



The Impact of AI Digital Human Anchors' Para-Social Interactions on Consumers' Purchase Intention

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Abstract

With the development of artificial intelligence technology, AI anchors have received increasing attention in the field of e-commerce live streaming. Based on the concepts of perceived trust and information quality, this study explored the impact of AI anchors' para-social interactions on purchase intention. By reviewing the literature on para-social interaction, perceived trust, information quality, and purchase intention, this paper established the logical relationships among these variables. Drawing on the Stimulus-Organism-Response (SOR) theory and other relevant frameworks, a theoretical model was developed, and research hypotheses were proposed. An empirical analysis was conducted with 429 consumers aged 18–45 in China. Data were collected through questionnaires and analyzed using SPSS software. The results showed that AI anchors' para-social interaction had a significant positive impact on consumers' perceived trust and purchase intention. Moreover, perceived trust played a partial mediating role between para-social interaction and purchase intention, while information quality did not have significant moderating effect on the relationship between para-social interaction and perceived trust.

Keywords: AI Anchor, Perceived Trust, Information Quality, Para-social Interaction, Purchase Intention

1. Introduction

With the rapid development of artificial intelligence technology today, AI digital human anchors (hereinafter referred to as "AI anchors"), the innovative applications in e-commerce live broadcasting, have attracted widespread attention from scholars. In recent years, e-commerce live broadcasting has become a new battlefield for major e-commerce platforms to compete with its advantages of interactivity, timeliness, and accurate recommendations. According to the "2023 China Live E-commerce Market Data Report", the scale of China's live e-commerce market reached 4.9 trillion yuan in 2023, a year-on-year increase of 40.48% while the scale of live e-commerce consumers reached 540 million, a year-on-year increase of 14.16%. In this highly competitive market environment, various platforms have introduced AI anchors to enhance the live viewing experience and improve consumers' loyalty.

Traditional consumer behavior research is often limited to physical interaction scenarios, while para-social interaction theory can deeply reveal the complex emotional connection mechanism between consumers and non-physical objects in digital media environments. Ballantine and Martin (2005) suggested that class social interactions can influence the consumption behavior of online community users. In the emerging scenario of AI anchors, this theoretical perspective not only goes beyond simple information transmission but also analyzes the changes in consumer psychology under technical mediation, presenting an innovative interactive model that can stimulate consumers' emotional resonance and purchase motivation. According to Handarkho (2020), para-social interaction is the primary influence in the formation of purchase intention, which outweighs the strength of its role over factors such as perceptions of group behavior and peer communication; furthermore, the study found that gender and occupational characteristics played an important moderating role in this influence process.

Therefore, studying the para-social interaction mechanism between AI digital human anchors and consumers from the perspective of perceived trust and information quality is of great significance for exploring and optimizing consumers' online shopping behaviors. This study aims to explore how the

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authenticity, participation, and emotional resonance of AI anchors' para-social interaction positively affect consumers' purchase intention. It examined the role of perceived trust as an intermediary and information quality as a moderating variable, offering both theoretical insights and practical support for the field of e-commerce live streaming.

2. Objectives

This study was conducted to explore:

- 1) how para-social interactions affect consumer purchase intentions;
- 2) how the para-social interactions of AI digital human anchors in e-commerce live broadcasts affect consumers' perceived trust;
- 3) how information quality affects the relationship between AI digital human hosts' para-social interactions and consumers' perceived trust in e-commerce live streaming; and
- 4) how perceived trust affects consumer purchase intentions in live e-commerce.

3. Materials and Methods

3.1 Definitions of key terms

AI digital human anchor is the use of advanced artificial intelligence technology, combined with multi-dimensional data analysis and processing, to digitally extract and model human voice characteristics, facial expressions, movement characteristics, and other information, to generate a virtual image with anthropomorphic interaction capabilities.

Para-social interaction refers to the process of interaction between viewers and AI digital human anchors in live e-commerce scenarios.

Information quality is defined as the viewer's overall perception of the characteristics of the details of the goods delivered by the anchor, including elements such as the degree of timely updating of the information, the degree of accuracy of the content, the level of relevance, the value of use, and comprehensiveness.

