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Factors affecting user intention to use gaming companion service

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Game companion services have emerged as a new form of entertainment in China. As gaming companion is a new phenomenon, many companion platforms are facing problems such as fierce market competition, imperfect platform technology and unprofessional services. Practical challenges increase the time cost for users to select companion services and weakens the quality of services they enjoy. Therefore, in order to help the platform better understand users, this study aims to investigate the users of the gaming companion platform. To achieve this goal, the Stimulus-Organism-Response (SOR) theory was utilized in designing the quantitative survey questionnaire. A simple random sampling technique was employed, resulting in responses from 425 gaming companions in Shanghai, China. The collected data were then analyzed using structural equation modeling (AMOS 26.0). The results of the analysis showed that professionalism, interactivity, and popularity have a significant positive effect on user's perceived value (perceived entertainment and perceived sociability). Meanwhile, the study found a mediating effect of perceived entertainment and perceived sociability. The characteristics of the accompanist (professionalism, interactivity and popularity) enhance the user's intention to use through enhancing the perceived value. This study reveals the essence of user research in the field of mass communication, demonstrating that social interaction and entertainment experiences are the core drivers influencing user behavior. This study provides a theoretical foundation for future user research in the field of game companion. This study provides help for gaming companion platforms to develop more effective operation strategies to promote the sustainable development of the gaming companion industry.

KEYWORDS

game companion service, intention to use, perceived entertainment, perceived sociability, SOR

1 Introduction

"Gaming companion" is a new service where users hire a "gaming accompanist" to team up with them to play a game. Gaming accompanists have emerged as a new profession. They provide one-on-one or one-to-many gaming guidance and chat services to users through online gaming groups and voice (Li, 2019). Gaming accompanists draw customers by leveraging their personality traits, gaming skills, and vocal qualities. The value of these services is tied to behavioral characteristics such as physical actions, style, and language (Jia and Cao, 2022). Users typically select their preferred gaming accompanist based on their needs and the accompanist's tags (keywords displayed on personal profiles: voice, gaming level). Table 1 presents the classification and characteristics of game accompanists.

Generally, game companion services are realized through third-party trading platforms (Lin and Li, 2022). First of all, users pick their favorite game accompanist on the game escort platform and negotiate the price with them. After the user places an order, the game accompanist will enter one of the games specified by the customer. Next, the game accompanist searches for the customer's ID in

TABLE 1 Types of gaming accompanists.

Type	Service content	Characteristics	Key value for users
Vocal type	Focusing on providing companion through voice and emotional support	Clear vocal tone, voice shaping, role-playing, singing/storytelling	Social/emotional value (being cared for, being understood)
Entertainment type	Focusing on atmosphere creation and interactive entertainment	Humorous expressions, positive feedback, talent showcases	Entertainment value (enjoyment, immersion)
Skilled type	Focusing on technological advancement and victory	Victory experience, sense of accomplishment, strategic guidance	Utility value (win rate, rank, skill learning)

the game, and then creates a game room to team up with the customer to play games and interact. At the end of the game, the accompanist receives payment from the platform (Du, 2021). Finally, consumers can evaluate the accompanist based on their service experience.

With the gradual increase in the number of platforms for game companion, gaming companion services are slowly becoming a daily consumer product for gamer (Liu, 2022). The game companion industry not only has entertainment value, but also generates huge economic benefits. The output of China's companion gaming industry exceeds 4 billion (CNY). The market size is expected to reach 8.02 billion (CNY) by 2025, and has become new main force in the development of the gaming market (Wisdom Research Consultants, 2023). The data in the report indicates that gaming companions have become a noteworthy social phenomenon and a subject of academic research.

However, as the industry remains in an early stage of development, it faces numerous challenges. The lack of empirical data limits the generation of product optimization and policy recommendations (Zhao, 2024; He, 2025). Moreover, as gaming companion services rapidly expand across platforms and into cross-border markets, platform design and regulatory decision-making urgently require comparable and measurable evidence to validate the causal chain "platform/companion characteristics → perceived social/entertainment value → intention to use" (Li, 2024; Xia et al., 2024). For instance, quantifying the SOR-to-SEM path within live-streaming e-commerce scenarios. Existing research tends to focus on gaming accompanists or platforms; however, these perspectives limit the identification of differentiated user needs across variables such as gender, experience, social motivations, and spending habits. As a result, findings may fail to capture diverse user experiences, potentially introducing bias.

Overall, issues such as weak regulation, service-related pornographic content, and unprofessional service quality constrain the development of the gaming companion industry (Today's News, 2021). Therefore, further academic research on the topic of gaming companions is necessary (Yan et al., 2022). In addition, because gaming companionship has emerged only recently, there is a lack of relevant studies. Through a review of the literature, this study finds that existing research has not addressed the mechanisms underlying users' adoption of gaming companion services. Thus, this study aims to identify significant factors influencing users' intention to use gaming companion services by examining their usage experiences and perceived value.

2 Literature review and hypothesis

2.1 Stimulus-organism-response

The Stimulus-Organism-Response (SOR) model, which examines the mechanism of human behavior generation and its relationship with self-cognition (Mehrabian and Russell, 1974). Stimulus (S) originated from the external environment. Currently, the main stimulus factors recognized by scholars include product quality, value, website quality, informativeness, image of the online shop and branding (Belk, 1975; Zhang, 2019; Zhou and Huang, 2023). Users are stimulated by various factors to generate motivation. Driven by motivation, users make decisions and implement use and consumption behavior (Mehrabian and Russell, 1974). Organism (O) referred to processes within the individual that lie between the stimulus and the final behavior. This process consists of perceptual, mental and thinking activities, specifically human emotions and cognition (Zhang, 2011). Response (R) was an outcome variable that represents an individual's attitude or behavior, usually expressed as a tendency to approach or avoid a certain thing (Mehrabian and Russell, 1974). The central idea of the SOR model is that stimuli not only lead directly to a response, but also through mediating processes within the organism. Figure 1 shows the model of SOR.

