A Study of the Relationship Between Artificial Intelligence Generated Image Advertising and Consumer Brand Awareness

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Abstract

The rapid development of generative artificial intelligence technology is bringing tremendous changes to the advertising industry. Currently, there is relatively little research on the relationship between AI image advertising and consumer brand awareness. Based on the brand equity theory, this study constructed two theoretical models, "quality to brand awareness" and "acceptance willingness to brand awareness" and conducted experimental research by analyzing data from 419 questionnaires from China online respondents. The experimental data shows that 73.5% of the respondents believed that they had seen AI image advertisements, and 24.3% of the respondents suspected that they had seen AI image advertisements, this indicates that by the end of 2024, AI image ads have been widely exposed on the China Internet and have a high degree of recognizability even without the disclosure of AI labels. The research results show that the three dimensions of the quality of AI image advertisements in this paper, namely informativeness, entertainment, and credibility, all have a significant positive relationship with consumer brand awareness, and credibility has the strongest influence. There is a significant positive relationship between consumer willingness to accept AI image advertising and consumer brand awareness, and the influence is relatively strong. The researchers suggest that relevant practitioners should focus on enhancing the credibility of AI image ads when creating or using them, and on this basis improve the informativeness and entertainment of the ads. Based on the above findings, this paper contributes to the relevant literature on advertising communication, generative AI advertising, consumers, and brand awareness.

Keywords: Generative Artificial Intelligence; AI; Advertising; Consumer; Brand Awareness

Introduction

The development of generative artificial intelligence (AI) has exceeded many people's expectations, and the star application ChatGPT took only two months to reach approximately 100 million monthly users, establishing itself as the fastest-growing consumer internet program ever. (Porter, 2023). Using AI-generated content has grown to be one of the most well-liked study subjects, and the marketing on social media has emerged as an indispensable mainstream method for marketing entities. Many companies have started leveraging AI technology to improve their current campaigns in an effort to cut expenses and boost productivity (Du et al., 2023). The number of coding projects and journal papers related to artificial intelligence is increasing rapidly. (Jones, 2024). Artificial intelligence technology has developed to the point where it can generate content by understanding the intent information in human instructions and combining it with its own large model, and as the capabilities of the large model improve, the generated content will possess higher quality and be able to produce more realistic content (Cao et al., 2018), this is crucial in the design and production of advertisements. Computers can now generate images or video works using a variety of generative methods, such as those based on Transformer or diffusion models, all of which have their own advantages and disadvantages, and the related technologies are constantly evolving (Deng et al., 2024). Generative artificial intelligence has already begun to have an impact on the work of graphic designers, the high caliber of AI-generated artwork has led to plenty of illustration jobs being taken over by AI image generators like Stable Diffusion and DALL-E 2 (Zhou, 2023). On the other hand, artificial intelligence technology can help designers enhance their efficiency, and actively create attractive new ideas across all topics. (El-aasy, 2023). AI-driven generative networks, after being trained, can transform text and themes into breathtaking and immersive creative artworks (Hanna, 2023). At present, generative artificial intelligence already has the ability to generate image advertisements and is beginning to replace some human jobs.

Artificial intelligence technology will reshape the landscape of the advertising industry and have a profound impact on advertising (Gao et al., 2023). AI technology has various use cases in the advertising industry. such as it can helps marketers to better improve marketing campaigns, enhance the consumer experience, and conduct personalized advertisement recommendations by predicting consumers' interests based on big data (Lin et al., 2021). As a subfield of AI technology, generative artificial intelligence can leverage this advantage and create personalized multimedia content by gaining an in-depth understanding of consumer behavior or preferences, thereby improving marketing experience and enhancing brand value (Büyüksomer & Tekeoğlu, 2024). The generative artificial intelligence applications under Taobao, a renowned e-commerce platform, can help users quickly create poster advertisements with a quality higher than the average level (Rao & Duan, 2020), The entry of professional e-commerce platforms has further accelerated the application of generative artificial intelligence technology in the advertising field. Compared with the advertising images produced manually, the advertising images generated by artificial intelligence may sometimes have a better consumer click-through rate, the potential of AI-generated advertising is better when it doesn't look like content generated by AI, at the same time, generative AI plays a huge role in advertising creativity (Exner et al., 2025). Therefore, whether from the perspective of marketing analysis or content creation, generative AI technology has a natural application scenario in the advertising field. If it is widely applied, it may have a tremendous impact on the digital advertising industry.

