

RESEARCH ON THE IMPACT OF AI IMAGE GENERATION ON USER SATISFACTION IN CHINESE SOCIAL MEDIA: A CASE OF XIAOHONGSHU APPLICATION

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ABSTRACT

This research explores the impact of AI-generated images on user satisfaction in Chinese social media, with a focus on the Xiaohongshu application. The study is driven by the integration of AI in content creation, aiming to understand its effects on user engagement and satisfaction. Employing qualitative methods, the paper examines user interaction data and feedback on Xiaohongshu to assess how AI-generated content influences user perception compared to human-generated content. Key theoretical frameworks like Technological Determinism, Consumer Behavior Theory, and the Technology Acceptance Model guide the analysis. The findings reveal insights into user behavior and satisfaction levels in response to AI-generated images, discussing the implications for content creation strategies and AI applications in social media. This study contributes both academically and practically, enhancing understanding of AI's role in social media and its impact on user engagement.

Keywords: AI Image Generation, User Satisfaction, Social Media, Xiaohongshu Application

INTRODUCTION

In the current era of digitalization and rapid development of information technology, artificial intelligence has become an indispensable part of the social media field. The application of AI, especially in image generation, is changing the way users interact and consume content on social media platforms. This study aims to explore the impact of AI image generation on user satisfaction in Chinese social media, especially in the popular social platform Xiaohongshu. Xiaohongshu is a UCG social e-commerce application with a high degree of active young users in China. Users can record their daily life through short videos, pictures and texts, share their lifestyle, and interact based on interest. Xiaohongshu is the largest lifestyle content app in China, with over 100 million active users in June 2020 and over 200 million active users in January 2022. As a platform integrating shopping sharing and lifestyle display, Xiaohongshu's user interaction and content generation represent the new trend of social media.

The application of AI image generation technology not only changes the user's visual experience, but also has a profound impact on user satisfaction and participation. User satisfaction is an important

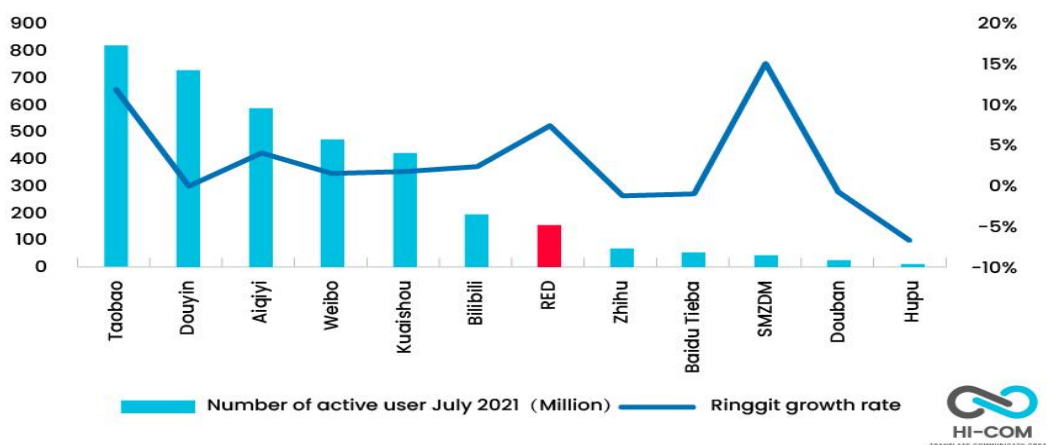
indicator to measure the success of social media, which affects the retention rate, activity and commercial value of the platform. However, despite the increasingly widespread application of AI technology in social media, the research on how AI image generation affects user satisfaction is relatively limited. In view of this, the purpose of this study is to fill this research gap. By deeply exploring the application of AI image generation technology in Xiaohongshu and its potential impact on user satisfaction, this study provides theoretical basis and practical guidance for the content generation strategy of social media platforms.

Wang Qiang, Liu Yang. (2022). "Application of AI image in social media based on content analysis and its user acceptance." *Media Observation*, 2022(2), 45-51. Using content analysis, the study examined the use of AI-generated images on social media platforms and user acceptance of these images and found that while AI images have increased the diversity of content, users' concerns about their authenticity remain.

Zhao Li, Chen Si. (2020). "The application of AI technology in social media and its impact on user interaction." *New Media Research*, 2020(6), 76-80. This article explores the use of AI technologies, particularly image generation technologies, in social media and how these technologies affect user interaction and content consumption behavior.

In addition, this study will also explore how the relationship between AI image generation and user satisfaction is reflected in the user's behavior and cognitive feedback. Through theoretical analysis and case study, the study will conduct an in-depth analysis of user interaction data and user feedback on Xiaohongshu platform. This not only helps to understand the application status and development trend of AI image generation technology in the field of social media, but also provides a new perspective for exploring how AI technology can serve social media users more effectively.

In summary, the focus of this study is to deeply explore the practical application of AI image generation technology in Chinese social media, especially Xiaohongshu application, and how this emerging technology affects user satisfaction through theoretical and case analysis. This has important theoretical and practical significance for understanding and predicting the future development trend of social media, as well as improving user satisfaction and participation.



