Neuromarketing: Validity and Morality

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Abstract

The new way of doing marketing the so-called neuromarketing, which is a combination of neuroscience findings collected for and used in the marketing domain, has raised a lot of support but a lot of critic as well. The research question is focusing on whether the neuromarketing has been an approach of explaining and defining the human behavior, or whether it has transformed to an unethical manipulation of consumers in order to discover the much wanted “buy button” in consumers’ brains. Additionally issues of validity of neuromarketing researches is to be examined as well their purpose of conduction and the use of their findings.

- **Length:** 27 pages
- **Aim:** To investigate the validity of neuromarketing methods and their ethical implications as well to give an overview of the important findings of neuromarketing research till today.
- **Main results:** Neuromarketing is not yet the ultimate method of unlocking the human mind as it is claimed and there are strong ethical implications biasing the research process. There is a need for legal and medical limitations and boundaries when brain research is involved.
- **Research issue:** The research issue is focusing on whether neuromarketing is as valid as neuromarketing companies and media claim (?) and if it is what are the moral limitations and the problems arising?
- **Research question:** Whether neuromarketing is yet another effort to closer understand human behavior; and if yes how and with what results, if no, is it another practice of trickery for the business world?
- **Method:** The research was conducted using documents as data hence a literature study was adopted
- **Keywords:** neuromarketing, decision making, manipulation, buy button
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1. Introduction

It is almost one decade that Neuromarketing has entered the business and marketers world with the term neuromarketing firstly used by an Atlanta advertising firm, *Brighthouse*, in June 2002 when they announced the creation of a business division using fMRI (functional magnetic resonance imaging) for marketing research (Fisher et al 2009 p:231). Though it has still been controversial not only the research about neuromarketing but mostly the use of it as well as the results. Neuromarketing has been the combo of neurosciences and marketing practices in order to understand, predict, and eventually control human behavior, and therefore consumer behavior.

The problem with neuromarketing lays on the fact that it is not clear if it is only an academic field of research or a business practice used lately by corporations, and companies (Fisher et al 2010, p: 231). So, on one hand there are several neuromarketing companies (Murphy et al 2008, p: 295) claiming they can enlighten the “black box” of consumer behavior and on the other hand there is the very little academic or scientific approach for the validation of such claims. Therefore my research question is, whether neuromarketing is yet another effort to closer understand human behavior; and if yes how and with what results, if no, is it another practice of trickery for the business world?. As it is known, businesses are profit oriented and driven, but one should also think about consumers. Are these practices any further than manipulation or not? Are these claims of prediction of sales and preferences just about corporations’ profits? Or is it just about how science and technology have cooperated and gone so far that can explain even what a brain is thinking? It is almost scary to believe that marketers know exactly what one thinks, what one likes, what one will feel tempted from, what is the process before one buy something, and in the end what is the emotional state at any second. But as scary it may seems, it is also very amazing, in the sense of the progress of sciences and technology if it is possible. In this paper I will answer all the above questions through a careful research of articles, previous researches, books and other sources in order to provide an insight into the controversial world of neuromarketing.

In the end of this research I have focused on the validity and morality issue. Because if these practices are totally valid and accurate then they should be moral too, and have a consumer centric use and approach, so not to transform or misunderstand consumers as just experiments objects. The transparency of these researches and use of their findings is also another issue connected with the ethical aspect of neuromarketing that I will explore.
1.1 Methodology

The preferred method for the research of the issue of validity and morality concerning neuromarketing has been a literature study. The reasons of using qualitative data, such as documents, are because of the essence and the complicated nature of the scientific field of neuromarketing. With the term documents I mean articles, scientific journals and other valid data from authorized public or private sources such as institutes or universities (Bryman 2002). One can imagine how costly and how much knowledge of neurosciences would require for running a self research of the subject. Additionally managers and corporations are not willing to share their “little secrets” concerning their consumers’ tactics and approaches and consumers are not yet fully aware of these kinds of methods in order to provide opinions, or fill up questionnaires.

Since it was impossible to run a survey with actual experiments in order to prove the validity or the morality of neuromarketing practices, I used other valid methods of collecting data; literature study has some important advantages over other methods of collecting data. Firstly is a reliable source of knowledge that is not changing significantly over time, it is a low cost method of gathering data, documents are legally unassailable, they have certain limits in the sense that what you see, is what it is; no guesses or uncertainties and last, are non reactive, opposed to a human filling up a questionnaire or being interviewed (Finlay 2011, p: 142).

Certain researches that have been done in the past concerning neuromarketing effects, validation of results, brain structure and function as well behavioral studies, have been my main priority on a qualitative content analysis basis, using also semiotics analysis for the definition of neuromarketing field and neuromarketing practices (Bryman 2012 pp: 545-558). I have tried to succeed a maximum variation in the data collection following the snowball effect (Finlay 2011 p:143), where one issue or topic leads to another one, all of them from well established sources in order to defend the validation of my results in the conclusion section of this paper. In order to produce valid results, data from different approaches (behavioral, economical, managerial, medical, and psychological) were used. For example I have used the Journal of Consumer Behavior and especially the research by Hubert and Kenning 2008 “Current Overview of Consumer Neuroscience” which I found through the electronic library of Boras University.

