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KNOWING IS BELIEVING: A STUDY ON AWARENESS AND ETHICAL CONCERNS AROUND NEUROMARKETING IN INDIA

SUNANDA BANERJEE

Ph.D. Student- Management Department, FMS, Banasthali University
India

ABSTRACT

With new avenues of technology flooding the market, it is a delight for researchers and brand custodians to discover and test new methods of market research. It opens up major opportunities and an overwhelming set of advancement in understanding consumer behavior. Especially when the topic under study is as nascent and lesser known like Neuromarketing is under consideration, it brings a lot of speculation and questioning of the credibility. Hence, a granular understanding of the subject and related aspects of ethics, by taking the view of the prime custodians of the field, is of immense use to the overall literature of Neuromarketing in India.

The study tries to understand the perception of marketing professionals towards different multiple dimensions of Neuromarketing tools, including its ethical approach and related perception. Incomplete knowledge and ignorance is the root cause where gray shades in any research comes up and leads to misconceptions amongst researchers.The results provided evidence that ethical concerns negatively affect respondents' intentions to undertake Neuromarketing studies. Further, it was also found that awareness, acceptability and attitude are significant positive predictors of marketing professionals' intention to participate in Neuromarketing studies. Overall from this research it is quite evident that Neuromarketing has the potential to make inroads into Indian marketing industry if the Neuromarketing companies/consultants increase and maintain their dialogues with the rest of industry professionals and keep them informed and updated with the benefits along with clear the air regarding ethical concerns of Neuromarketing in market research.

Keywords: *Neuromarketing, Advertising, Marketing Ethics.*

1. Introduction

Neuromarketing is legitimately a new area and is of a lot of interest to the current lot of marketing researchers (Morin, 2011; Dinu&Tannase, 2010). Neuro-marketing is the domain of marketing that studies the responsiveness of brain to marketing strategies. The research is carried out through the usage of medical technologies such as functional magnetic resonance imaging (fMRI), Magneto encephalography (MEG), Positron Emission Tomography (PET), Eye tracking (eye tracking), Galvanic skin response, Electromyography (EMG) and electroencephalography (EEG) to examine brain activities in reciprocation to advertising, branding or any other marketing messages.
Neuromarketing measures encoding of individual's memory, sensory approach to a product, how human emotions behave when confronted with a product or service, brand loyalty and its preference among consumers and how often people can recall the brand.

Over the last few years, there has been increasing demand for Neuromarketing by companies for conducting research in the field of advertising and brand promotion with the biggest advantage of having the potential to peep into consumers' mind and reveal hidden information. At the same time critics believe that marketers use the discipline to swindle customers for their benefits (Perrachione, 2008). Further, Akin &Sututemix, 2014 believe that the Neuromarketing is not ethical since it reveals consumer emotions that affect their buying decisions. Furthermore, since Neuromarketing mainly uses brain imaging techniques, it is feared that critical aspects of the human brain may be derived along with the marketer's data causing threat to the privacy of their ideas leading violation of consumer rights, their privacy and confidentiality.

Against this backdrop, the main purpose of this research paper is to study the perception of marketing professionals towards different dimensions of Neuromarketing tools with special focus on ethical concerns of the respondents towards Neuromarketing. The remainder of the paper is organized as follows. Section 2 presents the literature review, Section 3 describes the research methodology employed for the study. Section 4 presents the results of the survey. Finally, Section 5 provides a summary and concludes.

2. Literature Review

Neuromarketing was first introduced by Ale Smidts, Professor at University of Erasmus in Rotterdam (Roebuck, 2011), the term indicating the use of neuroimaging techniques in market research. Bright House, America was the first company mentioned in the literature to have used the term Neuromarketing (Cacioppo&Berntson, 2005). One of the most commonly cited study on the application of Neuromarketing, "Cola Brains", which was first published in 2004 and had released the research results of professor Read Montague at Baylor College of Medicine in Houston, Texas (McClure et al., 2004; Pispers&Dabrowski, 2011). The next section presents the review of relevant literature on the subject. This section reviews the literature relating to Neuromarketing. It broadly covers literature covering articles in Neuromarketing related to consumer buying behavior, advertising effectiveness, advantages over traditional methods, ethical concerns of Neuromarketing etc.
Neuromarketing is legitimately a new area and is of a lot of interest to the current lot of marketing researchers (Morin, 2011; Dinu&Tannase, 2010). To summarize a few, many researchers consider Neuromarketing techniques beneficial to both consumers and organizations. According to these authors, consumers would gain from the creation of products and campaigns that suits their needs and for organizations it would lead to saving of vast resources spent in inefficient and ineffective campaigns, ensuring greater competitiveness and improvements to customers.

