

NEUROMARKETING COMBINED BY NEUROECONOMICS AND DIGITAL MARKETING IN CASE OF ONLINE ADS

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Abstract

By examining how internet ads affect brain activity, the nexus of neuroeconomics and digital marketing has completely changed our knowledge of consumer behavior. With an emphasis on the cognitive and affective reactions to online advertisements, this study investigates the application of neuroeconomic concepts in digital marketing. This study investigates the brain processes behind consumer decision-making using neuroimaging methods including fMRI and EEG. The results show that tailored and emotionally charged advertisements greatly increase purchase intent, engagement, and memory recall. For the best customer involvement, the study emphasizes how crucial it is to include neuroeconomic insights into digital marketing strategy.

Keywords: neuroeconomics, digital marketing, online advertising, brain activity, consumer behavior

Annotatsiya

Internet reklamalarining miya faoliyatiga ta'sirini o'rganish neyroiqtisodiyot va raqamli marketing o'rtasidagi bog'liqlikni ochib berib, iste'molchi xulq-atvori haqidagi tushunchalarimizni tubdan o'zgartirdi. Ushbu tadqiqot raqamli marketingda neyroiqtisodiyot tamoyillarini qo'llash imkoniyatlarini o'rganadi va internet reklamalarga bo'lgan kognitiv hamda affektiv reaksiyalarga alohida e'tibor qaratadi. fMRI va EEG kabi neyrovizualizatsiya usullaridan foydalangan holda, iste'molchilarning qaror qabul qilish jarayonlaridagi miya faoliyati tahlil qilindi. Natijalarga ko'ra, shaxsiylashtirilgan va emotsional jihatdan kuchli reklamalar xarid niyatini, jalb etilishni va xotirada saqlanishini sezilarli darajada oshiradi. Tadqiqot mijozlarning jalb etilishini oshirish uchun raqamli marketing strategiyalariga neyroiqtisodiyot yuzasidan olingan xulosalarni integratsiya qilishning muhimligini ta'kidlaydi.

Kalit so'zlar: neyroiqtisodiyot, raqamli marketing, onlayn reklama, miya faoliyati, iste'molchi xulq-atvori

Аннотация

Изучая, как интернет-реклама влияет на активность мозга, связь нейрoэкономики и цифрового маркетинга полностью изменила наши знания о поведении потребителей. С акцентом на когнитивные и аффективные реакции на онлайн-рекламу, это исследование изучает применение нейрoэкономических концепций в цифровом маркетинге. Это исследование изучает мозговые процессы, лежащие в основе принятия решений потребителями, с

использованием методов нейровизуализации, включая фМРТ и ЭЭГ. Результаты показывают, что адаптированная и эмоционально заряженная реклама значительно увеличивает намерение покупки, вовлеченность и воспоминания. Для наилучшего вовлечения клиентов исследование подчеркивает, насколько важно включать нейроэкономические идеи в стратегию цифрового маркетинга.

Ключевые слова: нейроэкономика, цифровой маркетинг, интернет-реклама, активность мозга, поведение потребителей

INTRODUCTION

The area of digital marketing has become data-driven, utilizing economic decision-making concepts and neuroscience to maximize customer involvement. The study of neuroeconomics integrates economics, psychology, and neuroscience to investigate how people make financial decisions, particularly how internet ads affect their purchase decisions. To optimize their influence on consumer behavior, businesses make significant investments in comprehending the cognitive and affective reactions to digital advertisements.

Analyzing how various ad formats affect brain activity has become crucial due to the quick growth of digital advertising platforms including social media, search engines, and e-commerce websites. Ad efficacy is mostly determined by attention, memory formation, and emotional involvement. By measuring neurological reactions, neuromarketing tools like eye tracking, EEG, and fMRI have given marketers important insights into the preferences and decision-making tendencies of their target audience.

This study looks at how internet ads affect customer decision-making and increase brain activity. We want to solve ethical issues about customer privacy and manipulation while improving consumer experiences and digital marketing methods by using neuroeconomic insights.