The process followed in order to extract results, was a careful study and a critical approach of the provided data where I have searched for manifested statements around validity and morality issues. I have searched for certain statements proving or disapproving mainly the validity part and for the morality part I have studied different approaches of morality either in business of neuromarketing and in the research process itself. After analyzing the used data a critical
approach to the research question was implemented. This research is focusing on defining the essence, the use and the practices of neuromarketing with a combination of an ethical approach, something that is usually not appointed at the same time in any of my used literature. The use of other kinds of data has been avoided due to the nature of the subject as I pointed out above. At last I have aimed for valid results but also to give a deeper understanding of neuromarketing activities and their purposes with a meaningful approach to morality issues and ethics in marketing business today.

1.2 Limitations
As far it concerns the limitations of this paper it is meaningful to distinguish between methodological limitations and limitations related to the problem formalization. Methodological limitations could be the lack of any, medical or neurological knowledge which made more difficult the interpretation of results of used methods and researches. Another methodological limitation could also be the limited access to confidential data of neuromarketing companies or institutes which made even harder the search of data. Limitations related to the problem formalization could be the time restriction which made it harder to investigate two aspects of neuromarketing (validity and morality) in a shorter amount of time.

1.3 Delimitations
In delimitations are mainly included all the factors that a researcher could control and chose not to do for the formalization of the specific problem research. In this paper the basic delimitation was the chosen method of study (literature study) which limited the scope and the results extracted. Additionally the chosen scope of research only among validity and morality has limited more the research.

2. What is neuromarketing?

Neuromarketing is a new trend some would say or the new way of doing marketing for others. Managers and marketers are using neuromarketing, in order to understand, to manipulate by some, to evolve their businesses and their consumer approaches; or simpler to make consumers buy more. Neuromarketing has gathered a lot of attention in the last decade but for different reasons. Different approaches and different scientists have something to say for or against neuromarketing (Fisher et al 2009 p: 231).
2.1 Applied neuromarketing

Neuromarketing is very closely connected with another academic principal that of neuroeconomics that appeared before neuromarketing was evolved to what it is today (Lee et al. 2006 p: 199). Neuroeconomics refers to the ability of economists to account different aspects when taking an economic decision. There is still confusion whether neuromarketing is any different than neuroeconomics and if yes to what extent (Fisher et al 2009 p: 231). Neuromarketing in fewer words is the combination of neuroscience and marketing practices. Moreover it is implying the use of imaging technology (positron emission tomography PET, magneto encephalography MEG, functional magnetic resonance imaging FMRI, electroencephalography EEG, galvanic skin response GSR) in order to quantify emotions and record reactions of the human brain to different stimuli such as sound, smell, images, touch, taste and others (Lee et al. 2009 p: 199, Arussi 2009 p: 12). In that way marketers claim that can predict whether a product or a campaign will be successful through experiments using imaging technology on customers, recording their brain signals and activation.

In the book “Neuromarketing: Understanding the “Buy Buttons” in your customer’s brain” Renvoise and Morin (2002) make a categorization of three brains: the old, the middle and the new brain and there are different responsibilities for each of them. According to their and previous research the new brain feels, the middle one thinks and the old one is the decision maker; which means that neuromarketing and imaging technology explores this old brain which is a primitive organ (called also reptilian brain) and appeal with different marketing techniques directly to the decision maker or the “old brain”. The old brain according to Renvoise and Morin is responsible for our survival instincts and is making decision according to its desire for well being (Renvoise & Morin 2002 pp: 5-8). This method is supposed to offer accurate predictions as well direct results from consumer’s brain, opposed to other methods which require conscious participation of consumers. According to the supporters of these methods neuromarketing can be a safe and the only approach through which businesses can reduce losses and increase profits (Renvoise &Morin 2002 p: 2). The opponents of neuromarketing are insisting that it is a practice far beyond the acceptable practices of marketing and advertising because it is acting on a sub-conscious level that consumers are not able to control or criticize; they are basically bringing up the issue of free will and manipulation of marketing techniques (Arussy 2009 p:12). They add that consumers are not even aware of these practices because there is too little transparency when it comes to the companies using such practices and too little of the research is being published (Fisher et al 2009 pp: 233-235).

Based on the above I will summarize that businesses are in a constant hunt of the “buy button” in consumers brain, scientists in a constant hunt of exploring and understanding the human
behavior and consumers in a constant hunt of protection of their private information and their right to buy what they really need and not what they been told they need. It looks like an endless circle that is repeating itself every time new technologies are rising promising to open the “black box” of consumers’ behavior. Neuromarketing in the end it is not only a marketing approach but if it is as productive as the claim for companies it could definitely be used in the future by politicians, and governmental sectors for empowerment or propaganda, or even predicting health problems for example. The issue of neuromarketing as one can imagine goes way further than the rules of a free market; goes directly to consumers, to people, to their brains, to their beliefs. So it is naïve in the end to either believe too much on neuromarketing power or either to ignore its’ existence.