Further, many authors have also claimed that with the use of state of the art resources can be used to understand the consumer buying process (Schneider &Woolgar (2012) and to how consumers make choices during the purchase process. Lee et al. (2007) claim that Neuromarketing has become a popular technology to establish the probability and non-probability of purchasing decisions.

Furthermore, several authors have claimed that using Neuromarketing techniques, it is possible to identify advertising elements that trigger positive feelings (Senior & Lee, 2008, Fugate, 2007 and Ohme&Matukin, 2012). In addition, some authors have also identified elements that should be avoided which could cause consumer aversion to the products. In the same context, it can also help in the selection of visual and sound features, as well as the timing and selection of appropriate media (Fugate, 2007).

In addition, several authors have flagged the ethical concerns in Neuromarketing as they believe that the Neuromarketing is not ethical since it reveals consumer emotions that affect their buying decisions.
Milne and Gordon (1993) have placed three main privacy concerns that consumers generally have, which are transparencyand their levels of awareness when personal data are collected/ disseminated; protocols to ensure protection ofinformation from intruders; liability andavailable remedies if data are improperly used or errors occurin records. Rapp et. al, mention that despite all the claims that mention storage of consumer data as the method of marketing anyways flourishing, it ignores the part where illicit usage of this data can causer greater harm. Personal information spread across a number of sources is always of some value to existing and potential exchange partners. However, this inherent worthmust be balanced against the privacy concerns expressedand implied by consumers who experience vulnerability anda loss of control.
In Indian context, Telang et al (2008) explored the basic concepts of Neuromarketing, neuroscience and examined how both can be employed by firms to boost their sales. The authors reported in their study that many companies are using Neuromarketing techniques to revisit their earlier understanding of consumer preferences. Further, they conclude that a lot of potential exists for Neuromarketing in India.

Madan and Popli (2016) tried to identify factors for the acceptance of Neuromarketing by studying the inputs of experts using ISM framework. The authors report that top-level variables have weak driving power and strong dependence on other variables. The results also indicate factors like strong literature and academic evidences, new technology adoption, accuracy in research, high impact ad-campaigns and new product development opportunities as drivers of acceptability of Neuromarketing in India. The companies should focus upon adopting strategies for focusing more on the driving variables in order to achieve the dependence variables obtained in the diagraph.

After reviewing the literature in the International and Indian Context, it is quite evident that applications of neuroscience have grown to some extent in the area of marketing especially because of several reasons including increasing awareness, reduction in cost of neuroscience equipment. However, limited researchers

having formal training in cognitive neuroscience and the fear produced by public criticism related to ethical issues involved in the use of neuroimaging has been a major roadblock.

3. Research Methodology

3.1 Objectives and Scope: The objective attempts to understand the level of awareness of individuals working in advertising industry towards different dimensions of Neuromarketing. Through a primary survey, it measures the level of awareness and perception towards important element of Neuromarketing tools, with a focus on ethical issues around the subject.

3.2 Sample Design

3.2.1 Population & Sample: The data was collected from advertising and marketing professionals, consultants and academicians using an online questionnaire. Approximately 1200 respondents were targeted and a total of 439 responses were obtained from the survey process. Of the total 439 responses received, 46 invalid responses were removed due to incomplete/invalid/outlier responses. The final analysis was carried on 393 valid responses. The respondents were predominantly advertising professionals, experts of consumer behavior and specialists of Customer Experience and Customer Interface. This variety of data helped to derive a holistic understanding of the viewpoints and derive a more rigorous objective achievement. The study was conducted in the Indian subcontinent with focus on the metro cities of Mumbai, Delhi NCR, and the city of Pune. Exploratory research was carried out to identify comprehensively the dimensions/ factors associated with the research problem(s), followed by descriptive and causal research to narrow down the dimensions or factors identified. Moreover, the research also examines the significant relationships among variables of interest using regression analysis.

