AI-Generated Advertising Content and Consumer Engagement & Buying Behavior

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ABSTRACT

Advertising has been significantly transformed by the rapid advancement of artificial intelligence (AI). AI generated advertising content presents both opportunities and challenges for marketers, offering unprecedented levels of personalization and engagement. This study explores how AI-generated ads influence consumer engagement and purchasing behavior. A structured questionnaire was used to gather data for a primary study, assessing consumer attitudes toward AI-generated advertisements, engagement types, and purchase behavior. The results show a mixed reaction from consumers, with many appreciating AI-generated ads for their creativity and personalization while also expressing concerns about privacy, trust, and emotional connection. The study emphasizes the importance of addressing these concerns while leveraging AI's potential to enhance customer experiences. When the primary data was statistically analysed with T-test, the study also revealed that there is significant difference among different age and education groups in terms of their ability to distinguish content, frequency of their engagement, ability to rely on such content for quick decision-making, saving time and being aware of AI disclaimers.

Keywords: Artificial Intelligence, Social Media, Advertisements, Marketing, Consumer Buying Behavior

INTRODUCTION

The explosive growth of Artificial Intelligence's (AI) in recent years has changed several industries, with advertising experiencing the most drastic changes. AI-generated advertising content enables an unprecedented level of personalization and engagement, opening new avenues for brand-consumer interaction. In the face of fierce competition, marketers are trying to seize every opportunity to improve their strategies, and the rise of digital platforms has made it more important to understand how AI-generated content affects consumer engagement and purchase behavior.

With the advent of AI content generation, the ability to produce things without a lot of manual work is bound to revolutionize content generation altogether. The automated nature of this approach means that large teams and outside content agencies will no longer be required, reducing costs (Bain & Co., 2024). Companies can now generate blogs, marketing messages, emails, and website copy with minimal human intervention (InData Labs, 2024).

AI has also revolutionized fields such as photography and video production, where AI-powered cameras and editing tools automate adjustments and even suggest creative edits, reducing the need for manual adjustments (Pixifi, 2024). Camera Operation functions where automated video editing and production tools can simplify workflows; this means camera operators can now spend more time on actually capturing high-quality footage instead of wasting it on post-production tasks (HubSpot, 2024). Site Operations are also impacted by AI-based site management tools that can help optimize operations, forecast maintenance needs, and perform routine tasks, easing the burden on site operators (IBM, 2023).

AI in Marketing
AI's role in marketing enhances resource efficiency compared to traditional approaches, which often involve wasteful spending on print ads and poorly managed digital ad budgets. AI marketing tools crunch huge amounts of data to allocate resources precisely, eliminating waste and reducing harm to the environment (Davenport et al. 2020). Additionally, AI enables hyper-personalization, tailoring advertisements to individual consumer preferences. This boosts customer involvement and cuts down on waste. AI looks at how consumers act and what they like to send ads to the right people at the right time. This

makes customers happier and requires less need to make tons of ads, which helps businesses be more eco-friendly (Mustak et al. 2021). AI also helps predict what people will want to buy. This lets companies guess future demand more precisely and accurately so that they don't end up overspending on marketing and AI and can streamline expenses based on their customer needs and preferences. Businesses can use what AI tells them to manage their stock better. They manufacture only the required goods and don't end up with extra products that go to waste, ensuring that industries like fashion and food contribute less to environmental pollution. (Huang & Rust 2020). Green marketing with AI also saves energy in online ads. AI programs choose where to put ads in real time showing fewer repeat ads and using less energy for online advertising. Since data centers use a lot of power, AI's ability to make digital marketing more efficient helps businesses use less energy and be kinder to the environment (Ameen et al. 2021).

Additionally, AI makes ethical marketing easier by making things clearer and more genuine. AI-powered analytics help businesses keep track of how well they're doing with sustainability and share facts with customers. This builds trust and pushes brands to be more sustainable while teaching customers about how their choices affect the environment (Wu et al. 2023). AI chatbots and virtual helpers also help with sustainability by cutting down on paper brochures, call centers, and excessive human involvement in customer support. By answering questions and queries to know customer preferences accurately, AI cuts cost and reduces the environmental impact of old-school customer service (Ebrahimi & Fanaeepour, 2020). Another benefit of AI is how AI helps with influencer marketing and making content. AI can figure out what audiences like and create good content without too much human input. This reduces the financial and operational expenses associated with ineffective campaigns and ensures that marketing messages align with sustainability goals. AI can also spot fake engagement and catch greenwashing, helping businesses stay trustworthy in their sustainability efforts (Wu et al. 2023).

However, AI in marketing has some disadvantages too. AI systems demand substantial computational power, increasing energy consumption. The data centers that facilitate AI operations consume large amounts of electricity, which may undermine sustainable marketing efforts (Davenport et al., 2020). Green computing and data centers powered by renewable energy are examples of new methods that have been developed to solve this problem. One of the major drawbacks to deal with is the ethical implications of data collection. The extensive data collection required for AI personalization raises privacy concerns. If not dealt with properly, the oversaturation of data tracking and other issues could make consumers distrustful of AI and create regulatory hurdles for the growth of AI-based green marketing (Wu et al., 2023).