3. Why and How People Buy?

People buy mainly for two reasons. People buy either to achieve a greater feeling of delightedness or happiness; or just to solve a problem. For example food purchase is solving one of our main problems, our survival; chocolate is also food but is purchased most of the times to give a special feeling, and not simply feed us. It may sound like a wide and big simplification but at the very bottom of every purchase decision, anyone can find one of these two reasons. This is the main reason that marketing practices have evolved so much over the last four decades; (Shaw&Tamilia 2001 pp:158-161) I mean people do really need some products or services truly, but all the products or services people do buy today are not covering any significant biological need rather than social and psychological ones. So if products cannot appeal anymore to real needs of their consumers due to saturation problems, marketers add values to products, they create needs, they simpler package a whole lifestyle on a single product; so they appeal on the first level of why people buy as I mentioned above; to that feeling of satisfaction, delight, and happiness. This level of consumption, the level of enjoyment and happiness is unavoidable linked to the ideal self of the consumer (Solomon&Rabolt 2004 p: 144).

You are what you consume is a very common expression willing to give an insight of what consumers want to be. Additionally according to Symbolic Self Completion theory people tend to complete their incomplete self definition by acquiring and displaying symbols related with their ideal self (Solomon&Rabolt 2004 p:148). Neuromarketing is acting once more on this level trying to find out what people want to be and come back to them with the perfect product that appeals to their psychosynthesis and to their ideal self. Coming on how people buy we could say that psychology and therefore emotions are of great importance in decision
making process (Damasio 1994). Solomon and Rabolt insist that people buy products not for what they do but for what they mean, and here is where emotions are coming into the scene, underlying that people feel first, think after and in the end they purchase or not (p: 28). People though evaluate a lot more aspects of a product or service before acquiring it. Price policy, location, features, packaging, branding, origin, brand culture are some of them.

Now that is known how and why people buy deeper investigation in the decision making process with regards to brain activity and emotions are following. The following researches explain whether neuroscience technology can give us valid results about decision process and therefore preference and purchase decisions.

4. Validity: Researches on Neuromarketing

Two are the main criteria in order to understand if neuromarketing activities are offering the validity they claim. Firstly it is essential to see which part of our brain, to what procedure and under what factors is responsible for the decision making process of purchase. Secondly if it is know what part of the brain is responsible for the decision making process and one has the means to target this part; to what extent can predict purchases? These two principals are of great importance in the sense that can explain the whole neuromarketing nature and validity. If marketers and neuroscientists cannot target accurately the “decision maker” in ones’ head and if they cannot predict purchases then the whole idea of evolutionary technology and science of neuromarketing is going to waste. Most of the researches I have used have a scientific approach to the actual brain activity. A brief review of all of them will be presented so conclusions will be easier to be drawn. As mentioned above decision making is one of the most important attributes when discussing about neuroscience and imaging technology but there are a lot of other aspects that are equally important when validating neuromarketing practices. Prior purchases or post purchases evaluation are also very important for marketers and corporations when it comes to quantifying profit. Hence it is not only important to “force” the choice or the purchase but it is even maybe more important to create a special bond with a consumer, or a relationship that will lead to future purchases as well.
4.1 Decision-Making Process

Damasio was one of the first to introduce the communication between body and mind or brain through a neural correlation. As a neurologist he argued that the human mind is an incorporeal substance distinct from the body, as Descartes had claimed; and he insisted that the decision making process is highly connected with the ventromedial prefrontal region of our brain. This part of our brain is responsible for cognitive behavior, personality expression, decision making, and social behavior (Yang & Raine 2009 p: 2). According to research findings of Yang and Rein using imaging technology, there is a very strong correlation of general low capability of decision making or antisocial behavior with damages inherited or not at the prefrontal cortex (Yang & Raine 2009 p: 7). Coming to the decision making process Damasio (1994 p: 30-32) supported that it is an integrative process probably feelings based and not just rational, taking this as a starting point Ambler et al (2004) went through a research trying to investigate the salience of choice and neural correlates of shopping decisions. The research is characterized exploratory due to its small sample but has some interesting findings. Using a very advanced imaging method this of magneto-encephalography (MEG), found that brand familiarity was a very high predictor of choice along with quick responses (key press) for familiar brand compared to less familiar ones. Males and females also shown some differences in reaction times and height discrimination of products shown but the important finding was that there were no association of decision making process and neural activation in the frontal cortex as Damasio proposed (Ambler et al 2004 p: 257). Still Ambler et al claim that this could not be a definite indicator of the frontal cortex participation in the decision making process or not, but could also mean that this part of our brain is participating in the decision making process just as a pathway and not as a terminus. Additionally their findings suggest that “the brain appears to use vocalization actively in that choice process...marketers would like to know what is being vocalized in low-salience condition and make it easier to make faster decisions” (Ambler et al 2004 p: 258); indicating that memory and brand equity seem to activate the brain in total and not activating just the prefrontal cortex which is of course part of this procedure and not the determiner.

