



## THE POTENTIAL OF NEUROMARKETING IN FOOD & BEVERAGE INDUSTRY

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### ABSTRACT

*Organizations these days spend a lot of money to market their products/ services in order to make it visible. With increasing competition, businesses are putting in a lot of effort in order to differentiate their products from that of its competitors. Hence marketers are in constant search for feedback in order to continuously add value to their products. Traditional marketing practices provide feedback mechanisms such as interviews, questionnaires which may not be all that effective as it may be influenced by personal bias. A newly emerging field in marketing known as Neuromarketing eliminates the shortcomings of traditional marketing. This paper aims to understand how Neuromarketing is used by companies to improve sales with particular reference to food and beverage industry. It gives an idea about what neuromarketing is the various techniques within neuromarketing. It shows how businesses have revamped their products using neuromarketing techniques. It provides an insight into the unconscious thoughts of consumers that influence purchase decisions of consumers.*

**Keywords:** Neuromarketing, FMRI, F&B industry, Neuromarketers, Marketing

# 1. Introduction

## 1.1 Neuromarketing

Organizations today strive hard to maintain its success rate in a dynamic environment where change is the only constant. The evolving needs and demands of consumers, changing trends in the market require the firm to closely monitor these changes to contribute to the process of product development. Consumers are becoming much more vigilant and conscious about the choices that they make. In an age where ‘consumers are king’ there is very little scope for companies to sell anything and everything that they produce. Therefore, the marketing division has grown to become an integral part of every organization. Successful products/services should exactly cater to the needs and demands of consumers and should satisfy their necessities, needs and wants. A company can no more force or push products that they company produces. Instead, the company understands what the consumer wants and promotes that product (a concept called pull marketing). For this purpose, customer feedback is essential. This can be obtained from many different sources ranging from questionnaires and interview to social media. But many a times, this feedback may be fabricated, falsified or affected by personal bias. On the other side, consumers might leave out certain details that they feel is not worthy of sharing but might be important for the company.

In the attempt to increase the sales of the organization, marketers use various methods, tools and techniques to direct the attention of their target audience towards their company’s product. One such technique is Neuromarketing. It may be defined as “knowledge about the information processing and decisions made by humans and investigate in how businesses should communicate with the brain in detail” (Tourtoulou et al., 2013). Neuromarketing is a multi-disciplinary field that involves the basic principles of marketing as well as combines the study of psychology of consumers. While neuropsychology studies the relationship between the brain and human cognitive and psychological functions, neuromarketing promotes the value of looking at consumer behavior from a brain perspective. It is an emerging discipline that uses medical technology to monitors the pulse rate, breathing pattern, facial expressions, galvanic skin response etc. to analyze and derives meaning from the emotions experienced while viewing the advertisement. This helps marketers estimate the effectiveness of the advertisement as well as understand the consumers’ inclination thereby providing scientific solutions to problems that are otherwise hard to even identify. It identifies the unconscious thoughts and emotions of

consumers. It helps the company understand what the consumers cannot express otherwise. Apart from this, Neuromarketing finds its application in various areas such as innovation, modification of the product, pricing strategy, creating of communication mix and others. Overall, neuromarketing fulfills the shortcomings of traditional marketing techniques.

This paper aims to understand the different ways in which neuromarketing can improve the sales quantity in organizations with particular reference to the food and beverage industry.

## **1.2 History of Neuromarketing**

The term neuromarketing was coined in 2002, published in an article by BrightHouse, a marketing company in Atlanta. Although this practice began to be called neuromarketing in recent times, neuromarketing has existed since ancient times. In Egypt, the brain was thought to be a potential part to understand the functions of the human body. The history of neuromarketing, as we know it, can be traced back to 1960 when Herbert Krugman, as a pioneer, measured the spontaneous dilated pupils as an indicator of interest in people looking for products or printed advertisement. In 1970, Krugman and Fleming Hansen began to review the processes of the right and left hemispheres of the human brain through encephalography. BrightHouse and SalesBrain are the first companies to offer neuromarketing research and consulting services advocating the use of technology and knowledge coming from the field of cognitive neuroscience

## **1.3 Techniques used in Neuromarketing**

- **Electroencephalography:** Found in 1929, is one of the best known and most widely used methods in neuromarketing research. Its principle is based on the electrodes that are placed on the human skin which can measure the current pulses in the activation of neurons. In the brain, there are the electromagnetic waves and they are spread. It means that the measurement of electroencephalography is sensitive to time resolution. The advantage of encephalography is affordability compared to other methods and its ease of use.
- **Magneto encephalography:** It captures the magnetic field caused by the activity of neurons. Its resolution is very accurate because it can identify sources with an accuracy of a few millimeters. Time resolution is almost the same as it is in encephalography - change is recorded in a matter of milliseconds. The reason for the less percentage of usage is the financial cost of its acquisition and operation.