Perceived trust is the consumer's subjective perception of the AI anchor's willingness to take risks for the consumer's benefit and the uncertainty of the purchase decision during the para-social interaction with the AI anchor.

Purchase intention is defined as a consumer's intention to purchase goods or services that arises in a live AI digital human anchor e-commerce scenario.

3.2 Related research

In recent years, many scholars have explored the relationship between para-social interaction, perceived trust, and consumer purchase intention. Jarvenpaa, Tractinsky, & Vitale (2000) seminal study revealed how perceived trust increased consumer purchase intentions by reducing perceived risk and forming positive attitudes. Lyu (2021) pointed out that in the e-commerce live broadcast environment, para-social interaction can significantly enhance consumer purchase intention by enhancing interactivity and providing attractive content; this interaction deepened consumers' trust in live broadcast content by simulating actual social scenarios, thereby promoting purchasing behavior. Zhou and Tong (2022) found that perceived trust was the key mediating variable in the influence of para-social interaction on consumer purchase intention. When consumers feel that the content is credible and the anchor is like a "friend", their purchase intention will increase significantly.

In the social commerce environment, the mechanism by which para-social interaction promotes consumer purchasing behavior through increased perceived trust has been further verified. Li et al. (2023) turned their attention to the emerging application of AI technology and found that in e-commerce live broadcasts, the para-social interactions provided by AI anchors can enhance consumers' perceived trust. This study highlights the progress of technology in simulating human interactions, which provides consumers with



a more personalized and trustworthy shopping experience. At the same time, Chen, Chen, & Tian (2022) focused their research on the impact of marketing strategies in live e-commerce on consumer impulse buying behavior. Their research pointed out that perceived trust can be a significant predictor of para-social interactions on consumer purchase intention, especially when triggering impulse buying behavior. At the same time, Guo (2023) analyzed the formation mechanism of consumer purchase intention in live e-commerce, emphasizing the key role of para-social interactions in enhancing perceived trust and improving purchase intention, especially when providing product knowledge and information.

As a key factor affecting consumers' online purchase intention, Shang et al. (2023) found that perceived trust promotes purchase intention by improving consumers' perceived value. This is especially true in the e-commerce live broadcast scenario where perceived trust has a more important impact on perceived value than perceived pleasure. In the specific context of live e-commerce, Wu and Huang (2023) found that consumers' trust in the anchor played an important mediating role in the relationship between perceived value and continued purchase intention than their trust in the product.

In addition, many studies have shown that the role of information quality in e-commerce is not limited to building trust, but can also directly affect consumers' willingness to buy. Sullivan and Kim (2018) found that information quality was an important moderating variable that affects the formation of consumer trust in online shopping malls. High-quality information can enhance consumers' initial trust and strengthen the positive impact of perceived value on trust while reducing the negative impact of perceived risk, thereby increasing consumers' willingness to repurchase. On the contrary, low-quality information can reduce consumers' trust and thus affects their subsequent purchasing behavior. Therefore, online shopping mall operators should focus on providing high-quality information to promote consumers' trust formation and continuous purchases.

Lou and Yuan (2019) also pointed out that information quality (including informativeness and entertainment) and the credibility of influencers can affect the results of para-social interactions, such as brand awareness and purchase intention, by affecting consumers' trust. Likewise, Mandiri and Susila (2023) found that perceived information quality had a positive impact on trust, which, in turn, had a positive impact on purchase intention.

Based on the above literature, the author believed that in the context of e-commerce live streaming, the para-social interaction of AI anchors has an impact on perceived trust and consumers' willingness to buy. Based on the above analysis, the following hypotheses were proposed:

H1: The para-social interaction of AI digital human anchors in e-commerce live broadcasts has a positive impact on consumers' purchase intention.

H1a: The authenticity of para-social interactions of AI digital human anchors in e-commerce live broadcasts has a positive impact on consumers' purchase intention.