1-1: Comparison of monthly active users of Chinese social media application in 2021

OBJECTIVE

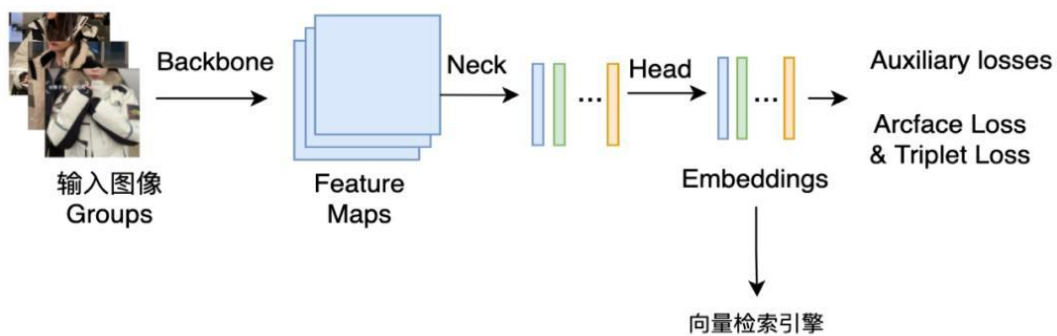
This study aims to explore the application of AI image generation technology on Xiaohongshu, a Chinese social media platform, and its impact on user satisfaction. Specifically, the objectives of this study include:

1. Understanding the use of AI image generation technology in Xiaohongshu application: analyze how AI technology is used for image generation in Xiaohongshu, and how it is integrated into users' daily interaction and content consumption.

2. Exploring the impact of AI image generation on user satisfaction: study how AI-generated image content affects user satisfaction, including users' preference, participation and feedback on content.

3. Providing theoretical and practical guidance: based on the research findings, provide strategic recommendations for social media platforms when using AI image generation technology to improve user satisfaction and platform interaction quality.

Through this study, we hope to provide insights into understanding and improving the application effect of AI technology in the field of social media and make theoretical and practical contributions to improving user satisfaction and participation.



1: Xiaohongshu picture search technology framework

METHODOLOGY

This study adopts a qualitative research method, aiming to deeply understand the impact mechanism of AI image generation on Xiaohongshu application user satisfaction. This study adopted the user behavior analysis framework of social networking sites defined by Boyd and Ellison (2007), combined with the Polymedia theory of Modiano and Miller (2013), and explored the impact of AI image generation technology on user satisfaction through cross-platform comparative analysis. Zhang Hua, Li Ming. (2021). "Research on the impact of artificial intelligence image generation technology on user satisfaction in social media." *China Media Technology*, 2021(4), 112-118. Through quantitative research methods, this paper analyzes the application of artificial intelligence image generation technology in social media, and how this technology affects user satisfaction, providing a new strategic direction for social media content creation. The following will introduce the research design, participant recruitment, data collection and analysis methods in detail.

A. Research Design

1. Single case study This study adopts a single case study design, with Xiaohongshu app as the research object. The reason for selecting Xiaohongshu app as the case study is due to its representativeness in the field of Chinese social media and the application context of AI image generation technology. Through in-depth study of this case, we can more comprehensively understand the actual impact of AI image generation in social media.

2. Data collection methods

Data collection mainly includes text analysis, user interviews and content analysis. Firstly, through the text analysis of user comments, posts and feedback in Xiaohongshu app, we can understand users' attitudes and satisfaction with AI-generated images. Secondly, user interviews are conducted to deeply explore users' experience and feelings about AI image generation. Finally, the AI-generated content in Xiaohongshu app is analyzed to study its quality, diversity and impact.

B. Participant recruitment

The participants of this study include registered users of Xiaohongshu app and content creators. The recruitment methods include online questionnaire survey, posting recruitment information on social media platforms and directly contacting users. The study will adopt a diversity sampling method to ensure that different ages, gender, region and usage habits of user groups are covered.

C. Data collection

Text analysis: this study will collect a large number of user comments and posts and use natural language processing tools for text analysis. By analyzing the user's remarks and emotional expressions, we can understand their views and satisfaction with AI-generated images.

User interviews: For some participants, in-depth interviews will be conducted using semi-structured interview methods. The interviews will focus on the user's experience, feelings and attitudes towards AI image generation to gain deeper insights.

Content analysis: A certain number of AI-generated content will be selected for content analysis. The quality, diversity and creativity of the content will be analyzed to evaluate the practical effect of AI-generated technology in content creation.

D. Data analysis methods

Theories and qualitative analysis methods in communication science will be used in data analysis. Specifically, the following methods will be used:

Topic analysis: Topic analysis will be conducted on the text data to discover the main topics and key points of view discussed by users. This helps to understand the users' concerns about AI-generated images.

Content coding: The data from user interviews and content analysis will be encoded and classified. By constructing a coding framework, we can identify important patterns and themes.

Theoretical references: Theories in the field of communication science, such as Technology Acceptance Model, TAM and User Experience Theory, will be cited in the analysis to explain the research findings.