This study explores consumer perceptions of AI-generated advertising, focusing on engagement levels and purchasing behavior. Understanding consumer attitudes toward AI-generated content is crucial for businesses aiming to enhance brand loyalty, and, in the end, conversion rates. However, one of the worries for businesses is that the implementation costs of AI projects can be considerable, especially as small enterprises can seldom apply AI-driven marketing techniques. Large firms may choose AI as their primary tool due to the availability and pricing of AI resources, whereas small businesses must cope with the initial financial and technical problems associated with efficiently integrating AI. However, technological breaches do happen, thus some businesses who are at the forefront of AI applications will witness a fall in this industry (Mustak et al., 2021).The widespread adoption of AI technologies has enabled businesses to generate large amounts of content fast and efficiently, thus improving their marketing strategies (Davenport et al., 2020). Even if AI and content development are seemingly working well together, there are likely still questions about how effective AI is in comparison to human-generated content. According to research, AI lacks the emotional depth and authenticity that human creators bring to advertising, which is highly indicative of how consumers perceive it and ultimately engage (Ebrahimi & Fanaeepour, 2020; Wu et al., 2023). Furthermore, the ethical consideration of AI-generated content should be placed under scrutiny. The overuse of algorithms in advertising questions the presence of biases and potentially discriminatory practices that come with the data and assumptions used in training these systems (Wu et al., 2023).

It is thus critical to assess the impact of AI on consumer trust and engagement, as marketers strive to create content that appeals to consumers' rational and emotional cues, particularly on social media platforms that rely heavily on user interaction (Akar & Topcu, 2011; Ashley & Tuten, 2015). As a result, it is evident that studying the impact of AI-related advertising content on consumer behavior and perception is critical in marketing. This study addresses the gap in the literature and is expected to assist managers and academics use AI based marketing strategies more effectively in the long run.

LITERATURE REVIEW

Ameen et al. (2021) undertook an extensive study centering on the influence of AI-generated content on client behavior, focusing on advertising and marketing. It shows that AI-generated advertising content heightens consumer buying decisions and customer engagement. Data was gathered from a diverse group of consumers using surveys based on quantitative research.

It was found that there was a very strong correlation between the use of AI in advertising and the quickness with which consumers made buying decisions. This shows that AI has the potential to generate customized content that appeals to the particular taste of consumers, leading to a higher engagement rate. Yet the study also outlines caution against the excessive use of AI, as it would then dehumanize the face of advertisements, alienating consumers who value personal connections.

Davenport et al. (2020) studied how AI technologies improved operational efficiencies in the content generation process. Their joint literature review and case studies indicate, among other deductions, that AI accelerated processing for increased product and service is important for marketing and customer service. They note that, among its other capabilities, AI allows for automation in generating content and thus enables companies to react to changes in the marketplace much more rapidly and improved marketing strategy by delivering timely and relevant content. But it also brought attention to the negative aspects of AI, which include the possibility of jeopardizing the quality or even the validity of the data that the process is based on. Any marketing strategy should take into account the necessity of balancing the use of AI with human supervision to maintain the integrity of the content (Davenport et al., 2020). Concerns about the ethical implications of AI in advertising are quite important. Coffin (2022) investigates the philosophical aspects of AI in marketing, with an emphasis on the ethical implications of AI technology adoption. The study calls for a code of ethics for AI advertising in order to preserve customer trust, which is especially appropriate in the context of AI-generated content that emphasizes transparency and accountability. According to the author, marketers must engage in responsible practices in order to minimize or mitigate actual or possible ethical concerns around AI and build positive relationships with consumers (Coffin, 2022).

Mustak et al. (2021) also offered a scientometric overview of AI in marketing, examining the current state of research into AI applications and ways in which future research could proceed. The findings also show that many other opportunities and challenges need further empirical study. There is an ongoing need for research into the implications of AI-generated content for consumer behavior and engagement. Future studies could look at the long-term effects of AI on consumer trust and loyalty, in addition to assessing its contribution to the management of more personalized marketing (Mustak et al., 2021). While the systematic literature review by Nicolescu and Tudorache (2022) concentrates on the role of AI chatbots in customer service, it also presents some insights into how AI technologies can enhance customer engagement. While their analysis on the trends, benefits, and challenges of AI chatbots emphasizes the potential capability of AI chatbots to increase customer satisfaction, user trust and limited comprehension by AI can inhibit such technology from functioning efficiently. This underlines that designing artificial intelligence with consideration, focus on user experience, and trust is critical for maximization of consumer engagement (Nicolescu & Tudorache, 2022).

Research Objectives

- To ascertain how AI-generated advertisements influence consumers' purchasing decisions, for instance, how strongly does personalization drive purchases?
- To examine the extent to which consumer trust in AI-generated advertising content affects overall satisfaction and brand loyalty.

RESEARCH METHODOLOGY

This study employed a quantitative research design to examine the effects of AI-generated advertising on consumer engagement and purchasing behavior. A structured questionnaire, distributed via online channels such as email and WhatsApp, collected responses from 85 participants. The questionnaire contained statements that were designed to assess various constructs of the study, including consumer attitude towards AI-generated advertising, types of engagement, and purchase behavior. Each statement was rated on a five-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5) to allow the participants to express the intensity of their agreement or disagreement. The structured approach ensured uniformity in responses, which allowed standardized data analysis. The data collection was conducted within the specified time frame, providing participants with an ample opportunity to complete the survey. By the end of the collection period, a total of 85 responses were gathered.

The data was analysed using MS Excel to observe trends and patterns of consumer engagement and buying behavior prompted by AI-generated advertising content. Therefore, this data is critical for understanding how the use of AI technology will affect marketing as a strategy for improving consumer interactions and sales. The study was conducted with care to uphold ethical principles, including informed consent and data confidentiality, ensuring the integrity of the research.

ANALYSIS AND DISCUSSION

Descriptive Statistics

The descriptive statistics of participants' responses on their engagement with AI-generated advertisements are summarized below. Data collected from 85 respondents reveal various dimensions of interaction with such advertisements, with mean scores, standard deviations, minimum and maximum values, and the total sum of responses presented for each aspect.

