The Impact of Interactive Game Streaming Mode on Audience Behavioral Loyalty: Flow Experience as a Mediating Variable

Hong Chen*

School of Economics and Management, Guangzhou Huaxia Vocational College, Guangzhou, Guangdong, 510900, China
*HongCHEN228@outlook.com

Abstract. In the competitive game streaming industry, deep interaction has become one of the key ways for game streamers to cultivate audience loyalty. This research constructs a theoretical model that sets the interactive mode of game streamers as the independent variable, flow experience as the mediating variable, and behavioral loyalty as the dependent variable. After identifying various factors, it explores how interactive mode creates an immersive live-streaming experience for viewers, thereby encouraging them to repeatedly watch live streams. This empirical study employed a questionnaire survey method, targeting active viewers on mainstream game streaming platforms as the sampling group, and collected a total of 159 valid responses. During the data analysis phase, the research employed methods such as correlation analysis and regression analysis for data processing. The research indicates that interactive mode must act through flow experience to influence behavioral loyalty. This finding indicates the crucial role of flow experience as a psychological mechanism.

Keywords: Game Streaming, Interactive Mode, Flow Experience, Behavioral Loyalty, Full Mediating Effect.

1 Introduction

As China's live-streaming gaming market continues to expand, audiences' enthusiasm for watching game livestreams has grown steadily [1]. They can access these livestreams on their favorite streaming platforms, and in doing so, interact directly with streamers [2]. The preceding paragraph describes how the game streaming industry is currently in a growth phase. At this stage, online streaming platforms and content creators cannot afford to relax; they must focus on an audience retention rate. Streamers interacting with audience can build trust and increase audience's willingness to spend [3]. Interaction between live streamers and viewers keeps audiences watching the stream. [4]. Therefore, investigating the impact of interactive mode on audience behavioral loyalty can provide insights into deeper underlying mechanisms.

This study was conducted in the following steps. To start with, it first defined key concepts: interaction mode, flow experience, and behavioral loyalty. Next, it examined

S. Garcia-Esteban et al. (eds.), *Proceedings of the 2026 5th International Conference on Social Sciences and Humanities and Arts (SSHA 2026)*, Advances in Social Science, Education and Humanities Research 1014,
https://doi.org/10.2991/978-2-38476-577-5_75

how interaction mode influenced flow experience, along with the impact of flow experience on behavioral loyalty. Lastly, it verified the mediating role of flow experience between interaction mode and behavioral loyalty. This research employed a questionnaire method for data collection. For this, it designed and distributed structured questionnaires—the key strength of this method is that it allows for quantitative analysis of relationships and influence pathways between different variables. The study has two main objectives: one is to validate the path model and examine the mediating role of flow experience in the relationship between game streamers' interaction modes and audiences' behavioral loyalty; the other is to put forward practical recommendations for enhancing game streaming content quality and improving audience retention rates.

2 Literature Review

2.1 Flow Experience

Flow experience is defined as a state of complete immersion in an activity [5]. For e-commerce livestreaming, product information, interactive content, and entertainment elements can all boost audience's flow experience [6,7]. When it comes to game streaming, interactivity turns audiences into active participants—this happens via real-time feedback and emotional resonance, which in turn creates a flow state [3].

This study takes game streamers' interactive modes as its starting point to explore how multidimensional interactive modes influence audience immersion.

2.2 Interactive Mode and Flow Experience

In the realm of e-commerce livestreaming, interactive mode refers to the interaction methods selected by streamers during live streaming processes, encompassing the forms of interaction between online streamers, products, and participants [8]. This interaction mode encompasses communication between the streamer and the audience, as well as interactions among audience members [9,10].

During game livestreams, streamers interact with the game content. the interaction between game streamers and content allows the audience to gain gameplay information, satisfying their cognitive need [11]. This cognitive need enables the audience to immerse themselves in the livestream.

Are there more specific mode within this interaction? Can interaction mode influence the audience's flow experience?

Therefore, this research propose the following hypothesis:

H1: Interaction with participants can positively influence the flow experience.