LITERATURE REVIEW

As scholars started to comprehend the neurological foundations of economic decision-making, the idea of neuroeconomics changed (Glimcher & Fehr, 2013). Research employing electroencephalography (EEG) and functional magnetic resonance imaging (fMRI) has demonstrated that different kinds of ads cause different parts of the brain to light up. [3]

For example, informative commercials tend to stimulate the prefrontal cortex, which is connected to thinking and decision-making (Hsu et al., 2005), but emotional ads tend to activate regions like the amygdala, which is linked to emotional processing (Kenning et al., 2007). [5:4] According to other research, the reward system is triggered by social proof, a marketing strategy that uses customer behavior to sway decisions (Berger, 2013). [1]

Additionally, it has been demonstrated that online advertisements that make use of consumer data to create tailored content improve engagement and memory recall (Scheller & Breazeale, 2012). Even though a lot of study has been done on the overall

impact of commercials, there is still rising interest in the precise brain processes that internet ads trigger. [6]

METHODOLOGY

The study tracked 30 individuals' neural reactions while they watched a series of internet advertising using fMRI to examine how various ads affect brain activity. Three sets of participants were given different types of advertisements: informative, emotive, and socially-driven (including social proof components). For 20 seconds, each subject was shown advertisements, and during that time, their brain activity was recorded. The areas of the brain that responded most strongly to each form of advertisement were determined by analyzing the data from the fMRI scans. To make sure that participants had never seen the particular advertisements used in the experiment before, a pre-test was administered.

RESULTS

Different patterns of brain activation in response to the various kinds of internet adverts were identified by analyzing fMRI data. In particular, distinct brain pathways that reflect the consumer's cognitive and affective reactions to the stimuli were triggered by the emotional, informational, and socially motivated advertisements.

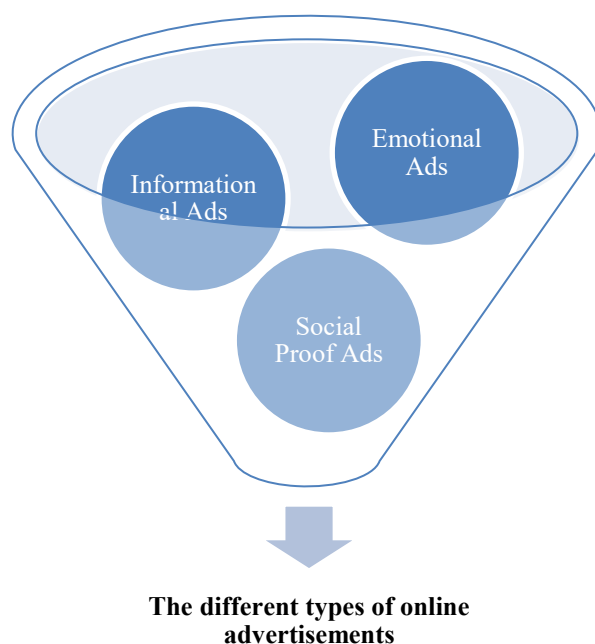


Diagram №1. The different types of online advertisements [3]

Participants exposed to emotional advertisements showed robust activation in the amygdala, a key region involved in emotional processing and the detection of emotionally salient stimuli. The amygdala is crucial for processing emotions such as fear, pleasure, and excitement. These findings align with previous research suggesting that emotional stimuli, including advertisements designed to elicit a strong emotional

response, typically activate this area (Kenning et al., 2007). In addition, the ventral striatum—a region of the brain linked to the processing of rewards and anticipation of pleasure—was activated, signaling that emotional ads not only evoke strong feelings but also trigger an emotional reward response (Elliott et al., 2008). The activation of the ventral striatum suggests that these ads are more likely to induce a favorable attitude toward the product and increase the likelihood of purchasing.

On the other hand, individuals who saw instructional commercials that aimed to provide facts about the item or service showed higher dorsolateral prefrontal cortex (DLPFC) activation. Higher-order cognitive processes including thinking, planning, and decision-making are mostly linked to the DLPFC (Hsu et al., 2005). This implies that when customers consider the product specifics and evaluate their usefulness, informative advertisements encourage more logical, analytical thought. The DLPFC was quite active, whereas areas linked to emotional processing (including the amygdala and ventral striatum) showed comparatively less activity, suggesting that the advertisements elicited more cognitive than emotional reactions.