Having all the above in mind this particular research is not giving any strong proofs of any significant neural correlation that would lead to preference or even to prediction of purchase.

\[1\] just 18 people: 9 male / 9 female (Amber et al 2004 p: 247)

\[2\] “This is a method that depends on the electrical character of neural signaling. As electric currents cause magnetic fields, the brain and skull are surrounded by minute fluctuating magnetic fields. These can be measured by devices called SQUIDS (superconducting interference devices), operating at the temperature of liquid helium. MEG can identify dynamic brain processes occurring on a millisecond time scale...In this technology each subject has what appears to be a giant hairdryer placed over its heads while he or she is watching a video and holding a key press for responses” (Amber et al 2004 p: 251).
On the other hand Knutson et al (2007) give a better understanding of the decision making process. Knutson et al insist that the decision making process is very much relied on price and it is followed by certain areas activated in our brain connected with pain and loss and gain or arousal feelings (Knutson et al 2007 p: 2)\(^3\). Knutson supports that it is possible to predict preference but this does not always leads to purchase unless the product or service is followed by the right price. As it is shown by Knutson et al there is a very strong neural correlation where products are faced as anticipated gain, and prices as anticipated losses. This correlation is being supported by the results of their research making them able to predict up to 60% of purchased products through brain activation variables.

Further on they created a three stage phase for their experiment. Firstly was the product phase (image of the product), secondly was coming the price phase (the price of this particular product) and thirdly the purchase phase where the subject could decide to either purchase or not. It is important that in this research the subjects were supposed to purchase the products for real. They were given some coupons for reduced prices and some money for the participation but all the products they choose through the experiment were mailed to them two weeks later. This is a very interesting detail because it gives more valid results than the self-reported answers at the strict lab environment where everything is virtual (Knutson et al 2007 p: 7). The results were gathered with the use of fMRI technology and indicate very clearly that specific patterns of brain activation are indeed able to predict purchase up to 60%.

Neural correlates to preference decision were also established by the research of Mc Clure et al (2004) through an experiment about familiar drinks such as Coca Cola and Pepsi. The experiment was conducted through some self reported preferences of the subjects as well with the use of fMRI technology in order to validate the procedure. According to the experiment, subjects’ preferences towards each of the sugared drinks were particular strong with a very solid idea about the brand behind the product; something like a cultural heritage of the brand that the subjects were willing to prove or support even through the neural tests. For example Coca Cola images and then products were signaling an intense brain activity in the DLPFC\(^4\), the hippocampus, and the midbrain relatively to the delivery of images and products of Pepsi (Mc Clure et al 2004 p: 385). The DLPFC and the hippocampus are well known to be connected with emotion and affect feelings and this is supporting the stress of brands and companies to create strong emotional bonds with their consumers. Mc Clure et al summarize that preferences seem to be shaped by a two brain system located in the prefrontal cortex right

\(^3\) “Activation in regions associated with anticipated gain (the NAcc,-Nucleus Accumbens-) correlated with product preference, while activation in regions associated with anticipating loss (insula) correlated with excessive prices. Further activation in a region implicated in integrating gains and losses (MFPC-Mesial Prefrontal Cortex)correlated with reduced prices”(Knutson et al 2007 p: 4)

\(^4\) Dorsolateral Prefrontal Cortex (Mc Clure et al 2004 p:383)
above our eyes. They support that the DLPFC activity indicates with punctuality the sensory stimuli the subject wants to be projected with, and the hippocampus is recollecting the information to shape the preference.

The problem with McClure et al experiment is that there is no strong correlation other than the self report of the subjects in order to predict preference. It is almost expected someone who likes Coca Cola or Pepsi to be affected when the sensory stimuli comes. It is almost expected as well all these feelings, perceptions, ideas and opinions about brands to be represented somehow in the neural system of one’s brain since there is an established preference. McClure et al finish with recognizing that different and separate brain systems are cooperating in order to bias preferences when stimuli are presented. The decision making process is already a very complex procedure which is involving more parts of non-cognitive and cognitive behavior than one can imagine. The process becomes even more complicated when starting using all this complex terminology around the neural systems of the brain and the work each of them is doing. It is clear till now that there is not one decision maker in the head, but a whole different cooperative system.

The researches though continue about neural correlates and our preferences and decisions with Deppe et al (2005 p: 413-414) running more experiments for establishing another aspect in the decision making process; the framing effect, which according to their findings is the procedure that subjects follow when asked to make credibility judgments. According to Deppe et al (2005 p:414) people tend to recall ideas and perceptions about the choices they have in front of them and at the same time activate the ventromedial prefrontal cortex (VMPFC) of their brain in order to decide. This means that people are not only using explicit information presented to them when choosing. So for brands it would not be only their package, or the presentation of a product or the logos but a whole subconscious knowledge of the potential customer about the actual brand, their operations, their tactics and their contribution in consumers' life. Deppe et al (2005) used imaging technology in order to find this framing correlation of subjects with parallel activation of the ventromedial prefrontal cortex showing them the same title displayed in four different magazines with a totally different background asking them to decide whether the statements where false or true. It was significant that the less credible the magazine was the more skeptical the subject was about the credibility of the statement. This finding was accompanied by signal activation in the VMPFC of the subjects; establishing the hypothesis of the framing effect. Moreover as Deppe et al mention “we found cerebral activity consistently increased during decision-making in those regions associated with self-reflection, rewards and the integration of emotions into decision-making, i.e. the ventral parts of the medial prefrontal cortex (VMPFC)” (Deppe et