H1b: The participation of AI digital human anchors in para-social interactions in e-commerce live broadcasts has a positive impact on consumers' purchase intention.

H1c: The emotional resonance of para-social interaction of AI digital human anchors in e-commerce live broadcasts has a positive impact on consumers' purchase intention.

H2: The para-social interaction of AI digital human anchors in e-commerce live broadcasts has a positive impact on perceived trust.

H2a: The authenticity of para-social interactions of AI digital human anchors in e-commerce live broadcasts has a positive impact on perceived trust.

H2b: The participation of AI digital human anchors in para-social interactions in e-commerce live broadcasts has a positive impact on perceived trust.

H2c: The emotional resonance of para-social interactions of AI digital human anchors in e-commerce live broadcasts have a positive impact on perceived trust.

H3: Perceived trust has a positive impact on consumers' purchase intention.

H4: Perceived trust plays a mediating role between para-social interaction and consumer purchase intention.



H5: Information quality has a positive moderating effect (on the relationship) between para-social interaction and perceived trust.

3.3 Research methodology

In this study, empirical analysis was used to examine the purchase intention of consumers aged 18-45 in China. Data were analyzed using SPSS 26.0 software for reliability testing, correlation analysis, multiple regression, mediation effects, and moderating effects. The primary goal was to verify how the three dimensions of para-social interactions (authenticity, participation, and emotional resonance) influence perceived trust and purchase intention in order to reveal the consumers' purchasing decision-making process in e-commerce live broadcasting scenarios.

In this study, questionnaires were distributed through WeChat and QQ groups from mid-December 2024 to late January 2025. A total of 434 questionnaires were completed and returned, among which 429 were valid. Likert's five-point scale was used to analyze the effect of para-social interactions on the respondents' willingness to purchase. The five-point scale consisted of Strongly Agree, Agree, Fairly Agree, Disagree, and Strongly Disagree.

3.4 Model

Numerous scholars have used the Stimulus-Organism-Response (SOR) model to develop an in-depth analysis of consumer purchase decisions. Emir et al. (2016) studied the factors affecting customers' willingness to adopt online hotel booking websites based on the SOR model. Kaur, Lal, & Bedi (2017) also investigated the impact of vendor cues (e.g., brand reputation) as a stimulus on online shoppers' trust and attitudes, including online purchase intentions based on the SOR model.

The para-social interaction of AI anchors in e-commerce live streaming scenarios is an externally influenced condition (S), which ultimately affects consumers' purchase intention (R) by influencing their intrinsic heart response (O), especially perceived trust. In this model, the characteristics of para-social interaction were considered independent variable, while perceived trust was the mediating variable, information quality was the intermediary variable, and purchase significance was the dependent variable. How para-social interaction influences consumers' purchase intention based on the SOR model was depicted in Figure 1.