- **Functional magnetic resonance imaging:** The above-mentioned methods measure the activity of neurons directly. However, functional magnetic resonance technique examines brain activity indirectly. It is a modern method which is used for functional imaging of the brain, respectively mapping brain response to the external or internal stimulus. This technique allows precise measurements in the specific part of the brain where some activities are happening. However, the functional magnetic resonance imaging has the certain delay. The disadvantage of this method is its cost.
- **Positron Emission Tomography:** This is a method of nuclear medicine. It is one of the most expensive technique. In this method, the patient needs to use the radioactive substance. It measures the flow of the scheduled substance and the area where it is accumulating. This method is used less in the research, and the usage for marketing research activity is not likely.
- **Eye tracking:** This method records the movement of the human eyes. The essence of this method is to monitor the frequency and intensity of the view. It monitors where and what people are looking for longer and more frequently. It also records the enlargement of the pupils.

## **2. Literature Review**

Jason Flores, Arne Bruca and Robert Saldivar (2014) in their study titled “Is Neuromarketing Ethical? Consumers Say Yes. Consumers Say No.” aims to analyse from an ethical perspective, the use of neuromarketing by for-profit and non-profit organizations based on consumers’ point of view and to explore the implications of consumers’ ethical judgments. An experimental research design made up of 2x2 between-subject scenario was utilized to explore consumers’ ethical judgements of the use of neuromarketing by organizations and the implications of those judgements. From a southern U.S university a sample of 324 responses were collected. The results showed that the realism check gave a 5.27 rating which meant that respondents perceived the scenarios they received as realistic situations. It also showed that the respondents perceived the use of neuromarketing by for-profit organisations as unethical, but as a marketing technique it was considered ethical, whereas the use of neuromarketing by not for profit organisations was considered ethical. Factor analysis was done and a KMO & Bartlett’s Test was done to check suitability of the data. Regression analyses were done to determine influence of ethical judgement of the use of neuromarketing or lack thereof. The results showed that ethical

judgement had a significant effect on what respondents consider the most appropriate response to the use or no-use of neuromarketing, attitudes towards the use of neuromarketing, and word of mouth. Analysis of 4 groups' responses to what was most appropriate, to use or no use of neuromarketing by for-profit or not for profit organisations showed that responses were more favorable when for organisations did not use neuromarketing and slightly less favorable when they used neuromarketing. It also showed that responses were more favorable when not for profit organisations used neuromarketing and less favorable when did not use neuromarketing. Additional analysis revealed that there were no significant differences in groups' response to whether use of neuromarketing was invading individuals' privacy or increase capacity to manipulate behavior. The study concludes by saying that the use of neuromarketing by for profit organisations risk creating unfavorable responses and the use by not for profit organisations leads to a strong favorable responses. Limitations of the study were that it requires additional support for the purpose of generalizing, the four scenarios used here does not have an explicit outcome and only for profit and nonprofit distinction for organization was considered. Future scope for the study can be done by carrying out additional research keeping in mind the moral conception of trust people have in for profit and not for profit organisations, research can be conducted to examine relationship between future behavioral intentions and the degree to which respondents believe neuromarketing invade individuals' privacy and manipulates behavior, furthermore understanding the capabilities of neuromarketing and the assessment of consumers on its use can also be studied.