Descriptive Statistics						
	N	Min	Max	Sum	Mean	SD
How frequently do you interact with AI-enabled advertisements (e.g., on social media or other platforms) ?	85	1	2	117	1.38	.487
I find AI-generated advertisements more engaging than traditional advertisements.	85	1	5	273	3.21	.977
AI-generated advertisements provide more personalized content that aligns with my preferences.	85	1	5	279	3.28	1.007
I trust the information provided in AI-generated advertisements.	85	1	5	238	2.80	.973
AI-generated advertisements are innovative and improve my overall brand perception.	85	1	5	285	3.35	.996
I feel concerned about the privacy implications of AI generated advertisements using my data.	85	1	5	339	3.99	.919
AI-generated advertisements help me save time in decision-making while shopping.	85	1	5	271	3.19	1.018
I prefer AI-generated advertisements because they feel less biased than human-generated content.	85	1	5	268	3.15	1.086
I can distinguish between AI-generated advertising content and human-created advertisements.	85	1	5	288	3.39	.914
I frequently check disclaimers to identify if advertisements are AI-generated.	85	1	5	225	2.65	1.020
I am aware of AI's ability to generate photos and videos for advertisements.	85	1	5	331	3.89	.964
The use of photos and videos in advertisements significantly impacts on my interest in the product.	85	1	5	309	3.64	.986
I feel a similar level of personalized connection with AI generated advertisements as with human-created ads.	85	1	5	239	2.81	.982
AI-generated advertisements have influenced my behavior, including purchase decisions.	85	1	5	263	3.09	.996
I often click on the "Buy Now" button when I see AI generated advertisements.	85	1	5	221	2.60	1.002
I frequently engage with AI-generated advertisements by liking, sharing, or commenting on them.	85	1	5	227	2.67	1.028
The products I purchase from AI-generated advertisements closely resemble what is shown in the ads.	85	1	5	253	2.98	.886
I regularly use products that I purchase based on AI generated advertisements	85	1	5	233	2.74	.861

The frequency of interaction with AI-enabled advertisements was relatively low, with a mean score of 1.38 (SD = 0.487), indicating that most participants engaged with these ads only occasionally. Regarding engagement, the statement "I find AI generated advertisements more engaging than traditional advertisements" yielded a mean of 3.21 (SD = 0.977), suggesting that participants generally found AI-generated ads somewhat more engaging than traditional ones, though opinions varied. Participants perceived AI-generated content as relatively personalized, with a mean score of 3.28 (SD = 1.007), indicating that they felt these ads aligned with their preferences. In terms of trust, the mean score of 2.80 (SD = 0.973) reflects a neutral stance, showing some skepticism regarding the reliability of information presented by AI-generated advertisements. Participants rated AI-generated ads as innovative and somewhat beneficial for brand perception (mean = 3.35, SD = 0.996), while privacy concerns were notably high, with a mean of 3.99 (SD = 0.919), indicating significant apprehension about the misuse of personal data. AI-generated ads were also seen as moderately helpful in saving time during shopping decisions (mean = 3.19, SD = 1.018), although the impact on decision-making was not overwhelmingly strong.

When it came to bias, respondents rated AI-generated ads as somewhat less biased than human-generated content, with a mean of 3.15 (SD = 1.086), though there was considerable variability in responses. Participants were moderately able to distinguish between AI-generated and human-created ads, with a mean score of 3.39 (SD = 0.914). However, the frequency of checking for AI-generated disclaimers was relatively low (mean = 2.65, SD = 1.020), suggesting either unawareness or indifference towards identifying the source of advertisements. In terms of awareness, participants had a strong understanding of AI's ability to generate visual content for advertisements, with a mean score of 3.89 (SD = 0.964). The presence of photos and videos in ads had a noticeable impact on interest (mean = 3.64, SD = 0.986), highlighting the importance of visual content in engaging viewers. However, AI-generated advertisements did not foster a personal connection as strong as human-created ads, with a mean of 2.81 (SD = 0.982). Their influence on behavior and purchase decisions was moderate (mean = 3.09, SD = 0.996), and engagement with the "Buy Now" button was relatively low (mean = 2.60, SD = 1.002), suggesting limited immediate purchase actions. Similarly, engagement via likes, shares, and comments was low (mean = 2.67, SD = 1.028). Participants' purchases from AI-generated ads were somewhat consistent with the advertised products, with a mean score of 2.98 (SD = 0.886), indicating moderate accuracy in product portrayal. However, the long-term use of products purchased based on these ads was lower, as shown by a mean score of 2.74 (SD = 0.861).

Overall, these descriptive statistics illustrate a mixed response to AI-generated advertisements. While there is moderate engagement and appreciation for their innovation and personalization, concerns about privacy, trust, and personal connection remain significant. The findings suggest that AI-generated ads hold potential, but their effectiveness in driving long-term consumer behavior and immediate purchase actions is still limited.