Aaker (1991) defined brand equity as a collection composed of assets such as perceived quality and brand awareness, these assets can have an impact on the value of products or

services. This theory has been widely cited. Based on this, there may be some practical connection between perceived quality and brand awareness. In real life, the quality of advertisements and brand awareness have received relatively little direct research, but consumers care very much about these two elements. In the field of digital advertising, generative artificial intelligence has transformed the way brands interact with consumers, this technology has changed the creation, customization, and delivery of advertising content in the past, and has also brought new challenges in terms of brand image, user privacy and security, and ethical considerations (Gujar & Panyam, 2024). AI-generated content could have a positive influence on both customers' psychological and behavior engagements, and Ads with AI-generated tags can influence customer behavior engagement (Du et al., 2023). Therefore, generative artificial intelligence is not only changing the difficulty and innovativeness of advertising design, but also establishing new perceived quality and influencing consumers' psychology, which may lead to new changes in the relationship between consumers and brands.

In summary, the era of a large number of AI advertisements in the market may be approaching rapidly, in such an era, studying the various relationships between AI advertising and consumers becomes especially important and necessary. Based on the above background, this study selects the relationship between AI image advertisements and consumer brand awareness as the main research direction, explores the possible influence relationship between the two, and raises the following questions:

RQ1: What is the exposure status of AI picture advertisements on the Internet?
RQ2: What is the influential relationship between the quality of AI image advertising and consumer brand awareness?
RQ3: What is the influential relationship between the consumer willingness to accept AI image advertising and consumer brand awareness?

Literature Review

Generative AI-driven text-to-image advertising

Generative artificial intelligence is an AI technology that can generate various types of computer digital content, such as audio, images, text, 3D models, etc (Nah et al., 2023). text-to-image generators are a new hot trend in the field of artificial intelligence, input any text into these programs and they will generate images that match the text description, and If the user is not satisfied with the generated image they can continue to modify the text and regenerate the image, however, the images generated by different Text-to-image models look different, and some of image may be of low quality or unnatural, therefore, the quality of the text-to-image model and the prompt text directly determines the quality of the generated images (Göring et al., 2023). Generative artificial intelligence is forward-looking, capable of producing novel marketing materials that resonate with audiences, ensuring that brand messaging remains fresh, relevant, and engaging in an ever-changing market (Sands et al., 2024). In today's society, especially in the design field, AI technology that can generate images based on textual prompts is becoming increasingly common (Brisco et al., 2023). With the release of various generative AI software, text-to-image AI technology has made significant breakthroughs. Now, humans can create original visual art by simply providing descriptive statements composed of natural language prompts (Dehouche & Dehouche, 2023). Text-to-image models can process input text and produce high-fidelity pictures by using textual descriptions as a guide (Bie et al., 2023). In some cases, images generated by ordinary users inputting prompts into AI software can be virtually indistinguishable from those created by humans using computer design tools

(Brisco et al., 2023). AI is profoundly changing how consumers engage with brands and how brand material is delivered in the advertising sector, it is anticipated to have a major effect on every worldwide digital advertising business, this could bring about new perceptions for consumers regarding brand content (Beak, 2023).

Brand Awareness

Brand awareness and brand image are the two parts of brand knowledge, the capacity of customers to remember and identify a brand is correlated with brand awareness, therefore, brand awareness includes both brand recall and brand recognition (Keller, 1993). Brand awareness is a crucial concept within brand equity, For consumers, it represents their understanding and memory of the brand (Yao, 2007). Brand Awareness plays an important role in consumers' purchasing decisions, it will make consumers have different identification and attention to the relevant pictures of different brand products, so it has an important position in the field of marketing (Zhang, 2020). Awareness can be associated with brands and advertising, and it is widely used to measure brand performance and marketing effectiveness in relevant content (Romaniuk et al., 2004). Brand awareness is influenced by several dimensions of advertising, research by Tan et al. (2021) and colleagues shows that the amount of advertising information and the persuasiveness of the ads help to enhance consumer purchase intentions and brand awareness. In summary, the concept of brand awareness can refer to the strength of consumer recall, association and recognition of a brand, and it may be related to multiple dimensions of advertising.