3.2.2 Research Instrument: On the basis of relevant literature review (Table Below), a questionnaire was designed to collect the data for the second stage. The questionnaire was pre-tested to a sample of fifty (50) respondents. After the pre testing, the questionnaire was refined and some of the questions were reframed or were slightly modified. Respondents were asked to assess their perception of various items of different constructs. They were asked to contact the researcher if they encountered any difficulty in responding to the questionnaire. The data was analyzed using a statistical analysis software package, SPSS 21.0.

3.2.3 Estimation Techniques: To begin with graphical representation of demographic profile of respondents was presented. The exploratory factor analysis (EFA) was conducted in SPSS 21 statistical package wherein construct validity, discriminant validity and reliability were tested. Factor-wise Descriptive Statistics were carried out to test the significance of association between select variables of interest and related to the domain of research in this study.Finally, Regression Analysis was used taking ethical concerns about Neuromarketing and attitudes towards Neuromarketing as independent variables.

4. Results, Analysis & Interpretations

4.1 Demographic Profile of Respondents: As seen from the graphical representation of the data collected from first part of the questionnaire more than one fourth of the participants were from Gurgaon and NCR region, followed by Mumbai and Pune. Approximately 47% of the respondents were from other cities of India. Majority of the participants were from Mumbai and Pune. Approximately 35% respondents of the total sample were from Mumbai and Pune. Another 15% of the respondents were from Delhi & NCR region. 14% of the respondents were from Kolkata. Another 13% of the respondents were from southern states of India. The rest of the participants, approximately 23% have been grouped as others in the figure.
In terms of the type of organisation in which the respondents were working, majority (29%) worked in unlisted private firms. Another 24% worked in partnership firms and 17% worked in partnership firms. Approximately 27% were clubbed together in others category including LLP's, Independent Consultants, One man company, subsidiary company, startup etc.

In response to the question regarding whether their parent organisation caters to international clients majority of them responded with a positive response. Only 16% catered only to Indian markets rest all were catering to both national and international markets.

For questions regarding which sectors do you cater to approximately 27% majorly catered to retail sector, 19% catered to Manufacturing sector, 17% catered to FMCG sector, 14% to IT sector, 8% catered to banking and rest 3% catered to Education sector.

Regarding questions related to whether their respective organizations catered to international clients, majority of companies in which respondents worked claimed that their organization worked on international projects. In case of respondents' organization type, majority worked in public/private limited companies and few also worked independently in sole proprietary firms.

4.2. Factor Analysis: In order to understand the perception of marketing professionals towards different dimensions of Neuromarketing tools, a self-administered survey was conducted comprising of two major components namely Awareness about Neuromarketing and Perception towards Ethical concerns of Neuromarketing. The components were selected on the basis of extensive literature review along with brainstorming and discussions with Neuromarketing experts through structured interviews.

The responses on these 36 items were measures on a 5 point Likert scale wherein

1= Highly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Highly Agree.

To confirm the dimensional validity and the underlying factor structure, exploratory and confirmatory factor analysis were performed. Next section provides the results of Exploratory factor analysis.

4.2.1 Exploratory Factor Analysis

In order to check the dimensional validity and the underlying factor structure, exploratory factor analysis was performed. The exploratory factor analysis (EFA) was conducted in SPSS 21 statistical package. Table 2 summarizes the preliminary results of the exploratory factor analysis. The KMO (Kaiser-Meyer-Olkin factor adequacy) estimated for the data collected is 0.81. It has been recommended in literature that KMO value greater than of 0.5 of KMO for factor analysis is considered sufficient (Kaiser,1974). Next, the Meyer-Olkin factor adequacy value reported for the data collected is Chi-Square: 3150.96, df= 392, P. Val = 0.00. A significant Barlette's Test ($p < 0.05$) indicates that the correlation matrix is not an identity matrix. Table 2 also summarizes the factors extracted. Further, all the six factors extracted through EFA have Eigen Values (SS loadings) greater than 1, which indicates that all the factors to be considered are significant (Field, 2009). Furthermore, all the six factors are able to explain 86 % of the total variance captured.

