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Gamers' Behavioral Intentions for Watching Live Streams of Electronic Sport

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ABSTRACT

This study aimed to analyze the factors affecting gamers' behavioral intention to watch e-sports live streams, combining the Unified Theory of Acceptance and Use of Technology and Uses and Gratifications Theory models. This study is quantitative, descriptive-correlational, and field-based, conducted with an applied objective. The research population included Iranian esports gamers who were active on live streaming platforms such as Twitch, YouTube, and Facebook Gaming. The data collection tool was a standardized questionnaire developed by Tangsiri et al. (2018), based on the integrated UTAUT and UGT models. The sample size was estimated at 221 using Cochran's formula and an initial variance of 0.144. In total, 223 fully completed questionnaires were included in the final analysis. Data analysis was performed using structural equation modeling (SEM) with Smart PLS4 software. The findings showed that cognitive needs have a direct impact on increasing performance expectations and strengthening users' behavioral intention. On the other hand, emotional needs and social needs also had a significant effect on the intention to watch live streams. In addition, technology-based factors such as ease of use expectations and social influence play a key role in the acceptance of these platforms. The results emphasize that the development of live streaming platforms requires a combination of educational content (such as professional strategies), social interactions (live chats and interactive events), and user experience optimization (simple interfaces and easy access). This study shows that simultaneous attention to psychological (user needs) and technological (platform efficiency) dimensions can significantly increase gamer engagement.

Introduction

The esports industry is continuously flourishing. Video games, as a fundamental element of today's digital youth culture, have evolved from mere entertainment into an organized sport (Hassan, 2024). Competitive gaming, recognized as a professional sport, has become a vital and popular aspect of video game communities, particularly among adolescents and young adults (Bányai et al., 2019). Accordingly, esports has emerged as one of the fastest-growing forms of new media, driven by the increasing prevalence of online streaming technologies and online gaming among younger generations (Trotter et al., 2020). Esports has also contributed to bridging existing social gaps within various communities. In this space, individuals from diverse economic, social, and cultural

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backgrounds can compete and interact on an equal footing. These unique characteristics position esports not only as a form of entertainment but also as an influential cultural tool in modern societies (Chinchilla & Kim, 2024). This domain encompasses multiple levels of gameplay (such as professional and amateur) and describes various gaming behaviors, including competition, collaboration, coordination, interaction, streaming, spectating, and commentary (Wohn & Freeman, 2020). High-level tournaments attract spectators on par with traditional sporting events, leading to significant transformations in the media consumption culture of the sports industry (Chinchilla & Kim, 2024).

Alongside the global rise in esports participation, a new form of social media has recently emerged—the phenomenon of live streaming esports (Tian & Frank, 2024). Live streaming has become one of the most competitive and fastest-growing social networking services worldwide. The real-time broadcasts by streamers, as a form of new media, have captured the attention of esports audiences (Zhang et al., 2025). This unique consumption activity has evolved into a mainstream cultural phenomenon among more than 495 million esports viewers and 223 million avid esports consumers worldwide. The gaming audience is projected to grow annually by 13.8% to 22.2%, reaching nearly 1.4 billion people by 2025 (Chinchilla & Kim, 2024). Live streaming refers to the real-time broadcasting of online media, encompassing content that is recorded and transmitted instantaneously (Tian & Frank, 2024). Unlike traditional live broadcasting, live streaming enables real-time interaction between content creators and their audiences through digital platforms such as Twitch and YouTube. This format, with its lower costs and greater accessibility, provides a dynamic and participatory experience, whereas traditional live broadcasting is typically one-directional and requires complex infrastructure (Sjöblom & Hamari, 2017; Törhönen et al., 2020). Live streams can be produced from a mobile device or computer and shared across multiple social media platforms. Users have the opportunity to launch their own streams or watch streams created by gamers from thousands of miles away via the internet. Unlike other social media platforms, content on a live-streaming platform is broadcast and consumed simultaneously (Scheibe et al., 2016). Streamers can share their screens while receiving real-time feedback from viewers worldwide. To enhance engagement, live-streaming platforms offer interactive features such as likes or virtual gifts to encourage broadcasters (Zhang et al., 2025). On these platforms, gamers with a strong passion for performance, exceptional gameplay techniques, or unique personalities can host their own channels and start streaming. This group of gamers is known as “live streamers.” Many other gamers become viewers who, unlike most social media influencers who post pre-recorded content, engage in hours of live video interaction with their followers (Wallinheimo et al., 2023). Viewers can participate in live chats, discuss ongoing gameplay with other audience members, and interact directly with streamers (Lessel & Altmeyer, 2019). Some discussions focus on tactics and strategies, while others involve casual conversations and viewer suggestions.

Given the enthusiasm of both professional and amateur gamers for watching live streams produced by streamers on platforms such as Twitch TV, Facebook Live, and YouTube Live, a diverse range of live content—from gameplay to cooking—is now available to millions of daily viewers (Chen et al., 2024). For instance, in the live-streaming platform sector, Twitch was the most-watched live-streaming platform in 2022, holding 73% of the market share (Chinchilla & Kim, 2024). Stream Scheme (2022) also reported that Twitch has experienced consistent annual growth, with its revenue increasing from $0.1 billion in 2016 to $2.6 billion in 2021. In 2022, Twitch had 7.13 million active streamers and more than 31 million daily active viewers (Newham, 2023).

The easy access to smartphones enables gamers to engage in various online activities (Leung, 2020). Therefore, live streaming has become a modern form of entertainment, reflecting the shift in consumer behavior toward accessing and enjoying digital content. In fact, streaming is not only an entertaining activity but also an effective tool for building online communities with collective identities that are continuously growing and evolving. Among these online communities, games like League of Legends (LoL) hold a special place (Horbiński & Zagata, 2023). Streaming these games not only boosts short-term engagement but also fosters long-term interactions among members of online communities (Chen et al., 2024). These interactions, which are based on loyalty and ongoing

participation from streamers and viewers, can help strengthen social and cultural relationships among individuals and even between different countries (Scheibe et al., 2022). In the online world, esports, in particular, have served as a catalyst for expanding intercultural interactions and facilitating understanding between diverse communities (Chinchilla & Kim, 2024).

In this context, understanding the motivations of viewers who watch game streams is of particular importance (Xu et al., 2025). Studies show that various motivations, including learning game strategies, entertainment, escapism, and social interaction, contribute to attracting viewers (Horbiński & Zagata, 2023). These motivations not only enrich the viewing experience but also help improve video game strategies and enhance the overall experience for viewers. Loyalty to streamers is also recognized as a significant psychological factor within these online communities. These types of relationships can lead to the formation of positive and sustained attitudes and behaviors among viewers, directly influencing the dynamics and growth of online communities (Zhang et al., 2025). Moreover, live streams have become an integral part of daily life, especially for teenagers. According to the latest Global Web Index report, individuals aged 16 to 24 spent an average of 7 hours per day online, using smartphones or tablets. This demographic allocated over 2.5 hours daily to social media and watched more than an hour of live streaming each day (GWI, 2019). These spaces offer opportunities for creating quasi-social relationships and interacting with small groups of friends, enabling them to gain new social experiences in the digital world. Most of the live-streaming audience consists of esports gamers, who engage with live streaming for various reasons such as improving technical skills, social interaction through online chats, enjoying thrilling moments, discovering new games, learning how to set up live-streaming pages for career development, and as a form of entertainment during leisure time.