Advertising Quality

Although the term "quality" has been used in human society for a long time, it is still difficult to find a widely accepted standard concept of quality, even when reviewing the works about quality from renowned masters. Nevertheless, consumers believe they can see and understand quality, and they expect to receive higher quality. Generally speaking, experts' definitions of quality can be divided into two categories: Level two quality refers to products and services that only need to meet customer expectations, while Level one quality pertains to products or services whose measurable characteristics meet a set of fixed specifications (often defined numerically) (Hoyer & Hoyer, 2001). Advertising content influences consumers' perceptions of quality. Since consumers place significant importance on quality, it is common for high-quality brands to emphasize quality in their advertisements (Kopalle et al., 2017). Based on a 6.5-year dataset of consumer interviews, researchers found that nearly half of McDonald's sales growth can be linked to variables related to advertising quality (Young & Page, 2014). Other scholars have also conducted research on the quality of various types of advertising. The quality of advertising holds significant value for both users and businesses, and this quality is related to the the informativeness, credibility, and entertainment value of the ads (Liu, 2017). Avoiding confusion is crucial for perceived quality, even if native ads are individually rated as high quality, if the content is excessively relevant, it can still have a negative impact on perceived website credibility and perceived website quality (Cramer, 2015). Improving the quality of online video ads may significantly impact ad effectiveness, and the concept of "presence" is crucial for understanding how enhanced video quality affects online advertising (Moon, 2014). At present, human perception of the quality of AI-generated images and human-made images varies in different situations, consumers believe that some AI-generated images have better quality and a stronger sense of realism than human-made images, and in terms of advertising effectiveness, the click-through rate of banner ads generated by top AI models is sometimes even higher than that of high-quality human-made images (Hartmann

et al., 2024). In summary, the quality of advertising has an impact on advertising effectiveness, consumers care about quality and may perceive the quality of AI-generated and human-made advertisements differently. The quality of advertisements is related to various dimensions of the advertisement such as informativeness and credibility, and these dimensions are related to consumer brand awareness. Based on the above context, the study decided to select three common advertising dimensions to be merged to reflect the quality of advertisements and proposed the following hypotheses:

H1: There is a positive relationship between the quality of AI image advertising and consumer brand awareness.

H1a: There is a positive relationship between the informativeness of the quality of AI image advertising and consumer brand awareness.

H1b: There is a positive relationship between the entertainment of the quality of AI image advertising and consumer brand awareness.

H1c: There is a positive relationship between the credibility of the quality of AI image advertising and consumer brand awareness.

Consumer Acceptance Willingness

When consumers encounter new things, their perceptions of the ease of use and usefulness of these new things will influence their intentions and behavior. When users believe that their lives will be changed by a certain technology, their perception of its usefulness will change. The positive or negative attitude of the user towards the technology depends on the perceptions that the user creates about the technology, which will ultimately affect the user's behavioral intentions (Davis, 1989). Accepting and receiving new information can lead to changes in people's attitudes, when people need to evaluate a new issue, they can draw on relevant information stored in their memory, and attitudes will begin to form automatically, attitudes influence the psychological object in terms of approval or disapproval and affect the expected value. This evaluative tendency reflects generally accessible beliefs derived from the object of the attitude (Ajzen & Fishbein, 2000). Other scholars have also conducted research on the relationship between advertising and consumer acceptance willingness. Song (2020) mentioned in research on the relationship between user acceptance willingness and smart advertising features that user acceptance willingness is influenced by different types of advertisements. In his study, user acceptance willingness refers to the cognitive tendencies and judgments that users form regarding the likelihood of their future acceptance of smart ads. Tang (2022) mentioned that in the relationship between knowledge of targeted advertising and the willingness to accept targeted advertising technology, AI transparency has a positive moderating effect. AI transparency refers to whether and how advertising operators disclose information about the use of artificial intelligence to consumers. In summary, consumer acceptance willingness varies based on new things and technologies, and may be influenced by different types of advertisements, leading to changes in consumers' attitudes, which ultimately affects consumers' behavioral intentions. Based on the above context, the study proposes the following hypothesis:

H2: There is a positive relationship between the consumer acceptance willingness and consumer brand awareness.