Table 1: Factor Analysis Summary

Kaiser-Meyer-Olkin factor adequacy: 0.81

Barlette's Test of Spercity

Chi square: 3150.96, Prob. Val: 0.00, Degree of Freedom: 392

Factor	**Comp2**	**Comp1**
Sum of Squared loadings	3.514	3.048
Proportion Var	0.181	0.157
Cumulative Var	0.181	0.68

The first factor Comp3 has an SS (Sum of Squared loading) of 3.514, this factor measures the acceptability of Neuromarketing among marketing professionals. The second factor namely Comp4 (SS loading 3.409), captures the Perception towards Ethical concerns of Neuromarketing. The third factor Comp2 (SS loading 3.100), captures the respondents' perception towards the utility of Neuromarketing driven Marketing Mix. The fourth factor Comp1 (SS loading 3.048) captures the Neuromarketing professional's awareness about neuro-marketing. The fifth factor Comp5 (SS loading 2.180) captures the attitude towards utility of acceptance of Neuromarketing. The last and sixth factor Comp6 (SS loading 1.363) captures the respondent's Intention to undertake Neuromarketing studies.

Table 1 summarizes the factor structure and loadings. Considering the sample size of the study factor loadings less than 0.40 were supressed. However, all the items in the questionnaire scored factor loading above this threshold, therefore, all the items were retained after performing the factor analysis.

4.3. Confirmatory Factor Analysis: The initial six factor solution obtained from the EFA was also subjected to confirmatory factor analysis (CFA). CFA allows the testing of the hypothesis that a relationship between observed variables and their underlying latent constructs exists. CFA was conducted is SPSS 21. Table 2 summarizes the CFA results.

Table 2: CFA Results

Indicator	Value
Comparative Fit Index (CFI):	0.925
Root Mean Square Error of Approximation (RMSEA):	0.074

The value of the fit indexes CFI and RMSEA are 0.925 and 0.074. The acceptable value for CFI for a CFA model should be greater than 0.90 and for RMSEA, this value should be less than 0.1 (Bryne, 2012). Since both the fit indexes have values within the specified limits, therefore, it can be concluded the observed data fits the factor structure.

Validity is the ability of instrument to measure what it supposed to measure for a latent construct. As prescribed in the literature convergent validity, construct validity and discriminant validityweretested for our instrument:

Item	Estimate	Std. Err	P. Val
f1	1.021	0.043	0.00
f2	1.105	0.043	0.00

4.4.1. Construct Validity: Construct validity is achieved when the Fitness Indexes for a construct achieved the required level. From the fitness indexes mentioned in Table 4, it is evident that CFI 0.925 and RMSEA 0.074 are within the acceptable limits for the measurement model. Therefore, it can be concluded that the measurement instrument has good construct validity.

4.4.2. Discriminant Validity: The requirement for discriminant validity is the correlation between exogenous constructs should not exceed 0.85. It is evident from Table 3, that none of the covariance between the constructs are above 0.85. Thus, the model has good discriminant validity.

4.4.3.Reliability: The reliability of the constructs is checked through Cronbach's Alpha. Field (2009) recommends a cut-off value of alpha ≥ 0.70 for a construct to be reliable. As per Table 6, all the constructs have Cronbach's Alpha value above the 0.70 threshold.

Table 3: Testing Reliability

S.NO	Factor	(AVE)	Cronbach's Alpha
1	Awareness about Neuromarketing	0.9382	0.9123
2	Perception towards Ethical perspective of Neuromarketing	1.1532	0.9315

Table 4: Factor-wise Descriptive Statistics

S. NO.	Factor	Mean	Std. Deviation
1.	Awareness about Neuromarketing	14.642	3.890
2	Perception towards Ethical perspective of Neuromarketing	23.438	6.162

The overall mean score for the awareness scale is 14.642 (sd: 3.890) (max score =30, as there are 6 items measured on 5 point Likert scale). This shows that on a whole, the respondents of the sample are somewhat not well aware about Neuromarketing, as the mean score is below 15.