The SOR theoretical model is widely applied to predict and explain consumer behavior, such as usage intention, purchase intention, and purchasing behavior (Rungruangjit, 2022; Gan et al., 2023; Zou and Fu, 2024). SOR theory demonstrates that product factors such as category, price, and functionality; promotional factors including marketing strategies, brand, and reputation; and subjective factors like consumer cognitive emotions and personal perceptions all influence the public's internal psychological state, thereby affecting consumers' intentions to use and purchase products (Liao, 2020). For example, in live-streaming e-commerce, hosts (S) influence users' emotions, sense of community, and perceived value (O) through real-time interaction, which significantly enhances purchase intention (R) (Gan et al., 2023). The pathway in the study is similar to the model in this study: "Professionalism/Popularity/Interactivity of Gaming Accompanists → Perceived Entertainment/Sociability → Intention to Use." In this study, gaming companist (S) serve as external stimuli. Upon receiving these stimuli, the user (O) forms a value judgment in their mind. If user's judgment is positive, it fosters a positive intention to use (R). Conversely, it leads to avoidance.

This study further decomposes "perceived value" into two mediators—perceived sociability and perceived entertainment—and examines their differential effects in highly interactive gaming companion scenarios. This study enriches the "stimulus→organism→response" mediating hierarchy, advancing SOR theory from a macro-level framework toward a comparable meso-level theory. Additionally, this study expands the application of SOR, providing empirical evidence for understanding user behavior in emerging virtual emotional services.

FIGURE 1
Stimulus-organism-response model (Source: Mehrabian and Russell, 1974).

2.2 Intention to use

Within the SOR framework outlined above, intention to use represents the response (R) component, that is, an individual's behavioral tendency after being exposed to external stimuli and internal psychological processes. Intention to use (ITU) is usually defined as an individual's subjective intention or tendency to use a technology, product, or service in the future (Harrison et al., 1997). In this study, ITU specifically refers to users' intention to use game companion services.

User intention to use (ITU) serves as a crucial theoretical foundation for studying user behavior and is widely applied in research on product and service adoption, technology acceptance, and behavioral prediction across diverse fields (Van, 2020). ITU reveals users' attitudes, needs, and behavioral tendencies toward companion services and is an important indicator for predicting their future usage (Cao et al., 2021). However, ITU has not yet been thoroughly examined within the gaming companion industry.

Given ITU, as the dependent variable in this study, is ultimately shaped by how users perceive the stimuli they encounter, it is essential to clarify the key external stimuli in this context. In line with the SOR model, the next subsection therefore focuses on the characteristics of gaming accompanists as critical stimulus factors influencing users' perceived value and, consequently, their intention to use.

2.3 Characteristics of accompanists

"The accompanist is the product" is the core paradigm of gaming companionship services (Chen, 2022). On companion platforms, gaming accompanists market their personality traits, gaming skill levels, and vocal qualities to attract customers. A gaming accompanist's value is tied to behavioral characteristics such as physical actions, style, and language (Mears, 2014). The characteristics of gaming accompanists are a primary factor in user selection. Users typically make choices based on personal needs and profile tags displayed on accompanists' profiles (e.g., voice style, rank level) (Sun, 2020). As workers seeking emotional labor employment, gaming accompanists gradually convert personal attributes into service capital. To secure emotional labor work, accompanists must commodify themselves. Their abilities, emotions, and even their identities become commodified into material forms used to fulfill diverse user demands (Sun, 2020; Reuters, 2024; Li, 2023).

Professional accompanists provide users with a sense of achievement through superior gaming skills, thereby enhancing perceived entertainment and stimulating usage intention (Gao, 2020). Their interaction skills also help create a relaxed gaming atmosphere (Zhao and Wang, 2021), which enhances perceived sociability. Based on these prior studies, this study designed the following hypotheses:

> *H1:* The professionalism of the accompanist has a positive influence on the perceived entertainment.
>
> *H2:* The professionalism of the accompanist has a positive influence on the perceived sociability.

Users' flow experiences become richer through enhanced interactivity. Engaging interactions facilitate product comprehension and usage while positively shaping user attitudes. In gaming companion services, users are particularly impressed by gaming accompanists' distinctive voices and humorous interactions (Sun, 2020). The essence of live streaming lies in its "high immediacy + two-way interaction." Research shows that interpersonal responsiveness—a core dimension of interactivity—significantly boosts purchase intention through social presence (Frank and Tian, 2024). Gaming accompanists therefore act not only as technical supporters but also as emotional supporters (Chen, 2022), helping users release stress and achieve emotional resonance during gameplay (Feng and Wei, 2023). Based on these prior studies, this study designed the following hypotheses:

> *H3*: The interactivity of the accompanist has a positive influence on the perceived entertainment.
>
> *H4*: The interactivity of the accompanist has a positive influence on the perceived sociability.

Popular accompanists often possess unique gaming styles or strategic approaches that enhance entertainment value (Yan et al., 2022; Wu, 2020). For example, an accompanist known for his "difficult game operations" brings users a very exciting and enjoyable entertainment experience by presenting extreme operations or unique tactics in the game, and the high level of performance greatly enhances the entertainment value of the users (Wu, 2020). User's perception of product hotness reflects the social norms and social pressures perceived by users, which in turn affects individual decision-making (Xu, 2021). Based on these prior studies, this study designed the following hypotheses:

> *H5*: The popularity of the accompanist has a positive influence on the perceived entertainment.
>
> *H6*: The popularity of the accompanist has a positive influence on the perceived sociability.