Opinion Survey on AI generated content on social media
According to the survey results, AI-generated advertising is viewed rather positively over traditional advertisements as shown in Figure 1. The majority, 41.2% (35 out of 85), agree (34.1%, 29) or strongly agree (7.1%, 6) that AI-generated advertisements are more engaging than traditional options, leaving an impression on quite a vast section of the respondents. Furthermore, 36.5% (31 out of 85) are neutral. This suggests that while many participants realize the potential in the technology, they may require additional motivation to buy into AI. It was reported that 17.6% (15 out of 85) disagreed with the statement and 4.7% (4 out of 85) strongly disagreed, indicating that negative perceptions are very low and that there is significant room for AI-driven advertising to influence neutral and hesitant users.
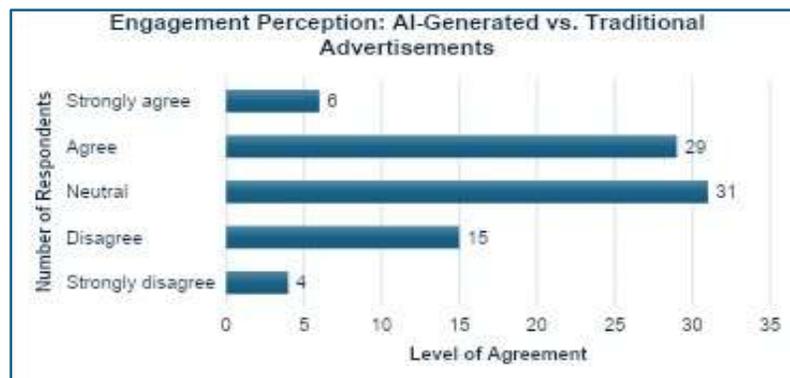

Fig.1: Engagement Perception: AI – Generated vs. Traditional Advertisements

There is a mixed perception towards the trust in AI-generated advertising as presented by the survey results in Figure 2. A combined 22.4% (19 out of 85), 18.8% (16 out of 85) agreed and 3.5% (3 out of 85) strongly agreed that they do trust in this provided information, suggesting that some users have confidence in AI-generated ads. 41.2% (35 out of 85) showed neutrality on whether a significant number of respondents require more persuasion and transparency to build their trust in information provided in AI-generated ads. Additionally, there are 27.1% (23 out of 85) of respondents who are expressing disagreement, along with 9.4% (8 out of 85) who strongly disagree, demonstrating that a considerable number of respondents were unconvinced, therefore capturing the urgency of enhancing credibility and reliability in AI-generated advertising.
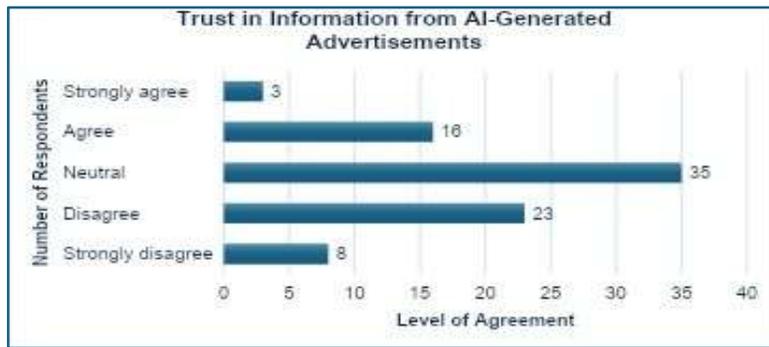

Fig. 2: Trust in Information from AI- Generated Advertisements

The results from a survey indicate the favorable opinion of AI-generated advertisements on enhanced brand perception as shown in Figure 3. Of that, 48.2% (41 out of 85) agreed (37.6%, 32 out of 85) and strongly agreed (10.6% 9 out of 85), which means that almost one half believe that these kinds of advertisements enhance the quality of the brand perception. A remaining 31.8% (27 out of 85) holds a neutral position, this means that some participants may not have fully understood the innovative potential of AI-generated ads depicting lack of awareness amongst the respondents. While just 16.5% (14 out of 85) disagreed, and 3.5% (3 out 85) strongly disagreed, which represents a slight negative sentiment and an exceptional opportunity for brands to utilize AI-generated advertisements in a positive manner.
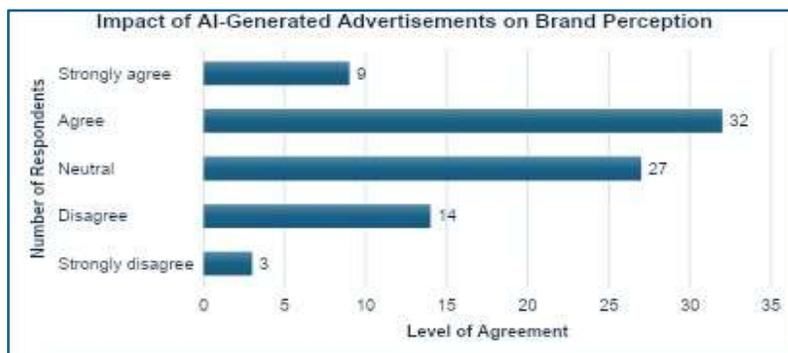

Fig. 3: Impact of AI-Generated Advertisements on Brand Perception

Results from the survey indicate a significant concern about the privacy implications of AI-generated advertisements that use personal data as represented in Figure 4. The combined percentages of total respondents of 72.9% (62 out of 85) consisting of respondents who agreed (40%, 34 out of 85) and strongly agreed (32.9%, 28 out of 85), indicating general apprehensiveness about data privacy. 21.2% (18 out of 85) remained neutral, suggesting a bent towards indecisiveness or lack of commitment among some respondents regarding the extent of privacy concern. Only 5.9% (5 out of 85) disagreed (4.7%, 4 out of 85) or strongly disagreed (1.2%, 1 out of 85), which presents a new challenge of how to establish user trust further by handling the issues surrounding privacy on their part.
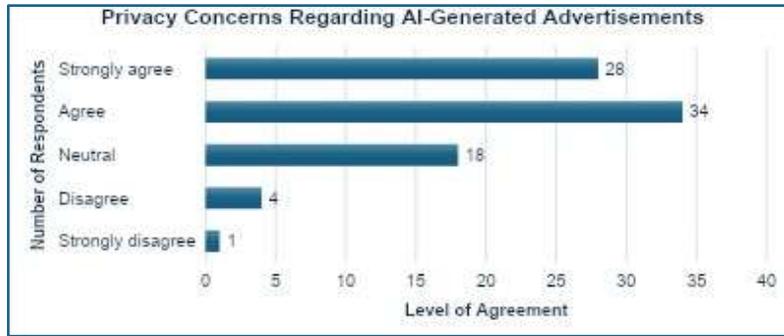
Fig. 4: Privacy concerns regarding AI-generated Advertisements