The overall mean score for the ethics scale is 23.438 (sd: 6.162) (max score =40, as there are 8 items measured on 5 point Likert scale). This shows that on a whole, the respondents of the sample to some extent agree on ethical concerns of Neuromarketing, as the mean score is close to 24.

5. Findingsand Conclusions

The objective of the paper was to explore and assess the concept of Neuromarketing in the Indian context in collaboration with Academia and Industry experts. And more importantly, if ethics is an important enabler or disabler in future path of these studies, It covers useful information on how Neuromarketing is an upcoming set of path- breaking, precise and actionable set of techniques et to change the landscape of marketing research, brand placement and its growing impact on the global and Indian markets. This study measured the awareness of marketing professionals' attitude towards six important dimensions of Neuromarketing that included their perception towards Ethical concerns of Neuromarketing.

The factor related to acceptability of Neuromarketing and ethical concerns got high weightage implying that Neuromarketing has been able to develop some level of acceptability among the professionals at the same time the professionals are also aware of the ethical concerns of the field. Another important finding was that the professional's awareness about the different facets of Neuromarketing was low which may be another reason for lower application of Neuromarketing tools in marketing research.

The analysis revealed that Perception towards Neuromarketing driven Marketing Mix and Ethical perspective negatively affect respondents' intentions to undertake Neuromarketing studies. Further, it was also found that awareness, acceptability and attitude are significant positive predictors of marketing professionals' intention to participate in Neuromarketing studies. From the results of regression analysis, it is quite clear that ethical concerns have been negatively impacting the intentions to undergo Neuromarketing studies. Similar finding was revealed during the initial phase of qualitative interviews during the research. This part of analysis brings to an important aspect i.e, unless here is complete awareness and shown utility to the users as well as consumers, the concerns around privacy and ethics would loom.
Overall from this research it is quite evident that Neuromarketing has the potential to make inroads into Indian marketing industry if the Neuromarketing companies/consultants increase and maintain their dialogues with the rest of industry professionals and keep them informed and updated with the benefits of applications of Neuromarketing in market research.

The findings of this research study offer both theoretical and managerial contributions to the application of Neuromarketing in the field of marketing research. These scientifically advanced techniques can be employed in understanding the exact opinion and expectation of customers towards product design, pricing, place, packaging, promotion, website designing etc.
In a hyper competitive environment where a lot of existing and new brands are struggling to make an impact, Neuromarketing can provide new evidence to unravel insights about consumer behavior which were not known before. But unless there is ample clarity on regulations and policies involved, there is a fair chance that it might be perceived as intrusive.
Further, Neuromarketing tools can aid in Innovation or Product Development. All this would be possible if the ethical issues are addressed when presenting and using consumer's subconscious reactions with the help of neuroscientific tools and techniques.
Furthermore, Neuromarketing tools have the potential of increasing Advertising Effectiveness. Neuromarketing tools need not be very different except the fact like any new technique, it needs clear communication of disclosure practices, regularized and authentic monitoring and responsible marketing.
In order to promote Neuromarketing research, evidencebased cases of successful implementation of Neuromarketing research should be communicated to the stakeholders. Further, the industry should promote more formal training so as to develop more experts in the area or reskill existing professionals which can understand more precisely the potential of Neuromarketing across the discipline and how new methods could help them in achieving organizational goals and objective more efficiently.
This study is limited to Indian context and that too for selected states thus the results of this research may not be generalized to the corresponding populations in other geographical locations.Similar research can be done using a comprehensive instrument to test the trends and threats of Neuromarketing in a wider or alternate geographical setting.

As an extension to this research, this researcher or any other researchers who are interested may conduct industry-focused longitudinal research studies to produce results that could help the organizations that seek improvement in their Neuromarketing research practices.

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