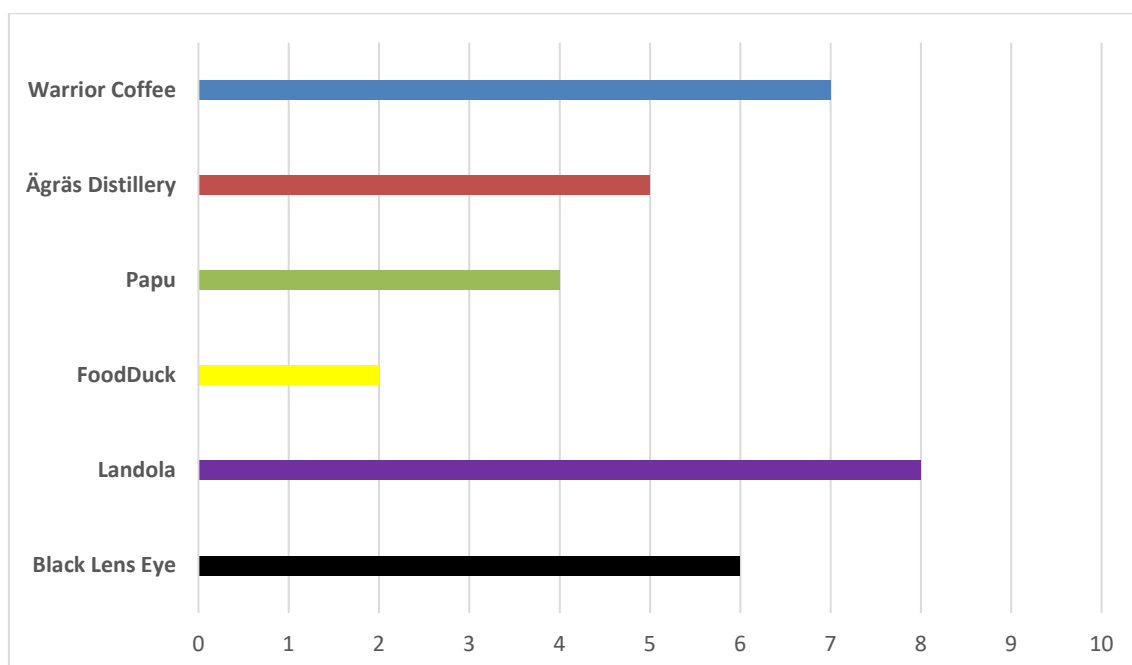


Table 2. Level of emotional involvement during product's experience.

Warrior Coffee has an emotional involvement score of 7 out of 10. The way the package is sealed points that the customer anticipation will increase and, therefore, lead to surprise, even though he/she is aware of the content of the package. The product's slogan could be added in the packaging in order to increase admiration.

Ägräs Distillery has an emotional involvement score of 5 out of 10. The simple design of the bottle triggers emotions of trust and serenity. In this product, a short

but powerful slogan could also be added in order to boost the feelings of trust and serenity.

FoodDuck has an emotional involvement score of 2 out of 10. The FoodDuck dispenser comes with the lowest score among the six companies in emotional involvement. The design of the product hasn't been taken care of properly. It basically looks like a toy, since the quality of the materials look cheap (plastic mostly). Restaurants and hotels are seeking visually attractive and luxurious products that will combine well with the background of their buffet. Unfortunately, this doesn't meet these aesthetical needs and the only fit possible would be in a day care center or canteen.

Landola has an emotional involvement score of 8 out of 10. The customer gets a quality product that instantly produces in the consumer feelings of amazement ecstasy and trust. The consumer can't wait to play the first notes and feel the resonance of the instrument. To boost even more the emotion of trust, considerable marketing work must be done in their website and advertisings.

Black Eyed Lens has an emotional involvement score of 6 out of 10. These genuinely built lens are an innovative product in the field of photography that already produces amazement among the buyers by its own idea. In order to increase acceptance and expectation among customers, a more adaptive design could be implemented for the clippers.

Third Question

In the third part of the research findings, company's slogans will be discussed in order to detect possible flaws regarding fixing the consumer's pain. Also the message simplicity will be assessed by its easiness of being rapidly understandable.

In the next chart, the level of the message simplicity will be quantified. Also part of the grading will be covering the fact that the message is clearly informing the consumer of its benefits.

