

**Marketing and Advertisement Strategies driven by Psychology and Ai Technology**

S. Sindhuja, *Masters of Arts, Clinical psychology*

Ssindhu2192@gmail.com

Abstract: Marketing ideas are formulated around factors that influence consumer decision making. Cognitive biases and emotional triggers play key role in shaping purchasing decisions. In order to increase engagement, psychological theories integrate with AI marketing. Data was collected from Scopus, PubMed, google scholar, IEEE Xplore and web of science. 42 Research papers were shortlisted that aligned with the inclusion criteria. Papers that focused on psychological factors driven by AI and neuromarketing and case studies related to these strategies were included. AI driven personalized advertisements displayed correlation with marketing effectiveness, consumer loyalty and consumer engagement. Cognitive dissonance positively correlated with skepticism towards AI marketing. Frequent online shoppers were influenced by algorithm-based advertisement and consumer loyalty correlates with entertainment highlighting themes like persuasion and emotional contagion. Consumer demand patterns influenced AI driven pricing models. Unconscious memory associations impacted buying behavior in a case study on Coca Cola. Behavioral biases (hyperbolic discounting, loss aversion and social proof), impulse buying, anchoring effect and decision fatigue determined consumer decision making. Neuromarketing (EEG, fMRI) techniques are employed by companies like iPhone-6, Campbell soup, Frito lays chips which yielded an increase in sales. AI advertising and neuromarketing demonstrate a good influence on consumer behavior but lapses could be observed in knowledge regarding subconscious decision making, ethical concerns related to AI marketing and algorithm driven advertising. Transparency in AI/ VR driven advertising, algorithm marketing and psychological aspects influencing customer autonomy can be explored further for better insights. Ethical implications can also be delved into.

Keywords: *Marketing, advertisements, psychology, artificial intelligence, neuromarketing*

1. Introduction

Integration of Artificial intelligence and neuromarketing into marketing has given a new direction to the brand consumer interaction. Unconscious processes involved in decision making, predicting purchasing behaviors get largely influenced by the incorporation of these strategies. Cognitive, social and other psychological have been identified to play a role in the influence these techniques exert control over consumer behavior.

2. Methodology

A systematic search was conducted across databases to analyze the impact of AI driven marketing strategies and psychological factors on consumer purchase behavior and decision-making process. Psychological and emotional elements that play key role in influence of marketing on consumer behavior was also assessed. Additionally, focus was also on the ethical concerns that arise and future implications and practical usage. Databases such as Scopus, PubMed, Google scholar, IEEE Xplore and web of science were navigated, and relevant papers were shortlisted that were consistent with the inclusion criteria.

3. Results

Specific themes come to light which demonstrate consumer behaviour patterns and the factors associated with it in depth.

3.1 Emotional engagement and affective processing: Brand preference and recall associated with music and visuals used in marketing (Cuesta et al, 2018). Purchase behaviour significantly influenced by emotions (Morin, 2011).

3.2 AI personalisation and predictive marketing: It was observed that consumer loyalty and engagement was influenced by content driven by AI and product recommendations (Mischin, 2024). The intent to purchase is influenced by personalised ad (Setyani et al, 2019) and trust was associated with transparency in algorithm driven content (Vidhya et al, 2023).

3.3 Cognitive load and information processing: Although personalisation influenced the intent to purchase, cognitive overload as a result led to diminished ad effectiveness (Chatterjee, 2022). However, ad customization and individualisation displayed positive association with purchase

likeliness (Neapolis University, 2023). Impulse buying, caused by limited time offers, exhibited association with cognitive strain (Thakur, 2023).

3.4 Trust, transparency and perceived control: Trust displayed a negative correlation with AI generated ad effectiveness due to lack of perceived control. Perceived pressure prompts quick purchase due to the loss aversion and social proof phenomenon (Kim et al, 2021). Interacting with brands through e-commerce established trust among consumers due to peer reviews and transparency, revealing importance of transparency when it comes to marketing (Susiang et al., 2023). Young and technically naïve consumers exhibit reduced scrutiny of AI driven algorithmic strategizing. Thus, respond better to AI driven marketing tactics (Setyani et al, 2019).

