



Original Article

AI-DRIVEN PROGRAMMATIC ADVERTISING AND ITS EFFECT ON AD RECALL

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Abstract:

The use and quick integration of artificial intelligence (AI) has changed the advertising environment, giving rise to AI-based programmatic advertising. Modern advertising utilizes programmatic advertising technology, machine learning algorithms, and real-time data analytics to automate the buying, placement, and optimization of ads, ensuring that advertisements reach the right audience at the right time and price. This study aims to examine the impact of AI-based programmatic advertising on advertising recall among consumers. The objective of this research is to analyze whether personalized and data-driven programmatic advertising significantly enhances consumers' ability to recall advertised brands compared to non-programmatic or traditionally targeted advertising. Statistical tools such as percentage analysis, mean score comparison, and correlation analysis have been used to evaluate the relationship between AI-based targeting variables and the level of advertising recall. The findings from this research indicate that AI-based programmatic advertising positively impacts advertising recall due to improved relevance, personalization, and optimal ad placement. However, this study also highlights concerns regarding consumer privacy, ad fatigue, and over-targeting, which, if not effectively managed, can negatively impact recall. This study contributes to a better understanding of the effectiveness of AI in advertising and provides practical insights for marketers seeking to develop data-driven advertising strategies that enhance brand recall while maintaining ethical standards

Keywords: Programmatic Advertising, Artificial Intelligence, Use of AI in Advertising

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Introduction:

Digital technology is increasingly being used in online marketing. The rapid growth of this technology and the increasing availability of consumer data have brought about a significant change in the advertising sector. Traditional advertising methods relied on mass communication

and broad audience targeting, which often resulted in limited consumer engagement and low efficiency. In contrast, modern advertising emphasizes personalization, relevance, and real-time interaction with consumers. In this context, artificial intelligence (AI) has emerged as a powerful tool that is reshaping the advertising industry. AI is used in



advertising for a variety of purposes. One of the most prominent uses of AI in advertising is programmatic advertising, which automates the process of buying and selling advertising space using advanced algorithms and real-time data analytics. AI-based programmatic advertising enables advertisers to analyze consumer behavior, preferences, browsing patterns, and demographic data, so as to deliver highly targeted ads to specific audiences at the right time and on the right platform. The presented data-driven approach not only improves the efficiency of advertising, but also helps to increase the relevance of advertising to consumers. This is where increased emphasis is being placed on ad recall. Ad recall, i.e. the ability of a consumer to recall an ad or brand after seeing it, is a key measure of advertising effectiveness. High ad recall indicates strong retention of the message and increased brand awareness, which can influence consumer attitudes and purchasing decisions. With the current increasing digital advertising glut, capturing consumer attention and ensuring that ads are remembered has become a major challenge for advertisers.

Ainst this backdrop, the present study attempts to examine the impact of AI-based programmatic advertising on consumers' ad recall. The objective of this study is to evaluate whether AI-based targeting and automated media buying enhance consumers' ability to remember advertisements and brands, thereby contributing to more effective and impactful advertising strategies in the digital age.

Objectives:

- To study the concept and working mechanism of AI-driven programmatic advertising.
- To analyze the impact of data-driven targeting accuracy on consumers' memory and brand recognition.
- To suggest strategies for marketers to improve ad recall using AI-based programmatic advertising.

Research Methodology:

This study was conducted to explore existing evidence on how AI-based programmatic advertising impacts advertising recall, and it relies on secondary data. The information presented is to gathered from digital tools, academic journals, industry reports, Government websites and digital marketing studies.

AI-Driven Programmatic Advertising: Recall:

The advertising sector has undergone significant changes in recent years due to the rapid expansion of digital platforms and the increasing use of artificial intelligence (AI). Today, advertisers operate in an environment where consumers are constantly exposed to online content across various mediums such as websites, social media, mobile applications, and streaming services. In this competitive and crowded digital world, reaching the right audience and ensuring that advertisements are noticed and remembered has become a major challenge.

AI-Strategies for Marketers:

AI-powered programmatic advertising is playing a crucial role in helping consumers remember brands and products. The following strategies are particularly important and should be utilized for the continuous development of recalling.