Vivian Alexandra Roth (2013) in his study titled "The Potential of Neuromarketing as a Marketing Tool" aims to evaluate the influence of neuromarketing on buying behavior, advertising, pricing, new product development, communication, distribution of products, branding and decision-making. Methodology used is a secondary data collection. Various literatures on the topic neuromarketing was found and were used to prepare the paper. The results of the study are thereof. When asked explicitly, consumers are not able to phrase their desires and needs which could show that brain can be hiding internal information, therefore since this information is not available neuromarketing can be used/helps to influence consumer buying behavior. Using techniques like fMRI or EEG helps advertisers to understand the emotions of consumer when viewing a particular advertisement, hence advertisers can use neuromarketing to increase sales. Analyzing the brain activity when a prospective consumer is given different

choice of prices to purchase a particular product, can help to determine the most appropriate price for that product. Even though neuromarketing can be a very effective, it might not be the best method to use while developing a new product, instead using methods like SWOT analysis would be of more help. Neuromarketing may not have a high influence on verbal communication, but it could have an influence on non-verbal communication which can be studied using outside reflexes but is not as accurate as results from that of fMRI or EEG. Using neuromarketing techniques like eye tracking, body language, fMRI or EEG and analyzing consumers can give detailed information about the decision making process of people. Using neuromarketing techniques marketers can find out the influence brands have in decision making for a consumer for a particular product. Neuromarketing can indeed help in understanding the decision making process of a consumer, it will help to study the emotions, both positive and negative of consumers which result in a making a certain decision. Neuromarketing techniques can also help to choose appropriate product designs by a particular brand. The paper concludes by saying that if neuromarketing techniques are used in an ethically correct way, marketers will be able to get internal information which can be used for product commercialization and customers will be provided with customized products. The time factor and the fact that only secondary data were used are the limitations of the study. Future research could be done on the ethical issue of neuromarketing, and conducting empirical studies could help validate much more information.

Nicolae Al. Pop, Dan-Cristian Dabija and Ana Maria Iorga (2014) did a study titled as “Ethical Responsibility of Neuromarketing Companies in Harnessing the Market Research – A Global Exploratory Approach”. It aims to highlight the role and importance of neuromarketing research techniques in the evolution of neurosciences and to explain how these techniques are used in market research. The study considers an exploratory research design. An exploratory survey was administered to neuromarketing companies’ part of Neuromarketing Science and Business Association (NMSBA). 67 companies responded, of which interview was conducted with its representatives. 52 respondents were finally selected. Of 52 responses, 22 were from European companies, 10 from North American companies, 13 from South American companies and 5 from Asian companies. The results of the study are the following. The ethical objections about neuromarketing from clients differ from that of research subjects. Clients are concerned about the information falling in the hands of media and also about data security issues. Research

subjects are concerned about data processing and archiving. The neuromarketing companies believe that their studies do not trigger negative moods because all of them follow their strict procedures so as to reduce participants' anxiety and the ethical issues concerned with it to the minimum. Most of the neuromarketing companies never consult third party ethic experts to solve various situations that can arise from the experiments conducted. All the neuromarketing companies strictly adhere to the Code of Ethics issued by NMSBA or the Code of ethics the company has developed for itself which shows that the companies are deeply concerned about its participants' well-being. The study concludes by stressing on the importance in training the participants taking part in experiments so as to reduce anxiety and fear. It also shows the importance in guaranteeing respondents total privacy of their personal information and importance of briefing the beneficiaries of the neuromarketing studies.

Dragoş Cîrneaci, Alin Valentin Angheluță and Delia Gheorghe in their study titled “The Use of Neuromarketing in the Study of Brand Related Mental Processes. Case Study – Romanian Food Brands” aims to see if there is a correlation between declared consumption of a food product and the activation of specific brain regions measured with fMRI when consumers are presented images with package of their preferred product. Methodology used is primary data collection. 50 participants were chosen for the study. The participants were shown images of products from Agricola, Aldis, Caroli and Transavia while lying in the fMRI scanner. The fMRI scanner was used to analyse the brain activity of the participants. Questionnaire was also administered once the scanning was done. Neuro3D Software systems was used which comprised of Chi-Square test also. Correlation was done on the results from the Chi-Square test. Results from the scan showed that only Aldis consumers portrayed a genuine brand effect, by displaying an association between consumer preferences and cerebral activations, whereas the remaining products did not display a clear effect upon the brain. The results of the questionnaire showed that Aldis was habitually consumed by 62% of the participants, Agricola by 54%, Transavia by 46% and Caroli by 38%. The statistical correlations established an association between what brand participants generally prefer to buy and cerebral activations in key areas. The study also shows that there is significant correlation between consumption of Aldis products and cerebral activations in areas responsible with processing emotion and personal relevance, respectively. The study concludes with the fact that neuromarketing could be the most useful and interesting bridge between academic research and practical applications into business, providing critical inputs to marketers

and decision makers. It will be able to make on-line evaluations and will measure the implicit associations made in the consumer's brain relative to a brand/product. The correlations between imagistic and declarative data collected in this study shows that neuromarketing can be used to measure unconscious reactions triggered inside the brain of a consumer by various marketing stimuli like logos, packages or advertisements.