EEG results demonstrated causation between emotional arousal (Shah et al, 2022), emotional storytelling (Sultana, 2019) and ad recall. Extent of personalisation exhibited a positive association with identity formation and brand ownership feeling among consumers (Umar et al, 2023). Additionally, causation was found with brand attachment (Ebrahim, 2022). Various marketing stimuli exerts subconscious consumer reactions, which correlate with fMRI and EEG data (Alsharif & Isa, 2024). A case study conducted by Coca-Cola demonstrated the effect of sensory stimuli on unconscious purchasing behaviours, by activating subconscious memory (Woodside et al, 2008)

Tools such as machine learning and genetic algorithms (GA) are used to predict consumer behaviour to identify demographic features such as gender, household size and income (Informatics, 2022). Factors such as product packaging, pricing and brand positioning act as determinants for affinity to the product and paying willingness (Alsharif & Mohd Isa, 2024). AI models, used data from real time and adjusted product price on the basis of consumer purchasing behaviour (Ji et al. 2022; Lopez & Casillas, 2009). Rise in demand was observed during emotional events such as festive seasons, which was tracked by neuromarketing and price surged and dropped accordingly (Kooli et al, 2023).

4. Discussion

Companies such as Apple, Campbell and Fritto lays have employed usage of fMRI and EEG scans to decipher the attention mechanisms and emotional responses to product packaging, marketing strategies and pricing models (Cuesta et al. 2018; Alsharif & Mohd Isa, 2024). The results aided in better advertising strategies leading to increased sales (Fauzi et al. 2022; Shah et al. 2022).

Algorithmic influence showed an influence on consumer decision making, where heuristic based nudge proved to be effective, which highlights the dual-process theory (Lurie & Mason, 2007). AI feedback on behavioural patterns determined by perceived social norms displayed theory of planned behaviour (Ji et al., 2021). Behavioural modelling and large datasets are employed to determine future buying behaviour, which at times puts consumer autonomy at stake (Paschen et al. 2020; Carroll & Wagar, 2020).

Majority of research focussed on western consumer trends, which neglects global representation in terms of the impact these techniques have on consumers in other demographic (Muhommad et al., 2020). Long term effects of AI driven marketing remain unexplored. Additionally, children and the elderly also have not been a part of the sample, which lead to a lack of knowledge on the impact of algorithm driven advertising on these populations (Kong et al., 2022). AI systems do not grasp the concept of individual variability such as varying personality types, emotional regulation mechanisms which impacted the behavioural biases (Thakur, 2023; Kim et al., 2023).

5. Conclusion

Lack of ethical safety measures from algorithmic targeting has been observed. There is less focus on cultural factors and emotional vulnerability, which reduces trust among consumers (Rachmand, 2017; Vidhya et al., 2023) Trust of consumer must be priority, for which transparency and user control must be given preference in AI driven marketing (Araujo et al., 2020). Explainable AI (XAI) and culturally adoptable personalization models must be incorporated in future to enable trust. Consumer literacy must be initiated on elements such as algorithmic bias and other influential factors, which will enable informed decisions (Chatterjee et al., 2022). Mozilla and Apple main concentration is on consumer autonomy and privacy focussed designs. Manipulative AI advertisement and marketing must be looked into and policies be framed addressing them (Gursoy et al., 2020). Incorporation of laws such as GDPR and CCPA must be done where companies and brands must disclose methods and extent of psychological and behavioural data collected. Brands are required to reveal and be transparent on their UI/UX design to reduce behaviour nudging (EU AI act). Many countries such as Canada, Germany are employing regulation on using emotional cues uninformed.

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