2.4 Perceived value

Zeithaml (1988) argued that perceived value is the overall evaluation of utility and value obtained by a consumer after weighing and comparing the benefits and costs of the service or product utility he or she receives. This study extends the "gains and losses" concept to the gaming companion context, where emotional labor produces intangible experiences such as joy, fulfillment, and relaxation (Chen, 2022; Blut et al., 2024). Thus, perceived value is defined as users' subjective evaluations of gaming companion services. In this study, perceived value was divided into perceived entertainment and perceived sociability according to preferences of the user in gaming companion. Perceived entertainment referred to the enjoyable value that users get from the gaming companion service. Perceived sociability was the experience and feeling that the gaming companion service brings to the user about participating in socializing and establishing social connections.

Entertainment value refers to the emotional response that users experience, such as relaxation, enjoyment, frustration, or disappointment. It focuses on the emotional states evoked by consumption behavior, encompassing both positive and negative emotions (Jiang, 2020). Positive personal emotional experiences can effectively improve attitudes toward participation. Perception of entertainment manifests as users' evaluations of their mood and gaming experience during interactions with gaming companions (Xiao and Lei, 2021). Within gaming, entertainment experiences and perceived enjoyment rank among the primary factors influencing users. Research indicates that the affective/hedonic pathway (parallel to the rational pathway) significantly drives purchase intent, demonstrating that "fun/pleasure" serves as a direct motivator of intent (Jiang et al., 2024).

When users achieve emotional satisfaction through entertainment in companion gaming services, they develop emotional attachment. They seek to prolong positive emotional experience by reusing the service. The fun gameplay, relaxed atmosphere, and synchronized collaboration during sessions constitute "perceived entertainment value." These experiences translate feelings into a value assessment of "worthwhile/fun," thereby increasing usage intent (Deng, 2024). Based on these prior studies, this study designed the following hypotheses:

> *H7*: Perceived entertainment has a positive influence on intention to use.

In this study, perceived sociability refers to users' evaluations of social interactions within the platform (Lee et al., 2023). In live streaming, social value and hedonic value positively predict purchase intention, with "streamer popularity" amplifying effect (value → intention). Study indicates that social connection and group belonging are key psychological drivers of conversion (Wang et al., 2023).

Additionally, features such as interactive atmosphere and information visualization on social e-commerce platforms enhance perceived sociability (Yum and Kim, 2024). Research reveals that users perceive greater interaction value within increasingly immersive virtual community environments. Incomplete interactive features, however, lead to lower information perception among users regarding other network members, resulting in lost opportunities for interaction, collaboration, and participation (Qiu, 2020). Incomplete interactive features reduces user satisfaction and usage intent. In essence, interaction directly influences users' social perceptions, thereby indirectly affecting usage behavior. Based on these prior studies, this study designed the following hypotheses:

> *H8*: Perceived sociability has a positive influence on intention to use.

3 Methodology

3.1 Research model

Building on the SOR framework and the literature reviewed, this study develops a structural research model to examine how accompanist characteristics influence users' intention to use gaming companion services. As shown in Figure 2, the model specifies accompanist characteristics (professionalism, interactivity, and popularity) as exogenous stimulus variables, perceived entertainment and perceived sociability as mediating organism variables, and intention to use as the response variable. The research model proposed in this section provides the foundation for subsequent data collection and statistical analysis.

3.2 Data collection and data analysis

The items of the questionnaire are rated on a 5-point Likert scale ranging from disagreement to agreement. The options are set as "strongly disagree," "disagree," "neutral," "agree," and "strongly agree" with five levels, which are assigned a score of 1, 2, 3, 4, and 5 accordingly. The descriptive items and references for specific scales are provided in Appendix A. This study was conducted in the city with the highest number of gaming companions in Shanghai, China, about 47 million (INSIGHT AND INFO, 2020). The questionnaires were distributed and recovered both through social software (WeChat) and a total of 427 were eventually collected, 22 invalid questionnaires were excluded and 425 were used for analysis. This study conducted the calculation of the required sample size based on Taro's (Kubota and Wakana, 2011) formula, which was proved to be scientifically sound by many studies. Based on Taro's formula, it can be calculated that the sample size of this study is 400. It is as follows:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{4.75 \times 10^6}{1 + 4.75 \times 10^6 (0.05)^2}$$

n = 399.99; n = Sample size; N = Elements of population, which in this study are user of a gaming companion platform; e = Error of sampling, in this study is 5% or 0.05 proportion.

This study stratified participants based on daily activity levels (hours online per day), as shown in Table 2. The advantages of selecting four strata include distinct differences between strata, relative homogeneity within strata, and sufficient sample size per stratum for comparative analysis (Lohr, 2019). Based on the Pilot Test,