5 This area of the brain is implicated in the decision making process and the process of emotions of fear and risk (Bechara et al 2000 p: 2198)
It is clear that there are strong neural correlations about decision making processes and judgment processes but still there is no evidence till now that neuroimaging technology can predict consumers’ choice except Knutson et al results (2007); where 60% of prediction is maybe not enough for the validation of such methods.

Till now is found that people do use their emotional personality when choosing, do use judgments from previous knowledge and do act according to their already shaped preferences but do all these leads us to predictions about purchase? Tusche et al (2010) is giving an answer about the prediction process from another point of view. Tusche et al investigated how neural responses to unattended products predict later consumer choices through an experiment where thirty-two male men split in two groups (Tusche et al 2010 p: 8025). The use of fMRI technology was used in both groups to quantify their responses. The first group was informed to closely attend images of cars and evaluate them and the second group was asked to complete a fixation test where images of cars were in the background. Both groups were asked later about their willingness to purchase for the images of cars they already saw. The first group of high attention and the second group of low attention presented similar reliable activation patterns in the insula and the medial prefrontal cortex. The important in this experiment was the neural correlation that was established between both the low and high attendance group for the prediction of later consumer choices (Tusche et al 2010 p: 8029). Once again the implicit and not the explicit information that consumers gather are equally responsible for their choices. As mentioned above the medial prefrontal cortex and the insula are both regions of the brain that could help predictions for future consumer choices (Knutson et al 2007); the present experiment of Tusche et al though proves that these regions of the brain can be activated even when explicit material is absence.

In the chapter why and how people buy became clear that people buy for two reasons. The first one is to feel happy and the second one to cover a need or solve a problem. Pleasantness plays an important role in buying decisions, it is no wonder why there is even the term “shopping therapy” when someone feels sad or “down”. Shopping is creating most of the times a pleasant feeling and making humans happy to a certain extent. Pleasantness is a core value for Plassmann et al (2008 p: 1050) in their research about neural representations of experienced pleasantness. The decision making process is also connected with pleasantness since individuals are making choices taking this feeling into account. Plassmann et al (2008 p:1050-1053) findings with the use of imaging technology (fMRI), support that neural representations of experienced pleasantness is being affected by marketing actions such as the change of price of a product. The experiment was conducted with subjects being told to taste five different wines with different prices, when in reality they tasted only two wines which were presented with different prices (Plassmann et al 2008 p:1050). The hypothesis was that if the perceived price was raised the perceived quality would be raised too with a parallel
activation of the medial orbitofrontal cortex (mOFC)\(^6\). The results of the research supported the hypothesis that the actual levels of experienced pleasantness were changed. The findings also indicate that the neural activation was stronger for the high priced wine than the low priced one. It is also possible though that people feel more comfortable saying an expensive wine is nicer than the opposite in order for them not be perceived as ignorant.

Decision making, neural responses, imaging technology, prefrontal cortex and others were key words for all the above researches and experiments which validate the strength of imaging technology today. Essential in all the data presented above was the need for clarification of brains procedures. After studying and analyzing all the researches I have used, it has become clear that imaging technology can go really deep in human minds giving answers of why and how or with what stimuli we can activate certain areas in brains. The first criteria that I introduced in this paper, the one of validity, seem to have been answered partially. These methods as it is proved by the above have a very high degree of validity included in their operations but as Kenning et al mention “in order to determine, whether for market researches, fMRI or other techniques such as MEG really provide a ‘window to the consumer’s mind’ much more empirical evidence is needed”(2007 p:148).

This technology can really understand, quantify, and explain how and what we feel or think, but the prediction rate is not really clear in most of these studies. Since the prediction rate was my main interest from the beginning I expected to find more quantitative results or percentages of the methods used. From a psychological point of view I would also insist that the lab environment or the heavy machinery such as body and brain scanners used for the experiments are altering or even biasing the results. The environment of the lab as well the technology used does not allow normal movements of the head or the body for example (Kenning et al 2007 p: 147). Additionally in most of these experiments people were not asked to purchase in reality, so it is common sense I guess that the stated preferences could be anything since there is no anticipated risk or loss included (Solomon et al 2002, p:246). Summing up, the unnatural environment of a lab and virtual money is not easy to mimic real every day purchase decisions and their processes or the environment where consumers are asked to make their choices.

\(^6\) “An area of the brain that is widely thought to encode for actual experienced pleasantness” (Plässmann et al 2008 p:1050)
5. Neuromarketing: Business Today with Relation to the Scientific Field

The main question is of course where all these methods and for what reasons are they used. This question is a key one because it is establishing whether these methods are aiming to reveal the human behavior as any other behavioral science or just to ensure the position of the “buy button” in consumers’ brain just for the sake of profit. Neuromarketing as I said before has been a very controversial field of study and has raised a lot of attention exactly due to this nature of a non absolute neurology field of study or research.