### **3. Concept Analysis**

#### **3.1 Marketing in Food & Beverage Industry**

Getting up in the morning, going for a jog is followed by a healthy drink which is followed by a healthy, fulfilling breakfast which is followed by a lunch in the afternoon followed by some snacks in between which is followed by a small dinner in the night, this could be a general routine for a normal person. The commonality here is the fact that food and beverages are part of our lives. It has been incorporated so well into to society that they are the essentials of life. They are the source of energy and health. Food and beverage industry (f&b industry) has long existed on earth. The need to provide food to people has turned into a business in the long run. Now it is one of largest industry in the whole world. From agriculture to processed food to marketing, it is all part of the f&b industry. The global food and beverage retail industry has witnessed significant growth over the last five years and is expected to continue its growth momentum, reaching approximately US \$5,776 billion in 2017 with a CAGR of 5% over the next five years. Macroeconomic factors such as burgeoning GDP, increasing consumer spending and changing lifestyle, taste, and preferences are expected to drive the industry over the forecast period.

Food, the most essential need of our lives started with people working in fields growing crops so as to provide food for the families has now turned into a multi-billion dollar industry. With what started out to be food that is essential for us human being, now has changed into consumption of food that is not required by human beings. From the staple diet of having rice, the world has long moved on to cooking with vegetables and different kinds of meat. But with the rise of processed food, the whole industry changed. Many companies started emerging to provide food and beverage to the consumers. With the rise in market players, competition started. With the emergence of competition, marketing of food and beverage came into existence. Marketing was used as a method to draw the consumers to the essential consumables but to a certain brand providing those consumables. With the rise in need for marketing to attract consumers,



marketing mix was formed. The now famous 5 P's of marketing: Product, Price, Promotion, Place and Packaging. The 5 P's are the most essential part required to market any product. From its existence till the point of sale, marketing plays an important role in f&b industry. Consumers were ready to buy anything and everything that attracted them and which was new in the market. But now with the rise in food regulations, the popularity of a healthy diet and the increasing cases of obesity, the role of marketing in f&b industry has completely changed. Now marketers have to attract consumers by drawing them towards products which provide proper information of the ingredients, amount of each ingredient and the breakup of the nutrition that is gained through that certain product. Marketers now have to provide ways to attract customers by providing the need for that certain product in their daily diet and how it helps to maintain a healthy life. Marketers have to study the market so as to help companies find new products that the consumers want. This has led to rise of demand for organic and natural products. Even with the rise of anti-sugar movement and awareness of a healthy life, marketers have to promote products in such a way that even though it's unhealthy, they have to make the consumers drawn towards the products. Recent years have seen the rise in providing consumer oriented products, providing consumers with products which they are attracted towards and are in need off. Neuromarketing has been one such area in marketing which has come up to find products that move the customer to making the final decision to buy that product by a particular brand.

### **3.2 Use of neuromarketing in the food and beverage industry**

Neuromarketing can be used in various areas in the food and beverage industry ranging from the taste of the product to its packaging. It enables us to monitor the influence of visual, olfactory as well as the gastronomic factors that influence purchase decisions of packaged food products. Neuromarketing finds its application in various areas such as innovation, modification of the product, pricing strategy, creating of communication mix and others. Neuromarketing allows marketers to understand the biological basis for eating motivation. It can be used to analyze the eating pattern in children and youth who happen to be the largest market for packaged/ ready to eat food and beverages. The observations can be used to increase brand preference, improve brand memorization of publicity image, maximize the impact of publicity and enhance the appeal of T. V commercials. All this in turn helps maximize sales.

Research has identified three components of motivating eating behavior and they are:

- Hedonic choices: It refers to the pursuit to eat just to obtain pleasure rather than satisfying any biological need. There is no lack of energy deficit. The immediate result is the overconsumption of calories thereby leading to complications such as obesity.
- Homeostatic choices: This type of eating caters to health and growth needs. It recognizes food as fuel, something that provides the body with energy to perform tasks and nothing else. There is intake of only quality food that is a part of a balanced diet.
- Impulsive choices: This refers to overindulgence in food that appeals to the taste buds. It is eating in the absence of hunger.