Clearly, in recent years, esports has been examined across a wide range of topics, including player health and well-being, skill development and performance (Sanz-Matesanz et al., 2023), team formation and coaching (Jenny et al., 2024), social support (Brauer et al., 2024), sports game design and analysis (Xu et al., 2025), virtual reality and augmented reality (Soltani & Morice, 2020), social media and esports adoption (Jang & Byon, 2020), aggression (Ohno, 2022), doping and performance enhancement (Schubert et al., 2022). Recent reviews have revealed a gap in knowledge regarding the impact of various game elements, including live streaming by esports gamers, as most studies have focused on analyzing esports games as a uniform concept in professional gaming, sponsorships, and the esports market value (Seiler et al., 2017). Research on live streaming, on the other hand, has primarily focused on the emergence and growth of live-streaming platforms in the 2000s, the evolution of the streaming concept in the gaming industry between 2015 and 2020, and user behavior studies. Early studies (2013–2015) mainly concentrated on the motivations for watching live streams. Hamari and Sjöström (2017) found that social interaction, entertainment, and learning are key reasons for watching live streams. Meanwhile, Kim et al. (2011) examined live streaming platforms as new media channels, demonstrating how users interact with streaming content. The emergence of gaming as a social and cultural entertainment form has been emphasized by Tai et al. (2017), who highlighted the importance of social identity and group belonging in live streams. However, in recent years (2018–2023), more focus has been placed on the commercial and economic aspects. For instance, the economic impact of popular streamers on the gaming industry was studied by Johnson and Woodcock (2019), while the ethical and psychological challenges related to increased gaming hours and the effects of watching streams on gamers' mental health were examined by Carras et al. (2018).

Although there is a growing body of literature on esports streaming, significant gaps remain in previous research regarding theoretical, empirical, and methodological issues. One such gap is the acceptance and adoption of live streaming by esports gamers. In this study, the authors utilize the UTAUT model and the Uses and Gratifications Theory (UGT), both of which contribute to understanding user behavior in the adoption of live streaming technology from different perspectives. The combination of these two theoretical frameworks can provide a comprehensive analysis of audience behavior in adopting live streaming.

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh (2022), is recognized as a theoretical framework for understanding user behavior in the adoption of technology. This model is based on three key variables: performance expectancy (the perceived usefulness of the technology in enhancing performance), effort expectancy (ease of use), and social influence (the role of others' recommendations and opinions in adopting technology). Additionally, the model examines the impact of demographic variables such as age, gender, and user experience on technology adoption. Extensive studies have employed UTAUT across various fields, including the adoption of educational technologies (Venkatesh et al., 2024), digital health (Sanz-Matesanz et al., 2023), and video games (Newham, 2023). In this study, the concept of UTAUT is applied to the adoption and use of live streaming technology in esports. This model aids in understanding the impact of factors such as the usefulness of platforms in improving skills, ease of interaction with content, the influence of gaming community opinions, and the availability of proper infrastructure, thereby providing a framework for analyzing gamer and viewer behavior.

The Uses and Gratifications Theory (UGT), which originates from communication and media studies, examines the reasons and motivations behind users' media and technology usage (Xu et al., 2025). This theory assumes that users actively and purposefully select media that fulfill specific needs and gratifications. UGT focuses on three main categories of needs: social needs (communication and a sense of belonging to a community), cognitive outcomes (acquiring knowledge, awareness, enjoyment, and entertainment), and emotional needs (enhancing self-concept, identity, reducing stress, and escaping from the routine) (Wei et al., 2024; Xu et al., 2025). In the context of live streaming of video games, UGT analyzes users' motivations for watching live content, including enjoying gameplay, interacting with streamers and other viewers, learning new techniques in gaming, and creating a sense of belonging to gaming communities. As an effective tool for understanding user behavior in digital environments, UGT has been applied in studies related to new media and live streaming.

The integration of the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Uses and Gratifications Theory (UGT) provides a comprehensive framework for analyzing user behavior in the adoption and use of new media technologies, such as live streaming of video games (Wei et al., 2024). This combination allows researchers to explore the relationships between the variables in a secure theoretical context. In this integrated model, the functional and structural variables of UTAUT, such as performance expectancy (the perceived usefulness of the technology), effort expectancy (ease of use), and social influence, are combined with the psychological and hedonic motivations of UGT, including social interaction, cognitive needs, and emotional needs (Thongsri et al., 2018; Wei et al., 2024). This integration demonstrates that the adoption of technology is influenced not only by functional and infrastructural factors but also by individual satisfaction motives and social interactions. Particularly in live streaming, users are attracted by both the ease of use and direct interaction with the content, while also showing more active engagement due to pleasurable experiences and the reinforcement of their gamer identity. This integrated model serves as an effective tool for a more comprehensive understanding of user behavior and the design of better interactive technologies.

Thongsri et al. (2018) integrated the UTAUT and UGT theories to examine the factors influencing the intention to use mobile learning (m-learning) by language learners in developing countries, such as Thailand. Their results showed that performance expectancy, cognitive needs, emotional needs, and social needs significantly impacted the intention to use m-learning. Moreover, the study highlighted a significant influence of cognitive needs on performance expectancy and social needs on effort expectancy.

Chiu et al. (2024) used UTAUT2 and UGT as theoretical frameworks to investigate the factors determining users' intentions towards fitness YouTube channels. The findings emphasized the importance of understanding user motivations and the role of technology and social media factors in maintaining or increasing followers and viewers for fitness content providers.

Given that live streaming technology has become a key platform in the video game industry and plays a significant role in redefining the social, economic, and cultural interactions of users, the effective adoption and utilization of these platforms remain challenged due to the complexity of interactions between users' functional and psychological factors. The Unified Theory of Acceptance and Use of Technology (UTAUT) emphasizes functional variables such as performance expectancy, effort expectancy, and social influence, while the Uses and Gratifications Theory (UGT) focuses on users' psychological motivations, including entertainment, social interaction, and the enhancement of gaming identity. Although both theoretical frameworks have been separately used in studies related to digital media, there is a significant research gap in integrating these two models for a comprehensive analysis of live streaming user behavior. Specifically, the interaction between users' psychological needs and functional requirements and how these interactions affect the long-term adoption of live streaming platforms by gamers, especially in communities with different cultures and technological infrastructures, has not been thoroughly explored. Therefore, the researchers aim to measure the behavioral intentions of e-sports gamers based on the components of the integrated model (Figure 1) in relation to the adoption and use of live streaming technology.