Theoretical Model

In order to clearly show the possible influential relationship between the quality of AI image advertisement and consumer brand awareness hypothesized in this study, as well as the possible influential relationship between consumer acceptance willingness and consumer brand awareness, Figure 1 conceptualizes the theoretical model and displays the research hypothesis model.
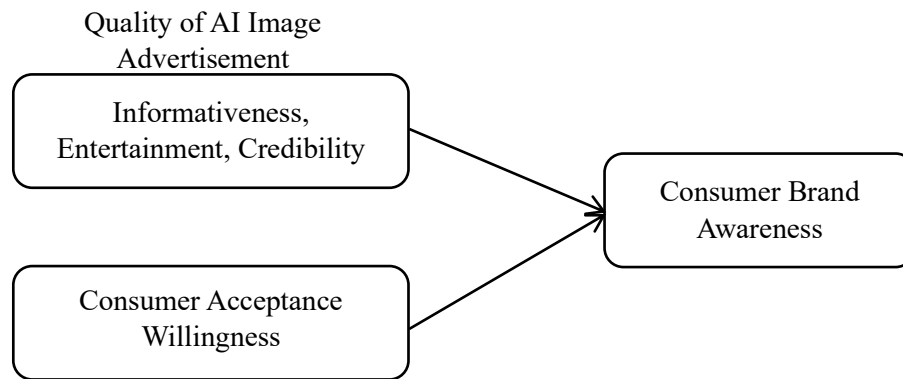
Quality of AI Image
Advertisement

Informativeness,
Entertainment, Credibility → Consumer Brand
Awareness

Consumer Acceptance
Willingness →

Figure 1: Conceptual Model

Research Methodology

This study is descriptive and quantitative, and will use surveys to collect respondents' responses, specifically, online questionnaires will be distributed via the internet, and after filtering out invalid questionnaires, convenience sampling will be used to obtain valid online feedback data from respondents. The foundation of this study is related to existing literature, and thus the research follows a deductive reasoning approach. The aim is to examine the relationships among the quality of AI image advertisement, consumer brand awareness, and consumer acceptance willingness.

Data Collection Procedure

This study is based on consumers' feedback on their impressions of AI advertising. Taking into account the phenomenon of the younger age of the online shopping group and the technological and social media nature of AI advertising in the initial stage of development, the profile of the main target population for survey in this study is defined as follows: aged between 18 and 45, who regularly use social media platforms, who have purchased IT-related products online, who believe they have seen advertisements created with the involvement of artificial intelligence or suspect that certain advertisements were generated with the help of AI. In the survey section, an online questionnaire will be created using the online questionnaire platform, and the questionnaire will be distributed through online questionnaire platform and various social media platforms to collect responses. According to the "The 53rd Statistical Report on China's Internet Development" released by the China Internet Network Information Center, the scale of online shopping users in China has reached 915 million. Netizens aged between 20 and 49 account for 48.9%, and those aged 50 and above account for 32.5%. Based on this data, it is estimated that the proportion of online shopping users aged between 18 and 45 is at least over 43%, that is, more than 393.45 million people. Based on this data, the calculation results according to the sample sampling size formula (Wu, 2010) in the questionnaire statistical analysis show that the effective sample size of this study should be at least 384. After the distribution of the questionnaires was completed, a total of 585 questionnaires were distributed

on the Internet in this study. The convenience sampling method was adopted for sampling. Preconditions were set such that other people within a radius of 1 kilometer from the respondent's IP address were unable to answer the questionnaire, and the same IP address could not be used to answer repeatedly, some biases were alleviated through IP restrictions. Then, invalid questionnaires with extremely short or long answering times, or those in which all answers were the same option were screened out and eliminated to further reduce some biases. As a result, a total of 419 valid questionnaires were collected, of which 388 met the profile of the main survey subjects of this study, and the recovery rate of valid questionnaires was 71.6%.

Measures

All the measures were adapted from reliable and valid scales based on the characteristics of AI image advertising (See Appendix for details), all items are measured using a 5-point Likert scale.

Specifically, the Quality of Generative AI-driven Advertising is measured using three dimensions: informativeness, entertainment, and credibility. The set of items adapted by Liu (2017) from Brackett and Carr (2001) et al. is suitable for measuring informativeness and entertainment of advertisements, among them, informativeness is assessed using three items, in this study, one adapted example item is 'I think AI advertisements provide information about relevant products.', entertainment is assessed using three items too, in this study, one adapted example item is 'I think AI advertisements are fun and interesting.'. The set of items adapted by Wang (2020) from Gurviez and Korchia (2003) et al. is suitable for measuring credibility of advertisements, a total of 3 items are included, in this study, one adapted example item is 'I believe in the safety content about the product in the AI advertisements.'.