Marketers study the Dopamine (neurotransmitter in the brain) content which is responsible for our choices in food and beverages. Its sensitivity towards reward is what drives most of our eating decisions. Furthermore, our subconscious memory associates certain food with happiness and joy. The secretion of Dopamine results in impulsive behavior thereby shooting up the sales level. In general Dopamine is secreted every time there is a promise for reward, which we confuse for happiness. It instigates false desire for a particular thing which is so powerful that one ends up buying it even though he/she does not require. This tactic is used by many marketers in order maximize impact to boost sales. Food samples in supermarkets use this principle. This leaves us vulnerable to impulsive behavior. However, Dopamine is less responsive to monotonous rewards. This is the reason why fast food joints such as Starbucks and Mc Donald's keep altering their menu.

One of the key tactics that the food and beverage industry uses is a concept in Neuromarketing known as priming. Priming refers to influencing an individual's behavior by the introduction of various subtle cues which the consumer is unaware of. It focuses on what the customers want to hear rather than what the company has to say. It involves the use of language to shape perceptions of customers favorable for the company. For this purpose, fast food restaurants are designed to have uncomfortable seats, bright lighting and abundant noise, so that fast food customers are encouraged to consume their meals quickly and vacate their seats for the next customers. Another well-known example is how supermarkets use the smell of freshly baked bread to encourage more bread sales, how flowers are positioned near the supermarket's entrance to prime shoppers to think about freshness and pricing strategies to make shoppers think they're getting a bargain.

Other common practices that neuromarketers use are:

- Using complex fonts to increase brand recall value of products.
- If the company uses a mascot in its logo, then the gaze of the mascot is in the direction in which the marketer wants the consumers to concentrate
- Creating an atmosphere of trust for the customers. This can be achieved by offering trial of the product/service but with few restrictions or even giving the product on credit

### **3.3 Examples of Neuromarketing strategies used in the Food and Beverage Industry**

#### **❖ Campbell Soup:**

In 2005, market researchers at Campbell conducted a study to estimate the customers recall rate of Campbell soup's through their advertising efforts, and its impact on the purchase decision of customers. Unfortunately, the company found out that its advertisements weren't contributing to the sales at all. In fact they realized that the buying instinct of customers were dying down. The company then used Neuromarketing techniques to understand the factors that instigate consumers to buy soup. On behalf of Campbell, Inner scope Research interviewed 40 consumers at two different places, i.e., at their homes and later at grocery stores. During these interviews, the customers relayed that the can's label portraying the soup did not look warm and the big spoon holding a sample of soup did not provoke any emotional response from them. In the next phase of research, during their visit to the stores, the 40 consumers were clipped with small video cameras at eye level to track eye movements and pupil width. The eye movement and pupil width showed that the consumers' interest towards Campbell soup (though emotionally attached) faded away when they faced an array of red and white soup cans on the store shelves. These results formed the basis for guiding the company to redesign its labels

#### **❖ Pepsi v/s Coca-Cola:**

The Pepsi v/s Coca-Cola experiment performed by Read Montage throws light on the motivation behind brand preferences. It also elaborated on how cultural messages guide one's perception about products. Through fMRI scans it was observed that consumers favored one product over the other. There were 2 types of tests: one blind folded and the other in which the subjects knew what they were drinking. When subjects were unaware of which brand they were drinking, the fMRI showed activation in the reward part of the brain (ventromedial prefrontal cortex) when they drank Pepsi. On the other hand, when the subjects knew which soda they were drinking, the scans showed brain activity in the hippocampus, midbrain, and dorsolateral prefrontal cortex

(which are centers for memory and emotion), in favor of Coke. So essentially, consumers actually liked the taste of Pepsi, but they were more inclined towards Coke. From these results, the researchers determined that “preference for Coke is influenced to a great extent by the brand image than the taste itself”

#### ❖ **Frito-Lay:**

Cheetos is a product line manufactured by Frito-Lay. In 2008, NeuroFocus, a marketing firm while examining how the consumers felt about the product, it was revealed that the orange residue left behind after eating Cheetos evoked a feeling related to enjoying a guilty pleasure. Similarly, the company received a strong positive response to an ad campaign that had been planned. It was titled “The Orange Underground,” and featured a mysterious version of the Cheetos cheetah mascot encouraging people to commit subversive acts. The campaign won Frito-Lay (and NeuroFocus) a Grand Ogilvy award from The Advertising Research Foundation (ARF)