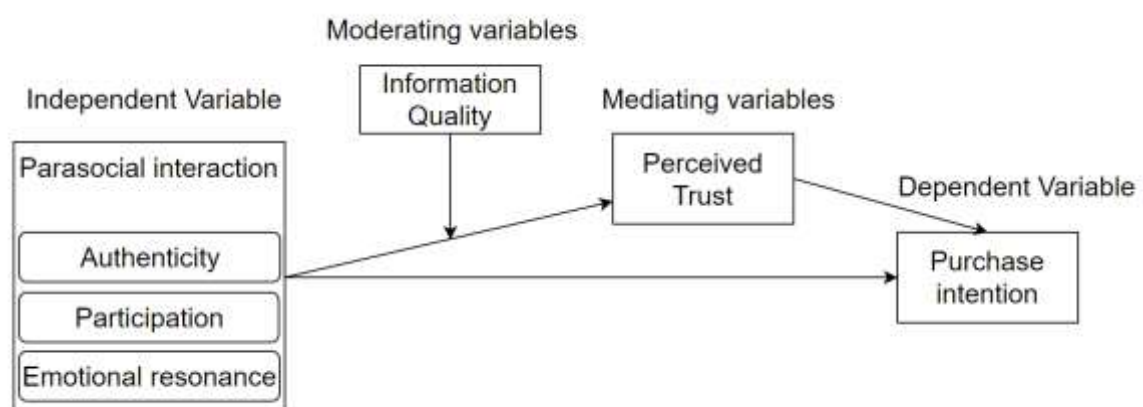


Figure 1 Theoretical Framework



4. Results and Discussion

4.1 Results

From the questionnaire data of this study, women accounted for 56.4% and men accounted for 43.6% of the total respondents, indicating that women still dominate in watching live e-commerce streaming. Regarding age distribution, 98.6% of the participants aged 18 to 35 years old, while only 1.4% was 36 or older. Given that the majority of the participants in this study were young people aged 18-35 with a certain degree of economic strength, their educational background reflected this trend. That is, the highest proportion (75.1%) held a bachelor's degree, while 15.6% had a master's degree or above.

Table 1 Results of Cronbach's Alpha (α) coefficient analysis of research variables

Variable	Subject	Cronbach's Alpha α coefficient
Para-social Interaction	9	0.893
Information Quality	3	0.731
Perceived Trust	4	0.817
Purchase Intention	3	0.715

By testing the reliability, it was found that the Cronbach's Alpha (α) coefficient of the questionnaire was 0.945, which is greater than 0.7. This indicated that the reliability of this instrument was good, and the next step of analysis could be carried out.

Table 2 KMO value and Bartlett's test of sphericity

	KMO value	0.975
Bartlett's test of sphericity	Approximate Chi-Square	4230.965
	Degrees of Freedom	171
	Prominence	0.000

Validity analysis was mainly used to examine the validity of the questionnaire. In this study, if the significance level of the Bartlett sphericity test is small ($p < 0.05$), the relationship between the study's variables are considered meaningful. If the KMO value is greater than 0.7 and the significance of the Bartlett sphericity test statistic is between $0.000 < 0.01$, it is considered to have good data validity.

Table 3 Test of the mediating effect of perceived trust

	Effect	SE	t	p	LLCI	ULCI
Total Effect	0.8782	0.0321	27.23732	0.0000	0.8151	0.9412
Direct Effect	0.5984	0.0560	10.6906	0.0000	0.4884	0.7085
Indirect effects	0.2797	0.0487	/	/	0.1815	0.3754

According to Table 3, the effect sizes of the total effect, direct effect and indirect effects were 0.8782, 0.5984, and 0.2797, respectively. The p-value was less than 0.05, and the confidence interval of the total effect did not include 0, indicating that the effect of para-social interactions on purchase intention was significant. Additionally, the confidence intervals for both the direct and indirect effects did not include 0, confirming that both effects were significant. These results suggested that para-social interactions influenced the purchase intention both directly and indirectly through the mediating variable, i.e. perceived trust. Put simply, perceived trust played a partial mediating role in the relationship between para-social interactions and consumer purchase intention.

**Table 4** Test of the moderating effect of information quality

Information Quality	Effect	BootSE	BootLLCI	BootULCI
2.1046	0.2302	0.0445	0.1462	0.3203
3.3139	0.2204	0.0392	0.1442	0.2977
4.5232	0.2107	0.0365	0.1391	0.2818
moderated intermediary	-0.0081	0.0090	-0.0270	0.0084

According to Table 4, the p-value of the moderated mediation effect was less than 0.05, but the confidence interval included 0, indicating that the moderating effect was not significant. In other words, information quality did not play a moderating role in the relationship between para-social interactions and perceived trust. Thus, hypothesis H5 was not supported .