Figure 5 represents that most of the respondents can differentiate between AI-generated and human-created advertisements. A further breakdown shows that this was backed by 51.8% of respondents in total, out of which 44% were in agreement (38 out of 85) and 7.1% were in strong agreement (6 out of 85) with their judgment of their capability to identify the difference. 30.6% of the respondents remained neutral (26 out of 85) about whether they could or could not tell the difference between the two; this indicates some uncertainty or indifference. Lastly, 15.3% (13 out of 85) had expressed disagreement while 2.4% (2 out of 85) respondents strongly disagreed about their ability to distinguish between the two.
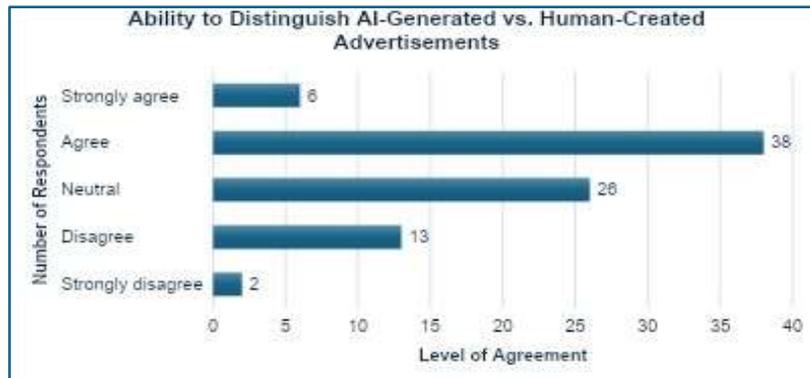

Fig. 5: Ability to distinguish AI-generated vs. human-created advertisements

The survey results as presented in Figure 6, indicate a mixed perception of personalized connection with AI-generated versus human-created advertisements. A combined 24.7% (21 out of 85) of respondents consisting of those who agreed (21.2%, 18 out of 85) and strongly agreed (3.5%, 3 out of 85), suggesting that a smaller portion feels a similar level of personalized connection with AI-generated ads. However, 36.5% (31 out of 85) of respondents remain neutral, indicating uncertainty or indifference about the personalized experience. Meanwhile, 38.8% (33 out of 85) of respondents consisting of those who disagreed (30.6%, 26 out of 85) and those who strongly disagreed (8.2%, 7 out of 85), reflecting that a significant portion of respondents does not feel the same level of connection with AI-generated ads as with human-created ones.
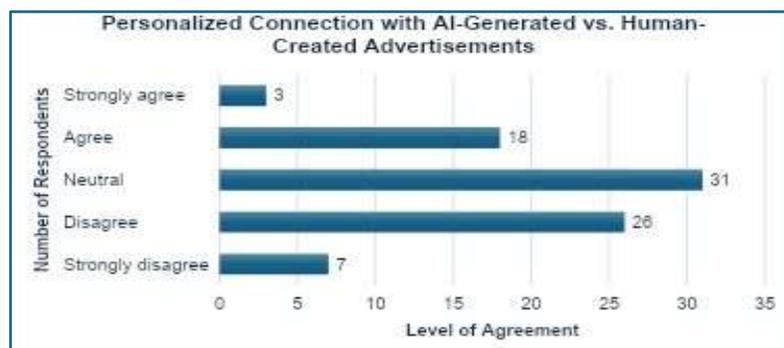
Fig. 6: Personalized connection with AI-generated vs Human -created advertisements

Figure 7 shows the survey results, that clicking on the "Buy Now" button in response to AI-generated advertisements is not a common behavior among respondents. Respondents that either agree (12.9%, 11 out of 85) or strongly agree (4.7%, 4 out of 85) indicate that a small percentage (17.6%) of all respondents are motivated to respond right away if they experience an ad shown based on AI. On the contrary, 30.6% (26 out of 85) are neutral — this indicates that a part feels either indifferent or they are not sure whether to use the "Buy Now" button. Meanwhile, a larger portion, 55.3% (44 out of 85) disagree (41.2%, 35) and strongly disagree (10.6%, 9 out of 85), indicating that most respondents do not frequently engage with AIgenerated advertisements in this way.
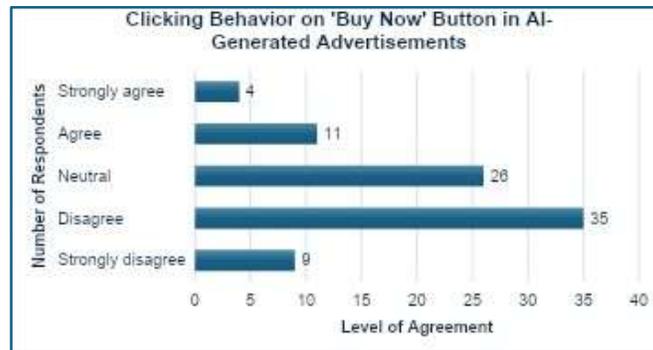

Fig. 7: Clicking behaviour on "Buy Now" button in AI-generated advertisements

OPINION COMPARISON AMONG VARIOUS GROUPS

Age-wise Comparison
The Group Statistics table compares two age groups: those aged 35 or younger and those older than 35. It provides the meaning, standard deviation, and standard error of the mean for various statements related to AI-generated advertisements. The sample size for the younger group is 39, while the older group has 46 participants.