#### ❖ **Wine:**

An experiment conducted by Baba Shiv illustrated that price does not only determine the quality of the product but also affects real time quality thereby changing people’s experience with a certain product. Shiv used fMRI scans to gauge emotional pleasantries. In the research 11 graduates who occasionally drank wine were served 5 different types of wines, distinguished by price. But in reality only three wines were used—two were given twice. The first wine was identified by its real bottle price of \$5 and by a fake \$45 price tag. The second wine was marked with its actual \$90 price and by a fictitious \$10 tag. The third wine, which was used to distract the participants, was marked with its correct \$35 price. A tasteless water was also given in between wine samples to rinse the subjects' mouths. The wines were given in random order, and the students were asked to focus on flavor and how much they enjoyed each sample. According to researchers at the Stanford Graduate School of Business and the California Institute of Technology, if a person is told he or she is tasting two different wines—and that one costs \$5 and the other \$45 when they are, in fact, the same wine—the part of the brain that experiences pleasure will become more active when the drinker thinks he or she is enjoying the more expensive vintage. This shows that marketing has the ability to change the value of the product in terms of experience by manipulating external factors such as price of the product.

### ❖ **Gressingham Foods:**

Gressingham Foods company that deals with sale of packaged meat. In response to declining sales they appointed Elmwood, a design company to help them revive their brand identity. Elmwood rounded the packing and the logo of the company. The brand's signature gold was infused with a warm amber. As a result, declining sales rose by 47%. Elmwood argued that graphic elements is what triggers the instinctive response of consumers. The cusp shape of the former logo conveyed fear/caution however, the now softened edges represent comfort. The logo or any other graphic media his example illustrates the importance of emotions that logos or any other graphic media that is instilled in the customer. As packing and logo are the only two elements that differentiates products and establishes a brand identity, companies have to put in effort in order to carefully design such graphic media as those two or three seconds of visual appeal is what drives consumers' purchase decisions.

### ❖ **Red Bull:**

The core concept of Red Bull is an energy drink. The drink is a caffeine-laced drink which also contains amino-acid taurine and glucurono-lactone which is said to boost energy. Red Bull when it initially launched was seen as a poor tasting drinking. But with efforts from its marketing team and the use of neuromarketing, it was able to create an entirely new segment in the drink section known as energy drink. They started targeting personals engaged in sports especially extreme sports. It was able to connect the drink with extreme sports, by sponsoring various events and teams. It was able to imbibe in the brain of the masses with the ability to relate the brand with extreme sports. This way it influenced the image that people had of the drink and influenced them to perceive it in a different way.

## **3.4 Ethical Concerns**

On one side we can see that neuromarketing ensures that marketing management is better and efficient which in return increases the sale of certain products, but on the other side is the ethical issues that underline neuromarketing as a marketing tool. The important question is "How much free will of the customer is still left?" (Ariely & Berns, 2010) Consumers' wants a variety of products to choose from without comprising the quality. They want to buy the right product for the best value for their money. But at the same time they want the option to choose, the option of free will. One of the biggest issue that the public is concerned with is certainly the possibility of

creating such products and marketing campaigns that would be "impossible to resist". The general public is concerned about finding a "purchase key", i.e. a brain area which is in charge of purchase. (Ariely & Berns, 2010). Another is the question of whether there is a buy button in all our brains? (Ariely & Berns, 2010). Can there be a certain region in the brain that controls our decision making process. Neuromarketing techniques so far have been able to analyse parts of the brain which shows activity when a certain product is used or viewed. This information is used to make marketing strategies that can influence the purchase decision. But finding the buy button is still a far from reach. The closest is to influence the decision making process. Another ethical issue from field of neuromarketing is related with the experiments conducted. The information collected by the neuromarketing firm, how far is safe? Is the private information of participants being misused? Are companies selling information of their participants? These are some of the questions that have risen in relation with the use of neuromarketing. Due to these reasons Murphy et al. (2008) suggests the creation of code of ethics in the neuromarketing industry. Most of the firms have their own code of ethics or their follow code of ethics that an association of which they are part of have formed. These keep a check so as to ensure that neuromarketing is used in a right and appropriate manner. Another issue is that are the participants being effected by any of the experiments? Is it causing anxiety or bring about fear in the participants? Nicolae Al. Pop, Dan-Cristian Dabija and Ana Maria Iorga (2014) in their study showed that companies who carry out these experiments are indeed very much concerned about their participants and that they have to adhere to certain rules and regulation and also keep in line with the code of ethics they follow. They make sure that the participants have not had any neurosurgical intervention and that they follow a strict selection criteria in selecting their participants. Companies also make sure that the equipment used complies with regulatory standards as well. Such efforts taken by the company ensures that the experiments do not or induce a minimum level of anxiety on the participants. As neuromarketing expands, it does hold inevitable ethical issues that will arise. Using such a method in food and beverage industry has seen its fruits, but as discussed above have brought about many ethical concerns. Using neuromarketing as a better marketing tool so as to market products to children have brought about threat to the health conditions of children. Neuromarketing which has helps companies develop their products so as to attract more customers have seen children getting addicting to unhealthy food products/ junk food. The end result is obesity. One in every three teens is obese. Children who are obese at a young age remain obsess throughout their life. Adolescents going