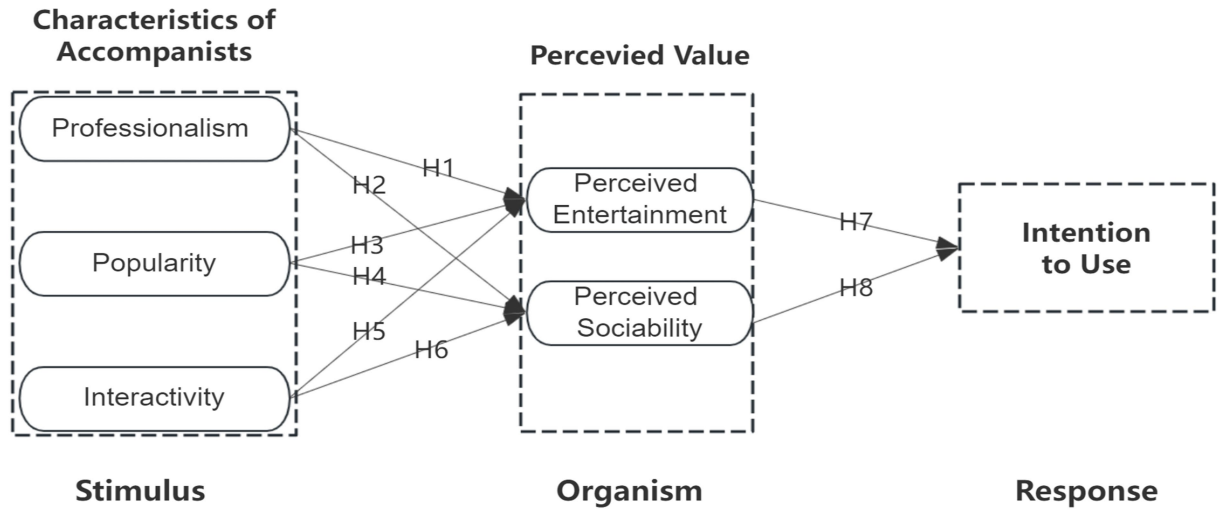

FIGURE 2
Intention to use game companion service model.

TABLE 2 Target sample size per layer (equal allocation).

Layer	Daily activity	Target sample	Requires invitation (97%)
L1 Low activity	≤ 2 h	100	104
L2 Low-to-moderate activity	2< and ≦ 4	100	104
L3 Moderate-to-high activity	4< and ≦ 6	100	104
L4 High activity	>6	100	104
Total	–	400	416

the study calculated a response rate of 97%. To achieve 100 responses per stratum, approximately 104 participants per stratum must be invited.

This study was analyzed using AMOS version 26.0. In testing the mediating effect, this study used the Bootstrap method to estimate the confidence interval and significance level of the mediating effect. The Bootstrap method is a non-parametric statistical method that estimates the sampling distribution of a statistic by drawing repeated samples from the sample. If the p-value is below the significance threshold ($p < 0.05$) and the confidence interval (CI) for the mediating effect excludes 0, the mediating effect is considered significant (Shrout and Bolger, 2002). Otherwise, the mediating effect is not significant. Therefore, this study assessed the significance of the mediating effect by examining both confidence intervals and p-values.

3.3 Sample characteristics

A total of 425 valid responses from users who had used gaming companion services were included in the final analysis. The demographic characteristics of the respondents are presented in Table 3. Overall, the sample consisted mainly of young users, with the 18–25 age group accounting for 68.5% of respondents, and women representing 60.7% of the sample.

Most respondents were single (66.9%), suggesting that single users are more likely to seek companion services, possibly due to a lack of emotional companionship in their daily lives. In terms of education, 39.3% attended a three-year college and 37.4% held a bachelor's degree, indicating a relatively high overall education level. Students constituted the largest occupational group (59.3%).

4 Results

Before testing the measurement and structural models, descriptive analyses were conducted to profile the respondents. Consistent with the sampling design, the majority of users in the sample were young, single, and highly educated, with women and students making up the largest proportions.

4.1 Reliability and validity

Cuieford (1965) claimed that a Cronbach's alpha coefficient above 0.7 indicates high reliability of the scale; conversely, a coefficient below 0.5 indicates insufficient reliability, requiring the removal of certain measurement items or the redevelopment of the measurement scale. This study used SPSS 25.0 to run a reliability analysis, with the findings presented in Table 4.

TABLE 3 Distribution of users by demographic features (N = 425).

Category	Frequency	Percent
Used gaming companion services		
Yes	425	95
No	22	5
Gender		
Female	258	60.7
Male	167	40.3
Age groups		
18–25	291	68.5
26–35	38	17.2
36–45	73	8.9
<18	19	4.5
>45	4	0.9
Marital status		
Single (including divorced and widowed)	284	66.9
In a relationship (including married)	141	33.1
Education		
Three years college	167	39.3
Bachelor's degree	159	37.4
High school or below	81	19.1
Master or above	18	4.2
Careers		
Student	252	59.3
Company employee (civil servant/government worker, etc.)	82	19.6
Service workers (waiters/drivers/salesmen, etc.)	35	8.2
Freelancers (writers/artists/photographers/guides, etc.)	24	5.6
Professionals (teachers/doctors/lawyers, etc.)	16	3.8
Housewife	9	2.1
Workers (factory workers/construction workers/city sanitation workers, etc.)	7	1.6

Based on the conceptual framework, this study conducted confirmatory factor analysis in AMOS. The results are shown in Figure 3.

The results of the test (N = 425) shows that the Cronbach's alpha coefficients for each of the study variables and for the whole questionnaire are 0.856, 0.846, 0.822, 0.858, 0.859 and 0.824, respectively. All coefficients are greater than 0.7. The Cronbach's alpha coefficient value for the whole scale is 0.957, indicating high internal consistency. Taken together, the results indicate that the questionnaire used in this study has acceptable reliability.

TABLE 4 Reliability test.

Variables	Final test (N = 425)
	Cronbach's alpha
Professionalism	0.856
Interactivity	0.822
Popularity	0.846
Perceived entertainment	0.858
Perceived sociability	0.859
Intention to use	0.824
All	0.957

This study mainly used the standardized Estimate, the Average Variance Extracted (AVE) and the Composite Reliability (CR). Generally, if the standardized estimate is above 0.5, the AVE is above 0.5, and the CR is above 0.7, indicating acceptable convergent validity among the latent variables in the scale (Harris, 2004; Hair et al., 2010). Then, Excel and a professional calculator were used to calculate the mean extracted variance value (AVE) and the composite reliability (CR) to analyze the convergent validity of the scale. AVE is calculated by the formula (Hair et al., 2010; Taye et al., 2025):

$$\mathrm{Sl}_{\mathrm{AVE}}\mathrm{S} = \frac{\left(\sum \lambda^2\right)}{\mathrm{N}}$$

CR is calculated by the formula:

$$\mathrm{l}_{\mathrm{CR}} = \frac{\left(\sum \lambda\right)^2}{\left(\sum \lambda\right)^2 + \sum \varepsilon}$$

ë represents the standardized path coefficients (often called factor loadings) of the latent variables.