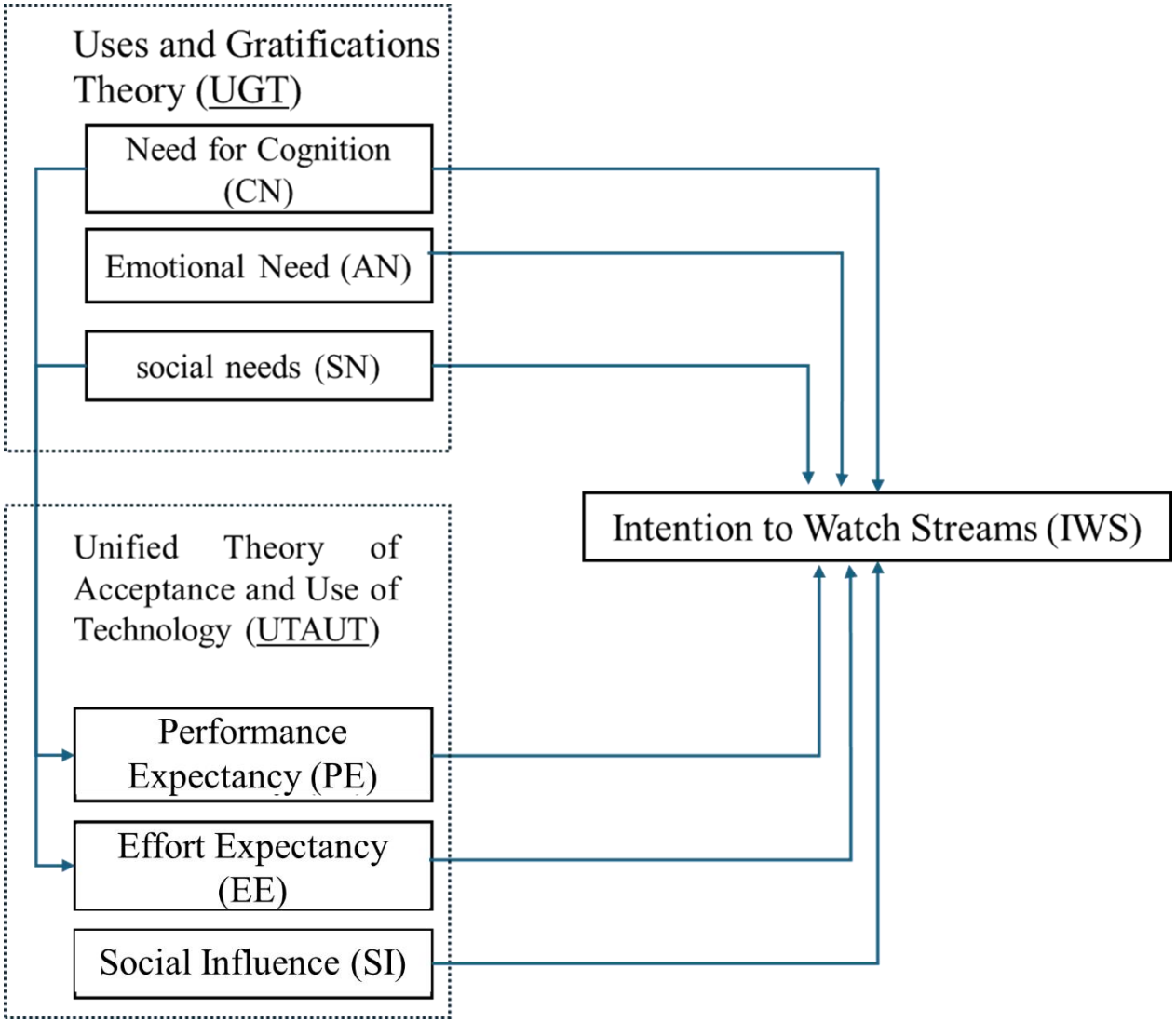

Figure 1. Integrated Unified Theory of Acceptance and Use of Technology (UTAUT) and Uses and Gratifications Theory (UGT) Models

Methodology

The present study, given its applied objective, falls under quantitative research. In terms of data collection, it is a descriptive correlational study conducted in the field. The research population consisted of Iranian esports gamers who were active on live streaming platforms such as Twitch, YouTube, and Facebook and met the criteria for participation in the study. The criteria for participation in this study included individuals who were familiar with live streaming, used well-known platforms such as Twitch, YouTube, and Facebook Gaming, and spent a significant amount of time watching live streams. Specifically, participants had to have prior knowledge of live streaming, as indicated by the question, "How long have you been familiar with live streaming?" They also had to actively follow streams on platforms such as Twitch, YouTube, and Facebook Gaming, as confirmed by the question, "Through which applications or websites do you follow live streams?" Additionally, participants were required to spend a considerable amount of time viewing live streams, assessed by the question, "What is your average weekly live streaming viewing time?" These criteria ensured that only engaged and regular viewers were included in the research sample.

The data collection tool was a standardized questionnaire by Thongsri et al. (2018), which was designed as an integrated combination of the UTAUT and UGT models. The questionnaire included several sections: demographic information (age, gender, and gaming experience), questions related to the UTAUT model variables (performance expectancy, effort expectancy, and social influence), questions related to the UGT model variables (social needs, cognitive needs, and emotional needs), and questions related to behavioral intention to use live streaming, based on a Likert scale ranging from very low (1) to very high (5). The sampling method was non-random and convenience-based.

To determine the sample size for partial least squares (PLS), initially, following the suggestion of (Barclay et al., 1995) and considering the research model, a minimum sample size of 50 to 60 was considered. However, to achieve more reliable responses and due to the unknown population size, Cochran's formula was used to estimate the sample size. For this purpose, 30 questionnaires were first distributed in an accessible sampling among the target population, and the initial variance was calculated. The initial variance was calculated as 0.144, and accordingly, using Cochran's formula, the sample size was estimated to be 221. Considering the possibility of dropouts or non-responses, 225 electronic questionnaires were distributed through Telegram and Instagram channels, as well as in-person visits to esports gaming venues in Tehran, from July 2024 to January 2025. Of these, 223 questionnaires were fully completed and analyzed, while 2 incomplete questionnaires were excluded. Data collection was conducted both electronically and in-person (through manual distribution and collection of questionnaires).

To assess face and content validity, after translating the questionnaire into Persian (to assess translation validity, the translation and back-translation process was conducted based on the approach suggested by Beaton et al. (2000), the questionnaire was then translated back into English after data collection to ensure the preservation of the meaning of the questions. This back-translation (English to Persian) was performed by another translator who had not seen the original Persian version of the questionnaire. Finally, seven faculty members in sports management and marketing were asked to provide their suggestions regarding the questions, questionnaire content, and the alignment of the questions with the research components. After reviewing the suggestions and comments, the final questionnaire was developed. To ensure content validity, the Content Validity Index (CVI) and Content Validity Ratio (CVR) were used. Additionally, Cronbach's alpha was used to assess the reliability of the questionnaires, and after analysis, the Cronbach's alpha for the questionnaires used in the study was found to be above 0.7 (Table 1).

To assess the direct effects of the variables, structural equation modeling (SEM) was employed using the PLS software. Smart PLS4, a structural equation modeling tool, was used for analyzing complex research models, as it is considered suitable for estimating frameworks that incorporate related theories and empirical data.

