Original Research Article

The acceptance of AI-generated news by audiences in the era of intelligent communication: A case study of the AI Olympic morning report on Yangshipin (China media group mobile)

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Abstract: This study focuses on the application of AI-generated news in the era of intelligent communication, measuring the acceptance of AI-generated news by audiences through a questionnaire survey and analyzing the relationships between variables using structural equation modeling. The study found that perceived usefulness and accuracy positively promote audience behavioral intentions, while perceived ease of use and exclusion have a negative effect. Further research revealed that the reason for the perceived ease of use deviating from the initial hypothesis is that some users have excessively high expectations for the ease of use of technology. When the actual experience fails to meet these expectations, users feel disappointed. Based on this, the paper proposes strategies such as adjusting AI news content, optimizing voice synthesis technology, and improving interactive experiences to promote the long-term development of AI-generated news.

Keywords: Intelligent communication; AI-generated news; audience acceptance

1. Research background

Artificial Intelligence Generated Content (AIGC) technology, as an important branch in the field of artificial intelligence, focuses on using advanced algorithms and deep learning models to create a variety of content, including text, images, audio, and video.

In the 2024 government work report, "AI+" has been explicitly proposed as an important issue[1], marking artificial intelligence technology as the core engine for industrial transformation and innovation in the digital age. Specifically, the integration of AI technology has significantly improved the efficiency and quality of news production, enriched the presentation forms of news content, and marked AI-generated news as a new trend in the industry development. For example, during the 2024 Paris Olympic Games, China Media Group Mobile launched a series of AI Olympic Morning Report news columns, with AI Fanshu Ma broadcasting the results and highlights every morning and previewing the next day's competition. The column has accumulated more than 49 million views to date.

However, behind the rapid iteration of public cognition, issues such as blindness, misunderstanding, and privacy have become prominent, so the acceptance and attitude of the public towards AIGC technology have become urgent issues that need attention.

A review of relevant research shows that the exploration of AI-generated news can be roughly divided into three categories. First, there are technical-level studies, such as Xueying Jiang and others who analyzed the news practice under human-computer collaboration, achieving a subject coordination from alternative mode to symbiotic mode, a text collaboration from PGC to AIGC, and a process collaboration from a unidirectional

linear trend to a multi-dimensional network[2]. Second, there are studies on opportunities and challenges, such as Changfeng Chen , who started with the application practice and effect of generative artificial intelligence in the news communication industry, exploring its impact on the business and mechanism of news communication, as well as the challenges to the professional, concept, and positioning of journalists[3]; Tongrui Ye and Mingyang Liu have explored the principles of how generative AI operates within the news industry, regulating it with the values and ethics of socialist journalism[4]. Third, there are studies on the audience level, such as Jiayu Wang , who used in-depth interviews and questionnaire surveys, employing structural equation analysis of data to conclude that the acceptance of AI paintings by the audience is hindered by learning costs, infringement risks, and other aspects[5]; Shunli Guo and others explored the influencing factors of user adoption willingness for AI-generated content in scientific research scenarios[6].Although there are many studies in academia, there is still a lack of depth and theoretical model construction in the research on the acceptance of AI-generated news by the audience, especially in the differences in acceptance under different audience groups, cultural backgrounds, and behavioral intentions, which need further refinement and expansion.

2. Research model and hypothesis

2.1. Research model

In this paper, we take the AI Olympic Morning Report on China Media Group Mobile as the research object to explore the acceptance of AI-generated news by the audience. This study uses SEM, based on the TAM and TPB model frameworks, to refine the following variables: perceived usefulness(T1), perceived ease of use(T2), perceived accuracy(T3), perceived exclusion(T4) , and behavioral intention(T5).

Perceived usefulness refers to the user's perception that the news can help them obtain information, make judgments, and relax; perceived ease of use refers to the convenience of users opening and watching AI-generated news; perceived accuracy refers to the user's perception of the match between the news information and the information they really need; perceived exclusion is the aversion users feel when browsing the news normally; behavioral intention is the user's willingness to watch and share AI-generated news information.

By constructing a core variable system, we can use SEM to deeply analyze the internal mechanism between AI-generated news and audience acceptance, providing a theoretical basis for optimizing AI-generated news content and improving user experience.

2.2. Hypothesis

We propose the following hypotheses: in the context of the AI Olympic Morning Report on China Media Group Mobile, the various perceptions of users significantly affect their behavioral intentions, specifically the tendency to use, continue to obtain, and share AI-generated news. Specifically, perceived usefulness, perceived ease of use, and perceived accuracy are expected to have a positive promoting effect on these behavioral intentions, that is, a positive impact; while perceived rejection is expected to hinder positive behavior, producing a negative impact.

