NEUROMARKETING IN THE CORE OF ANALYSING AND ANTICIPATING CONSUMER BEHAVIOUR IN THE AIRLINE BUSINESS SECTOR. APPEALING OR REPULSIVE FOR THE AIRLINE CUSTOMER?

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ABSTRACT

In parallel to the medical and psychological science, human brain has long been in the epicentre of modern business practice. 'Neuromarketing' constitutes a fundamental means to this process. Thus, notwithstanding the first signs of its genesis being viewed in medical terms in early 70s, it is only in recent years that neuromarketing research has grown exponentially. Yet, academic literature remains silent on the issue of neuromarketing application in the aviation sector. More precisely, the psychological resonance that practices of the kind could exert in prospective airline passengers' psychology is not represented in current literature, mainly considering that successful promotion and profitability are of paramount importance in the airline business. In this study 874 scientific publications have been reviewed. Neuromarketing is presented in its constituents while the following areas of extant scholarship are highlighted: psychological, emotional, decision-making, advantages, challenges and ethics. The study ends up to a proposed theoretical framework paving the way for further research against the backdrop of the relationship between neuromarketing methods application marketing mix and airline passengers' decisions.

KEYWORDS

Neuromarketing; consumer behaviour; psychology; emotions; ethics

1. INTRODUCTION

In current business practice decision-making is the milestone that brings customer into a profitable contact with business (Ouzir et al., 2024). One of the constituents of its value is its complexity which involves a breadth of cognitive processes, attention, learning and working memory of stimuli attracting an extended interest of marketers (Goulet-Kennedy et al., 2016). Especially the previous factors along with engagement and memorization are fundamental in decision-making, consequently scrutinising them can lead to constructive conclusions and effective decisions (Royo-Vela and Varga, 2022), an effort further empowered by neuroscience's observations that the majority of our decisions are made unconsciously in no more than 4 s (Royo-Vela and Varga, 2022). Thus, interestingly, while current consumer is not always aware of what actually motivates them to form a decision or choice, through this unconscious mental processing, surprisingly they frequently overestimate their evaluation being self-led to misleading estimates about the actual value of a good, service or outcome, a phenomenon highly expected in a situation heavily depending on 'perceptions' (Alsmadi and Hailat, 2021).

Neuromarketing is deemed as having the quality of a cutting-edge method, means and field on a scientific effort to uncover the potential intricacies and implications of external agents and stimuli in the human decision-making and preference formulation process thus, progressively, consumer responses towards products and services (Sebastian, 2014). However, although modern neuromarketing research has not yet approached and scrutinised a large extent of the brain operation and its relationship with human decision making it is regarded core and promising on the effort to 'decrypt' the totality of factors and processes that influence decisions' and choices' formation (Khurana et al., 2021). As a consequence, non-paradoxically, it is widely employed in the creation and development of product likeability as well as pricing strategies, even in the formation of effective promotional and social campaigns (Cherubino et al., 2019). It is therefore not by accident that it is witnessed in various domains – the vast majority of them related to business marketing and strategy - including advertising, packaging and branding, even politics (Kalaganis, et al., 2021).

The main purpose of this research is to analyse the degree of appeal that the employment of neuromarketing methods by aviation companies can exert on prospective airline customers. In order to serve the main aim, the following objectives have been set:

a. The identification of physiological and neuronic processes
b. The identification of the positive and negative aspects of neuromarketing employment
c. The identification of psychology-related aspects concerning neuromarketing methods
d. The identification of ethical implications upon neuromarketing practices

In order to better serve the above aim and objectives the research is organised on a systematic review of the literature, followed by a special section on the theoretical and empirical contributions of the study. In this section a theoretical framework will be created and proposed for further research. Finally, a brief summary and conclusions' part will complement the scientific effort.

2. LITERATURE REVIEW

In order to systematically review the literature, a related search was realised in two databases: Science Direct and Google Scholar. The research was conducted between 15 October 2023 – 24 January 2024. The words that have been employed in the search engines were: 'neuromarketing', 'neuromarketing and business', 'neurones and business', 'neuromarketing and ethics', 'neuromarketing and emotions', 'neuromarketing and branding'. The research unveiled 1,268 scientific publications. In order to avoid duplication 394 articles were excluded, thus the 874 accepted publications were classified in the following categories delineated below. For the analysis that follows the articles that relate most to the designated themes are those that are referenced below:

2.1. Physiological and neuronic processes

Being regarded as the 'child' born from the unification of 'neurology' and 'marketing' as a term 'Neuromarketing' was first heard in 1990s in the department of Applied Therapies in Harvard University and non paradoxically it has alternatively been named 'consumer neuroscience' directly paving the way for the customisation and adaptation of business offer towards customers' demands. However it was much later, in 2000 when scientific research reached its peak (Harrell, 2019). Undoubtedly, neuromarketing focuses on 'neurones', groups of human brain cells and studies the messages they release either in terms of neural functions and related chemical substances or through physiological characteristics such as eye-tracking movements (Harrell, 2019).