Table 1. Results of Confirmatory Factor Analysis and Reliability of Questionnaires

Variables	*Questions*	*FL*	*VIF*	*Cronbach's Alpha*	*CR*		*AVE*
					rho-a	*rho-c*	
Need for Cognition (CN)	I use electronic communication devices to learn many things.	0.832	1.49	0.712	0.727	0.837	0.631
	I use virtual spaces to watch content that I am interested in.	0.762	1.49				
	I follow active electronic game streamers on social media.	0.787	1.27				
Emotional Need (AN)	I enjoy talking about electronic games with others.	0.727	1.32	0.704	0.734	0.815	0.527
	I want to show my friends how enthusiastically I follow electronic games.	0.792	1.42				
	Watching electronic games played by streamers excites me.	0.736	1.41				
	I enjoy following electronic gaming content.	0.784	1.21				
Social Need (SN)	I need to be among those who play electronic games.	0.746	2.58	0.703	0.709	0.799	0.573
	Through the content I watch live, I see myself as part of the electronic gaming community.	0.789	2.76				
	My communication with other gamers has improved due to the live streams I watch.	0.824	1.11				
Performance Expectancy (PE)	Watching live streams of electronic games enables me to better understand the game framework.	0.734	1.49	0.753	0.788	0.843	0.575
	Watching live streams of electronic games has increased my productivity in gaming.	0.716	1.37				
	After watching live streams of electronic games, I play the game on my own system.	0.707	1.33				
	I expect to become professional in a field of electronic games.	0.864	1.74				
Effort Expectancy (EE)	I have easy access to live streams of electronic games.	0.80	1.58	0.713	0.754	0.824	0.613
	The process of live streaming is clear and understandable to me.	0.884	1.59				
	Finding streamers who are active on social media is not difficult for me	0.747	1.16				
Social Influence (SI)	My friends and people around me watch live streams of electronic games.	0.845	1.18	0.758	0.859	0.843	0.642
	Among my friends, we enthusiastically talk about the activities of live streamers of electronic games.	0.798	2.73				

	My role model in electronic games is one of the famous streamers whose activities I follow.	0.76	2.65				
Intention to Watch Streams (IWS)	I watch live streams of electronic games because I intend to professionally enter the field of esports in the future.	0.768	1.18	0.769	0.787	0.842	0.570
	I watch live streams of electronic games because I intend to maintain my network with the esports community.	0.74	1.17				
	I intend to use the technological literacy I gain from watching live streams of electronic games to take advantage of this opportunity in the future.	0.760	1.21				
	Watching live streams of electronic games is one of my behavioral goals for learning the technical rules of electronic games.	0.762	1.06				
	My intention for watching live streams of electronic games is to stay updated on my favorite genres.	0.779	1.18				

Results

Based on Table (2), the research findings showed that 35.8% of the participants were female and 64.2% were male. The largest demographic group was the age range of 15 to 18 years (35%). Additionally, 75.8% of the participants had been familiar with live streaming for more than one year. Twitch, with 43%, was the most used application for watching live streams, and on average, 41% of the participants spent one to two hours per day watching live streams.

Table 2. Demographic Information

Gender;	Female	٪35.8
	Male	٪64.2
Age range;	Under 15 years old	21%
	15 to 18 years old	35%
	19 to 22 years old	27%
	23 to 26 years old	12%
	26 to 30 years old	5%
Length of time familiar with live streaming;	One year or less	24.2
	More than one year	75.8
Live Streaming Platforms;	YouTube	27%
	Facebook	21%
	Twitch	43%
	Others	9%

Average daily time spent watching live streams;	Less than one hour	29%
	One to two hours	41%
	Two to three hours	19%
	More than three hours	11%

To analyze the data, a two-step approach was adopted. First, the outer model was used to examine convergent and discriminant validity, followed by the inner model to test the hypotheses (Leguina, 2015). According to Table (1), composite reliability (CR), internal consistency reliability (Cronbach's alpha), convergent validity, and discriminant validity were used to calculate the reliability and validity of the outer model of the research (Hair et al., 2019). Additionally, the VIF (Variance Inflation Factor) index can be calculated for dependent variables influenced by more than one independent variable. The results of these indices showed that the VIF values of the independent variables were below the threshold of 5, indicating no multicollinearity issues in the data. The results demonstrated that the indices in the current study have appropriate validity, with Cronbach's alpha above 0.7, composite reliability above 0.7, and average variance extracted (AVE) greater than 0.5 (Vinzi et al., 2010). Furthermore, the factor loadings of the questions were also appropriate, meaning that the questions effectively explain the dimensions. Therefore, with full confidence, the results related to the final research model can be reported. To assess validity, the criteria of "cross-loading matrix," "Fornell-Larcker criterion," and the "heterotrait-monotrait ratio (HTMT)" were used (Leguina, 2015). When HTMT values are high, issues with discriminant validity arise. Henseler et al. (2015) suggest a threshold value of 0.9 for structural models with conceptually very similar constructs.

Table 3. Heterotrait-Monotrait Ratio (HTMT)

	CN	**EE**	**SN**	**AN**	**PE**	**IWS**	**SI**
SN							
EE	0.318						
CN	0.671	0.378					
AN	0.534	0.54	0.59				
PE	0.285	0.679	0.341	0.822			
IWS	0.747	0.77	0.811	0.765	0.749		
SI	0.126	0.223	0.103	0.198	0.222	0.63	

The results presented in Table 3 showed that the external loadings of the latent variables were higher than the cross-loadings (with other measurements), which is confirmed. Additionally, in the Fornell-Larcker method, the bold diagonal AVE values were greater than the inter-variable correlation coefficients, indicating high discriminant validity (Henseler et al., 2015). Overall, the previous results confirm and support the reliability of the scale, as well as convergent and discriminant validity, which are validated in the outer measurement model of the study. Accordingly, the inner model (Figure 2) can be evaluated to test the study's hypotheses.