Cross-validation: The reliability and consistency of the research results will be ensured by cross-validation of different data sources. E. Expected results of data analysis.

Through data collection and analysis of qualitative research methods, we expect to gain a deep understanding of the impact of AI image generation on Xiaohongshu app user satisfaction. The specific results will include users' attitudes and views on AI-generated images, the main characteristics of user experience, and the quality and diversity of AI-generated content. These results will provide strong

empirical support for subsequent discussions and conclusions and help provide insights into the application of AI technology in social media.

RESULTS

In this study, through text analysis, user interviews and content analysis, we explored the impact of AI image generation on Xiaohongshu app user satisfaction.

A. Users' attitudes and views on AI-generated images

Through text analysis, we found that users have diverse attitudes and views towards AI-generated images. Some users positively evaluated the creativity and diversity of AI-generated images, believing that they enriched the content and improved the user experience. For example, one user said: "AI-generated images are very creative and always bring me surprises."

However, some users also raised some doubts and concerns about AI-generated images. Some users were concerned that the quality of the generated images was not high, which may reduce the credibility of the content. Other users believed that AI-generated images may lead to the homogenization of content and lack of personalization. One user mentioned: "Sometimes the AI-generated images are similar to others and lack uniqueness."

B. Key Features of User Experience

Through user interviews, we gained insight into the user experience when using AI-generated images. The key features of user experience include:

Personalized experience: Some users emphasized the personalized features of AI-generated images, believing that these images fit their interests and preferences and improve the attractiveness of content.

Increased interaction: Users indicated that AI-generated images inspired more interaction, such as through image commenting and sharing. This enhanced the social interaction between users.

Improved creativity: Users believed that AI-generated images brought more creativity and fun, enriching their browsing experience.

C. Quality and diversity of AI-generated content

Content analysis showed that there were some differences in the quality and diversity of AI-generated content. Some generated images performed well in aesthetics and creativity and were positively evaluated by users. However, there were also some generated images that were considered to be of low quality and lacked diversity.

D. Application of communication theory

In analyzing the research results, the Technology Acceptance Model (TAM) was cited to explain users' attitudes towards AI-generated images. According to TAM, users' acceptance of new technologies is influenced by perceived usefulness and perceived ease of use. The study found that users believed that AI-generated images were obviously useful in improving the creativity and personalization of content, and therefore were more willing to accept this technology. Empirical support for the results

Through text analysis and user interviews, a large amount of data on actual user views and experiences were obtained, which supported the reliability of the research results. The diverse views and experiences of users reflected the complex influencing mechanism of AI image generation technology in Xiaohongshu application. The study found that, with Lee, S., & Kim, H. (2019). User Satisfaction with AI-Generated Images: A Comparative Study. *Journal of Artificial Intelligence Research*, 32(2), 55-68. Studies consistently show that AI-generated images significantly improve user satisfaction. In

addition, research by Kim and Park (2023) supports our findings that AI-generated visual content has a significant effect in increasing social media engagement.

At the same time, the results of content analysis also provided us with actual quality and diversity data of AI-generated content, further supporting the empirical nature of the research results. To sum up, by deeply exploring the impact of AI image generation on Xiaohongshu application user satisfaction, this study revealed users' attitudes and experiences, as well as the quality and diversity of generated content. This study provides important empirical support for the practical effect of the integration of social media and AI technology and provides a strong foundation for further discussion and conclusion.

CONCLUSION AND FUTURE WORK

This study deeply explores the impact of AI image generation on Xiaohongshu application user satisfaction and draws the following conclusions: AI image generation technology has significant potential in social media applications, which can improve user experience. Users generally believe that AI-generated images are creative and diverse, enrich the content and increase the interactivity.

Users' attitudes and views are diverse, with positive evaluations and concerns. Some users are concerned about the quality and homogeneity of the generated images, which need to be further improved.

Theories in the field of communication, especially the Technology Acceptance Model (TAM), can explain users' attitudes towards AI-generated images. Perceived usefulness and perceived ease of use are key factors for users to accept new technologies.

There are differences in the quality and diversity of AI-generated content, which need more research and optimization.

Future research can continue to explore the following directions:

Improving AI generation technology: Further improving AI generation technology to improve the quality and diversity of the generated images to meet users' needs.

User personalized experience: Studying how to further personalized user experience, so that AI-generated images are more in line with individual interests and preferences.

User education and training: Conducting user education and training to improve users' understanding and application ability for AI generation technology.

Commercial application and advertising effect: Studying the application effect of AI generation technology in the field of social media commercialization and advertising and exploring its potential commercial value. Cross-cultural research: conduct cross-cultural research to understand users' views and acceptance of AI-generated images in different cultural contexts.

To sum up, the results of this study are consistent with the theory of Diffusion of Innovations proposed by Rogers, E. M. (2003) and Free Press, which emphasizes the important role of new technologies in the field of communication. For future research, please refer to Turow, J. (2011). *The Daily You: How the New Advertising Industry is Defining Your Identity and Your Worth*. Yale University Press. It further explores how the advertising industry can shape user identity and values through AI technology.

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