Consumer Acceptance Willingness is measured using a single dimension, the set of items adapted by Song (2020) from Feng (2015) is suitable for measuring this dimension, a total of 3 items are included, in this study, one adapted example item is 'I'm willing (or will be willing in the future) to accept AI advertisements.'.

Consumer Brand Awareness is measured using a single dimension, the set of items adapted by Qi (2023) from Keller (1993) and Wang (2020) is suitable for measuring this dimension, a total of 4 items are included, in this study, one adapted example item is 'I recognized the brand when I saw the AI advertisement.'.

The Reliability and Validity test included 388 valid online questionnaires, From Table 1, the Cronbach's Alpha for the informativeness dimension is greater than 0.6, indicating acceptable performance; The Cronbach's Alpha for entertainment, credibility, consumer acceptance willingness, and consumer brand awareness are all above 0.7, reflecting good performance. In summary, the overall data reliability of the scale was good and the data can be used for subsequent analysis. The Informativeness, Entertainment, Credibility all has a KMO value greater than 0.6 and a significance value of less than 0.05, and when these three dimensions were put together for validity testing they could be correctly categorized into their corresponding factors in the exploratory factor analysis. The consumer acceptance willingness has a KMO value is 0.699 which is approximately equal to 0.7 and a significance value of less than 0.05. The consumer brand awareness has a KMO value is 0.761 and a significance value of less than 0.05. In summary, the exploratory factor analysis results for all dimensions are acceptable, the information from the research items can be effectively extracted, and the data can be used for subsequent analysis.

Reliability and Validity Test

Table 1: Reliability and Validity Analysis Table

Variable and Constructs	Corrected Item-Total Correlation	α if Item Deleted	α	KMO	p	% of Variance
Informativeness			0.663	0.659	0.000	60.191
A1	0.509	0.536				
A2	0.467	0.584				
A3	0.460	0.586				
Entertainment			0.778	0.700	0.000	69.315
B1	0.589	0.729				
B2	0.631	0.682				
B3	0.625	0.689				
Credibility			0.834	0.719	0.000	75.140
C1	0.726	0.740				
C2	0.664	0.801				
C3	0.696	0.769				
Consumer Acceptance Willingness			0.762	0.699	0.000	68.166
D1	0.597	0.688				
D2	0.600	0.677				
D3	0.598	0.675				
Consumer Brand Awareness			0.744	0.761	0.000	56.896
E1	0.559	0.672				
E2	0.566	0.672				
E3	0.553	0.681				
E4	0.489	0.711				

Research Findings

A total of 419 valid questionnaires were retrieved and filtered from the internet, and the data from these questionnaires will be aggregated for analysis, In terms of analytical methods, descriptive statistical analysis, correlation analysis, and regression analysis will be used to analyze the data, analyze and examine the relationships between the variables, and conduct hypothesis testing for each research hypothesis.

In the descriptive statistical analysis section, 419 valid questionnaires without any predetermined conditions will be used, all of which have statistical data on demographic characteristics of the sample. For all subsequent analyses, data analysis will be conducted using 388 valid questionnaires that meet 4 specific predetermined conditions.

From Table 2, the percentage of female respondents is 68%, while that of male respondents is 32%, indicating that the percentage of female respondents is higher than that of male respondents. The percentage of respondents under 18 years old is 0%, those aged 18 to 45 years old is 95.9%, and those over 45 years old is 4.1%. This indicates that the majority of respondents fall within the 18 to 45 age range, the research will not further subdivide the age group of 18 to 45 years old in order to gain broader customer insights in subsequent studies. The percentage of respondents who regularly use social media software is 100%, and the percentage of respondents who do not regularly use social media software is 0%, this indicates that social media apps have almost become a part of the daily lives of every internet user in China. The percentage of respondents who occasionally purchase IT-related products or services is 98.3%, and the percentage of respondents who do not purchase IT-related products or services is 1.7%, this indicates that most internet users occasionally purchase IT-related products or services in their lives. The percentage of respondents who have seen advertisement produced with the involvement of AI is 73.5%, the percentage of respondents who have suspected that a certain advertisement has been produced with the involvement of AI is 24.3%, and the percentage of respondents who have not seen or suspected advertisement produced with the involvement of AI is 2.1%, which indicates that most respondents believe that they have seen advertisement produced with the involvement of AI.