H2: Interaction with game content can positively influence the flow experience.

2.3 Flow Experience and Behavioral Loyalty

In the field of game streaming, audience's behavioral loyalty is defined as the behavior of viewers repeatedly watching their favorite streamer's channel [12]. Streamer

strengthen loyal relationships by delivering live content and engaging with viewers within their live stream [13]. In the realm of game streaming, the flow experience generated during live interactions can enhance audience behavioral loyalty, and does its impact unfold as envisioned?

Therefore, this research propose the following hypothesis:

H3: Flow experience can positively influence behavioral loyalty

In Figure 1, the target model demonstrates that the interactive mode can positively influence flow experience, and that flow experience can positively impact audience behavioral loyalty. Within the target model, flow experience play a fully mediating role.

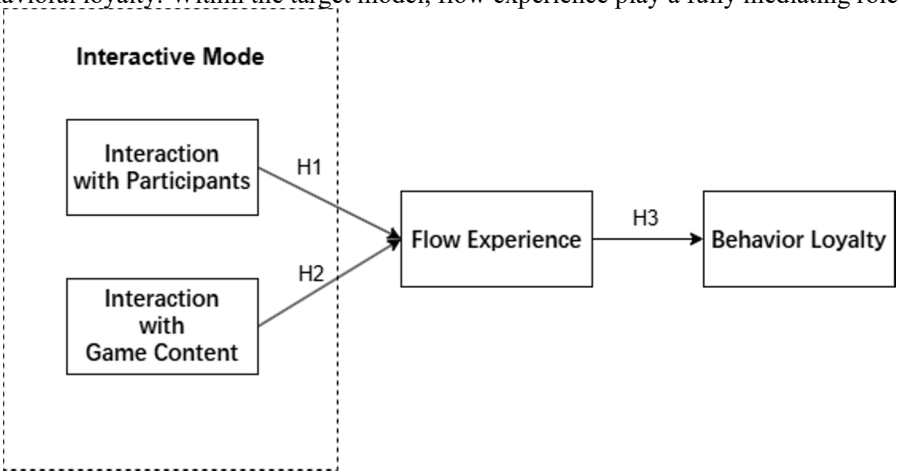

Fig. 1. The target model.

3 Method

3.1 Procedure

This study employed a questionnaire survey method to collect research data on China's game streaming market, which used the Wjx online questionnaire collection platform. China's live streaming market is experiencing rapid growth, with over 75% of live stream viewers being under the age of 35 [4]. The questionnaire was first pretested (N=30) and revised to ensure its reliability and validity. For the formal survey, we used convenience sampling—distributing questionnaires via social media platforms and streamer fan groups. This study only included respondents who had had prior experience watching gaming livestreams in the survey. Data collection ran for two weeks, which gave this study 165 completed questionnaires. After that, this study excluded 4 invalid ones—these came from respondents who'd never watched a game livestream—leaving this study with 159 valid samples (valid response rate: 96.4%).

3.2 Sample

This study collected a total of 159 valid questionnaires, with the sample primarily consisting of young individuals. In terms of gender distribution, female respondents accounted for 47.17%, while males constituted 52.83%. Regarding age, 86.16% of respondents were between 18 and 25 years old, 10.69% were aged 26 to 35, and those over 35 years old collectively represented 3.15%. Regarding weekly live-stream viewing duratio, 40.25% of respondents watched less than 1 hour, 40.25% watched 1–2 hours, 13.84% watched over 5 hours, while only 5.66% watched 3–4 hours. Regarding game streaming platform selection, Douyin dominated with an absolute majority at 66%, followed by Huya at 6.29% and Kuaishou at 6.29%. Other platforms like Xiaohongshu and Bilibili accounted for a smaller share.

3.3 Measures

This study employed three constructs. this research identified existing questionnaires in the literature and modified them based on the context of game streaming, employ a 5-point Likert scale, with response options ranging from 1 to 5, 1 indicates strong disagreement, while 5 indicates strong agreement.