5.1 Neuromarketing Companies Today

I made a search on Google about the established neuromarketing companies that are operating today all over the world. I found 23 companies using all kind of imaging technologies but also other, less complicated methods. This is definitely a high indicator that neuromarketing has entered the business world. Some of these companies state their clients in public, have long videos showing their methods and also testimonials of their clients. All of these companies claim they can provide their customers with the buy button in their consumers’ brains and support different approaches about which part of the brain is most important or most effective to target. For example SalesBrain a neuromarketing company located in United States of America is claiming that the reptilian brain is the one that executives and marketers should target for specific reasons. Their slogan is concentrated in “do not confuse your customer but convince him” which sounds really ambitious. From all the validity research, is shown clearly that, there are no miracles and the procedures followed are much more complicated than presented through companies such as SalesBrains for example. On SalesBrains webpage I found some very well known international companies submitting their testimonials, like General Electric Healthcare, Riverside, Yahoo, Google, Hyundai, PepsiCo, Microsoft, RedCart, Scanditronix Wellhofer, Alcatel even Walt Disney for the amazing services and eye openers they received (SalesBrains, Forbes 2009) So it is not anymore just

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7 Murphy et al state that “at least ten commercial enterprises have been established with the explicit objective of using advanced technologies to provide neuromarketing...” these in 2008, in 2012 I found at least 23 companies. (2008 p: 294)
8 Many of these use only methods such as eye-tracking, biometric measurement, facial coding and still call themselves neuromarketers.
9 www.salesbrain.com
10 As it is defined by SalesBrains is the part of our brain responsible for survival instincts and avoidance of pain (www.salesbrains.com)
an academic field of research where scientists and neurologists are just curious about how the human brain works and through what stimuli it gets activated it looks more like a business strategy. Additionally on an article of Forbes magazine (2003 pp:62-70) I found some more companies using neuromarketing activities like General Motors, Ford of Europe, Camelot, the UK’s national lottery operator in an effort to invest money on a more safe or accurate operation such as neuromarketing; while John Van Horn, a research associate professor in psychology and brain sciences at Dartmouth College says that “the human brain is the most complicated thing in the universe and it would of course be arrogant to say we could stick someone in a machine and understand everything” (Forbes 2003 pp:62-70). The gap between science and business world seems to come closer than ever before since companies and corporations are using scientific methods and technology in order to increase profits and decrease losses (Ariely & Berns 2010 p:284). More accurately Ariely and Berns explain how neuromarketing is a hype and a hope for today’s businesses (2010 p: 291); a hype because it could also be a trend that would fade away like subliminal messages in the past for example and a hope because it is a chance for marketers to come truly closer to their consumers and understand their needs, instead of treating them as targets.

Additionally there certain critics about how such methods and technologies have been put to use in the business world. Fisher et al (2009 p:234) is making some comments on this and presenting some serious issues “It is worrisome that neuromarketing companies appear to be providing links to media rather than to scientific literature, as media coverage could be used in the absence of peer –reviewed evidence to prematurely legitimize the use of these technologies.” They continue with the very important issue of transparency among neuromarketing companies existing and their tendency not to publish their results but only some phrases as testimonials. If these results were published in the academic field could help, enhance and in the end provide better insights in such complicated fields such as neuromarketing. The profit orientation though neuromarketing companies are having acts as a limitation for public awareness or attention. It is also very interesting that all neuromarketing companies I have browsed claim to have academicians or other medical stuff working for them which might be true but still raise some issues on the fact that academicians have a duty to the public trust about their citations to be evidence based purely(Fisher et al 2009 p:235). In my research (as well Fisher et al [2009, p: 234] in theirs) none of the websites of neuromarketing companies I visited had clear statements about medical privacy or any kind of confidentiality agreement. Who could have access in the data obtained or how could they be used was not clarified along with no clarification for prices about their services.

The borders between academic fields of study and the business world are becoming very vague in the example of neuromarketing and need to be addressed more coherently. The world of science has a lot to offer, and the business world should better cooperate in a more
transparent and participative way. There are needs about legal legislations and limitations of the use of imaging technology and its products, so it does not become a jeopardized field of study driven by private sector and therefore only profit. It is by now clear that neuromarketing is more a business practice (Hubert & Kenning 2008 pp: 272-274) and activity, than an academic field of study, and this is what it creates controversies around it.

6. Morality: New way of marketing or pure manipulation?

Definition of Moral

- Relating to the standards of good or bad behavior, fairness, honesty, etc. which each person believes in, rather than to laws
- Behaving in ways considered by most people to be correct and honest

(British English Dictionary and Thesaurus)

When people talk about morality or ethics usually it is meant as something that has to do with values, culture, traditions, and other social phenomenon. Even though morality or ethics have a very wide definition especially when talking with market or economic terms, it is still a value that consumers are searching for. It is a trend of the times that consumers, search for products produced in an ethical way, products that have been taking care of the environment, and the people living in it. Child labors, illegal labor, animal testing, toxicated materials, are some of the phrases that could shape a very negative or immoral perception for a company or a brand.

