

Neuromarketing: Recent Trends and their Impact on Purchasing Behavior of Consumers

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ABSTRACT

Neuromarketing, a process that is being widely used by many corporations since the past five years, helps to access and stimulate the responses of customers through the use of various technologies of paralanguages like Eye gaze, packaging, product designing, color coordination, decision making and the subconscious human brain. The term Neuromarketing was independently coined by Ale Smidt's, a tool that is very essential in terms of Retail since it helps to study a human brain and how it reacts towards advertisements, images and other marketing tools through functional Magnetic Resonance Imaging (fMRI). A few successful cases of companies using Neuromarketing are Yahoo, Hyundai, PayPal, Cheetos and VI. The objective behind this research paper is to find how Neuromarketing is being intensively used by various companies that is not only helping them to boost their profits but to also have a strong understanding of a customer's psychology.

Keywords: *Neuromarketing; Brain research; Eye tracking; Electroencephalogram (EEG); FMRI; Neuro-imaging.*

1.0 Introduction

Neuromarketing is a combination of two words, 'Neuro' referring to the nervous system in a human being and 'Marketing' referring to the process of promoting a product or service to the consumers. Therefore, Neuromarketing refers to the process as used by various organizations which deals with activities that helps such organizations in promoting a product or service to the consumer after studying the various psychological aspects that might affect their buying behavior. Neuromarketing is usually executed in two ways either by measuring the neurological brain activity using activities such as EEG, fMRI, etc. or inferring neurological responses directly from the consumers using activities such as eye tracking, face coding, etc.

Some of Neuromarketing techniques for marketers are: -

Eye Tracking - Eye tracking is a tool of analysis that associated visual attention with the cognitive and emotional responses of the consumers which makes the measurement process subtle and accurate with less or no interaction between the researcher and the subject & it indicates by its name that eye contact allows us to know the potential thinking of the customers while seeing the packaging, designing &etc. of the product in real time purchasing as well as in the labs. The main motive is to gather the attention of the customer/purchaser. It also helps in differentiating between the two similar products but with different packaging to gather information that which packaging had more impact on the buyer.

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Electroencephalogram (EEG) - EEG continues to be one of the most frequently used techniques of measurement as used by researchers for its speed and accuracy. This process of measurement involves small metal discs called electrodes that are firmly placed on the subject's scalp and that helps in measuring the activity that is going on inside the brain. It helps in tracking the minds of the customer while they are planning to purchase an item basically it specializes in reading the mind. This technique can be used in tracking the preferences of the customer for example I they saw a product whether they liked it or repelled to the product.

Facial coding -Happy, sad, disgust, confused and various other emotions play a very vital role for marketers whenever they launch a new advertisement to know how their consumers feel about the same, it basically depicts that it is the main characteristics to code what is the first impression that the customer has perceived. The main through which we can depict in facial expression are eyes, as it is been said that eyes never lie.

Sensory Marketing - Facial coding is the process as used in Neuromarketing which involves in face reading and understanding a consumer's reaction as they watch and review an advertisement, a product or a service for the first time. As we know there are many sensory organs which we can help us to market i.e., eyes, nose, tongue, skin & touch. These sensory organs help for example if we visit a market where we see a brighter color hoarding / banner we get attracted to it similarly when some sales person is pitching everyone to visit him then also, we get attracted to it so which states that sensory marking is effective in Neuromarketing.

Psychological tricks - There are numerous psychological tricks used by researchers in order to get the best results while using Neuromarketing. A few of those psychological tricks are empathizing with the consumers, providing convenience and discounts, improving user experience, making your consumers feel safe, providing great consumer support, and making use of social media.

2.0 Literature Review

Christophe Morin (2011) explains_neuromarketing is an arising field that connects the investigation of customer conduct with neuroscience. This paper talks about the guarantee of the expanding field of Neuromarketing and recommends it can possibly fundamentally improve the viability of both business and cause-related promoting messages all throughout the planet.

Further Harit Kumar and Priyanka Singh (2015) explains the theoretical part of Neuromarketing as a compelling apparatus for an advertiser in the new period of business sectors research for our present wise purchaser. The goals of their examination center around the position and rise of Neuromarketing just as the practices engaged with current situation as Neuro-imaging, EEG, fMRI, Eye Tracking, and so forth paper measure the customer rationalization purchasers repudiate themselves, saying what they need, yet doing what they feel.

