

The Influence of Algorithm-Based Advertising on Social Media on Millennial Consumer Behavior

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ABSTRACT

This study aims to analyze the influence of algorithm-based advertising on social media on millennial consumer behavior. Algorithm-based advertising uses consumer behavior data to present relevant content, so it has great potential to influence purchase decisions. This research was conducted with a quantitative approach through a survey of millennial respondents who actively use social media. The results showed that the relevance of ads, display frequency, and trust in social media platforms had a significant relationship with consumer behavior. Recommendations are given for the optimization of algorithm-based marketing strategies.

INTRODUCTION

Social media has become an inseparable part of people's lives, especially the millennial generation. With the increasing use of data-driven technology, algorithm-based advertising has become one of the key strategies in digital marketing (Mangold, 2009). The rapid evolution of digital platforms has transformed the way businesses interact with consumers, creating new opportunities for targeted marketing strategies. In this digital era, advertising is no longer limited to traditional mass media but has shifted towards a more data-driven and personalized approach, allowing companies to reach their audience more effectively and efficiently.

Algorithms are used to compose and serve ads in a personalized manner, based on user activity, preferences, and demographics. These sophisticated algorithms analyze vast amounts of data in real time, adjusting advertisements to match consumer behaviors and interests. The ability to predict and cater to individual needs has revolutionized advertising strategies, making them more engaging and relevant. However, despite the growing reliance on algorithm-based advertising, its precise impact on consumer behavior, particularly among the millennial generation, remains an area requiring further research.

This study aims to analyze the extent to which algorithm-based advertising affects millennial buying behavior. The rapid development of information and communication technology has changed many aspects of life, including in the world of marketing. One of the most significant changes is the emergence of social media as a very powerful marketing platform. Social media, such as Facebook, Instagram, Twitter, and TikTok, has become an integral part of consumers' daily lives, especially for millennials who are highly active on these platforms. Social media is not only used to interact with friends or family, but also to find information, share experiences, and, of course, to shop (Kaplan, 2020). One of the fast-growing marketing methods on social media is algorithm-based advertising. According to (Nuning, 2017), advertising through social media, which is currently trending, is an effective way for business people to introduce their products in an easy and fast way. Algorithm-driven advertising uses user behavior data, such as preferences, search history, and previous interactions, to serve ads that are relevant to consumers' needs and desires. This algorithm allows companies to target audiences more specifically and personalize ads to suit individual preferences. In this case, ads not only appear randomly on social media but are carefully selected to grab consumers' attention based on the available data about them (Hawkins & Mothersbaugh, 2010).

This change signals a major shift in the way companies do marketing. Previously, conventional advertising relied on mass media such as television, radio, or newspapers to reach a wide audience, but with the advent of algorithm-based advertising, companies can market their products or services in a more personalized and targeted manner (Hakim, 2021). As a result, consumers who receive ads feel more valued because the ads shown are more relevant to their needs. This has the potential to increase the effectiveness of advertising and influence consumer behavior, such as the decision to buy a product or service.

Millennials, known as digital consumers, are the main audience affected by algorithm-based advertising on social media. This generation has grown up with the advancement of technology and the internet, so they are very familiar with digital marketing. Additionally, millennials often have a tendency to search for products or services online before making a purchase, making them more vulnerable to personalized ads on social media. As a generation heavily influenced by digital trends, their behavior is crucial for companies looking to market their products through social media.

Although much research has been conducted to understand the effectiveness of digital advertising, there is still a lack of research on the specific impact of algorithm-based advertising on millennial consumer behavior on social media. Some of the questions that remain unanswered are the extent to which algorithm-based advertising can influence purchasing decisions, what factors most influence consumer responses to advertising, and how companies can maximize algorithm-based digital marketing strategies to be more effective (Sopiyan, 2022).

This research aims to fill the knowledge gap by conducting an in-depth examination of the influence of algorithm-based advertising on social media on millennial consumer behavior. The study will provide clearer insights into how millennial consumers respond to personalized ads and how those behaviors influence their purchasing decisions. Using a survey method to collect data from millennial consumers who are active on social media, this study will analyze the relationship between factors such as ad relevance, ad display frequency, and trust in social media platforms with consumer purchasing behavior (Wanggara & Helmi, n.d.). The results of this research are expected to provide guidance for companies in developing more effective marketing strategies, as well as contributing to existing digital marketing literature.