Table 5 shows that all standardized estimates of the question items are above 0.7, exceeding the suggested threshold of 0.5, indicating statistical significance. Result means that there is a good measurement relationship between the variables and question items.

Table 6 shows the recommended values for model fit and the corresponding values obtained from the data in this study. Based on comparison, this study found that most model fit indices, such as CMIN/DF, RMR, RMSEA, GFI, NFI, IFI, TLI, and CFI, meet the recommended thresholds.

Discriminant validity refers to the principle that when different methods are used to assess distinct constructs, the resulting values should be discernibly different (Farrell and Rudd, 2009). This study calculated the square root of AVE based on the AVE values by using the formula.

According to Table 7, the square root of the AVE for each factor is greater than the maximum absolute value of the correlation coefficients between that factor and the others, indicating good discriminant validity.

4.2 Direct effects test

The study performed SEM through AMOS 26.0 software to test the hypotheses. The results of data analysis are shown in Figure 4.

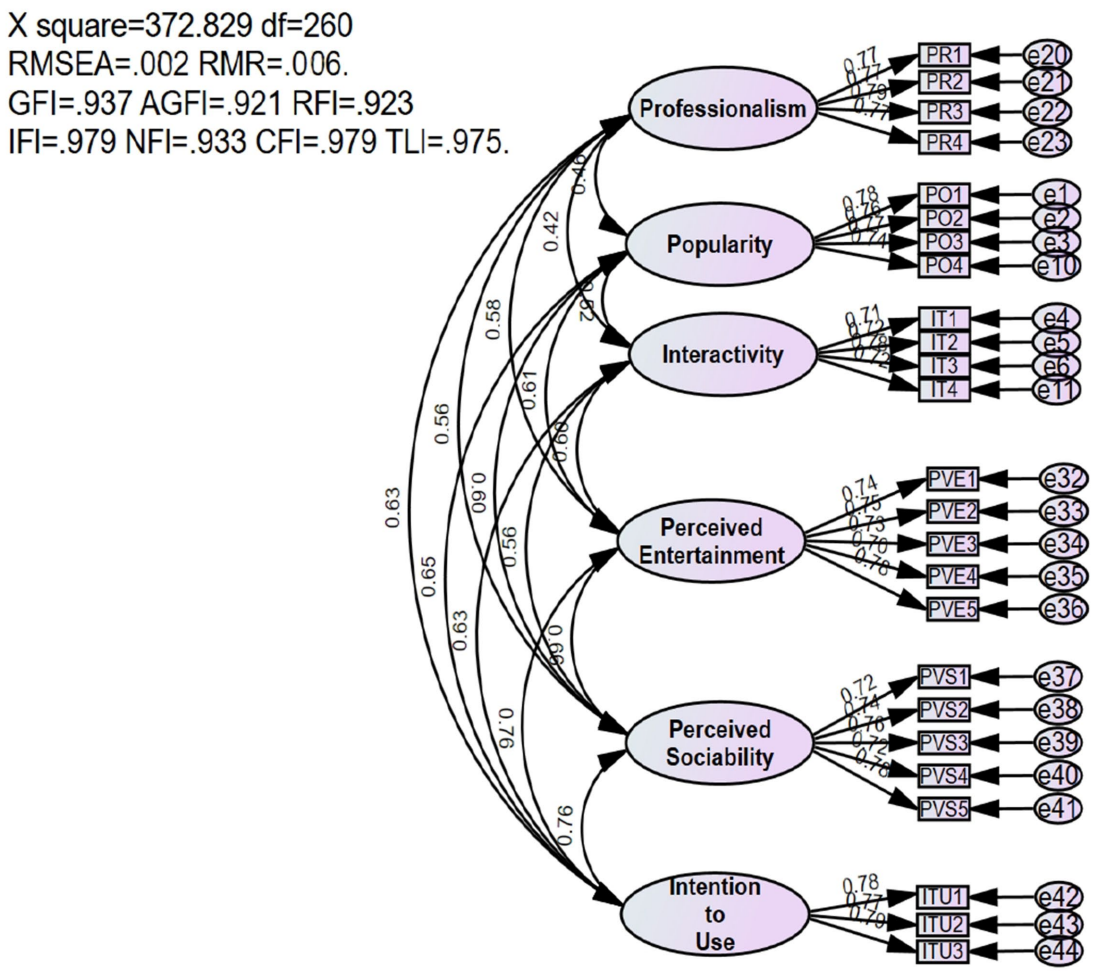

FIGURE 3
Measurement model test.

According to Table 8, eight hypotheses are valid. The professionalism of the accompanist significantly affects the user's perceived entertainment (Estimate = 0.149, $p = 0.007$) and perceived sociability (Estimate = 0.139, $p = 0.014$). Also, the degree of influence of the interactivity of the accompanist on the user's perceived entertainment (Estimate = 0.173, $p = 0.002$) is higher than the degree of influence on perceived sociability (Estimate = 0.130, $p = 0.022$). In addition, the popularity of the accompanist also significantly affects the user's perceived entertainment (Estimate = 0.159, $p = 0.005$) and perceived sociability (Estimate = 0.178, $p = 0.002$). Finally, Table 8 shows that user's perceived entertainment has a significant effect on intention to use (Estimate = 0.164, $p = 0.021$). The higher the user's perceived sociability, the stronger the intention to use (Estimate = 0.207, $p = 0.002$).

4.3 Mediation effects test

This study examines whether perceived value (perceived entertainment and perceived sociability) mediates the relationship between accompanist characteristics and intention to use. Table 9 shows the results of the data analysis.