AI-based programmatic advertising:

AI-based advertising has emerged as an innovative solution to the modern challenges in advertising. Programmatic advertising involves the automated buying and placement of digital advertisements using AI algorithms and real-time bidding systems. These systems analyze vast amounts of consumer data, including online behavior, browsing history, location, and device usage, to determine which advertisement to show to which user at what moment. This automation reduces human intervention and allows advertisers to make faster, more accurate, and cost-effective advertising decisions.



AI and Modern Technology:

In the digital age of advertising, modern technologies are being adopted very rapidly, and advertisements are being optimized by making maximum use of AI. AI-based programmatic advertising overcomes the challenges by optimizing ad placement, frequency, format, and timing based on real-time performance data. By delivering personalized and contextually relevant advertisements to consumers, programmatic advertising has the potential to significantly improve ad recall compared to traditional advertising methods. However, if these advertisements are not managed properly, over-personalization, privacy concerns, and ad fatigue can reduce their effectiveness.

Advertising Recall:

One of the key objectives of current advertising efforts is 'ad recall,' which measures how well consumers remember an advertisement after seeing it. Good ad recall indicates that the advertisement has successfully captured the consumer's attention and left a lasting impression on their mind. In the digital age, where consumers often scroll quickly and skip ads, achieving high ad recall has become increasingly challenging.

Useful making decisions:

AI-based programmatic advertising is useful in making decisions by studying consumer psychology and purchasing behavior. It also attempts to improve ad recall by enhancing the relevance and personalization of advertisements through modern techniques. By tailoring ads to individual consumer preferences and contextual factors, programmatic advertising can increase the likelihood of consumer engagement and memorability. AI-based programmatic advertising is also proactive in addressing issues such as ad fatigue, data privacy concerns, and over-targeting,

which can annoy consumers or lead them to avoid ads, potentially reducing ad recall.

Impact of data-driven targeting:

1. Improved Targeting Accuracy: Advanced algorithms, machine learning tools, and data-driven targeting allow programmatic advertising to significantly improve targeting accuracy by analyzing user data such as demographics, browsing history, interests, location, and past purchasing behavior. This precise segmentation of customers ensures that advertisements reach users who are most likely to be interested in the product or service, at the right time and in the right way. This reduces advertising waste and irrelevant impressions.

2. Higher Advertising Effectiveness: To increase the effectiveness of advertisements, programmatic advertising allows for the delivery of personalized and relevant ads to users. By leveraging data-driven insights, advertisers can tailor messages based on users' interests, behavior, and intent, leading to increased engagement. Relevant ads result in higher click-through rates, better conversions, and improved brand recognition.

3. Real-Time Optimization: A key advantage of data-driven programmatic advertising is real-time optimization. Data-driven programmatic allows for continuous monitoring of campaign performance, enabling advertisers to instantly adjust bids, creatives, audience segments, and placements. Using real-time user interactions such as clicks and impressions, machine learning algorithms can analyze user behavior to optimize delivery. Underperforming ads can be paused, while high-performing ads receive increased support and further promotion.

4. Cost Efficiency: Primarily, advertisers avoid spending on uninterested or low-quality users, which helps reduce wasted advertising spend. Better targeting leads to higher conversion rates and lowers the cost per acquisition. Overall, programmatic advertising enables smart budget utilization and provides better value for money.

5. Enhanced Customer Experience: AI-based programmatic advertising reduces the annoyance



caused by repetitive or irrelevant messages in personalized advertising. It also ensures that customers receive timely and useful information, thereby improving engagement and satisfaction. Its use of contextual and behavioral targeting ensures that advertisements are aligned with users' preferences and online activities, making it applicable across all sectors.

6. Better Measurement & Insights: Programmatic advertising involves collecting and properly analyzing detailed data. This makes it possible to provide better measurement and insights through reporting tools, and also enables various decisions regarding advertising, such as advertisers tracking key performance indicators like impressions, clicks, conversions, and return on investment.

Conclusion:

Considering the above, this study focuses on analyzing the impact of AI-based programmatic advertising on ad recall. In this context, the study attempts to understand whether AI-based automation and personalized targeting help make

advertisements more memorable and how consumers respond to such advertising methods in the digital environment. Data-driven targeting significantly enhances the efficiency, effectiveness, and accountability of programmatic advertising. While it offers strong performance and cost benefits, advertisers must balance data usage with privacy, transparency, and ethical practices to ensure long-term sustainability.

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