Group Statistics					
	Age group?	N	Mean	SD	Std. Error
How frequently do you interact with AI-enabled advertisements (e.g., on social media or other platforms)?	≤ 35 years	39	1.23	.427	.068
	> 35 years	46	1.50	.506	.075
I find AI-generated advertisements more engaging than traditional advertisements.	≤ 35 years	39	3.21	1.031	.165
	> 35 years	46	3.22	.941	.139
AI-generated advertisements provide more personalized content that aligns with my preferences.	≤ 35 years	39	3.36	1.063	.170
	> 35 years	46	3.22	.964	.142
I trust the information provided in AI-generated advertisements.	≤ 35 years	39	2.79	1.005	.161
	> 35 years	46	2.80	.957	.141
AI-generated advertisements are innovative and improve my overall brand perception.	≤ 35 years	39	3.41	1.093	.175
	> 35 years	46	3.30	.916	.135
I feel concerned about the privacy implications of AI-generated advertisements using my data.	≤ 35 years	39	4.03	.932	.149
	> 35 years	46	3.96	.918	.135
AI-generated advertisements help me save time in decision-making while shopping.	≤ 35 years	39	3.00	1.000	.160
	> 35 years	46	3.35	1.016	.150
I prefer AI-generated advertisements because they feel less biased than human-generated content.	≤ 35 years	39	3.33	.982	.157
	> 35 years	46	3.00	1.155	.170

I can distinguish between AI-generated advertising content and human-created advertisements.	≤ 35 years	39	3.59	.880	.141
	> 35 years	46	3.22	.917	.135
I frequently check disclaimers to identify if advertisements are AI-generated.	≤ 35 years	39	2.72	1.075	.172
	> 35 years	46	2.59	.979	.144
I am aware of AI's ability to generate photos and videos for advertisements.	≤ 35 years	39	3.90	1.046	.168
	> 35 years	46	3.89	.900	.133
The use of photos and videos in advertisements significantly impacts on my interest in the product.	≤ 35 years	39	3.72	.972	.156
	> 35 years	46	3.57	1.003	.148
I feel a similar level of personalized connection with AI-generated advertisements as with human created ads.	≤ 35 years	39	2.77	.959	.154
	> 35 years	46	2.85	1.010	.149
AI-generated advertisements have influenced my behavior, including purchase decisions.	≤ 35 years	39	3.23	1.063	.170
	> 35 years	46	2.98	.931	.137
I often click on the "Buy Now" button when I see AI-generated advertisements.	≤ 35 years	39	2.54	1.072	.172
	> 35 years	46	2.65	.948	.140
I frequently engage with AI-generated advertisements by liking, sharing, or commenting on them.	≤ 35 years	39	2.79	1.105	.177
	> 35 years	46	2.57	.958	.141
The products I purchase from AI-generated advertisements closely resemble what is shown in the ads.	≤ 35 years	39	3.03	.959	.154
	> 35 years	46	2.93	.827	.122
I regularly use products that I purchase based on AI-generated advertisements	≤ 35 years	39	2.79	.894	.143
	> 35 years	46	2.70	.840	.124

In terms of frequency of interaction with AI ads, the younger group interacts less frequently, as indicated by their lower mean score. However, the difference in interaction frequency between the two groups is not significant, with both reporting relatively low levels of engagement. When it comes to the perceived engagement level with AI-generated advertisements, both groups show similar responses, indicating a comparable level of interest and engagement in these ads.

The younger group tends to perceive AI-generated ads as more personalized than the older group, although both groups generally find AI advertisements aligning with their preferences. Trust in AI-generated advertisements is similar across both groups, suggesting that neither group places a high degree of trust in these ads. The younger group finds AI ads more innovative, with a slightly higher mean score, while the difference in how both groups view the impact of AI ads on brand perception is minimal.

Regarding privacy concerns, both groups express a similar level of concern, though the younger group shows a slight increase in privacy worries. When it comes to timesaving and decision-making, the older group feels that AI ads help save more time during shopping, which is reflected in their higher mean score. The younger group also places greater emphasis on the reduced bias in AI-generated ads, preferring them to be less biased than human-created content, while the older group is less concerned with this aspect.

In terms of distinguishing between AI-generated and human-created advertisements, the younger group feels more capable of making this distinction. However, when checking disclaimers to identify if ads are AI-generated, both groups exhibit similar behavior, with the younger group checking more frequently. Awareness of AI's capabilities in generating photos and videos for ads is high in both groups, with almost no difference between them. The use of visual content, such as photos and videos, has a similar impact on both groups' interest in the product. Regarding the feeling of personalized connection with AI ads, the older group reports a slightly stronger connection. When it comes to behavior and purchase decisions, the younger group feels more influenced by AI-generated ads, while the older group shows a slightly lower level of influence.

The frequency of clicking the "Buy Now" button is almost identical between the two groups, with a slight difference in the younger group's behavior. The younger group engages more frequently with AI-generated ads by liking, sharing, or commenting on them. They also report that the products they purchase resemble those shown in AI ads more closely than the

older group feels. However, both groups show a similar level of long-term use of products purchased through AI ads, with a small edge for the younger group.

In summary, the younger group generally shows higher engagement and influence from AI-generated ads, especially regarding interaction, perceived personalization, and the influence on purchase decisions. The older group, on the other hand, tends to have slightly different perceptions, especially concerning privacy and ad effectiveness. Despite these differences, the responses from both groups are relatively similar for many factors, indicating that age plays a role but does not drastically alter overall perceptions of AI-generated advertisements.