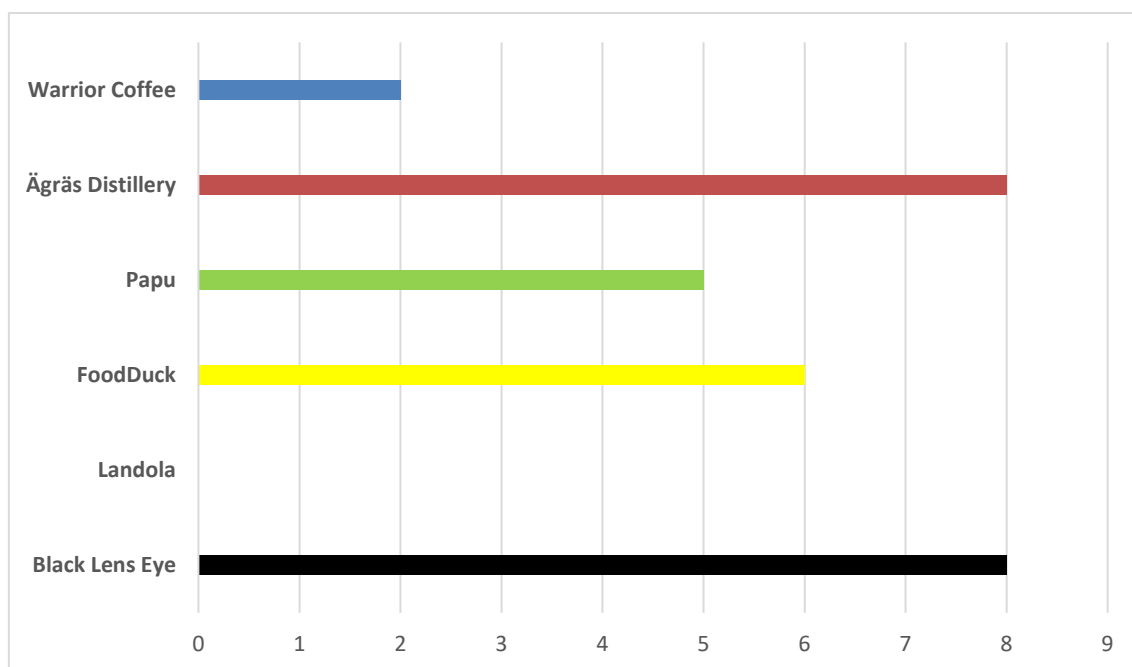


Table 3. Level of message's simplicity.

Warrior Coffee has a score of 2 out of 10 in this part of the research. They don't have a signature sentence or slogan that would differentiate them from the competition. Their sub-brand of roasted coffee "Death before decaf" is trying to appeal to the side of the subconscious that their coffee is so high in caffeine that will not leave you halfway throughout the day.

Ägräs Distillery has a score of 8 out of 10 in the message simplicity. Their slogan "Crafted by Finnish Mother Nature" gathers concepts such as "tradition, simplicity, cleanness and organic" in one sentence.

FoodDuck has a score of 6 out of 10 in the message simplicity. The reason of not being awarded of a higher score in the message simplicity is that they used many sentences that could have been put altogether in one simple and concise slogan. "Number one in spread dispenser", "An ecological, cost-effective and hygienic choice" and "At home everywhere" are some of the slogans used to describe this dispenser. An example of short but powerful slogan that would gather all these concepts is: "The cleanest cost-effective option with you, wherever you go"

Landola has a score of 0 out of 10 in the message simplicity. No slogan has been found during this research.

Papu has a score of 5 out of 10 in the message simplicity. With the slogan “There is no distance” the brand is trying to transport the fashion trends from all around the world right to your home. Is hard to imagine that this message would be simpler than this but it is incomplete. Some references or point outs should have been done towards the material and manufacturing quality.

Black Eye Lens has a score of 8 out of 10 in the message simplicity. With this message “Our mission is to enhance the mobile content creativity experience through great products that fit any mobile device.”, the company is trying to inculcate in the customer feelings of trust and seriousness. This was intended by a proper use of grammar and vocabulary that would explain in the most complete the most important needs that the product is covering.

Fourth Question

The objective of this chapter is to assess how well companies have used the colours and shapes in the visual marketing side of their products. Each colour has a certain feeling or mood associated to it. Knowing which one to use in order to trigger the intended feelings in the consumer is a vital part of the success of the marketing strategy. Neuroscience has covered these claims and can be reviewed in the chapter “The power of five senses”.