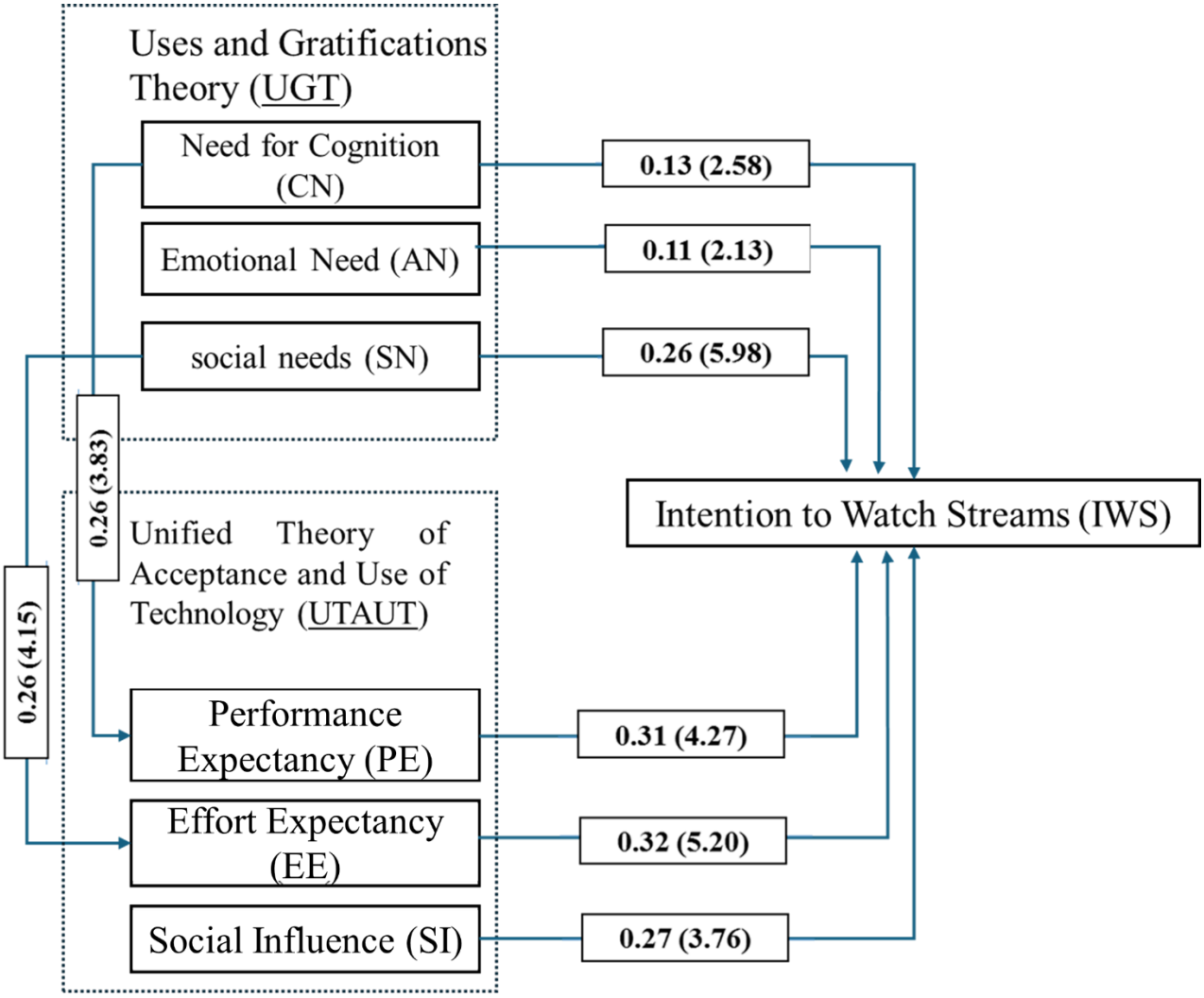

Figure 2. Path Coefficient Values and t-Statistics for Hypotheses Related to the Research Model Paths

In Figure (2) above, it can be observed that the t-statistic values for all paths in the research model are estimated to be greater than 1.96. Additionally, it should be noted that the standardized path coefficients for all hypothesis paths are estimated to be positive. The results indicate that the effect of variables on each other in all paths is significant, direct, and positive.

The first criterion for evaluating the structural model fit is the R^2 coefficients related to the endogenous (dependent) latent variables, which indicate the impact of an endogenous variable. The values of 0.19, 0.33, and 0.67 are considered as thresholds for weak, moderate, and strong effects, respectively. The higher the R^2 values for the endogenous constructs of a model, the better the model fit. The second criterion for evaluating the structural model is Q^2, which determines the predictive power of the model for dependent variables. All endogenous constructs have established the values of 0.02, 0.15, and 0.35 as thresholds for low, moderate, and strong predictive power, respectively. Finally, the SRMR (Standardized Root Mean Square Residual) value should be less than 0.09, and the NFI (Normed Fit Index) value should be greater than 0.9 to ensure a satisfactory model fit with the data (Henseler et al., 2015). The model fit results are presented in Table (4).

Table 4. Coefficient of Determination (R^2), Predictive Relevance (Q^2), and Model Fit (SRMR-NFI)

Variables	R-square	Adjusted R-square	cv-red	cv-com
PE	0.067	0.063	0.034	0.3
EE	0.07	0.066	0.036	0.25
AWS	0.43	0.42	0.28	0.06
SRMR	0.83	**NFI**	n/a	

As evident from Table 4, the R^2 values for the research variables generally fall within the desirable range, indicating a good model fit. Additionally, the Q^2 values of the variables further confirm the appropriate fit of the model.

Discussion and Conclusion

With the rapid growth of digital technologies and the increasing popularity of video games, live streaming has become one of the most important communication and entertainment platforms for gamers. However, a deeper understanding of the factors influencing the adoption and use of these platforms still requires further research. The Unified Theory of Acceptance and Use of Technology (UTAUT) and the Uses and Gratifications Theory (UGT) serve as powerful frameworks for studying user behavior and can be used complementarily to provide a comprehensive analysis of this domain. While UTAUT explains the impact of technology-driven factors such as performance expectancy and effort expectancy on users' behavioral intentions, UGT focuses on users' psychological and social needs, including cognitive, emotional, and social needs. Live streaming, as an interactive medium, provides a platform where users not only utilize it as a source for learning and skill enhancement (cognitive needs) but also embrace it as a space for entertainment and emotional fulfillment (emotional needs) and for interacting with others and feeling a sense of belonging to a community (social needs). This research, by combining the UTAUT and UGT models, aims to examine technology-driven factors while analyzing the role of psychological needs in shaping gamers' behavioral intentions to watch live streams. Such an approach can provide deeper insights and practical strategies for improving the design and management of these platforms.

Cognitive Needs

Cognitive needs have a positive and significant impact on gamers' performance expectancy from watching live streams, as this type of content provides an excellent opportunity for learning and improving gaming skills. For example, gamers who follow "League of Legends" often watch live streams of professional players like "Faker" to learn new in-game strategies and team techniques. Users with high cognitive needs are more likely to adopt and use live streams that meet their expectations. Cognitive needs directly influence performance expectancy, as users with high cognitive needs select content that enhances their knowledge or skills. For instance, in live "Dota 2" tournaments, professional streamers not only play the game but also explain real-time decision-making, item combinations, and advanced strategies, which viewers use to improve their own gameplay. According to the research findings, live streaming successfully met cognitive needs, leading users to have higher performance expectations. In this study, cognitive needs referred to users' desire to acquire information, learn, and better understand their environment. This need in live streaming included aspects such as:

1. Learning game techniques and strategies. For example, watching "Fortnite" live streams helps users learn strategic skills or proper positioning in the game.
2. Receiving information about new games or related events. For instance, gamers who follow "Valorant" live streams gain insights into new updates, character changes, and common tactics.
3. Better understanding professional gamers' performance. For example, watching live streams of "CS:GO Major" tournaments showcases how professional players demonstrate teamwork and effective communication.