2.2. Psychology and emotions

As a result of the previous processes human brain incorporates multiple areas each one related to diverse feelings, where external stimuli stemming from the demonstration of products, services or messages address (Nakamura et al., 2016). Thus, in this way human brain is placed in the epicentre both of modern scientific research and business practice (Öberg, 2023).

However, the aim is not new. Marketers and business executives always wanted to penetrate and scrutinise the hidden areas of customers' human brain (Harrell, 2019). To this end, neuroscience played a pivotal role focusing on two types of neural networks: a. natural and b. artificial (Big Blue Data Academy, 2023). While the latter is on a promising ongoing stage mainly through the evolution of artificial intelligence, the former constitutes the current area of focus for neuromarketing (Grimm et al., 2024).

As a result, because of the systematic approach of human feelings and cognitive processes, the employment of neuromarketing methods facilitates precision in predictions, effective market segmentation and management of human behaviour and decision-making process (Venkatraman, et al., 2012). In this way, it can override any potential uncertainty and biases of the to date applied quantitative and qualitative methods, even the level of self-consciousness of the customer per se (Harrell, 2019).

2.3. Positive and negative aspects

Despite the benefits that emanate from the application of neuromarketing methods and the elimination of bias factors their application is not immune from drawbacks and

following the standards of rigorousness scientific literature stresses the positive and negative aspects of various types of the previous methods. The initial point on an effort to distinguish the two-faceted value is to identify the two main pathways to investigate neurones, a. brain scanning and b. physiological measurements. The first category is mainly represented by i. EEG – electroencephalogram which although scans and "reads" neuronic activity in parts of seconds still cannot provide a 100% analysis and investigate neurones in full (Greenblatt et al., 2023) and ii. fMRI – functional magnetic resonance imaging – equipment which detects blood flow alterations in human brain (Biondetti et al., 2024) which although being more precise it is at least 20 times more costly than EEG ($5 million against $20,000) and should always be performed in a lab (Harrell, 2019). The second category mainly incorporates: i. eye-tracking methods, ii. pupil-arousal methods, iii. Facial expression coding, and iv. Galvanic skin response/biometrics which are much cheaper than the methods of the first category however, resilient and could be combined with more traditional ones such as focus groups (Harrell, 2019). The fMRI is not new and has already been employed in experiments indicatively in beverages such as Coca-Cola vs. Pepsi to measure reactions before and after the awareness of a brand and in 2008 before and after price awareness at the School of Business Management, INSEAD, France. Neuromarketing companies are spread all over the world with main focus on U.S.A and Europe such as France and Greece and at a lower level neuromarketing is employed by companies active in various sectors such as Google, Facebook, Samsung, Apple, NBC News, Time Warner Broadcasting, British Airways (NMSBA, 2023).

Thus, it could be concluded that the methods of the second category are less penetrative than those of the first one, mainly focusing purely on human gaze, facial, heart rate and respiration reactions (Comu et al., 2021). However they do not provide detailed emotional measurements, being constraint to positive/negative responses, speed of recognition and level of engagement which are regarded as more superficial (Wilson et al., 1996). Additionally, each method is ideal for different aims e.g. fMRI and EEG are recommended for setting prices and branding strategies, while, biometrics and facial coding are ideal for advertising content (Hamelin et al., 2020) and eye and pupil tracking fit more to website design, advertisement improvement and branding.

In this way, it could be understood that not by accident the employment of neuromarketing methods has led scientists and marketeers to safe predictions of customers' final decisions, generating the so-called "neuronic indices of market forecasts", such as it happened in 2007 when neuromarketing experts from 3 top American universities successfully predicted consumers' decisions during an online elaboration of prices (I Kathimerini, 2008). In relation to this capacity it has been noticed that 'product', 'price' and 'promotion' are the elements of the marketing mix that are most soundly represented in academic scholarship (Scuderi and Sturiale, 2014; Córdova et al., 2022; Sawe, 2022). Thus, neuronic marketing could fairly be deemed a proper investment for the current business.

2.4. Ethical Considerations

However, every investment contains its own risk and in the case of neuromarketing the risk lies upon ethical considerations that are raised by experts and scholars in the field. One of the most crucial aspects is consumer's protection especially regarding the application of invasive methods is the lawfulness even of the circumstances under which they provide their consent (Clarke, 2013). As it always happens with any research activity

observing the standards of rigorousness, professionalism and ethics, specific aspects and protocol should be considered so as a predetermined objective designated committee to provide the required consent for the process to take place (Clarke, 2013). It is therefore fairly anticipated that such complicated procedures with ethical character should be conducted and run by proficient neuroscientists specialised in Marketing with suitable track record of successful applications of neuromarketing methods and tools also confirmed and published in highly esteemed journals (González-Morales, 2020). Part of the ethical dimension is the suitability of questions and representativity of samples, which adds greater value to the established superiority of the generated feedback against that of the traditional methods (Ariely and Berns, 2010). Thus, even if the previous elements link ethics with "technical" aspects of neuromarketing processes, there is one more substantial aspect related to the content of the provided messages, namely, the way that social and Corporate Social Responsibility messages are transferred, elaborated, interpreted and shared because of strongly influencing decisions and practices on sustainability (Alsharif et al. 2021).