Education- wise Comparison

The Group Statistics results offer a comparison between two educational levels—till graduation and beyond graduation—regarding their attitudes and behaviors towards AI-generated advertisements.

The sample size and statistical measures such as the mean, standard deviation, and standard error of the mean were used to understand the differences and similarities between the two groups.

Group Statistics - Education					
	Education	N	Mean	SD	Std. Error
How frequently do you interact with AI-enabled advertisements (e.g., on social media or other platforms)?	≤ Graduation	50	1.28	.454	.064
	> Graduation	35	1.51	.507	.086
I find AI-generated advertisements more engaging than traditional advertisements.	≤ Graduation	50	3.14	.904	.128
	> Graduation	35	3.31	1.078	.182
AI-generated advertisements provide more personalized content that aligns with my preferences.	≤ Graduation	50	3.22	1.016	.144
	> Graduation	35	3.37	1.003	.169
I trust the information provided in AI-generated advertisements.	≤ Graduation	50	2.82	1.024	.145
	> Graduation	35	2.77	.910	.154
AI-generated advertisements are innovative and improve my overall brand perception.	≤ Graduation	50	3.42	1.012	.143
	> Graduation	35	3.26	.980	.166
I feel concerned about the privacy implications of AI-generated advertisements using my data.	≤ Graduation	50	3.90	.886	.125
	> Graduation	35	4.11	.963	.163
AI-generated advertisements help me save time in decision-making while shopping.	≤ Graduation	50	3.10	.974	.138
	> Graduation	35	3.31	1.078	.182
I prefer AI-generated advertisements because they feel less biased than human-generated content.	≤ Graduation	50	3.30	1.055	.149
	> Graduation	35	2.94	1.110	.188
I can distinguish between AI-generated advertising content and human-created advertisements.	≤ Graduation	50	3.52	.909	.129
	> Graduation	35	3.20	.901	.152
I frequently check disclaimers to identify if advertisements are AI-generated.	≤ Graduation	50	2.68	1.096	.155
	> Graduation	35	2.60	.914	.154
I am aware of AI's ability to generate photos and videos for advertisements.	≤ Graduation	50	3.82	1.004	.142
	> Graduation	35	4.00	.907	.153
The use of photos and videos in advertisements significantly impacts on my interest in the product.	≤ Graduation	50	3.62	.923	.131
	> Graduation	35	3.66	1.083	.183
I feel a similar level of personalized connection with AI-generated advertisements as with human-created ads.	≤ Graduation	50	2.78	.910	.129
	> Graduation	35	2.86	1.089	.184
	≤ Graduation	50	3.08	1.085	.153

AI-generated advertisements have influenced my behavior, including purchase decisions.	> Graduation	35	3.11	.867	.147
I often click on the "Buy Now" button when I see AI-generated advertisements.	≤ Graduation	50	2.60	1.069	.151
	> Graduation	35	2.60	.914	.154
I frequently engage with AI-generated advertisements by liking, sharing, or commenting on them.	≤ Graduation	50	2.82	1.024	.145
	> Graduation	35	2.46	1.010	.171
The products I purchase from AI-generated advertisements closely resemble what is shown in the ads.	≤ Graduation	50	2.86	.881	.125
	> Graduation	35	3.14	.879	.149
I regularly use products that I purchase based on AI generated advertisements	≤ Graduation	50	2.70	.863	.122
	> Graduation	35	2.80	.868	.147

In terms of frequency of interaction with AI ads, those with education beyond graduation interact more frequently, as indicated by their higher mean score. However, when it comes to the engagement level with AI-generated ads, both groups report positive engagement, though individuals with education beyond graduation report slightly higher engagement.
Similarly, both groups perceive AI-generated ads as personalized, but those with higher education feel that the ads are more tailored to their preferences.

Trust in AI-generated ads is quite similar between the two groups, with those with education till graduation expressing marginally higher trust. Regarding the perception of innovation and brand perception, individuals with education till graduation consider AI ads more innovative and helpful in shaping their views of a brand. However, when it comes to privacy concerns, those with education beyond graduation express higher levels of concern regarding the use of their data in AI ads. When it comes to timesaving in decision-making, people with education beyond graduation feel that AI-generated ads are more helpful. The preference for AI ads to be less biased is higher among those with education till graduation, showing a significant difference in perception between the two groups. On the other hand, individuals with education till graduation feel more confident in distinguishing between AI-generated and human-created ads, while those beyond graduation feel slightly less capable in this regard.

Both groups behave similarly with little variation in how frequently they check disclaimers to spot AI-generated advertisements. However, those with education beyond graduation report slightly higher awareness of AI's ability to generate photos and videos for advertisements, and they also slightly agree that such visual content in ads impacts their interest more than those with education till graduation. While the beyond-graduation group feels somewhat more connected, both groups report a comparable degree of personalized connection with AI-generated advertisements. There is a small difference in favor of those with more education beyond graduation when it comes to the impact of AI-generated ads on behavior including purchase decisions between the two groups.

Interestingly, both groups show identical behavior in terms of clicking on the "Buy Now" button, with no difference in their decision to act on AI ads. However, when it comes to engagement (likes, sharing, or commenting on ads), individuals with education till graduation engage more with AI ads, indicating a higher level of interaction. Regarding the products purchased from AI-generated ads, those with education beyond graduation report that the products more closely resemble what was shown in the ads, and they also report using these products more often than those with education till graduation. In conclusion, people who have completed more education tend to view AI-generated ads more favourably engage with them more regularly are more cognizant of AI's potential, and voice greater privacy concerns. In contrast, people who continue their education until graduation typically exhibit higher levels of engagement especially when it comes to their perception of bias in AI advertisements. These results imply that while people with education through graduation are more actively involved with the content itself higher education is associated with more frequent interaction and awareness of AI generated content.