In the next chart, we can visualize how well the products have been visually optimized in order to project the feelings they were intended to.

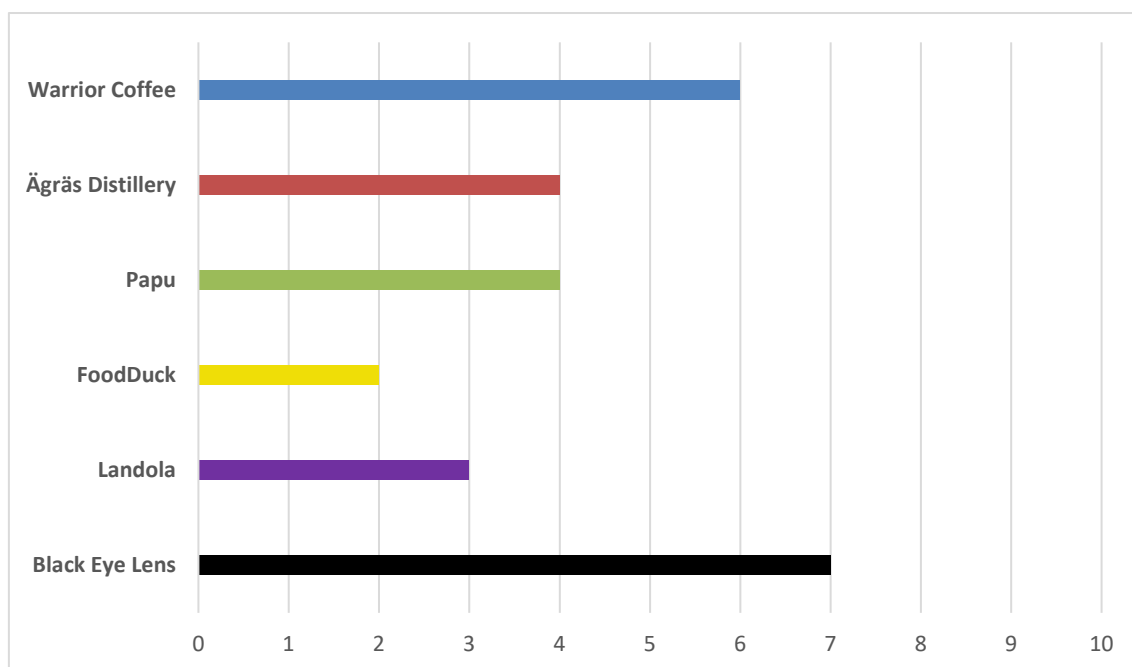


Table 4. Level of optimization of visual marketing.

Warrior Coffee has a score of 6 out of 10 in the level of optimization of visual marketing. The dark coloured packages of coffee beans connotates to feelings connected with quality and luxury. Concerning shape and design, a small handle or gap for hand placement could have been added. This would increase drastically the portability comfort and costs of implementation would not be high.

Ägräs Distillery has a score of 6 out of 10 in the level of optimization of visual marketing. The amount of curiosity in the customer could be improved by adding a simple two words sentence that would point out the special characteristics of the taste. The design, as discussed beforehand, is simple. The choice of one colour for each bottle and the fact that decorative elements are limited give the sensation of quality craft.

Papu has a score of 7 out of 10 in the level of optimization of visual marketing. The clothes have regular colouring options and do follow a pattern depending on the campaign. This tends to avoid confusion among customers and gives the impression that the implementation was well planned. However, special attention must be payed on the sizing for each continent. Not sticking to universal size standards will make customers disappointed in the brand and will opt for a another option in the future.

FoodDuck has a score of 3 out of 10 in the level of optimization of visual marketing. In the neurological approach, orange is not the most accurate choice for a spread dispenser. If the feelings that are intended to be drawn are connected to quality, cleanness and ecological, a green tone would have been more appropriate. Orange indicates excitement, enthusiasm, and warmth. It also can call to mind feelings of refreshment. However, since this is not a drink or beverage dispenser, other colours could have been used.

Landola has a score of 4 out of 10 in the level of optimization of visual marketing. The guitars have a rich tone in the wood colouration, but the lack of marketing elements and quality is superior. However, the lack of marketing elements is a serious drawback that also affects this part of the research.

Black Eye Lens has a score of 7 out of 10 in the level of optimization of visual marketing. The highest ranked company in this part of the research brings no surprise. The choice of colours, simply shaped lenses and user-friendly clip makes this product a well-rounded craft to convince customers.