As shown in Table 9, the professionalism ($0.001 < CI < 0.083$, $p = 0.035$), interactivity ($0.001 < CI < 0.087$, $p = 0.041$), and popularity ($0.001 < CI < 0.078$, $p = 0.041$) of the accompanist indirectly influence users' intention to use through perceived entertainment. In addition, the professionalism ($0.001 < CI < 0.078$, $p = 0.016$), interactivity ($0.001 < CI < 0.080$, $p = 0.008$), and popularity ($0.001 < CI < 0.093$, $p = 0.008$) of the accompanist indirectly influence users' intention to use gaming companion services through perceived sociability.

5 Discussion

This study found important factors that influence user's intention to use. The characteristics of gaming accompanists (professionalism, popularity, interactivity), technicality, and users' social needs influence user intention to use. From the perspective of service provider characteristics, live streaming research widely adopts the theory of "quasi-social interaction," wherein users, despite engaging in one-way communication with streamers, develop an illusion of face-to-face friendship. User motivations for tipping typically include seeking validation, gaining privileges, and supporting idols, with the core dynamic being an

TABLE 5 Convergent validity.

Pathway			Estimate (standardized)	*p*	AVE	CR
PR1	←	Professionalism	0.764	***	0.598	0.856
PR2			0.774	***		
PR3			0.784	***		
PR4			0.771	***		
IT1	←	Interactivity	0.715	***	0.538	0.823
IT2			0.718	***		
IT3			0.779	***		
IT4			0.719	***		
PO1	←	Popularity	0.778	***	0.580	0.847
PO2			0.758	***		
PO3			0.772	***		
PO4			0.738	***		
PVE1	←	Perceived entertainment	0.745	***	0.552	0.860
PVE2			0.747	***		
PVE3			0.726	***		
PVE4			0.707	***		
PVE5			0.772	***		
PVS1	←	Perceived sociability	0.721	***	0.547	0.858
PVS2			0.738	***		
PVS3			0.755	***		
PVS4			0.725	***		
PVS5			0.774	***		
ITU1	←	Intention to use	0.779	***	0.609	0.824
ITU2			0.776	***		
ITU3			0.787	***		

*** Indicates $p < 0.001$. AVE, Extracted variance value; CR, Composite reliability.

TABLE 6 Model fit index.

Measures	Reference values	Fit indices	Source
CMIN		372.829	Dash and Paul (2021)
DF		260	
CMIN\DF	<3	1.43	
RMR	<0.08	0.002	
RMSEA	<0.08	0.006	
GFI	>0.9	0.937	
NFI	>0.9	0.933	
IFI	>0.9	0.979	
TLI	>0.9	0.975	
CFI	>0.9	0.979	

CMIN, Chi-square value; DF, Degrees of freedom; RMR, Root mean square residual; RMSEA, Root mean square error of approximation; NFI, Normed fit index; TLI, Tucker-Lewis coefficient; CFI, Comparative fit index; GFI, Goodness of fit Index.

TABLE 7 Discriminant validity test.

Variables	PR	IT	PO	PVE	PVS	ITU
PR	**0.773**					
IT	0.356	**0.733**				
PO	0.387	0.438	**0.762**			
PVE	0.496	0.504	0.521	**0.740**		
PVS	0.482	0.473	0.517	0.573	**0.743**	
ITU	0.526	0.517	0.543	0.639	0.642	**0.780**

PR, Professionalism; IT, Interactivity; PO, Popularity; PVE, Perceived entertainment; PVS, Perceived sociability; ITU, Intention to use. Bold diagonal numbers are AVE square root.

asymmetrical, upward-looking social relationship (Thompson et al., 2024; Smith et al., 2024). This study's distinctive finding is that game companionship services offer an equal, two-way, highly interactive social relationship (Li, 2022). Users pay for shared experiences and equal emotional exchange, not idol worship. Furthermore, this study reveals the multifaceted value of gaming accompanists: they are no longer providers of a single skill (gaming proficiency) but creators of composite experiences. Their value lies in both building social connections (interactivity) and delivering functional support (professionalism) (Jia and Cao, 2022).

This study employs parallel mediation analysis to identify the independent roles of PVE and PVS, revealing that perceived entertainment contributes more stably to intention to use, thereby enhancing the model's explanatory power and practical applicability. Compared with single-mediation models, existing live-streaming research often explains payment or intention through a single pathway such as "pseudo-social intimacy," "flow experience," or "trust," making it difficult to distinguish between enjoyment-driven and relationship-building motivations (Imai et al., 2010).

Compared with sequential mediation models, chain models require explicit temporal ordering; yet in high-frequency, bidirectional interactions such as gaming companionship, perceived entertainment and perceived sociability often occur simultaneously, making parallel mediation more appropriate.

Existing SOR-based research often limits "stimuli" mainly to emotions and price, underestimating factors such as technology, individual needs, and interactivity (Dastane et al., 2023; Yum and Kim, 2024). The SOR model not only incorporates multiple stimuli but also emphasizes the interactions among these stimuli and how they influence user responses through mediating mechanisms (Lu, 2024). Research demonstrates that user behavior is not a simple outcome of a single stimulus but rather the result of multiple factors working together, providing a more comprehensive theoretical perspective for understanding user behavior in complex digital services (Li and Guo, 2023).

Previous SOR studies often simplified the "O" component into a single motivator, making it difficult to explain the competition and complementarity among different psychological pathways (Liu et al., 2022). This study divides "perceived value" into two mediators: perceived sociability and perceived entertainment, and verifies their differentiated effects in a highly interactive companion gaming context. The pathway of study enriches the mediation hierarchy of "stimulus → organism → response," advancing SOR from a macro-level framework toward a comparable, middle-level theory.