In the correlation analysis, from Table 3, the Pearson Correlation values of the informativeness, entertainment, credibility, quality of AI image advertising and Consumer Acceptance Willingness with consumer brand awareness are 0.546, 0.557, 0.650, 0.688, 0.568 respectively, and all have significance values of less than 0.01, this indicates that all variables are significantly positively correlated with consumer brand awareness. Therefore, The above analysis results supports hypotheses H1, H1a, H1b, H1c and H2.

In the regression analysis on consumer brand awareness, from Table 4, after excluding the synthetic variable, the quality of AI image advertisements, the VIF values of all other variables are less than 5, indicating that there is no issue of multicollinearity. From Table 5, the adjusted R square of variable of the informativeness, entertainment, credibility, quality of AI image advertising and consumer acceptance willingness, which were added separately, were 0.296, 0.309, 0.420, 0.472, 0.321 respectively, with each model explaining 29.6%, 30.9%, 42%, 47.2% and 32.1% of the consumer brand awareness, respectively, this indicates that the addition of the three dimensions has led to a big change on consumer brand awareness, the p-value all less than 0.05 indicates that the change is significant after adding each variable separately. The B Value for informativeness, entertainment, credibility, quality of AI image advertising and consumer acceptance willingness are 0.581, 0.465, 0.476, 0.687 and 0.453, respectively, indicating that all variables are significantly positively correlated with consumer brand awareness. Therefore, the above analysis results further supports hypotheses H1, H1a, H1b, H1c and H2.

Descriptive Statistical Analysis
Table 2: Statistical Table of Sample Demographic Characteristics

Name	Option	Frequency	% Percent	% Cumulative Percent
Gender	A.Male	134	32	32
	B.Female	285	68	100
Age	Under 18	0	0	0
	18 - 45	402	95.9	95.9
	Over 45	17	4.1	100
Whether or not to regularly use social media software.	Use	419	100	100
	Non-use	0	0	100
Whether or not to occasionally purchase IT-related products or services.	Sometimes buy	412	98.3	98.3
	Never buy	7	1.7	100
Whether or not to seen an advertisement produced with the involvement of AI or suspected that an advertisement was produced with the involvement of AI?	Seen	308	73.5	73.5
	Suspected	102	24.3	97.9
	Not seen or suspected.	9	2.1	100

Correlation Analysis
Table 3: Correlation Analysis Table

	Mean	Std. Deviation	1.	2.	3.	4.	5.	6.
1. Informativeness	4.142	.592	-					
2. Entertainment	4.008	.755	.543**	-				
3. Credibility	3.734	.861	.622**	.619**	-			
4. Quality of AI Image Advertising	3.961	.631	.812**	.850***	.896**	-		
5. Consumer Acceptance Willingness	4.029	.790	.674**	.666**	.695**	.792**	-	
6. Consumer Brand Awareness	3.929	.630	.546**	.557**	.650**	.688**	.568**	-

Notes: *p < .05, **p < .01

Regression Analysis
Table 4: Collinearity Statistics Table

Predictor	Tolerance	VIF
Informativeness	.496	2.016
Entertainment	.505	1.981
Credibility	.442	2.260
Consumer Acceptance Willingness	.370	2.701

Note: a. Dependent Variable: Consumer Brand Awareness

Table 5: Coefficients^a Combined Table

Predictor	Adjusted R Square	B	Std. Error	Beta	t	p
Informativeness	.296	.581	.045	.546	12.788	.000
Entertainment	.309	.465	.035	.557	13.186	.000
Credibility	.420	.476	.028	.650	16.786	.000
Quality of AI Image Advertising	.472	.687	.037	.688	18.625	.000
Consumer Acceptance Willingness	.321	.453	.033	.568	13.560	.000

Note: a. Dependent Variable: Consumer Brand Awareness

Results of Hypothesis Tests

Correlation analysis revealed that the quality of AI image advertising and its three dimensions: informativeness, entertainment, and credibility, were all significantly and positively correlated with consumer brand awareness, and consumer acceptance willingness was significantly positively correlated with consumer brand awareness. The above findings were further verified in the subsequent regression analysis. Therefore, hypotheses H1, H1a, H1b, H1c, and H2 in this study are all supported.