through puberty that is hormonal stages are found to be susceptible to advertising. With growing use of social media, children get exposed more and more marketing tactics which ultimately effects their lives. As efforts to market through social media increase, we can say that teens will ultimately get addicted to social media which can also be seen as an ethical issue. Another ethical issue is that fact of privacy of information. This is in terms of customers. Marketers have started using increasing number personalization strategies whereby they collect information of customers so as to provide personalized experience with relation to the product to the specific customer. The ethical concern here is the fact that is the information collected safe? Another marketing technique that bring ethical concern is the effects from that of priming. The technique of subconsciously influencing the decision making of consumers brings back the question “How much free will of the customer is still left?” Even though efforts taken by different companies and associations have reaped its benefits of addressing those ethical issues, there still lies unanswered ethical concerns that have come to existence with the use of neuromarketing. But the ultimate job of various brands is to try to convey to the consumers that neuromarketing if used in the most appropriate way can help consumers get the best product at the best price at the best quality, which is ultimately whatever customer wants.

#### **4. Conclusion**

Neuromarketing has indeed revolutionized business by moving it away from traditional marketing practices. It is a growing field that is slowly evolving marketing practices. An insight into the consumers’ subconscious reactions towards advertisements proves to be very useful for businesses these days which surely give the company an edge over its competitors. Neuromarketing serves as a great feedback mechanism as it uses scientific methods to evaluate the subconscious reactions of individuals which cannot be tampered or faked. It also conveniently eliminates the possibility of personal bias affecting the feedback. This in turn allows marketers to develop an effective and efficient marketing mix that ultimately satisfy consumers better who are the central tenet of every market. (Grose, 2006)

It is found through research that consumer decision making, in general, is largely dominated by emotions rather than logic. Neuromarketing solves this problem by properly blending emotional design into products and marketing campaigns thereby increasing sales for the organization. It

can effectively map the entire purchasing process from our initial perceptions to our final decisions.

Neuromarketing in the food and beverage industry can be used in multiple areas right from packaging to taste preference. It can be used to induce sales of fast food as well as instigate impulsive purchases. Neuromarketing, especially in the food and beverage industry has the power to colour the perception of the consumers particularly in favor of the products that the organization has to offer. To achieve this, it take the help of graphic media such as photos, logos etc.

A lot of researchers, nutritionists have raised several concerns of using Neuromarketing in this industry pertaining to obesity, addiction to junk food, lack on nutritional content etc. With advancements in technology, advertising and 24 hour opportunities, consumers always want more and are never satisfied with what they have. In such a scenario, an insight of what the customers want and feel about a particular product, acts as an added advantage. Although neuromarketing, used in the food and beverage industry has received several criticisms, it can be viewed as the future of marketing practices in the said industry.

## **5. Future Research**

Future research possibilities are endless for neuromarketing. There is still a lot to learn about neuromarketing as a whole. With major brands truly identifying the importance and benefit of neuromarketing, the need for research is increasing. Research can be carried out in the following ways.

First, research can be carried out pertaining to benefits neuromarketing has on various industries. This will help brands from various industries to truly understand the value of neuromarketing in their respective fields. Second, empirical research can be carried out for each individual industry. Carrying out empirical research for an individual industry helps to support the information already available plus it can add to the existing information as well. Third, carrying out research in different areas within food and beverage industry. This will help to understand the scope of neuromarketing in food and beverage industry in depth. Fourth, give importance to the need to study about the various other ethical issues within food and beverage industry and find solutions for it.



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