Table 5 Summary of hypothesis test results

Number	Hypothetical content	Test results
H1	The para-social interaction of AI digital human anchors in e-commerce live broadcasts has a positive impact on consumers' purchase intention.	supported
H1a	The authenticity of para-social interactions of AI digital human anchors in e-commerce live broadcasts has a positive impact on consumers' purchase intention.	supported
H1b	The participation of AI digital human anchors in para-social interactions in e-commerce live broadcasts has a positive impact on consumers' purchase intention.	supported
H1c	The emotional resonance of para-social interaction of AI digital human anchors in e-commerce live broadcasts has a positive impact on consumers' purchase intention.	supported
H2	The para-social interaction of AI digital human anchors in e-commerce live broadcasts has a positive impact on perceived trust.	supported
H2a	The authenticity of para-social interactions of AI digital human anchors in e-commerce live broadcasts has a positive impact on perceived trust.	supported
H2b	The participation of AI digital human anchors in para-social interactions in e-commerce live broadcasts has a positive impact on perceived trust.	supported
H2c	The emotional resonance of para-social interactions of AI digital human anchors in e-commerce live broadcasts has a positive impact on perceived trust.	supported
H3	Perceived trust has a positive impact on consumers' purchase intention.	supported
H4	Perceived trust plays a mediating role between para-social interaction and consumer purchase intention.	supported
H5	Information quality has a positive moderating effect (on the relationship) between para-social interaction and perceived trust.	Not supported

4.2 Discussion

This study found that AI anchors' para-social interactions had a significant positive effect on perceived trust and purchase intention. This result is consistent with those of Chae's (2012) and Labrecque's



(2014) research. Additionally, perceived trust was found to have a significant positive effect on consumers' purchase intention, which is consistent with the findings of Jarvenpaa et al. (2000). Perceived trust was also found to play a partially mediating effect between para-social interactions and consumer purchase intention. The latter result is consistent with the findings of Zhou and Tong (2022).

However, hypothesis H5 was not supported, i.e., information quality did not play a moderating role between para-social interactions and perceived trust. This finding is inconsistent with that of Lou and Yuan's (2019) study. There are three possible reasons for this inconsistent result. First, the high interactivity of e-commerce live broadcasts makes consumers pay more attention to the interactive characteristics of the anchor rather than the information quality itself, resulting in the weakening of the moderating effect of information quality. Second, the limitations of sample characteristics (e.g., age, education level, and technology acceptance) and insufficient sample size may affect the accurate assessment of the moderating effect of information quality.; Third, the dimension of information quality may change in the context of AI anchors, and the existing measurement might fail to fully capture the key factors. Also, the consumers' expectations of the information quality of AI anchors may be different from those in the past. Future research on this topic may consider expanding the sample size, enhancing sample diversity, re-examining the dimensions of information quality, and incorporating technical factors to more accurately assess its role in consumer behaviors.

5. Conclusion

The para-social interactions of AI anchors had a positive impact on perceived trust, and its corresponding three dimensions of authenticity, participation, and emotional resonance had a positive impact on perceived trust as well.

The para-social interactions of AI anchors also had a positive impact on consumers' purchase intention. Similarly, the corresponding three dimensions of authenticity, participation, and emotional resonance all had a positive impact on purchase intention.

Furthermore, perceived trust had a positive impact on consumers' willingness to buy. Research shows that perceived trust plays a key role in consumers' purchasing decisions. High perceived trust can effectively reduce consumers' perceived risk during the purchasing process, thereby enhancing their confidence in the products recommended by AI anchors.

In this research, perceived trust played a partial mediating role between para-social interactions and consumer purchase intention. In other words, the para-social -social interaction characteristics of AI anchors do not only directly affect consumers' purchase intention, but also indirectly affect purchase intention by enhancing their sense of trust.

For future research, it is firstly recommended that future research adopt a combined online and offline questionnaire distribution method to expand the sample size and enhance diversity to ensure the representation of different age and occupational groups. Secondly, the scope of variable selection should be expanded to incorporate factors such as consumer personality characteristics, cultural background, economic status, and brand image into the research framework. Moreover, AI anchors' para-social interactions, such as mini-games and lucky draws, can be used, to encourage audience active participation and foster a positive interactive atmosphere, so as to enhance the consumer's sense of participation and satisfaction. Finally, cross-cultural comparative research should be conducted, and several qualitative research methods (such as in-depth interviews and case studies) should be combined to gain more comprehensive insights into consumers' intrinsic motivations and emotional experiences. This would provide more applicable and persuasive theoretical and practical guidance for the field of e-commerce live broadcasting.

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