6.1 Neuroethics and Morality

The sense of morality is no new for both consumers and companies, but it is interesting to see how morality is involved in the neuromarketing operations. When talking about morality it would be interesting to distinguish between morality in the research process and the academic field and morality in the business field and the neuromarketing strategies. Even though this distinction could create clearer investigation field I have chose not to distinguish between the morality in research and business. I consider morality a wide principal that should and must be implemented across the research and the business practices as well with no special categorization. Neuromarketing has been so controversial that much for its practices and
methods, as much for its ethical implications. Neuroethics is another discipline created along with neuromarketing investigating the need for ethical operations and practices when brain research is involved (Murphy et al 2008 p: 294, Iles and Racine 2005, p: 5). Following the approach of Murphy et al 2008 there is a distinctive separation of the ethical issues arising through neuromarketing. The first one is focusing on the harmful effects or exploitation of the parties involved in neuromarketing operations and the second one is focusing on consumers’ freedom of choice (p: 294). The vulnerable parties involved in neuromarketing research, or implementation are one of the most important aspects of neuromarketing ethical analysis. Since most of the academic and private research is funded there is a need for legal and ethical limitations when it comes to human subjects’ protection; (Murphy et al 2008 p: 295) in terms of communication and responsibility between both parties (subjects and researchers). The well known medical privacy is one the problematic issues. Researches are most of the times published containing data that belong to the examined subjects; since these data are products of their brain activity should not be used for marketing purposes for example. Although for all researches it is mandatory for the subjects’ consent still there are gaps because of non clarified information subjects are receiving. Privacy policies are most needed to establish a trustful relationship between subjects and researchers and legalize the privacy of the human thought (Iles and Racine 2005, p: 11).

Additionally the equipment used by academicians for research is certified most of times by national medical or health authorities, still in the private sector of neuromarketing companies, there is a threat of uncertified equipment that could have harmful results for the subjects. Murphy et al point one more issue regarding the media and the new scientific approaches, explaining how neuromarketing can be misunderstood by the public, when it is presented like the ultimate invader of the human mind; something that is not yet proven or achieved( 2008 p:295). Still there are fears that in the near future neuromarketing methods will be more advanced to reveal even more information hidden in consumers’ brain, and if this is achieved then the second issue set above becomes crucial.

Freedom of choice is one of the most powerful tools humans’ posses at the moment. If freedom of choice is manipulated then there is no space for a free market anymore but just for big corporations having the means to achieve sales and therefore profit. If consumers are manipulated and being offered products or services that can no longer judge on a rational level there is a big problem with the so called free will value (Wilson et al 2008 p:399). The much wanted buy button is still “hiding” but when technological advances come forward will be maybe easier to locate and to target. This is the main reason that neuromarketing industry both academicians and private sector should follow an ethical code of conduct which protects subjects, their data, and their privacy as well as the researchers; a code of conduct that will not commercialize scientific findings and methods.
Moreover there is a need for careful interpretations of results of neuroimaging technology, and the responsibility is laid upon the researchers as Illes & Racine mention “we find that social interpretations of imaging studies are bound by cultural and anthropological frameworks” meaning that is not just medical data or just brain signals, there is a whole framework on the background that needs to be examined as well (2005, p: 6). The biggest threat that neuroscience technology has ever faced is described in the following lines “Neuroscience findings and methods hold the potential for marketing practices that threatens consumers’ abilities to follow preferences, and dictates according to free will.”(Wilson et al 2008, p: 401).

On the other hand it is maybe immature to consider that any kind of behavior, action or decision a human does is only physically based and brain directed which means that is just a product of chemical responses and transmissions accompanied with a cultural framework and supported by the limitations of our biology; because this would ultimately mean that human life is totally directed by means11, humans themselves, have no power of and so on cannot be considered responsible for their actions (McDonald 2011, p: 1272). Having in mind that people also operate on an emotional level very often which is not a product of a rational thinking process neuromarketing today is consist of violation of the privacy of the human thought and violation of the human brain to decide freely with no below the line messages. One could easily ask if marketing itself is a practice of trickery and neuromarketing is just the follow up. The truth is that marketing even today is operating on a level that consumers are able to control, identify, and judge ( Murphy et al 2008 p:296). Consumers are aware of how important a decoration, or a store smell is, or even the merchandising of products; but what if consumers are not aware of, that their brain signals have been examined, and have been offered a product they cannot really resist? And if all decisions derive from a physiological attribute that of one’s brain would such a rational person ever choose to be so manipulated? I guess not. It would be a totally different story if consumers where informed about the marketing methods being applied when deciding for a product or a service. Something like that would be of course impossible since it would act against the company’s goals such as profit.