3. THEORETICAL AND EMPIRICAL CONTRIBUTIONS

Regarding the theoretical contribution of the study, as a result of the extant scholarship on neuromarketing, a gap in the literature could be identified in relation to the perceptions of airline customers on the application of neuromarketing methods and the influence their perceptions could exert on their decisions as depicted in the following figure:

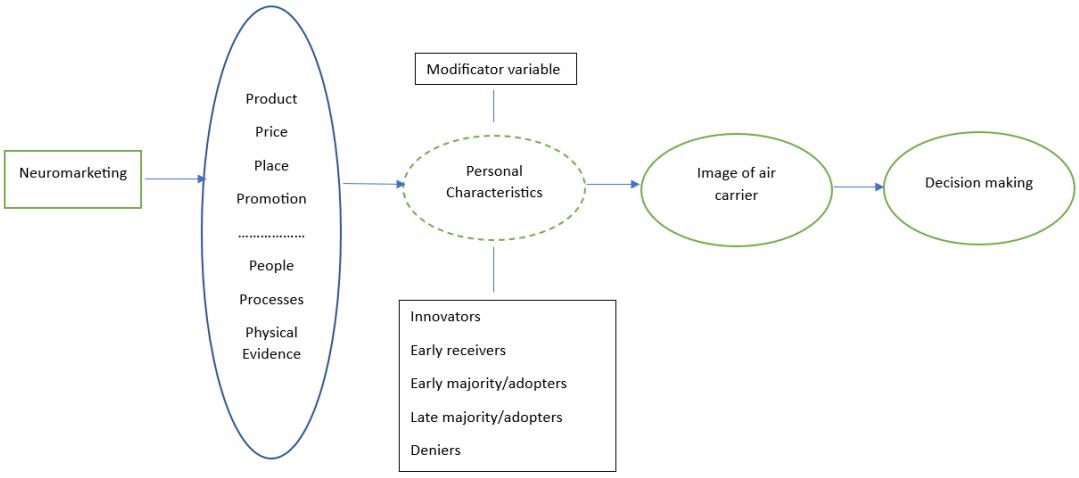

Figure 1: The proposed framework

In Figure 1 the independent variables are placed in square and the dependent in oval frames. The variable of air carrier image is regarded as 'perceived'. According to the figure, the feedback from Neuromarketing practices influences the construction of the marketing mix in which the first 4 Ps namely, Product, Price, Place and Promotion are complemented by the last 3Ps namely, People, Processes, Physical Evidence as applied in the case of service-related sectors (Kwok et al., 2020) such as the airline one. Thus, by means of the

customers' personal characteristics, the image about an air carrier employing neuromarketing methods is shaped in consumer's mind leading to respective decisions. Undoubtedly customers' personal characteristics relate to their quality as either 'innovators' – those to whom new inventions are applied, or 'early receivers' – those who adopt modern creations because of admiring the advantages of science and new technologies, or 'early majority/adopters' – those who adopt new achievements because of being informed about positive aspects, or 'late majority/adopters' – those who adopt new inventions because of being informed that advantages overrun potential drawbacks, or 'deniers' – those who will never see scientific inventions positively (Dimitriades and Tzortzaki, 2010). Finally, depending on the perceived image of the air carrier related decisions are taken supportive or non-supportive towards the company, progressively either supporting the company's product or abstain from being a customer.

Regarding the empirical contributions of the study, the systematic presentation of the literature highlights multiple aspects of neuromarketing methods employability, while the proposed research will provide constructive conclusions in order for the airline decision-makers to be aware of and respect ethical aspects which customers consider. Information of the kind is crucial in a sector which covers a substantial part in global GDP, namely $3.5 trillion - 4,1% (Statistics, 2024) while at the same time is vulnerable to crises as has been proved in the case of COVID-19 (IATA, 2021).

4. CONCLUSIONS

As showcased, neuromarketing is undoubtedly a tool of multi-level value and contribution for current business. In an era when business offer acquires an enhanced personalised character while operating within a globally competitive environment it seems being severely challenged by the modern sophisticated and savvy consumer who along with the producer has a powerful means of cutting-edge technology in their hands. In this critical and delicate process the extant 'safety nets' safeguard the observation of ethical and procedural rigorous standards to reinforce the scope of a company's image and appeal, airline companies not being an exception. In a world where Artificial Intelligence is thriving and customers of various cultural backgrounds and types of technology adoption levels are classified at a range from full acceptance to non-acceptance of what is regarded 'innovative' the endeavour is certainly not easy. Still, this process is not the only one of the kind. In the way that artificial neuronic networks imitate the operation of the natural ones, 'biomimics' in modern technology pave a parallel way for the resolution of managerial problems through the imitation of nature's functions. However, what should be considered is that while human brain has not fully been investigated further space is created to improve neuromarketing elements and to examine its role in air transport under multiple agents such as gender, culture and type of air carriers, generating the hope that the bright side of the initiative will overweigh the dark one.

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