Interaction with participants (IWP). The three items of this construct were developed by adapting scales from prior research [8]. The higher the participant option score, the more they enjoy interacting with live stream participants, which include both the streamer and other viewers watching the live stream.

Interaction with game content (IWGC). The three items of this construct were developed by adapting scales from prior research [8]. The higher participant scores on the questionnaire, the more valuable information they gained from the streamer's interaction with the game content. This information includes gameplay tips and other insights.

Flow experience (FE). The six items of this construct were developed by adapting scales from prior research [6].

Behavioral loyalty (BL). The five items of this construct were developed by adapting scales from prior research [12].

4 Analysis

4.1 Reliability and Validity

Specific information regarding reliability and validity testing can be found in Table 1. These findings indicate that the questionnaire is both reliable and valid. This research measured the reliability of the scales using Cronbach's alpha coefficient. The alpha coefficients for all four measured variables exceeded the 0.85. Validity was assessed using the KMO and Bartlett's tests. Bartlett's data showed $P<0.01$, while $KMO>0.7$. The minimum factor loading is 0.696, which falls within the acceptable threshold range, thus permitting further analysis.

Table 1. Reliability and validity analysis

Variable	Question	Std. Loading	Cronbach'a	KMO
Interaction with participants(IWP)	IWP 1	0.868	0.874	0.729
	IWP 2	0.915		
	IWP 3	0.900		
Interaction with game content(IWGC)	IWGC 1	0.899	0.918	0.738
	IWGC 2	0.937		
	IWGC 3	0.948		
Flow experience (FE)	FE 1	0.862	0.940	0.883
	FE 2	0.876		
	FE 3	0.885		
	FE 4	0.877		
	FE 5	0.893		
	FE 6	0.885		
Behavioral loyalty (BL)	BL 1	0.857	0.869	0.825
	BL 2	0.840		
	BL 3	0.696		
	BL 4	0.843		
	BL 5	0.818		

4.2 Model Fit

Table 2 illustrates the data regarding model fit. The f^2 value indicates the contribution of independent variables to the dependent variable. Data in the table show that the values for all three hypotheses exceed 0.40, indicating substantial contributions from independent variables to the dependent variable. The coefficients of determination (R^2) for the three hypotheses were 0.308, 0.436 and 0.625, all exceeding the minimum threshold of 19% [7]. This indicates that the model possesses a certain degree of explanatory capability.

Table 2. Effect size and coefficient of determination

Prediction	f^2	R^2
IWP → FE	0.445	0.308
IWGC →FE	0.773	0.436
BL → FE	1.667	0.625

4.3 Hypothesis Testing

Table 3 displays the numerical values for the correlation between the hypothetical test and the path. The correlation coefficients for H1, H2, and H3 are all greater than 0.5. Their significance levels are all less than 0.05. The above data indicate that all hypotheses are valid.

Table 4 indicates that the mediating path in this study exhibits an indirect mediating effect. The results of the data analysis indicate that the direct mediating effect in this research is not significant. This study employed the bootstrap method to validate the existence of the mediating effect. On the path from IWP to FE to BL, the values in table 4 indicate a significant indirect effect (0.345, t=6.93, p<0.01). On the path from IWGC to FE to BL, the numerical value indicates a significant indirect effect (0.511, t=8.560, p<0.01).

Table 3. Reliability and validity analysis

Hypothesis	Relationship among variables	Coefficient	p	Testing results
H1	IWP → FE	0.555	**	Support
H2	IWGC → FE	0.660	**	Support
H3	FE → BL	0.791	**	Support

Table 4. Results summary of mediating effect testing

Indirect path	Indirect effect	Total effec	t	p	Testing results
IWP→ FE→ BL	0.345	0.398	6.930	p<0.01	Support
IWGC→ FE→ BL	0.511	0.589	8.560	p<0.01	Support

5 Discussion

This study reveals the underlying mechanisms through which streamer-participant interactions and streamer-content interactions influence user loyalty by validating the mediating role of flow experience between streamer interaction patterns and audience behavioral loyalty. The findings indicate that these two interaction models indirectly enhance user loyalty, specifically by fostering a state marked by high focus, immersion, and pleasant flow. Here's what this means: it confirms interactivity does more than just pass along information—it's also critical for nurturing deep psychological immersion and emotional bonds. For future work, adding moderating variables to develop moderated mediation models could help us gain a richer grasp of boundary conditions, going beyond just surface-level understanding.