T-Test Results
The mean differences of both age and education groups of responses were tested with T-test statistics for confirming whether the mean differences were statically significant or not.

The group statistics for Age reveals the mean response of 3.08 for respondents with age less than or equal to 35 years with standard deviation of 0.9754 and mean of standard errors to be 0.1562. Similarly, other group of more than 35 years of age with 46 respondents had mean value of 3.0167 with standard deviation of 0.9270 and 0.1367 as mean of standard errors.

Group Statistics – Age

Age	N	Mean	Std. Dev.	Std. Error Mean
≤ 35 years	39	3.0800	0.9754	0.1562
> 35 years	46	3.0167	0.9270	0.1367

On the other hand, in the group statistics for Education, group-1 with education level of graduation or less with 50 respondents had mean of 3.0367 with standard deviation of 0.9494 and mean of standard errors as 0.1343. In a similar fashion, the other group, with qualification greater than graduation degree with 35 respondents had mean value of 3.0561 with standard deviation of 0.9478 and 0.1602 as mean of standard errors.

Group Statistics – Education

Education	N	Mean	Std. Dev.	Std. Error Mean
≤ Graduation	50	3.0367	0.9494	0.1343
> Graduation	35	3.0561	0.9478	0.1602

When the mean differences between age groups (aged 35 or less and more than 35 years of age) and education groups (Graduate or lesser qualified and beyond an undergraduate degree) were analysed for statistically significant differences among the respective groups, the following results were found.

Group Statistics: T-test (Age and Education)

	Education		t-value	Sig (2-tailed)
How frequently do you interact with AI-enabled advertisements (e.g., on social media or other platforms)?	≤ 35 years	EV	.490	.027
	> 35 years	NEV	.486	.026
How frequently do you interact with AI-enabled advertisements (e.g., on social media or other platforms)?	≤ Graduation	EV	.597	.026
	> Graduation	NEV	.597	.028
I find AI-generated advertisements more engaging than traditional advertisements.	≤ Graduation	EV	.510	.042
	> Graduation	NEV	.509	.041
AI-generated advertisements help me save time in decision-making while shopping.	≤ 35 years	EV	.360	.011
	> 35 years	NEV	.359	.012
I can distinguish between AI-generated advertising content and human-created advertisements. s	≤ 35 years	EV	.762	.048
	> 35 years	NEV	.762	.048
I can distinguish between AI-generated advertising content and human-created advertisements.	≤ Graduation	EV	1.828	.036
	> Graduation	NEV	1.828	.037
I frequently check disclaimers to identify if advertisements are AI-generated.	≤ 35 years	EV	.128	.041
	> 35 years	NEV	.128	.039
I frequently engage with AI-generated advertisements by liking, sharing, or commenting on them.	≤ Graduation	EV	.473	.009
	> Graduation	NEV	.473	.008

* EV = Equal variances assumed, NEV = Equal variances not assumed

As per above T-test results we can infer that:

- There is statistically significant difference in the interaction of AI-enabled advertisements between different age groups and those from different education groups. The mean averages reveal that respondents aged 35 or less and those from education level of graduation or lower, interact more with AI-enabled advertisements as compared to other respective groups.

- Among the 2 education qualification groups, respondents with qualification beyond undergraduate degree found AI-enabled advertisements more engaging than traditional advertisements.
- Respondents 35 years of age or less, were found to have the statistically different opinion that AI-enabled advertisements help them save time in decision-making.
- Both Age and Education groups studied, have a significant difference in their abilities to distinguish between AI-generated advertising content and human-created advertisements. Younger group ($\leq$ 35 years) with Graduation or lower qualification showed more awareness and able to distinguish between the two.
- Young group of respondents ($\leq$ 35 years) were also found to have significant difference when it comes to checking disclaimers related to AI-generated advertisements.
- Among education groups, graduate level of respondents found to be more frequently engaged with AI-generated advertisements by liking, sharing, or commenting as compared to above graduate level.

CONCLUSION

This study offers insightful information about how consumer engagement and purchasing behavior are affected by AI generated advertising content. The results show that although consumers acknowledge the creativity and tailored experiences provided by AI-generated advertisements, serious worries about privacy, trust and the emotional attachment to such content still exist. To fully utilize AI's potential in advertising the study emphasizes how critical it is to address these issues. For marketers to increase consumer trust and engagement transparency data privacy and ethical considerations must be given top priority in their AI strategies. In an increasingly digital environment, companies can do this to maximize their advertising efforts, increase conversion rates, and cultivate brand loyalty. The study also reveals that there is significant difference among different age and education groups in terms of their ability to distinguish content, frequency of their engagement, ability to rely on such content for quick decision-making, saving time and being aware of AI disclaimers.

LIMITATIONS & DIRECTION FOR FUTURE RESEARCH

The study only included 85 respondents which might restrict how broadly the results can be applied. Furthermore, the study was mostly carried out online which might have limited the respondent pool diversity and affected the result's representativeness. A larger and more diverse sample size should be a goal of future research to increase the result's generalizability. Longitudinal research would make it simpler to understand how AI-generated advertisements affect consumer behavior and brand loyalty over the long run. Examining the impacts of AI-generated advertising in diverse cultural contexts would help us understand how consumer attitudes and behavior vary across cultures. The specific benefits and drawbacks of AI in advertising may be highlighted by studies contrasting the effectiveness of AI-generated advertisements with human produced content. Future studies should also look into the ethical implications of AI-generated advertising, particularly biases in algorithmic content creation and how they impact perceptions of consumer justice and reliability.

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