Discussions

Theoretical Contributions

In the brand equity theory, the influence relationship between perceived quality and brand awareness has been less directly studied. Based on this, the conclusions of this study dynamically supplement the brand equity theory and reveal the influence path from the quality of AI image advertisements to consumer brand awareness. At the same time, by introducing the key factor of "consumers' willingness to accept AI image advertisements", this study reveals the internal connection between it and consumer brand awareness, filling this research gap and providing path support for the theory of brand awareness formation. This study confirms that AI advertising, as an emerging form of advertising, can also effectively influence consumer brand awareness. This not only deepens the theory of brand equity formation but also provides a new reference from an AI perspective for relevant research. In addition, the application of AI technology in the advertising field has given rise to new ethical risks. Automated creative advertisements under generative AI technology suffer from the ethical issue of a lack of humanistic communication capabilities, while AI advertisements based on big data may also pose information ethical risks such as user information security problems and data falsification biases (Li, 2020). This study reveals that among the dimensions of the quality of AI image advertisements in this paper, the credibility dimension has the greatest impact on consumer brand awareness, which emphasizes the importance of ethical elements for brand awareness.

This study breaks through the limitation of treating quality as a single dimension in traditional research. It incorporates informativeness, entertainment, and credibility, which are highly correlated with both advertising and quality simultaneously, as parallel dimensions into the evaluation system of the quality of AI image advertisements. This not only reveals the synergistic effect of these three factors on consumer brand awareness but also emphasizes the importance of the quality dimension in advertising. The approach of decoupling quality and establishing a multi-factor model provides a measurable framework that can be referenced by other studies.

From the perspective of communication studies, the evolution speed of artificial intelligence (AI) advertising is different from that of traditional advertising. This paper finds that although generative AI technology only began to gain popularity among the general public at the end of 2023, in 2024, Most of the respondents in this study already believed that they had seen AI image advertisements even when there was a lack of obvious disclosure of AI labels in many advertisements. This shows that there has been no serious blurring of the boundaries between AI image advertisements and human-made image advertisements to the extent that it is difficult for consumers to distinguish between them. This finding helps to supplement the advertising communication theory from the AI perspective, emphasizing that

as an emerging advertising form in the new technological environment, AI image advertisements have not only achieved ultra-high-speed development but also possess the characteristic of being easily identifiable in the initial stage of communication.

Managerial Implications

The findings of this paper reveal the easy recognizability of AI image advertisements in the initial development stage and the importance of improving the quality of AI image advertising. When using AI advertising for marketing, business managers should pay attention to the quality of AI advertising, especially the credibility of it, when using generative AI technology to create advertising content, they should focus on using AI technology to generate more accurate, relevant, interesting and trustworthy advertising content to attract consumers, this strategy can help enhance consumer brand awareness and the corporate brand image. In addition, business managers should pay attention to the fact that AI ads has rapidly entered human life. Although many AI ads do not have AI disclosure labels at the end of 2024, many people still believe that they have seen image advertisements produced with the participation of AI, which shows that AI image ads are quite recognizable in 2024. Therefore, business managers can consider prioritizing advertising on platforms where consumers are more willing to accept AI advertising to help improve advertising effectiveness.

This study emphasizes the importance of credibility in AI generated image advertisements, with the increasing number of AI advertisements, AI advertising is also confronted with ethical considerations. Companies using AI technology in advertising should pay attention to protecting consumer privacy and try to avoid excessive collection and use of user data, especially private data, to generate AI advertisements or conduct advertisement recommendation marketing, so as to avoid possible AI manipulation and consumer trust issues. Therefore, adopting strategies that protect users' privacy and keep them informed in AI advertising will help enhance the credibility of AI advertisements. For example, inform users of the information that AI intends to obtain and only acquire it after getting users' click consent, and add an AI disclosure label in AI advertisements to indicate that the advertisement involves AI technology. This will gain more trust from consumers than when consumers discover by themselves that the advertisement is created by AI. The above strategies can not only benefit the consumer group but also enhance consumers' trust in advertisements and brands.

Conclusion

Brief Summary

The results of descriptive statistical analysis showed that among the respondents, 73.5% believed that they had seen an AI image advertisement, while 24.3% suspected that they had seen an AI image advertisement. This shows that AI image advertising have gained a certain usage base and wide exposure on the China Internet. Native advertising blended into non-advertising content often makes it difficult for consumers to tell if it is non-advertising content (Amazeen & Wojdynski, 2018). The combination of generative AI advertising and native advertising may make it more difficult for consumers to identify AI advertising (Zelch et al., 2023). The data that nearly three-quarters of respondents in this study have seen AI images advertising suggests that AI image advertising and non-AI image advertising are not currently difficult for consumers to distinguish, AI image advertising had a high recognition rate in 2024.