6 Conclusion

This survey's results show that flow experience plays a full mediating role between interactive mode and behavioral loyalty. Specifically, the interactive modes game streamers use don't have a significant direct impact on audience's behavioral loyalty—instead, they affect it indirectly by strongly boosting flow experience. From this, the research further concludes that the core value of interaction between game streamers and their audiences is creating an immersive experience for viewers. This immersive

experience, in fact, is the fundamental driver behind audience's behavioral loyalty. Beyond this, the study offers valuable insights for future game streaming research: it shifts the focus away from external interaction forms and toward the psychological experience of audiences. Future research should focus on how different interaction strategies precisely trigger flow experience and explore other potential mediating variables for in-depth investigation.

References

1. Zhang, G., Cao, J., Huang, M., Meng, S.: Investigating the impact of user perception and gamification elements on repurchase decisions in game live broadcasting. Frontiers in Psychology 16**,** 1492832 (2025).
2. Carter, A. E., Hoy, M. G.: We're All Friends Here: Examining Transparasocial Interaction on Twitch and Its Effects on Strategic Communications. Journal of Interactive Advertising 24(2), 127–142 (2024).
3. Serrano-Malebrán, J., Campos-Núñez, F., Veneros-Alquinta, D., Meza-Espinoza, N., Alfaro-Tirado, I., Cucho-Solano, J.: Understanding viewer support in video game streaming: Key insights into donation drivers. Frontiers in Communication 10, 1648927 (2025).
4. Hou, F., Guan, Z., Li, B., Chong, A. Y. L.: Factors influencing people's continuous watching intention and consumption intention in live streaming: Evidence from China. Internet Research 30(1), 141-163 (2020).
5. Csikszentmihalyi, M.: Beyond boredom and anxiety. Jossey-bass, San Francisco (2000).
6. Xin, M., Jian, L., Liu, W., Bao, Y.: Exploring the Effect of Live Streaming Atmospheric Cues on Consumer Impulse Buying: A Flow Experience Perspective. Journal of Theoretical and Applied Electronic Commerce Research 20(2), 149 (2025).
7. Li, Q., Zhao, C., Cheng, R.: How the characteristics of live-streaming environment affect consumer purchase intention: the mediating role of presence and perceived trust. IEEE Access 11, 123977-123988 (2023).
8. Yuan, H., Huang, L.: Research on Interactive Mode of E-commerce LiveBroadcast Based on Platform Heterogeneity. Journal of Harbin University of Commerce 6, 19-30 (2020).
9. Zheng, S., Chen, J., Liao, J., Hu, H. L.: What motivates users' viewing and purchasing behavior motivations in live streaming: a stream-streamer-viewer perspective. Journal of Retailing and Consumer Services 72, 103240 (2023).
10. Chen, J., Liao, J.: Antecedents of viewers' live streaming watching: a perspective of social presence theory. Frontiers in psychology 13, 839629 (2022).
11. Giertz, J. N., Weiger, W. H., Törhönen, M., Hamari, J.: Content versus community focus in live streaming services: how to drive engagement in synchronous social media. Journal of Service Management 33(1), 33-58 (2022).
12. Lim, J. S., Choe, M. J., Zhang, J., Noh, G. Y.: The role of wishful identification, emotional engagement, and parasocial relationships in repeated viewing of live-streaming games: A social cognitive theory perspective. Computers in Human Behavior 108, 106327 (2020).
13. Ma, Z., Song, L., Zhou, J., Chong, W., Xiong, W.: How do comeback Korean pop performers acquire audience empathetic attachment and sustained loyalty? Parasocial interactions through live stream shows. Frontiers in Psychology 13, 865698 (2022).