Additionally, with more and more companies turning to algorithm-based digital marketing, it is important to understand how these techniques can shape consumer consumption patterns and perceptions of brands or products (Helmi et al., 2024). Therefore, this study will examine whether algorithm-based advertising actually increases consumer satisfaction, strengthens their engagement, and ultimately leads to increased conversions or product sales. The study will also discuss some of the challenges faced by companies in implementing algorithm-based advertising, including data privacy concerns, ad overload that can lead to ad fatigue, and the risk of losing credibility if ads are perceived as too intrusive or irrelevant. Thus, the results of this research can provide valuable insights to optimize the use of algorithms in digital marketing, as well as contribute to the development of marketing science in the increasingly advanced digital era.

In conclusion, this study aims to provide a deeper understanding of the influence of algorithm-based advertising on social media on millennial consumer behavior. The results of this research will provide a basis for companies to design marketing campaigns that are more targeted and relevant to millennial consumers, as well as contribute to understanding consumer behavior in the digital era.

LITERATURE REVIEW

Algorithm-Based Advertising

According to (Smith, 2020), Algorithmic technology is used to serve relevant ads to users based on their behavioral and preference data, previous research has shown that relevant ads have a greater impact on consumer attention and interest. Algorithm-driven advertising is a type of digital advertising that uses algorithmic technology to target specific audiences more effectively, these algorithms analyze user data such as online behavior, interests, geographic location, demographics and search history to display ads that are relevant to them. With an advertising algorithm, it can be shown to users who are most likely to be interested in a particular product or service (Setyadi et al., 2023).

Social Media

Social media is an internet-based digital platform that allows individuals or groups to communicate, share information, create content, and build social networks online. Social media utilizes interactive technology to facilitate two-way dialogue, where users can actively participate, such as evoking text, images, videos, or providing responses to other people's content.

According to (Cahyono, 2020), social media includes various forms such as blogs, social networks, wikis, forums, and virtual worlds. Social media has become an important part of people's lives. Social media users cover various age groups, from young to elderly. According to Statistics (2023), the number of global social media users has reached 4.9 billion.

There are several types of social media that are often used to market product advertisements, such as Facebook, Instagram, Tiktok, and Twitter. The large number of social media users makes a company or business actor see opportunities and benefits to create promotions and advertisements so that the reach of marketing becomes wider.

2.3 Millennial Consumer Behavior

According to (Brown, 2021), the millennial generation is known as active users of social media and has consumption habits that are influenced by digital content. Factors such as emotional engagement, trust and comfort play an important role in their purchasing decisions. The millennial generation is a generation that generally includes individuals born between 1981 and 1996, they are often called Generation Y. This generation grew up in the midst of the rapid development of digital technology and was the first generation to be directly exposed to the internet, smartphones and social media from a young age. The millennial generation also has various characteristics in the form of skilled technology users, experience-oriented, has a high level of awareness of social and environmental issues and tends to have a high education.

Millennial consumer behavior has been the focus of recent research, given their significant role in the global market. One aspect that stands out is their preference for sustainable products. According to (Putri, 2023), environmental awareness, social value, product quality, social value, product quality, and

product information have an influence on the decision to purchase sustainable products by millennials (Dr. Nikous, 2022).

Ad Relevance

Ad relevance is an important concept in the field of marketing communication that emphasizes the importance of compatibility between the advertising message and the target audience to achieve maximum effectiveness. (Sharma, n.d.), states that e-marketing creates fundamental behavior changes in businesses and consumers, similar to those associated with the previous industrial revolution. This change requires marketers to better understand the dynamics of consumer behavior in the digital era in order to convey relevant and effective messages.

Display Frequency

The frequency of ad views on social media refers to the number of ads shown to users in a given period. According to the Great Dictionary of the Indonesian Language (KBBI), frequency is defined as a measure of how many times an event occurs in a certain time interval. The more frequency of ads displayed, the greater the interest of social media users to buy a product which ultimately results in a purchase decision. In addition, according to (Fitri, 2021), the frequency of social media use affects consumptive behavior, where the higher the intensity of use, the higher the consumptive behavior shown.

Trust in Social Media Platforms

Trust in social media platforms refers to the user's belief or perception that the platform is reliable, honest, and safe to be used in various activities, such as sharing information, communicating, or making transactions, the belief that social media platforms have good moral and ethical principles, and will not misuse user data or information makes social media users have high trust in advertising on social media. According to (Elang Reksanegara, 2020), trust in user-generated content and company-generated content have a positive influence on trust in online commerce. In addition, generational grouping also has a moderation effect in this relationship. (Kasmir, 2019) The factors that affect trust are transparency, honesty, user experience and previous user reviews or testimonials.

METHODOLOGY

This study uses a quantitative approach with a survey method. The data analysis technique used in this study is descriptive quantitative which is used to test the influence between the hypothesized variables. Quantitative research uses statistics to analyze research data that seeks to quantify the data obtained in a number or number. According to (Intan, 2022), the quantitative method is a type of research that uses a philosophical basis to research the condition of science where the researcher is the main instrument.