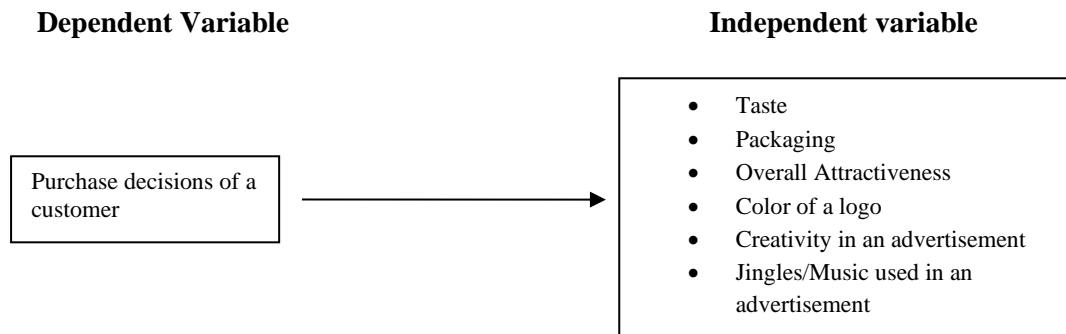
Further Clement Levallois, AleSmidts & Paul Wouters (2019) explains the emergence of neuromarketing through the first mention of the term in traditional and new media until the stabilization of the field. Their main interest is to establish whether neuromarketing developed separately as an academic field and as an industry (with knowledge transfer from the former to the latter), or whether it was an act of co-creation. Based on a corpus gathered from a systematic search on the Web, they trace the multiple forms of engagement between academic and commercial communities, echoed but also shaped by reports in traditional and new media. They found that neuromarketing developed an identity through a set of practices and a series of debates which involved intertwined communities of academic researchers and practitioners.

Further Lorena Robaina-Calderín & Josefa D.Martín-Santana (2021) explains the growing interest in a deeper understanding of consumer behavior. This study is mainly aimed at carrying out a systematic revision of the literature on neuromarketing from a holistic point of view, analyzing its

definition and processes, as well as more specific aspects such as its ethics and applications. Based on the results of their review, following a combined methodology with a base dictionary and text mining, their study presents both the current lines of research and the future lines of work.

Further Margherita Zito, Alessandro Fici, Marco Bilucaglia, Francesco S. Ambrogetti, and Vincenzo Russo (2021) explains the effectiveness of the UNICEF bequest campaign in terms of emotional response, comparing different creative proposals to optimize communication, applying neuromarketing tools to the social area.

3.0 Analytical Framework



4.0 Research Methodology

4.1 Research objective

- To understand the factors influencing the purchase decisions of a customer with respect to the various neuromarketing tools used by organizations at present.

4.2 Hypothesis

H1: To find out the impact of taste of a product on the buying behavior of a customer.

H2: To find out the different types of packaging, new trends related to packaging and the impact of these trends on the purchase decisions of various customers.

H3: To find out the importance of the overall attractiveness of the packaging of a product in the purchase decisions of a customer.

H4: To find out the impact of the color of a logo in its overall attractiveness leading to a customer purchasing that product.

H5: To find out the new trends and technology being used in commercials/advertisements and their impact on a customer's buying behavior.

H6: To find out the impact of jingles/music used in an advertisement on a customer's purchase decision.

H0: Factors such as taste, packaging, overall attractiveness, color of a logo, creativity in an advertisement and jingles/music used in an advertisement does not affect the purchase decisions of a customer.

4.3 Research statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0.705	9

Cronbach's Alpha is more than 0.7, which means that the mentioned 9 variables are reliable.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.653
Bartlett's Test of Sphericity	Approx. Chi-Square	183.563
	df	36
	Sig.	0.000

This test fulfills the assumption of KMO which needs to be more than 0.6 and here it is 0.653 which means that the sample is adequate up to 65.3%. Also, the significant value should be less than 0.05 and here P-value is 0.000 which means the result is appropriate and normality is achieved.