Fifth Question

In this chapter, other sensorial implication in the product's implementation will be assessed and quantified in the standard numerical scale, used all over the other questions. The already existing sensorial attributes will be discussed and also the possibility to add more if them.

In the next chart, the level of the sensorial implication can be seen for each company. The most important part of this assessment will be how well other sensorial attributes have been combined with the visual marketing.

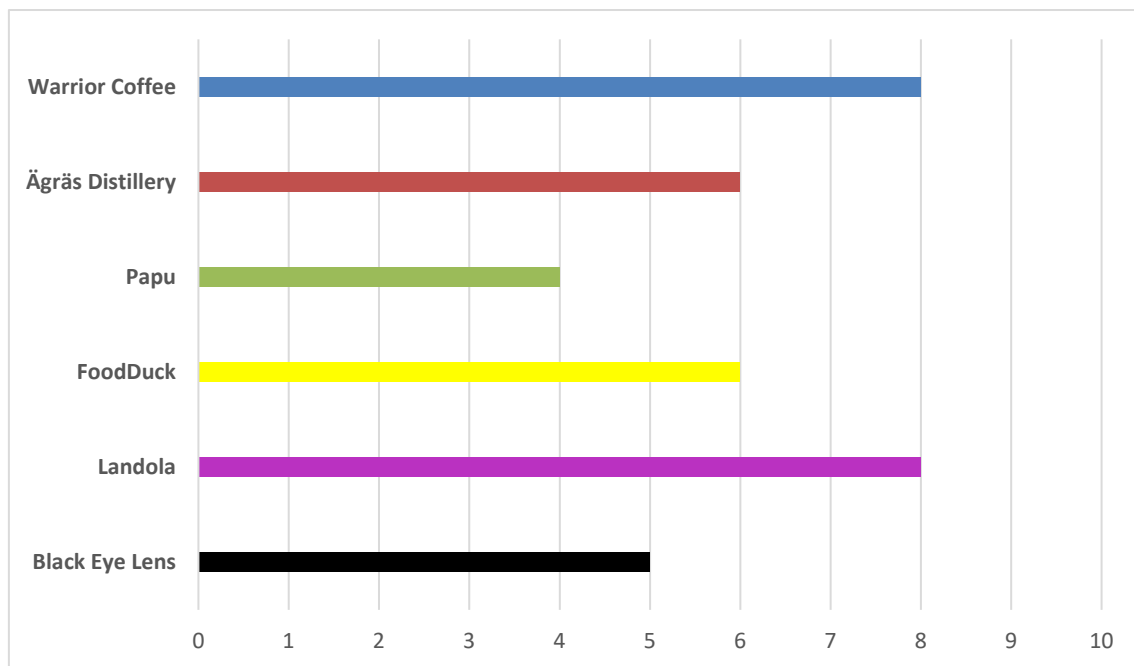


Table 5. Level of sensorial implication

Warrior Coffee has a score of 8 out of 10 in the level of sensorial implication. It is evident that the sensorial implication in their product is high. With exception of hearing, all other 4 senses are present while experiencing this product. Improving the moments when the customer engages in each of these senses will make a difference against their competitors.

Ägräs Distillery has a score of 6 out of 10 in the level of sensorial implication. Three of the senses are involved while experimenting their products: Sight, smell and taste. After the consumer being appealed by the visual characteristics of the product, the sale is achieved. Now, after this point, if we want to make a one-time customer a returning customer, the craft and quality of the beverage must trigger in the most pleasant way the senses of smell and taste.

Papu has a score of 4 out of 10 in the level of sensorial implication. Sight and touch are the main triggered senses in the consumer while in contact with their products. The sense of smell can be included as well. Most customers give a lot of importance to the characteristic smell of a new product. Neuroscience explains when that smell is experienced by the consumer, hormones are segregated in the brain that causes pleasure.

FoodDuck has a score of 6 out of 10 in the level of sensorial implication. Sight, touch and hearing are the first senses that come into play when the customer experiences the product. Customers are expecting a food dispenser to be clean, noiseless and able to conserve food efficiently. These three factors should be covered and implemented in the best possible way in order to build loyalty among customers.

Landola has a score of 8 out of 10 in the level of sensorial implication. Sight, touch and hearing are also the first senses to work when playing a guitar. Aside from quality craft, the most important factor of an instrument is the sound. This is a product where most of the efforts must be aimed for the instrument to produce a rich and warm tone. Aside from this, visual marketing and touch comes second. The product must be visually appealing, comfortable and easy to play.