3. Research method

3.1. Data collection

This study uses an online questionnaire survey method to collect sample data. A total of 170 questionnaires were collected, and after excluding those that did not meet the standards, 168 valid questionnaires were obtained,

with an effective recovery rate of 98.82%, indicating a high level of audience participation and providing a basis for the reliability of the research results.

3.2. Measurement of independent variables

This paper measures from four aspects: perceived usefulness, perceived ease of use, perceived accuracy, and perceived rejection. Referring to the TAM model[7] and adjusting as needed, the design of the emotional rejection independent variable refers to the scale of Yuan Gao,Jianping He, and Yixuan Liu[8]. The measurement of the independent variable is finally presented in the questionnaire as 13 items.

3.3. Measurement of dependent variables

Referencing the TPB model, measurement is made from the behavioral intention. The measurement of the dependent variable is finally presented in the questionnaire as 4 items.

3.4. Questionnaire design

The questionnaire adopts a five-point Likert scale format, where respondents need to choose the appropriate answer from “strongly agree,” “agree,” “not sure,” “disagree,” and “strongly disagree.” The questionnaire involves 4 latent variables, with 13 items set to fully understand the audience’s acceptance of the AI Olympic Morning Report.

4. Data examination and analysis

4.1. Confirmatory factor analysis

4.1.1. Structural validity

As shown in Table 1, through the analysis of the overall fitting coefficients, the following conclusions can be drawn: the chi-square to degrees of freedom ratio is 1.645, which is less than 3, indicating that the model fits well. The root mean square error of approximation is 0.062, which is between 0.05 and 0.08, indicating that the model fits acceptably. The Comparative Fit Index (CFI), Non-Normed Fit Index (NNFI), and Incremental Fit Index (IFI) are all greater than 0.9, indicating a good fit.

The comprehensive assessment confirms our SEM’s high effectiveness in explaining data variations and accurately modeling relationships between measured and latent variables. This enables a better understanding of audience attitudes towards AI-generated content.

Table 1. Model fit indicators.

Indicator	χ2	df	χ2/df	RMSEA	CFI	NNFI	IFI
Criteria	-	-	<3	<0.10	>0.9	>0.9	>0.9
Value	179.281	109	1.645	0.062	0.950	0.937	0.951

Note: For the default model, the chi-square value (χ^2) with 136 degrees of freedom is 1536.840, and the corresponding p-value is 1.000

4.1.2. Convergent validity

As shown in **Table 2**, through the analysis of path estimates, Average Variance Extracted (AVE), and Composite Reliability (CR), the following conclusions can be drawn: The mean variance extracts of perceived ease of use, perceived usefulness, perceived precision, perceived exclusion, and behavioral willingness are all greater than 0.5, and the combined reliabilities are all greater than 0.7, indicating high convergent validity.In addition, as shown in Table 3, the factor load of each item corresponding to each latent variable are all greater

than 0.6 and show significance, which indicates that the factor (latent variable) has a strong correlation with the analyzed item (manifest variables and measurement items).

Table 2. AVE and CR analysis.

Factor	AVE	CR
T1	0.524	0.767
T2	0.603	0.820
T3	0.506	0.754
T4	0.709	0.907
T5	0.605	0.859

Table 3. Factor loading analysis.

Factor(Latent Variable)	Measure Item (Manifest Variable)	Std. Estimate
T1	A1	0.686
	A2	0.759
	A3	0.725
T2	B1	0.767
	B2	0.822
	B3	0.739
T3	C1	0.741
	C2	0.727
	C3	0.662
T4	D1	0.872
	D2	0.867
	D3	0.785
	D4	0.841
T5	Q1	0.747
	Q2	0.801
	Q3	0.756
	Q4	0.804

4.1.3. Discriminant validity

For the analysis of discriminant validity, perceived usefulness, perceived ease of use, perceived accuracy, perceived exclusion and behavioral willingness have AVE square root values that are greater than the maximum of the absolute values of the correlation coefficients between the factors, implying that they have good discriminant validity.

Table 4. Discriminant validity analysis.

	T1	T2	T3	T4	T5
T1	0.724				
T2	0.492	0.777			
T3	0.525	0.375	0.711		
T4	0.147	0.006	0.068	0.842	
T5	0.594	0.291	0.492	0.164	0.778

4.2. Model validation

As shown in **Figure 1**, the causal relationship between latent variables was tested through path analysis, and

the following conclusions were drawn:

a) Perceived usefulness has a significant positive impact on behavioral intention: when users' perceived usefulness of a certain technology or service increases, their behavioral intention will also significantly increase.

b) The impact of perceived ease of use on behavioral intention is contrary to expectations: when perceived ease of use increased, behavioral intention decreased.

c) The positive impact of perceived accuracy on behavioral intention has been verified: the higher the perceived accuracy of users towards information or services, the stronger their willingness to accept them.

d) The negative impact of perceived aversion on behavioral intention is significant: the stronger the perceived aversion of users to a certain technology or service, the lower their behavioral intention.