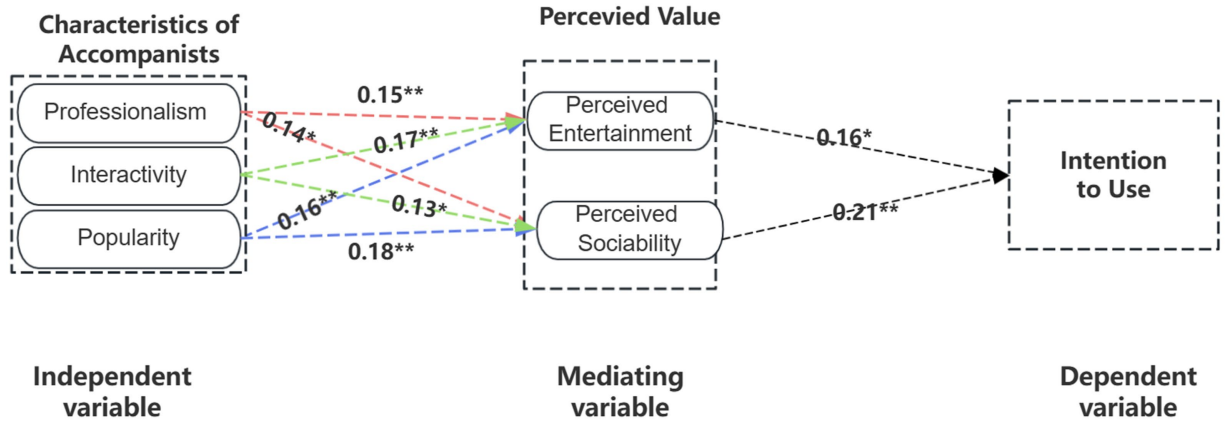

FIGURE 4
Validation of the effectiveness of the hypothesis.

TABLE 8 Results of direct effects test.

Hypothesis	DV		IV	Estimate	S.E.	C.R.	*p*	Result
H1	PVE	←	PR	0.149	0.054	2.713	0.007	Accepted
H2	PVS	←	PR	0.139	0.053	2.452	0.014	Accepted
H3	PVE	←	IT	0.173	0.057	3.129	0.002	Accepted
H4	PVS	←	IT	0.130	0.056	2.294	0.022	Accepted
H5	PVE	←	PO	0.159	0.053	2.832	0.005	Accepted
H6	PVS	←	PO	0.178	0.052	3.053	0.002	Accepted
H7	ITU	←	PVE	0.164	0.072	2.302	0.021	Accepted
H8	ITU	←	PVS	0.207	0.070	3.134	0.002	Accepted

DV, Dependent variable; IV, Independent variable; SE, Standard errors; CR, Critical ratio; ITU, Intention to use; PR, Professionalism; IT, Interactivity; PO, Popularity; PVE, Perceived entertainment; PVS, Perceived sociability.

TABLE 9 Results of the mediation effects test.

Pathway	Indirect effect				Result
	Estimate (β)	95% Confidence interval		*p*	
		Lower	Upper		
PR → PVE → ITU	0.024	0.001	0.083	0.035	Accept
IT → PVE → ITU	0.030	0.001	0.087	0.041	Accept
PO → PVE → ITU	0.025	0.001	0.078	0.041	Accept
PR → PVS → ITU	0.028	0.004	0.078	0.016	Accept
IT → PVS → ITU	0.028	0.005	0.080	0.008	Accept
PO → PVS → ITU	0.035	0.006	0.093	0.008	Accept

PR, Professionalism; PVE, Perceived entertainment; ITU, Intention to use; IT, Interactivity; PO, Popularity; PVS, Perceived sociability.

6 Conclusion

6.1 Implications of the study

The practical implications of this study assist gaming companion platforms in refining their services, optimizing service offerings, and improving marketing approaches. Accompanist's professionalism, interactivity, and popularity all influence users' intention to use gaming accompanist services. The service heavily relies on the provider's personal traits (voice, personality, emotional intelligence) and can be deeply customized according to user preferences (Fan, 2022). Gaming companion platforms should focus on cultivating the

professionalism of accompanists, adopt a user-centered service attitude, and provide timely and patient answers to users' questions to satisfy their needs as much as possible. Findings of this study also hold implications for cross-scenario applications within the companion economy (including medical accompanist, fitness accompanist, conversational accompanist, virtual dating, and sleep-aid online accompanist), emphasizing the need for skill visualization and service standardization. The platform should systematically implement specialized training programs for gaming companions to enhance their emotional awareness, communication skills, and pacing abilities. They should also emphasize emotional support and positive reinforcement during service delivery, enabling users to derive emotional value and social fulfillment.

The theoretical significance of this study lies in explaining the novel interpersonal behavior pattern of "gaming + socializing + payment." Companion gaming services have altered the public's motivations for social interaction. Accompanists are driven by profit motives. Users position themselves as consumers, engaging in interactions motivated by either satisfying power desires through monetary means or seeking companionship (Deng, 2024). The "paid agreement" framework disrupts the equality of interaction, transforming the social relationship into an employer-employee dynamic. Human interaction becomes commercialized—no longer an expression of genuine personal emotion, but an organized commodity. Accompanist transform personal attributes like voice, personality, and gaming skills into service capital to meet users' differentiated demands. From a broader theoretical perspective, this study deepens the exploration of "emotional labor" and "self-commodification" in the digital economy by validating the influence of "companion characteristics" on user intent (Mahmoud, 2024).

Furthermore, this study expands the interpretive boundaries of S-O-R theory in digital service contexts. The revealed indicators of companion players' professionalism, interactivity, and popularity constitute novel "social stimuli." These cues possess both contextual attributes and social significance, shifting the S-O-R model's focus from one-dimensional stimuli like price or product to a multidimensional understanding of digital social cues. This study enhances the theory's applicability within virtual social services.