In this regard, Leung (2020) demonstrated in their research that cognitive needs are a primary motivation for using educational content and online streams. Additionally, Sjöblom and Hamari (2017) identified cognitive needs as one of the main reasons gamers watch live streams for learning and skill enhancement. Performance expectancy refers to users' beliefs about the usefulness of a technology or content in achieving their goals. In the context of live streaming, these expectations include improving gaming skills (e.g., watching educational streams that explain advanced tactics in

"PUBG"), increasing efficiency in competitive games (e.g., professional streams in "Overwatch" helping users choose suitable heroes for their team), and gaining new knowledge about games (e.g., learning new mechanics in "Minecraft" through live streams). Venkatesh et al. (2024) showed in the UTAUT model that performance expectancy is one of the strongest predictors of technology adoption. These results fully apply to esports live streaming, as users are often drawn to this content due to high performance expectations and useful learning experiences.

Cognitive Needs and Behavioral Intention

Cognitive needs, including learning new skills, receiving up-to-date information, improving individual abilities, and social interaction, have a positive and significant impact on gamers' intention to watch live streams. Live streams, by providing educational, analytical, and interactive content, create an ideal platform to address these needs. Live streaming allows gamers to learn advanced strategies and techniques from professional players. This learning not only improves skills but also boosts users' confidence. For example, in "League of Legends," streamers often teach team management, optimal character usage, and advanced tactics. Gamers aiming to compete at higher levels utilize these streams to enhance their performance. The findings showed that one of the main reasons gamers watch live streams is to stay informed about game changes, especially in competitive games. For instance, in "Valorant," streamers provide analyses of changes in character abilities and weapons. Gamers seeking to quickly adapt to these changes welcomed this type of content. Additionally, live streams allow gamers to observe and practice professional techniques, enhancing their in-game abilities. For example, in "Fortnite," streamers teach advanced techniques like quick building and precise shooting. This content helps gamers perform better in competitive matches. According to Wohn and Freeman (2020), live interaction with streamers and other viewers provides a rich and educational experience for users. Chen et al. (2024) emphasized that live interaction and feedback from streamers positively impact users' learning and experience. For example, in "Dota 2," streamers often analyze their mistakes and explain how to avoid them. These analyses help gamers learn from others' experiences and improve their performance. On platforms like Twitch, gamers interact with other viewers and streamers in live chats, learning new tips about games and strategies. These interactions enhance users' understanding and knowledge. This finding aligns with Scheibe et al. (2022), who showed that social interaction in live streams creates opportunities for knowledge and experience exchange.

Emotional Needs

Emotional needs have a positive and significant impact on gamers' behavioral intention to watch live streams. This relationship is reinforced by fulfilling needs such as excitement, stress reduction, social belonging, and entertainment. According to UGT, users seek content that satisfies their psychological needs. This theory suggests that emotional needs, such as enjoying thrilling experiences or receiving social support, are key factors in attracting users to digital platforms. Additionally, UTAUT also highlights the role of enjoyment expectancy in technology adoption, indicating that emotional needs can directly influence users' behavioral intentions (Venkatesh, 2022). One of the most important aspects of live streaming is providing exciting and competitive content. Users experience excitement and enjoyment by watching live competitions and streamers' real-time reactions. For example, in "CS:GO," watching professional tournaments with fast-paced actions and precise strategies exhilarates audiences. This emotional experience strengthens users' intention to watch again. Live streams also offer opportunities to reduce daily stress and create relaxation. For instance, calming games like "Animal Crossing" provide streams with appealing graphics and non-competitive content, helping users reduce stress. Research by Leung (2020) showed that watching live game streams, due to the excitement and entertainment they provide, is one of the main motivations for users to engage with this content. This thrilling experience can reinforce users' intention to watch live streams repeatedly. Live streaming platforms enable real-time interaction with streamers and other viewers. These interactions foster a sense of belonging to a community and provide social support. Chen et al.,(2024) demonstrated that social interaction and a sense of belonging to streamer communities are key factors influencing users' behavioral intention to watch live streams. These social interactions can fulfill users' emotional needs and increase their

intention to continue watching live streams. Many streamers, by providing humorous and friendly content, meet users' needs for happiness and entertainment. For example, popular streamers who play "Fortnite" with jokes and humorous reactions attract large audiences and fulfill their emotional needs.

Social Needs

Gamers' social needs, including interaction with others and a sense of belonging to a community, positively influence their perception of the ease of using live streaming platforms. Live streaming platforms can meet these needs by enhancing interactive features and creating active user communities, thereby providing a better user experience. In this way, platforms like Twitch, by fostering a social environment and facilitating learning processes, help promote user adoption and continued use. In "Valorant" live streams, players can share tips about shooting tactics and team coordination through live chats. Especially during new updates, users turn to live streams to learn about game changes. "Minecraft" live streams often include creative projects and tutorials on game mechanics. Gamers can provide suggestions about gameplay or solving challenges while watching streams. In "League of Legends," the live chat system allows users to exchange ideas with other gamers without leaving the stream. This feature simplifies the user experience and makes accessing information and strategies easier, as users can easily ask streamers about improving their gameplay or tactical decisions. According to Venkatesh et al. (2024), social interactions in live streams not only increase user satisfaction but also enhance users' perception of the ease of using platforms. This encourages users to watch live streams and participate in online communities. Therefore, live streaming platforms, by providing an interactive space, not only enhance users' social experience but also make users expect greater ease of use from these platforms.

Social Needs and Behavioral Intention

The findings showed that social needs have a positive and significant impact on gamers' behavioral intention to watch live streams. The role of social needs in user behavior, especially among gamers on live streaming platforms, has attracted significant attention from researchers. Social needs refer to humans' need for connection and interaction with others, which are well met through social and live streaming platforms (Xu et al., 2025). These needs typically include interacting with others, feeling a sense of belonging to a community, and sharing experiences with peers. As a result, gamers tend to use platforms like Twitch, YouTube Gaming, and Facebook Gaming, which have active social environments and allow them to connect with others, share experiences, and benefit from others' feedback (Venkatesh et al., 2024). According to technology acceptance and consumer behavior theories (such as UTAUT), social needs are a key factor in the decision to adopt new technologies. These theories suggest that when platforms meet users' social needs, users respond positively and are more likely to have a positive behavioral intention to use them (Xu et al., 2025). Therefore, in the context of live streaming, when gamers' social needs, such as social interactions, a sense of belonging to online communities, and shared gaming experiences, are met, their behavioral intention to watch live streams is likely to increase. For example, on Facebook Gaming, multiplayer games like "PUBG" and "Valorant" are popular, allowing gamers not only to enjoy watching streams but also to interact with other gamers. These interactions, whether through live chats or social groups, help strengthen social relationships and motivate gamers to continue watching live streams for more social experiences (Xu et al., 2025).

Performance Expectancy

Performance expectancy, as a key variable in watching live streams, has a direct, positive, and significant impact on gamers' behavioral intention to watch live streams. When gamers evaluate content as a useful tool for learning and improving their skills, they are more likely to show a positive behavioral intention to watch these streams. Platforms that provide practical and valuable content can enhance gamers' performance expectancy and increase their engagement with live streams. Performance expectancy in live streaming refers to how users assess the functional value or usefulness of watching live streams in achieving their goals. Performance expectancy includes factors such as learning new strategies, improving gaming skills, staying informed about updates,

and creating an interactive experience. For example, in "PUBG," gamers seek tips about strategic locations, optimal movement paths on the map, and the use of specific weapons. Streamers often share their experiences from live matches with viewers, which increases performance expectancy from watching live streams (Sjöblom & Hamari, 2017).