A variety of neurological reactions were created by socially-driven ads that included social proof components (such as product evaluations, user-generated material, or testimonials). The medial prefrontal cortex, which is crucial for social cognition and comprehending the intentions and actions of others, was activated by these advertisements (Berger, 2013). This suggests that social proof advertisements activate brain regions related to social information processing, affecting the consumer's assessment based on the actions or recommendations of others.

In short, the ventral striatum, a region of the brain linked to rewards, was shown to be most significantly activated by emotional commercials when compared to the other three ad types. This implies that customer views regarding items are significantly shaped by emotional attraction. A significant degree of brain engagement was also shown by social proof commercials, which activate both reward and social processing regions. This suggests that social influence can increase the impact of online advertisements.

DISCUSSIONS

The study's findings provide crucial new information on the neurological processes that underlie how people react to internet ads. We have offered a more sophisticated understanding of how various ad formats—emotional, informative, and socially-driven—stimulate unique neurological pathways and impact consumer behavior by employing neuroimaging to monitor brain activity. While informational content primarily engages the cognitive processing systems involved in evaluation and reasoning, these findings have important implications for digital marketing strategies because they imply that social influence and emotional engagement are crucial in influencing purchasing decisions.

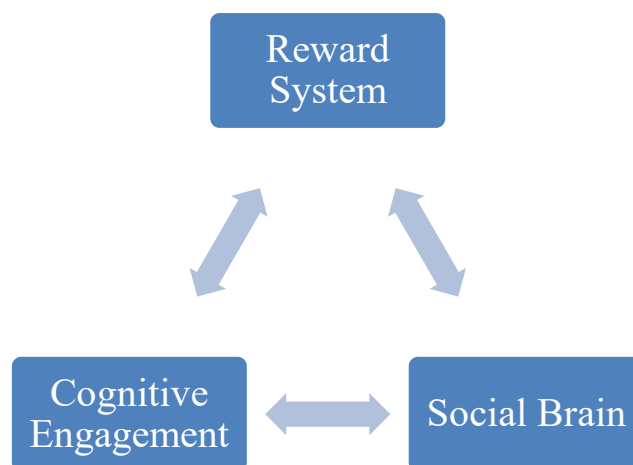


Diagram №2. Digital marketing strategies impact routes [4]

Our results support earlier studies that shown emotional advertisements activate the brain's reward system, namely the amygdala and ventral striatum. The way that emotive ads cause the ventral striatum to become active highlights how pleasure and anticipation influence the attitudes and actions of consumers. Consumer decisions are heavily influenced by the experience of good emotions and the expectation of rewards, both of which are mediated by the ventral striatum, a crucial region in reward processing. The findings of Elliott et al. (2008), who discovered that emotional stimuli, especially those that evoke pleasure or excitement, are more likely to result in favorable consumer attitudes and behavior, are consistent with this outcome.

On the other hand, the dorsolateral prefrontal cortex (DLPFC), which is involved in higher-order cognitive processes including thinking, planning, and decision-making, was mainly stimulated by informative advertisements. According to the activation of the DLPFC, informational advertisements that present accurate data about a good or service are processed by more thoughtful, analytical thought processes as opposed to impulsive emotional reactions. This outcome is in line with research by Hsu et al. (2005), who found that when consumers assess product information, cognitive control areas such the DLPFC are triggered.

The study's results about the brain's reaction to socially motivated advertisements that use social proof are among its most fascinating. Both the ventral striatum and the medial prefrontal cortex, which are involved in social cognition and reward processing, were stimulated by these advertisements. Understanding social situations and assessing other people's conduct depend heavily on the medial prefrontal cortex (Berger, 2013). Customers' brains record social validation when they observe that others have bought or recommended a product, and this social validation affects their own actions and opinions.