The findings of this study are equally applicable in multicultural contexts. First, the "competence-responsiveness" framework—comprising professionalism and interactivity—reflects the ubiquitous "competence cues" and "responsiveness cues" present in digital services (Eom et al., 2022; Lowry et al., 2017). Cross-cultural research indicates that users universally rely on service providers' professional competence and interaction quality to evaluate the credibility, immersion, and emotional value of their experiences in digital interactions—regardless of whether they originate from high-context cultures (e.g., East Asia) or low-context cultures (e.g., North America and Europe) (Wang et al., 2024; Lee et al., 2021). Therefore, the influence of professionalism and interactivity on value assessment exhibits high cross-cultural robustness. Their underlying psychological mechanisms—competence inference, social exchange, and interaction satisfaction—do not undergo fundamental changes due to cultural differences.

Secondly, popularity cues—such as ratings, order volume, and review count—serve as crucial forms of social proof, demonstrating consistent functional logic across cultures. Despite varying cultural sensitivities toward social norms and conformity, these popularity cues consistently function as "quality proxies" and "risk reducers" within digitally mediated services characterized by information asymmetry. In collectivist cultures, popularity is more readily interpreted as group norms and social recognition, significantly amplifying social value and belonging motivations (Park and Lee, 2021). In individualist cultures, popularity is more often perceived as an outward indicator of professionalism, reliability, or high quality, helping to elevate users' functional and emotional expectations of the service (Singh et al., 2022). While cultural differences may modulate pathway strength, the mechanism of "popularity → value assessment → behavioral intent" possesses cross-cultural transferability.

6.2 Limitations of the study

This study has some limitations in terms of conceptual definition. At present, there is no unified definition of online game companion in the academic area. This study can only briefly describe the basic situation of online game companion activity, and cannot present an accurate concept.

Second, methodological limitations. This study should consider qualitative research methods, as semi-structured interviews can reveal users' value logic in companion gaming (e.g., "reassurance through voice," "no win, no value") to distinguish utilitarian/hedonic/social sub-dimensions. Interviews can also uncover implicit factors such as perceived price fairness, gender expectations, and regional/time-of-day influences (Xia et al., 2004; Hofstede, 2001). For instance, social presence and security (anti-harassment and low conflict) constitute key value sources for female and novice user groups.

Third, there are limitations in the sample. Purposeful equal-quota sampling is a non-probability sampling method where sample selection relies on the researcher's subjective judgment and convenience (Gefen et al., 2011). Purposeful equal-quota sampling is prone to researcher bias and respondent selection bias. The sample cannot represent all groups with diverse attitudes within the population, rendering the results non-representative. Findings are more applicable to populations sharing comparable platform usage, geographic distribution, time periods, and demographic composition as the sample. Therefore, cross-platform, cross-region, and cross-time promotion requires caution.

Shanghai, as a first-tier city, features higher per capital income and disposable spending; price sensitivity and payment frequency for "paying/tipping/ordering" items may differ from second- and third-tier cities (iResearch, 2021). Shanghai's younger generation, characterized by high educational attainment, significant migrant populations, and frequent cross-cultural exposure, may exhibit greater acceptance of innovative services and social/experiential consumption. Selection of research sites could alter the mean and variance of usage intent. The findings of this study do not constitute an accurate estimate for the entire nation.

6.3 Suggestions for future research

This study provides a preliminary exploration of the factors that influence users' intention to use gaming companions. Considering the

shortcomings of this study and the booming development of gaming companion services, future research can start from the following aspects.

First of all, there are a lot of worthwhile research in game companion area, such as moral ethics, interaction style and emotional labor and other topics. If some scholars want to further study game companion in the future, they can conduct deeper research on these remaining dimensions.

Secondly, future research can conduct cross-platform, cross-game, and cross-cultural comparative analyses to examine whether the mechanism—"platform characteristics → perceived value (social/entertainment) → use intention"—exhibits robustness across platforms and cultures. Cross-Game Parallelism: Compare whether the weighting of perceived value dimensions and the strength of mediating effects differ across game genres—MOBA (Honor of Kings), shooters (PUBG Mobile/VALORANT-like), and party/social games. Track orders and experiences of the same user cohort across games (at least 3 time points), estimating individual fixed-effects models while controlling for unobservable stable traits.

Finally, this study explored only the factors influencing user's intention to use. However, many other factors may also affect users' intention to use. In the future, researchers can build more complex research models, explore more related theories, and select research variables with a broader perspective. For example, theories involving variables such as pricing strategy, social influence, and platform trustworthiness.

Future research should incorporate perceived price fairness (Xia et al., 2004) to construct a mediated relationship: "price design → (value/fairness) → intention," testing its competitive or complementary effects with technical/social cues. Different variables would further institutionalize "value" from abstract evaluation into price psychology, enhancing the interpretability of the value-fairness-intention chain in companion gaming scenarios.

Data availability statement

The datasets presented in this article are not readily available because the core data involves personal information (e.g., behavioral records, age, gender, income, geographic location, identity markers, etc.). This data is gathered under strict informed consent agreements. We explicitly assure participants that their data will be used solely for this specific study, anonymized to protect privacy, and will not be publicly shared or repurposed for other objectives. Requests to access the datasets should be directed to gs63470@student.upm.edu.my.

Ethics statement

Ethical approval was not required for the study involving humans in accordance with the local legislation and institutional requirements. Written informed consent to participate in this study was not required from the participants or the participants' legal guardians/next of kin in accordance with the national legislation and the institutional requirements.

Author contributions

SH: Methodology, Writing – original draft. WA: Supervision, Writing – review & editing. MW: Supervision, Writing – review & editing.

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Supplementary material

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