Social Influence

Social influence, as one of the main factors affecting gamers' behavioral intention, plays a significant role in enhancing user interaction with live streaming platforms. When gamers feel that important people in their lives or online communities endorse a particular behavior, the likelihood of adopting and using that behavior increases. Live streaming platforms can enhance this influence by strengthening social features such as live chats, user groups, and content-sharing tools. For example, in "Warzone," players often watch live streams of popular streamers who have achieved success in competitive tournaments to learn from them. This behavior is often reinforced by social recommendations from friends or teammates. Ohno (2022) found that the opinions and recommendations of other gamers in online communities play a significant role in encouraging users to watch live streams. Additionally, Xu et al. (2025) showed that social support and positive interactions on live streaming platforms have a strong impact on user behavior. The large "Fortnite" community on platforms like Twitch significantly influences gamers' behavioral intention. When gamers see their friends regularly watching live streams or using techniques learned from these streams, they are more likely to be encouraged to watch this content themselves.

Effort Expectancy

Effort expectancy, a key variable in technology acceptance models such as TAM and UTAUT, has a positive and significant impact on gamers' behavioral intention to watch live streams of esports. This concept refers to the perceived ease of using a technology or service (Ohno, 2022). Research has shown that the simpler and less complex users perceive a system to be, the more likely they are to adopt and use it (Venkatesh et al., 2024). In the context of live streaming, effort expectancy plays a key role in strengthening gamers' behavioral intention. The findings showed that user-friendly interface design, easy access to streaming content, and effective interactive features can positively impact users' behavioral intention. Xu et al. (2025) found that the simplicity of user interfaces on platforms like Twitch and YouTube Gaming leads to positive experiences and increases users' willingness to use these platforms. Live streaming platforms designed for "Warzone," including mobile live streaming and simple interfaces for interacting with streamers, enhance effort expectancy. These features are highly appealing to gamers seeking quick and hassle-free use of the platform.

Conclusion

The findings from data analysis indicate that cognitive, emotional, and social needs play a key role in shaping gamers' expectations and behavioral intentions to watch live streams. Cognitive needs, related to seeking knowledge and learning new skills, have a significant impact on performance expectancy and gamers' behavioral intention. Live streaming platforms, by providing educational content and professional streamers' experiences, have been able to meet gamers' performance expectations and strengthen their motivation to use these services. Similarly, gamers' emotional needs, including enjoyment, entertainment, and stress reduction, are influential factors in their behavioral intention, highlighting the importance of providing entertaining and emotional content in these spaces. On the other hand, gamers' social needs, such as interaction with others and a sense of belonging to digital communities, particularly through tools that facilitate interaction, have a positive and significant impact on effort expectancy and their behavioral intention. Additionally, psychological factors such as performance expectancy and ease of use, as core concepts in technology acceptance, directly influence gamers' behavioral intention. Successful live streaming platforms, by simplifying access and interaction processes, create a more favorable user experience and increase users' intention to use them. Finally, social influence also plays a significant role in influencing users' behavioral intention, as social approval and interaction with friends and communities provide strong motivation to watch live streams. These findings underscore the

necessity of designing services and content that comprehensively address users' cognitive, emotional, and social needs while optimizing platform usage processes.

Practical Implications

Despite the valuable findings of this study, several key limitations should be considered when interpreting the results. First, the data were collected through a self-reported questionnaire, which may have been influenced by individual biases or the tendency to provide socially desirable responses. Therefore, it is recommended that future studies employ a wider range of data collection methods, such as field observations or in-depth interviews, to mitigate the impact of these biases. Second, the research population consisted solely of Iranian users active on electronic game live streaming platforms. This limitation reduces the generalizability of the findings to other cultural contexts or user groups. Hence, it is suggested that future research be conducted in other countries with diverse cultural backgrounds to identify differences and similarities in user behavior. Third, the cross-sectional nature of the study limits the ability to examine causal relationships and temporal dynamics in user behavior. To address this limitation, it is recommended that longitudinal designs be employed in future studies to track changes in user behavior and motivations over time. Additionally, the difficulty in accessing female users and the insufficient sample size in this subgroup limited the ability to conduct meaningful gender-based comparative analyses. It is suggested that future research focus on improving access to and engagement with women in this field, particularly given the increasing participation of women in esports.

Ethical Considerations

Compliance with ethical guidelines: Ethical points have been observed.

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References

Bányai, F., Griffiths, M. D., Király, O., & Demetrovics, Z. (2019). The psychology of esports: A systematic literature review. *Journal of gambling studies, 35*(2), 351–365. https://doi.org/10.1007/s10899-018-9763-1

Barclay, D., Higgins, C., & Thompson, R. (1995). *The partial least squares (PLS) approach to casual modeling: personal computer adoption ans use as an Illustration*. https://doi.org/10.1016/j.procs.2015.02.138

Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine, 25*(24), 3186-3191. https://doi.org/10.1097/00007632-200012150-00014

Brauer, C., Hallmann, K., & Zehrer, A. (2024). Segmenting e-sports players: Consumer profiles of generation Z e-sports enthusiasts. *Journal of Digital & Social Media Marketing, 12*(1), 65-80. https://doi.org/10.69554/RWZK2056

Carras, M. C., Kalbarczyk, A., Wells, K., Banks, J., Kowert, R., Gillespie, C., & Latkin, C. (2018). Connection, meaning, and distraction: A qualitative study of video game play and mental health recovery in veterans treated for mental and/or behavioral health problems. *Social Science & Medicine, 216*, 124-132. https://doi.org/10.1016/j.socscimed.2018.08.044

Chen, X., Wang, C., & Zheng, H. (2024). Turning Livestreaming Viewers into Game Players: Exploring the Impact of Game Streamers on Viewer Video Game Engagement Based on an Extended Means-End Chain Framework. *International Journal of Human–Computer Interaction, 41*(9), 1-15. https://doi.org/10.1080/10447318.2024.2365026

Chi diac, D., & Bowden, J. (2023). When media matters: The role of media richness and naturalness on purchase intentions within influencer marketing. *Journal of Strategic Marketing, 31*(6), 1178–1198. https://doi.org/10.1080/0965254X.2022.2062037

Chiu, W., Won, D., & Bae, J.-s. (2024). Symmetric and asymmetric modeling to examine individuals' intention to follow fitness YouTube channels: an integrated perspective of the UTAUT2 and UGT. *International Journal of Sports Marketing and Sponsorship*. *25*(4), 777-801. https://doi.org/10.1108/IJSMS-12-2023-0242

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review, 31*(1), 2-24. . https://doi.org/10.1108/EBR-11-2018-0203

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science, 43*, 115-135. https://doi.org/10.1007/s11747-014-0403-8