Data was collected through an online questionnaire distributed to 30 millennial respondents who are active on social media such as Instagram, Facebook, and TikTok using the Likert scale (Griffiths & Kuss, n.d.). The Likert Scale is a psychometric measurement method used to measure respondents'

attitudes, opinions, or perceptions towards a particular statement. This scale was developed by Rensis Likert in 1932 and became one of the most frequently used measurement methods in surveys and social research. The independent variables in this study are ad relevance, display frequency and trust, while the dependent variable is consumer behavior. Data analysis was carried out using linear regression to measure the relationship between independent variables (ad relevance, impression frequency, and trust) and dependent variables (consumer behavior) (Podsakoff et al., 2016).

RESULT AND DISCUSSION

Algorithmic advertising is a type of digital advertising that uses computer algorithms to target, customize, and display ad content to specific users based on their data. These algorithms work by analyzing information such as user behavior, interests, location, search preferences, and interaction history on digital platforms. Algorithm-based advertising is widely used by companies to advertise their brands or products on social media, this aims to reach consumers further and precisely. Algorithms have an important role in advertising brands on social media because they allow for more effective, efficient, and relevant marketing. Social media is a very effective forum for making algorithm-based advertising, with creative and innovative advertising, the algorithm will increase, so that the coverage can be right on target according to the user's interests, and search history on social media.

Therefore, after testing the influence of ad relevance, ad display frequency and consumer trust on millennial consumer behavior, the following results are obtained:

Ad Relevance

The results of the analysis show that the relevance of advertising has a significant influence on the interest of millennial consumers to find more information which will cause millennial consumer behavior. The more relevant an advertisement is, the more it will affect consumer behavior, especially millennial consumers. The results of the questionnaire data show that almost all respondents voted to agree.

Ad Display Frequency

The results of the analysis show that the high frequency of ad viewing can cause advertising fatigue, which refers to a condition in which the audience becomes saturated, disinterested, or even distracted by seeing the same ad too often. This can reduce the overall effectiveness of the ad campaign. Therefore, it is important for companies to be able to determine the frequency of ad delivery only at certain times so that the displayed ads will work optimally. So the results of the study show that the frequency of advertising displays has a significant influence on the behavior of millennial consumers. The more organized the advertising schedule that is displayed, the better the results will be.

Consumer Trust

Trust is a person's belief in another party, which includes the expectation that the party will act in a consistent, honest, and reliable manner. Trust involves subjective elements, such as beliefs, perceptions, and expectations, and is an important foundation in interpersonal, organizational, and business relationships. A high level of trust will build a good relationship so that loyalty can be created. Consumer trust is the belief or trust that consumers have in a product, brand, company, or service that they can fulfill their promises, provide the expected quality, and act in accordance with values that consumers consider important.

The results of the analysis show that consumer trust in social media platforms plays an important role in determining their response to the ads shown. An advertisement that is displayed honestly and well will build consumer trust, especially millennial consumers, so this study has the result that the higher the consumer trust in the product that is shown, the more it will affect the behavior of millennial consumers to buy a brand or product.

The findings of this study support the importance of onalization in algorithm-based advertising to increase consumer engagement, especially among millennials.

CONCLUSIONS AND RECOMMENDATIONS

The results of this study can be concluded that algorithm-based advertising on social media has a significant influence on millennial consumer behavior. The results of the variable test found that the relevance of advertisements, the frequency of ad displays and consumer trust are the main supporters that determine millennial consumer behavior. Therefore, the researcher concludes the following hypothesis:

- 1) Relevant advertising has a significant influence on millennial consumer behavior.
- 2) The frequency of regular ad displays has a significant influence on millennial consumer behavior.
- 3) Consumer trust in advertising platforms has a significant influence on millennial consumer behavior.

Therefore, this study concludes that algorithm-based advertising has a significant influence on millennial consumer behavior, especially if the advertising is relevant to their needs.

The recommendations put forward in this study include optimizing the use of data for ad personalization, regulating the frequency of ad displays and increasing platform transparency to build consumer trust. With this step, companies can maximize the effectiveness of their digital marketing strategies.

ADVANCE RESEARCH

Future research should delve deeper into the psychological and cognitive mechanisms that drive millennial consumer responses to algorithm-based advertising, particularly in the context of ad fatigue, perceived intrusiveness, and personalization paradoxes. Additionally, investigating the ethical implications of data-driven ad targeting, including privacy concerns and the potential for

algorithmic bias, could provide valuable insights into consumer trust dynamics. A cross-cultural analysis could also reveal variations in how millennials from different regions perceive and react to algorithmic advertising, shedding light on the role of sociocultural factors in shaping digital marketing effectiveness. Furthermore, integrating emerging technologies such as AI-driven sentiment analysis and neuromarketing techniques may help refine predictive models of consumer behavior, allowing for more adaptive and ethically responsible advertising strategies.