Communalities		
	Initial	Extraction
PRICE	1.000	0.781
exciting packaging	1.000	0.551
Appealing logo	1.000	0.700
Innovative and attractive advertisement	1.000	0.501
Exciting jingles/music in the commercial	1.000	0.626
Environment-friendly product	1.000	0.723
Health conscious product	1.000	0.770
Social message	1.000	0.728
Taste of the product	1.000	0.720

Extraction Method: Principal Component Analysis.

The basic assumption about communality is that it should be more than 0.5 and in the above table it is achieved as all the values are above 0.5.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.831	31.455	31.455	2.831	31.455	31.455	2.256	25.068	25.068
2	1.947	21.629	53.084	1.947	21.629	53.084	2.177	24.193	49.260
3	1.322	14.688	67.772	1.322	14.688	67.772	1.666	18.511	67.772
4	0.897	9.971	77.742						
5	0.543	6.032	83.775						
6	0.455	5.055	88.830						
7	0.419	4.657	93.487						
8	0.330	3.663	97.150						
9	0.256	2.850	100.000						

Extraction Method: Principal Component Analysis.

The above table shows the total variance explained by 3 factors and it is 67.772 which is satisfactory. This states that 67.772% of variance is explained by mentioned 3 factors in the model.

Rotated Component Matrix ^a				
S NO.		Component		
		1	2	3
1	PRICE	0.080	-0.011	0.880
2	exciting packaging	0.070	0.739	-0.010
3	Appealing logo	0.286	0.684	-0.387
4	Innovative and attractive advertisement	-0.068	0.698	0.096
5	Exciting jingles/music in the commercial	0.187	0.768	0.022
6	Environment-friendly product	0.819	0.213	0.082

7	Health conscious product	0.874	-0.079	0.021
8	Social message	0.816	0.183	0.166
9	Taste of the product	0.150	0.008	0.835
<i>Extraction Method: Principal Component Analysis.</i>				
<i>Rotation Method: Varimax with Kaiser Normalization.</i>				
<i>a. Rotation converged in 5 iterations.</i>				

The above rotation component matrix shows the statements falling under which factors. The KMO value for each statement is near or more than 0.6 which fulfills the basic assumption. As from the table, we can say that statements 6-8 come under Component 1 which is Societal Factors. Statements 2-5 come under Component 2 which is Sensory Factors. Statements 1 and 9 come under Component 3 which is Actual product related factors. So, from this table, we can get the statements and appropriate factors, and all the hypotheses and criteria are met.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.811	3

Cronbach's Alpha is 0.811, more than 0.7, which means that the Societal Factors are reliable.

Cronbach's Alpha	N of Items
0.720	4

Cronbach's alpha is 0.720, which is more than 0.7, which means that the Sensory factors are reliable.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.705	2

Cronbach's Alpha is 0.705, which is more than 0.7, which means that the product related factors are reliable

5.0 Conclusion

The purpose of this research paper is to study the purchase behavior of various customers and the influence of factors such as price of a product/service, exciting packaging of the product, appealing logo as used by the brand, innovating and attractive advertisement, exciting jingles/music used in a commercial, how environment-friendly the product is, how health conscious is the brand and the product that it is manufacturing, social message behind a commercial/brand, and taste of the product being manufactured.

It is true that the awareness of Neuromarketing and its execution is rapidly rising in the market and all the marketers are coming up with new ways to study the changing behavior of their customers and how they can use different neuromarketing techniques to influence these customers in purchasing their product/service. Variables such as price of a product and the eight others, as studied in this paper, have been concluded as the major reasons that influence these customers and affect their buying behavior severely.

We have come a long way in terms of marketing and marketing techniques and in the current ongoing era, studying neuromarketing and its influence on customer has become more important than manufacturing the product. Lastly, from the primary research (survey) that was executed as a part of the ground work for this paper, we found out that not only the variables that are directly related to the product influence these customers but also variables that indirectly related to the product or the brand such as the social message behind a commercial or even the music that a brand uses for its advertisement. This can just be noted as the beginning of neuromarketing and in the coming era of AI and AR, Neuromarketing is going to become one of the major attractions and key areas for marketers.

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