Horbiński, T., & Zagata, K. (2023). The Cognitive Skills in Interpretation of Spatial Situations in the League of Legends game. *Simulation & Gaming, 54*(3), 322-347. https://doi.org/10.1177/10468781231165616

Jang, W., & Byon, K. K. (2020). Antecedents and consequence associated with esports gameplay. *International Journal of Sports Marketing and Sponsorship, 21*(1), 1-22. https://doi.org/10.1108/IJSMS-01-2019-0013

Johnson, M. R., & Woodcock, J. (2019). The impacts of live streaming and Twitch. tv on the video game industry. *Media, Culture & Society, 41*(5), 670-688. https://doi.org/10.1177/016344371881836

Kim, H. J., Kwak, W. Y., Min, J. P., Lee, J. Y., Yoon, T. H., Kim, H. D., Shin, C. Y., Kim, M. K., Choi, S. H., & Kim, H. S. (2011). Discovery of DA-1229: a potent, long acting dipeptidyl peptidase-4 inhibitor for the treatment of type 2 diabetes. *Bioorganic & medicinal chemistry letters, 21*(12), 3809-3812. https://doi.org/10.1016/j.bmcl.2011.04.029

Lessel, P., & Altmeyer, M. (2019). Understanding and empowering interactions between streamer and audience in game live streams. *Interactions, 27*(1), 40-45. https://doi.org/10.1145/3371299

Leung, L. (2020). Exploring the relationship between smartphone activities, flow experience, and boredom in free time. *Computers in Human Behavior, 38* (2), 220-221. https://doi.org/10.1080/1743727X.2015.1005806

Newham, T. (2023). *Esports events: classification and impact of business model of video games on size* Manchester Metropolitan University].

Ohno, S. (2022). The link between battle royale games and aggressive feelings, addiction, and sense of underachievement: Exploring esports-related genres. *International Journal of Mental Health and Addiction, 20*(3), 1873-1881. https://doi.org/10.1007/s11469-021-00488-0

Sanz-Matesanz, M., Gea-García, G. M., & Martínez-Aranda, L. M. (2023). Physical and psychological factors related to player's health and performance in esports: A scoping review. *Computers in Human Behavior, 143*, 107698. https://doi.org/10.1016/j.chb.2023.107698

Scheibe, K., Fietkiewicz, K. J., & Stock, W. G. (2016). Information behavior on social live streaming services. *Journal of Information Science Theory and Practice, 4*(2), 6-20. https://doi.org/10.1633/JISTaP.2016.4.2.1

Scheibe, K., Zimmer, F., Fietkiewicz, K., & Stock, W. (2022). Interpersonal relations and social actions on live streaming services. A systematic review on cyber-social relations. *Journal of Information Science Theory and Practice 10*(3):15-23. https://doi.org/10.24251/HICSS.2022.410

Schubert, M., Eing, F., & Könecke, T. (2022). Perceptions of professional esports players on performance-enhancing substances. *Performance Enhancement & Health, 10*(4), 100236. https://doi.org/10.1016/j.peh.2024.100290

Seiler, A., Klaas, V., Tröster, G., & Fagundes, C. P. (2017). eHealth and mHealth interventions in the treatment of fatigued cancer survivors: a systematic review and meta-analysis. *Psycho-oncology, 26*(9), 1239-1253. https://doi.org/10.1002/pon.4489

Sjöblom, M., & Hamari, J. (2017). Why do people watch others play video games? An empirical study on the motivations of Twitch users. *Computers in Human Behavior, 75,* 985-996. https://doi.org/10.1016/j.chb.2016.10.019

Soltani, P., & Morice, A. H. (2020). Augmented reality tools for sports education and training. *Computers & Education, 155,* 103923. https://doi.org/10.1016/j.compedu.2020.103923

Tai, Y., Yang, J., & Liu, X. (2017). Image super-resolution via deep recursive residual network. Proceedings of the IEEE conference on computer vision and pattern recognition (CVPR), July *21–26,* 2017, Honolulu, USA. https://doi.org/10.1109/CVPR.2017.298

Thongsri, N., Shen, L., Bao, Y., & Alharbi, I. M. (2018). Integrating UTAUT and UGT to explain behavioural intention to use M-learning: A developing country's perspective. *Journal of Systems and Information Technology, 20*(3), 278-297. https://doi.org/10.1108/jsit-11-2017-0107

Tian, Y., & Frank, B. (2024). Optimizing live streaming features to enhance customer immersion and engagement: A comparative study of live streaming genres in China. *Journal of Retailing and Consumer Services, 81,* 103974. https://doi.org/10.1016/j.jretconser.2024.103974

Törhönen, M., Sjöblom, M., Hassan, L., & Hamari, J. (2020). Fame and fortune, or just fun? A study on why people create content on video platforms. *Internet Research, 30*(1), 165-190. https://doi.org/10.1108/intr-06-2018-0270

Trotter, M. G., Coulter, T. J., Davis, P. A., Poulus, D. R., & Polman, R. (2020). The association between esports participation, health and physical activity behaviour. *International journal of environmental research and public health, 17*(19), 7329. https://doi.org/10.3390/ijerph17197329

Venkatesh, V. (2022). Adoption and use of AI tools: a research agenda grounded in UTAUT. *Annals of Operations Research, 308*(1), 641-652. https://doi.org/10.1007/s10479-020-03918-9

Venkatesh, V., Raman, R., & Cruz-Jesus, F. (2024). AI and emerging technology adoption: a research agenda for operations management. *International Journal of Production Research, 62*(15), 5367-5377. https://doi.org/10.1080/00207543.2023.2192309

Vinzi, V. E., Trinchera, L., & Amato, S. (2010). PLS path modeling: from foundations to recent developments and open issues for model assessment and improvement. *Handbook of partial least squares: Concepts, methods and applications*, 47-82. (pp. 47–82). *Springer*. https://doi.org/10.1007/978-3-540-32827-8_3

Wallinheimo, A.-S., Hosein, A., Barrie, D., Chernyavskiy, A., Agafonova, I., & Williams, P. (2023). How Online Gaming Could Enhance Your Career Prospects. *Simulation & Gaming, 54*(1), 28-44. https://doi.org/10.1177/10468781221137361

Wei, D., Chan, L.-S., Du, N., Hu, X., & Huang, Y.-T. (2024). Gratification and its associations with problematic internet use: A systematic review and meta-analysis using Use and Gratification theory. *Addictive Behaviors, 60*(1), 127-151. https://doi.org/10.1111/j.1460-2466.2009.01469.x

Wohn, D. Y., & Freeman, G. (2020). Live streaming, playing, and money spending behaviors in eSports. *Games and Culture, 15*(1), 73-88. https://doi.org/10.1177/1555412019859184

Xu, X.-Y., Tayyab, S. M. U., Jia, Q., & Huang, A. H. (2025). A multi-model approach for the extension of the use and gratification theory in video game streaming. *Information Technology & People, 38*(1), 137-179. https://doi.org/10.1108/ITP-08-2021-0628

Zhang, T., Li, B., & Hua, N. (2025). Live-streaming tourism: Model development and validations. *Journal of Travel Research, 64*(3), 559-575. https://doi.org/10.1177/00472875231223133