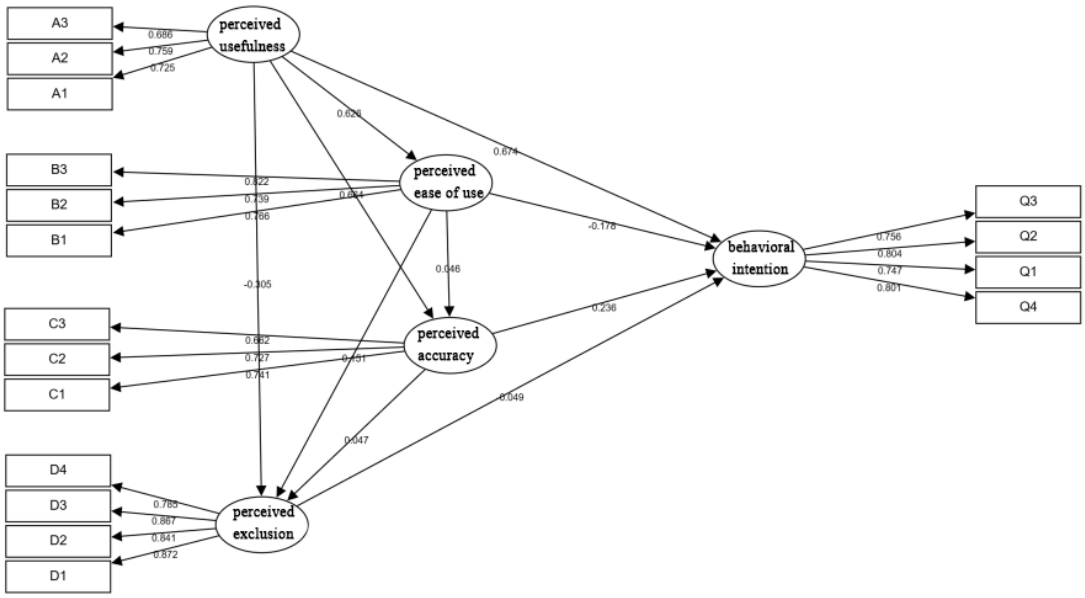

Figure 1. Structural equation modeling verification.

5 . Conclusion

5.1. The impact of perceived usefulness and perceived accuracy on behavioral intention

In examining user behavior for the Central Video AI Olympic Morning News, perceived usefulness (0.674) and accuracy (0.237) are key, influencing user acceptance and interaction. Perceived usefulness, more influential, fosters engagement, trust, and sharing, aligning with technology acceptance's focus on depth, personalization, and need fulfillment.

To enhance AI news' appeal and influence, producers should:

a) Deepen content customization using big data to understand user interests, crafting tailored news with event analyses, behind-the-scenes, and athlete interviews.

b) Strengthen AI algorithms' accuracy and intelligence through continuous refinement and advanced technologies like machine learning.

c) Integrate emotional intelligence, enabling AI news to evoke emotions, empathy, and appeal, ultimately influencing user behavior.

By optimizing personalization, AI tech, interactivity, and emotional intelligence, producers can boost AI news' usefulness and accuracy, fostering positive engagement and establishing a foundation for AI news in global events.

5.2. The influence of perceived usability and perceived exclusion on behavioral intention

The acceptance of the Central Video AI Olympic Morning News was hindered by perceived ease of use (-0.178) and rejection (-0.049), suggesting convenience did not enhance usage but lowered trust due to gaps in expectations. Users' doubts about technological complexity and unmet high expectations hindered adoption, contrasting the conventional model. AI anchor Fanshu Ma sparked debate due to lack of anthropomorphism, while its mechanical voice diminished authenticity and emotional connection.

To improve acceptance, producers should:

a) Optimize speech synthesis for more natural AI hosts.

b) Enhance emotional analysis in written articles to improve news broadcasts' infectiousness.

c) Strengthen platform responsibilities, including AIGC news review, verification of medal counts, and prevention of information delays/false news.

By comprehensively applying the above strategies, it is believed that it can alleviate users' resistance to AI Olympic Morning Post and other similar AI generated news to a certain extent, thereby improving their acceptance and ultimately promoting the wider and more effective dissemination and development of AI generated news.

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