Nevertheless it is important to always remember that any kind of ethical implications applied on a scientific basis have a cultural and a social approach to the nature of the human kind. Morality, ethos, free will, right and wrong are certainly socially constructed values, without this meaning there is not a kind of objective sense of truth or morality among humans. Illes and Racine (2005, p: 14) put the whole discussion of morality and neuroimaging, in a few sentences in the most profound way:

11 Neural and chemical predefined responses of their brains
“Therefore not only does culture penetrate neuroimaging; neuroimaging is increasingly penetrating non-scientific culture. This is why Neuroethics needs to consider not only ethics of neuroscience but also a neuroscience of ethics (Roskies 2002) and, we may add reflection on their scientific and cultural implications.”

7. Conclusions

“The eye may be window to the soul, but neuroscientists aim to get inside and measure the interior directly. There’s also talk about moving some walls.”

(Farah and Wolpe 2004, p: 35)

Marketing practices have met neuroscience in a very strong mix; that of neuromarketing. Neuromarketing has been around to identify the secrets hidden behind the human brain using imaging technology. Neuroscientists and marketers are trying to discover the buy button which will lead them to the decision making process of their consumers. The decision making process have been in the center of attention for neuromarketers since it is the path leading to the purchase. Neuroimaging technology has been able to identify electrical and chemical signals in human brain in order to quantify and predict preferences and decision making rate. Certain areas of the human brain connected with reward or anticipated gain or loss are the areas neuroscientists investigate. Although technology has been very advanced, it is proven through this research that neuroimaging techniques can only partially explain and not really predict the chances for purchasing or preferences (Murphy et al 2008 p: 299). Still it is important to understand that neurotechnology can help researchers understand better the human behavior but not really provide subsequence manipulation at least for the moment. The reasons for that are summarized in the human nature which is socially and culturally shaped and orientated. Hence, the validity issue is not really the problem for neuromarketing since it is not yet fully developed. The controversies concerning neuromarketing are mainly based on the ethical and moral implications of it.

The way research is done, the way subjects and their data are used for marketing purposes, the way private sector has jeopardize neurotechnology are some of the biggest problems that neuroagenda includes. The moral implications of neuromarketing are including both issues of protection of all involved parties in research process, but also the consumers’ freedom of choice and free will issue. There is no immediate fear of manipulation of the free will of consumers today but what if neuromarketing gets more advanced through the years? This is
creating a need for a code of conduct of neuromarketing companies and researchers and a wide legal framework for the protection of all parties. Brain research is quite different than any other scientific research in terms of importance of the data produced. Another issue connected to ethical implications is also the confidentiality of data provided by human subjects and the use of them from corporations. Transparency needs to be implemented in all brain research activities for establishing a trustful relationship between the public and the academic and research world. Neurotechnology is also being commercialized by private neuromarketing companies operating mainly as consultants for big corporations and brands. Having in mind that all neurotechnology equipment used by academicians and researchers is certified by public medical and health institutions, there should be a similar procedure of certification for the private sector. Yet all these efforts need to be accompanied by more accurate media representation, since it was often through my research to face headlines of articles or private neuromarketing companies videos, claiming for a secret tool unlocking the human mind and predicting sales and purchases something at least for today does not exist. Finally it is not clear if neuromarketing in the end is an academic field of study or a business activity, and certain concerns of the public understanding of neuroscience are raised. Summing up I would like to use a phrase of Arussi I read in his article “Neuromarketing isn’t marketing” and summarized everything I was thinking:

“If you want them* to make the right decisions, give them the right reasons—
not a brain scan “
*consumers

(Arusssi 2009 p:12)

7.1. Future Research

Interesting it would be for future research a more interdisciplinary approach of neuromarketing. Psychology, sociology, biology and other scientific fields of study should cooperate closer in order to increase accuracy in the way neuroimaging results are being interpreted. Moreover it should be investigated deeper how and with what methods private companies claim such exciting results. Additionally how the industry of neuromarketing works in the private sector, how neuromarketing companies confirm their methods and their results, how they quantify sales and their accelerator and in the end do they get paid for investment returns? Furthermore it would be also interesting for the academia if neuromarketing was investigating a more primitive stage of production in order to understand if potential products would be desirable instead of trying to make existing products desirable.
A view in a more sustainable consuming attitude could definitely include neuromarketing technology and operations. Further investigation is also required on the legal framework of brain research in order to provide a stronger sense of public security and control. Closing this paper, it is essential to remind the reader that neuromarketing is a term appeared for the first time in 2002, just ten years ago, and therefore future research is not only vital but mandatory for the scientific basis of it.

7.2. Reflections

In this section I would like to make a few critical comments on whether some things could have been done differently in this research. For the specific research question and having in mind the limited resources of data and information, I think the use of a literature study was one of the best options although I believe there was space for a more mature and extensive research than the one been done. Additionally a closer connection to the principal of neuroeconomics could maybe have been an advantage for the interpretation of results and could probably lead to a more relevant connection to neuroethics as well. A further investigation on the philosophical and psychological level of morality could also help for a better understanding or morality issues. Although this research could be a start or an attempt for a more interdisciplinary approach of neuromarketing there are still more aspects and factors to be investigated when it comes to neuromarketing practices.
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