Black Eye Lens has a score of 5 out of 10 in the level of sensorial implication. Sight and touch are the most important senses that are involved in experiencing their products. The lens must be easy to attach to any smartphone. This means that the most important factor here is the adaptability.

Sixth Question

This is the last part of the research. The possibility of companies adopting Neuromarketing technologies (EGG and fMRI) will be pointed out and in which moments of the consumer experience the brain might show peaks of activity. In this last question, no scale will be used. The information will be deducted depending on the product and its marketing strategy. EGG and fMRI technologies can be used by all the six companies. In the other hand, companies are not ready to spend high quantities of money in technologies that are not familiar to them. This research can help picture the benefits of using Neuroscience in the marketing field but will not be as effective as seminars, where the technology efficiency would be proven by inviting attendees to participate in the testing.

The moments of high brain activity are those that are connected with anticipation and suspense. After this, comes the satisfaction of experiencing an answer to these feelings that have been building in the subconscious. These moments can

be deducted but without the actual use of EGG and fMRI, it is not possible to know with certainty which feelings have been triggered and in which quantity.

- The moments where the consumer reaches peaks of brain performance when experiencing coffee are: during the opening of the package (smell coming out of it), the moment right before the tasting (smell of ready coffee) and the moment after the tasting (brain reaction to the taste).
- The moments where the consumer reaches peaks of brain performance when experiencing an alcoholic beverage are: during the opening of the bottle (consumer unconsciously approaches the bottle neck and smells the beverage) and the moment after tasting (brain reaction to the taste and alcohol concentration).
- The moments where the consumer reaches peaks of brain performance when experiencing new clothes are: first touch contact (checking the fabric and its quality), the moment you wear it for the first time and the visual satisfaction (checking yourself in the mirror).
- The moments where the consumer reaches peaks of brain performance when experiencing a food spread dispenser are: visual satisfaction (feelings triggered in the brain by the aesthetics of the machine), touch feeling when pressing the button or the touchscreen and moment when the food is being spread (Sight and hearing senses are maximized during this moment).
- The moments where the consumer reaches peaks of brain performance when experiencing a new instrument: visual satisfaction (feelings triggered in the brain by the visual aesthetics of the instrument), moment when you hold it in playing position (feelings from the sense of touch are maximized in this moment) and the sound experience (after playing the first note).
- The moments where the consumer reaches peaks of brain performance when experiencing the lenses from Black Eye Lens are: during the opening of the package, when attaching the product to the smartphone and the

moment right before opening the camera app (expectations built from the product are about to be compared with reality).

Once more, we can't know which feelings and the quantity of brain activity are being involved during those moments. The way of getting this information with certainty, in the Neuromarketing approach, is during the use of Neuromarketing technologies.

2.3. Conclusions

In the next chart, all Neuromarketing elements analysed during this research are shown altogether and can be compared.