According to the study's conclusions and the larger framework of neuroeconomics research, digital marketers in this situation are subject to a number of restrictions. Among these restrictions are theoretical and practical issues that could influence the application of tactics derived from brain activity data:

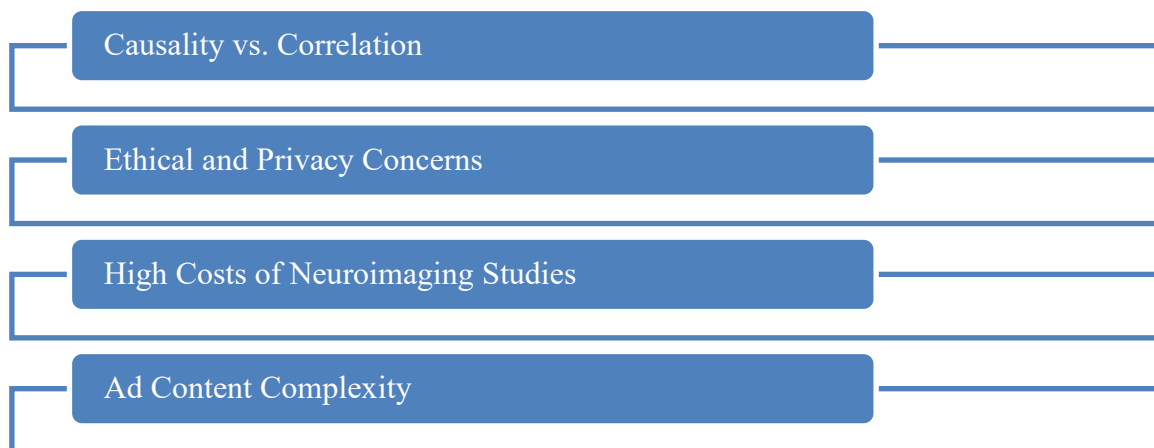


Diagram №3. Limitations on implementing digital marketing tools related to neuromarketing strategies [6]

Digital marketers may learn a lot from neuroeconomics about how ads impact customer behavior and brain activity, but there are important constraints to take into account. Marketers must take into account the intricacy of brain functions, the difficulties in deciphering fMRI data, and the moral ramifications of influencing consumer behavior using insights from neuroimaging.

CONCLUSION

With a better knowledge of how emotional, informational, and socially motivated commercials stimulate different cerebral pathways, this study offers significant insights into the intricate link between internet advertisements and consumer brain activity. The findings show that social proof and emotional advertisements are more likely to activate the brain's reward circuits, which increases brand recall, purchase intent, and emotional reactions. These results are consistent with the increasing amount of neuroeconomic research indicating that advertising tactics that elicit social or emotional reactions are more successful in influencing customer behavior.

This study has obvious ramifications for internet marketing. In order to activate a variety of brain areas and elicit both emotional and rational reactions in customers, advertisers should concentrate on creating advertisements that integrate emotional appeal, social proof, and cognitive information. Informational advertisements continue to be crucial for giving customers the required product data and ensuring they make educated selections, even while emotional and socially-driven advertisements have the ability to cause more significant changes in consumer behavior. Strategically combining these components can result in more successful campaigns that strike a balance between the factual, social, and emotional facets of advertising.

However, the study also identifies a number of restrictions that marketers need to take into account. These include the difficulties in extrapolating neuroimaging results to a large audience, moral dilemmas with consumer manipulation and privacy, and the high expenses of neuroimaging research. Marketers need to exercise caution when interpreting brain activity as a direct indicator of customer behavior and keep in mind

that consumers may eventually get desensitized to particular advertising strategies. Because digital marketing is a dynamic field that demands ongoing innovation, marketers must modify their approaches to be effective as consumer behavior and technology advance.

In summary, whereas neuroeconomics is a viable tool for comprehending how consumers react to online advertisements, digital marketers must combine these discoveries with behavioral data, ethical concerns, and conventional advertising strategies. Marketers can develop more successful, captivating, and morally sound advertising strategies that connect with consumers on a deeper level and eventually increase both short-term sales and long-term brand loyalty by utilizing the most recent neuroscientific research while being aware of its limitations.

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