REFERENCES

- Brown, K. (2021). Millennial Consumer Behavior in the Era of Social Media. *Journal of Consumer Studies*, 45(4), 345–367.
- Cahyono, A. S. (2020). Pengaruh Media Sosial terhadap Perubahan Sosial Masyarakat di Indonesia. *Jurnal Unita*, 9(1), 140–157.
- Dr. Nikous, S. S. , Dr. E. P. , A. S. , N. D. (2022). *Dalam Buku Pemasaran Digital*.
- Elang Reksanegara, T. B. Drs. , M. I. M. (2020). *Pengaruh Kepercayaan Konsumen Atas Informasi Terhadap Penggunaan Perdagangan Daring Berbasis Media Sosial Dengan Kelompok Generasi Sebagai Variabel Moderasi Di Indonesia*.
- Fitri, M. S. (2021). *Hubungan Antara Intensitas Penggunaan Media Sosial Dengan Perilaku Konsumtif Pada Mahasiswa Fakultas Psikologi Universitas Islam Riau*.
- Griffiths, M. D., & Kuss, D. J. (n.d.). *Adolescent social media addiction (revisited)*. <https://www.researchgate.net/publication/320146297>
- Hakim, L. N. (2021). Effect of Product Quality and Service Quality on Customer Loyalty with Customer Satisfaction as an Intervening Variables (Case Study on the Tirta Jasa Lampung Selatan Regional Company (PDAM)). *Economit Journal: Scientific Journal of Accountancy, Management and Finance*, 1(1), 48–56. <https://doi.org/10.33258/economit.v1i1.374>
- Hawkins, D. I. ., & Mothersbaugh, D. L. . (2010). *Consumer behavior : building marketing strategy*. McGraw-Hill Irwin.
- Helmi, S., Anggela, N., Sosial Humaniora, F., & Bina Darma, U. (2024). *PENERAPAN PEMASARAN DIGITAL PADA UMKM KEMPLANG DI DESA PEMULIHAN ULU*. 8(1).
- Intan, P. , D. (2022). *Media Sosial Sebagai Media Pergeseran Interaksi Sosial Remaja*. Sugiyono. (2020). *Metode Penelitian Kualitatif*. Bandung: Alfabeta.
- Kaplan, A. M. , & H. M. (2020). Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, 53(1), 59–68.
- Kasmir, A. (2019). *Digital Marketing Strategies for Modern Businesses*. Gramedia.
- Mangold, W. G. , & F. D. J. (2009). Social media: The new hybrid element of the promotion mix. . *Business Horizons*, 52(4), 357–365.
- Nuning, K. (2017). *Analisis Pengaruh Iklan Di Media Sosial Dan Jenis Media Sosial Terhadap Pembentukan Perilaku Konsumtif Mahasiswa Di Yogyakarta*.

- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2016). Recommendations for Creating Better Concept Definitions in the Organizational, Behavioral, and Social Sciences. *Organizational Research Methods*, 19(2), 159–203. <https://doi.org/10.1177/1094428115624965>
- Putri, V. (2023). Mendorong pilihan berkelanjutan : eco labeling, eco branding dan dampaknya terhadap green purchase intentions dan consumer behavior. *Jurnal Ekonomi Bisnis Manajemen Dan Akuntansi (Jemba)*, 3(3), 875–888.
- Setyadi, B., Helmi, S., & Syed Ismail bin Syed Mohamad. (2023). Customer Satisfaction Mediates the Influence of Service Quality on Customer Loyalty in Islamic Banks. *International Journal of Islamic Business and Economics (IJIBEC)*, 7(1), 25–36. <https://doi.org/10.28918/ijibec.v7i1.6924>
- Sharma, P. (n.d.). *THEORETICAL ANALYSIS OF SOIL NAILING: DESIGN, PERFORMANCE AND FUTURE ASPECTS*.
- Smith, J. (2020). Algorithmic Advertising in the Digital Age. *Journal of Marketing Research*, 58(3), 123–135.
- Sopiyan, P. (2022). Pengaruh Digital Marketing dan Kualitas Pelayanan Terhadap Keputusan Pembelian. *Coopetition : Jurnal Ilmiah Manajemen*, 13(2), 249–258. <https://doi.org/10.32670/coopetition.v13i2.1057>
- Wanggara, I., & Helmi, S. (n.d.). The Influence of Competency and Work Motivation on the Employee's Performance of Public Works and Spatial Planning Service. *Journal of Social Work and Science Education*, 5(1), 300–306.