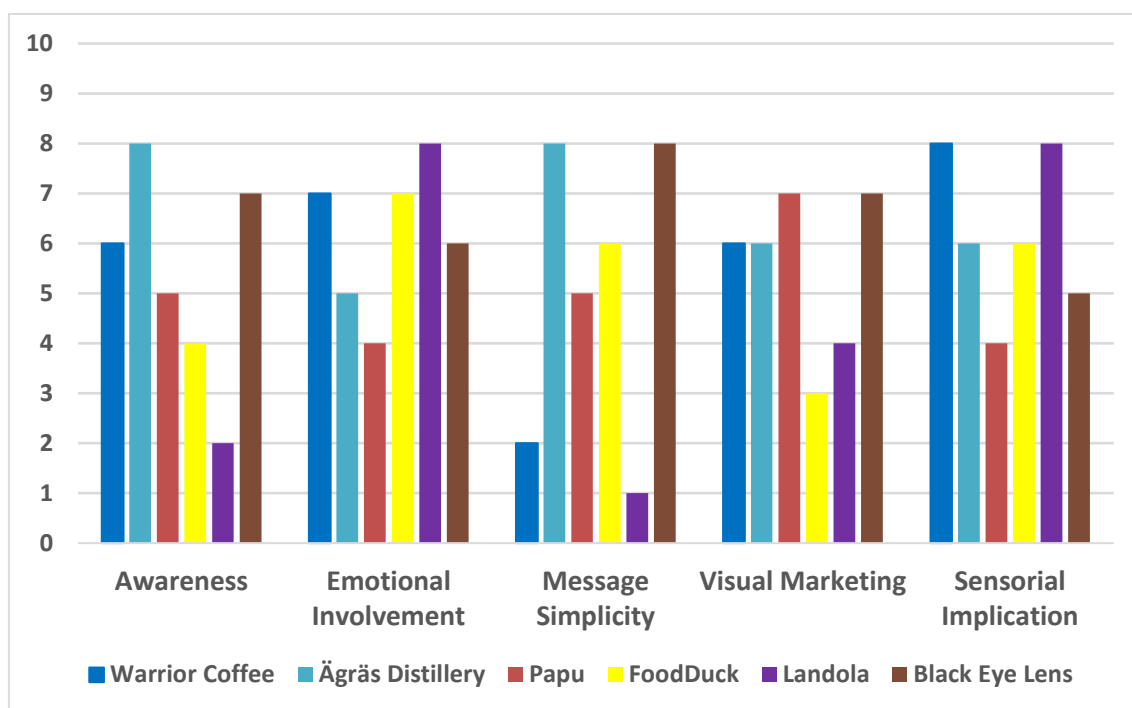


Table 6. Neuromarketing Elements

It is visually evident that Black Eye Lens has the highest score of Neuromarketing elements application. The implication of all these factors in their marketing campaign is decent to high. That does not discard the fact that even the most proficient company in Neuromarketing knowledge, would get beneficiated from getting in contact with Neuromarketing professionals. This would give them the chance

to try the available technologies in the field and, therefore, raise awareness about this topic.

In the next chart, we can visualize the averages of each Neuromarketing factor.

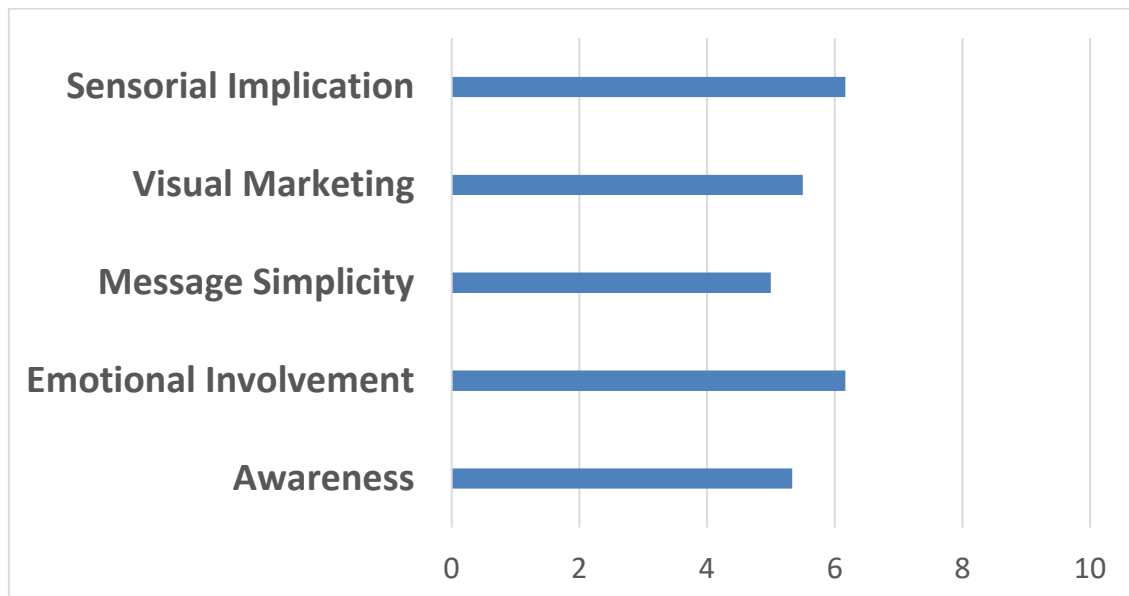


Table 7. Statistical Averages of Neuromarketing Elements

In these 6 company, taken as samples, Neuromarketing presence seems to be slightly higher than a decent score. These numbers are just a mere indicator that Neuromarketing presence needs to be increased. Furthermore, more information and data has been gathered since the research has had an in-depth approach. The reason of the choice of such a comprehensive and detailed research is due to the complexity of the subject.

Seminars and live demonstrations of Neuromarketing technologies must take place in order to prove their efficiency. These meetings will help to raise awareness and trust in this new and fascinating field of study.

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