In this study, informativeness represents the information and content conveyed by advertisement, entertainment represents the interest and appeal of the advertisement, and

credibility represents consumers' trust and confidence in the advertisement. The correlation analysis results of this study show that there is a significant positive relationship between the informativeness, entertainment, and credibility of the quality of AI image advertising and consumer brand awareness, the quality of AI image advertising also significantly and positively correlated with consumer brand awareness, on this basis, further regression analysis reached the same conclusions and revealed that the informativeness, entertainment and credibility of the quality of AI image advertising had positive impacts of 29.6%, 30.9% and 42% on consumer brand awareness, respectively, with credibility having the greatest impact. the quality of AI image advertising had positive impacts of 47.2% on consumer brand awareness. The above findings are similarly corroborated by other scholars in their studies of other types of advertisements: informativeness, entertainment, and credibility positively impact advertising value on YouTube, the advertising value on YouTube influences brand awareness (Kharisma et al., 2022). the factors of information and entertainment significantly influence brand awareness (Lim & Kim, 2022). Based on the above, this paper suggests that relevant practitioners should focus on creating credibility in advertisements when using AI technology in picture advertisements, and enhance the informativeness and entertainment of advertisements on this basis, in order to enhance consumer brand awareness and improve advertising effects.

In this study, consumer acceptance willingness is represents the degree to which consumers accept the AI image advertising and their responses to the AI image advertising. The results of correlation analysis and regression analysis of relevant data show that there is a significant positive relationship between consumer acceptance willingness and consumer brand awareness, and consumer acceptance willingness has a positive impact of 32.1% on consumer brand awareness. Based on the above, this paper suggests that relevant practitioners to prioritize consumer groups with high willingness to accept AI image ads when placing AI image ads, and this strategy will be conducive to the shaping of brand awareness.

Limitations and Directions of Future Research

This study focuses on AI image advertising generated with the participation of generative AI techniques that base on text-to-image models, rather than other text-to-media models such as text-to-text or text-to-video. As generative AI technology advances rapidly, AI image advertising driven by it is expected to evolve quickly. The application of text/image-to-image large models will continue to increase, and their quality will improve as well. As a result, the homogenization of AI-generated advertisements will gradually decrease, making the traces of AI generation in advertisements less noticeable, improvements in image quality and the more frequent appearance of generative AI-driven advertising in the public eye will undoubtedly influence consumer perceptions of these advertisements, consequently, related research findings may evolve over time. In the process of the development of AI advertising, ethical considerations and regulatory discussions will also become more important. This study highlights the importance of credibility in AI image advertising. However, how AI technology, which lacks human communication capabilities and relies on big data, can strike a balance between ethics and regulation in the future as a sensitive issue that merits further research in the future. In addition, The quality measurement dimensions for AI image advertising include not only the three dimensions discussed in this study, furthermore, factors that can influence AI image advertising are not limited to quality alone, and consumer willingness to accept AI image advertising is also dynamically changing. Therefore, future research could consider additional quality measurement dimensions or other influencing factors to enhance the breadth and depth of related studies, thereby increasing the reference value of the related findings.

Finally, there is currently few studies on the relationships between the quality of advertisements, consumers' willingness to accept AI-generated advertisements, and consumer brand awareness. Subsequent studies can conduct further research on related topics to more comprehensively verify the relevant hypotheses and conclusions proposed in this study.

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Appendix

	Quality of AI Image Advertising
Informativeness	
A1	I think AI image ads provide information about relevant products.
A2	I think AI image ads are a good source of instant information.
A3	I think AI image ads are helpful.
Entertainment	
B1	I think AI image ads are fun and interesting.
B2	I think AI image ads make people happy.
B3	I think AI image ads is attractive.
Credibility	
C1	I believe in AI image ads about the safety of the product.
C2	I believe in AI image ads about the quality of the product.
C3	I believe in purchasing products advertised in AI image is guaranteed.
	Consumer Acceptance Willingness
D1	I'm willing (or will be willing in the future) to accept AI image ads.
D2	I am willing to actively browse or watch incoming AI image advertising messages.
D3	I'm willing to browse and buy through links in AI image ads to other platforms.
	Consumer Brand Awareness
E1	I recognized the brand when I saw the AI image ad.
E2	I know the brands mentioned in the AI image ads well.
E3	When seeing a brand mentioned in an AI image ad, I can think of a few characteristics of it.
E4	When seeing a brand mentioned in an AI image ad, I can visualize if it's right for me.