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Esports Spectating Motives and Streaming Consumption: Moderating Effect of Game Genres and Live-Streaming Types

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Abstract: Previous studies have paid little attention to spectators' consumption behaviors and motives for watching different types of esports live-streaming and game genres. This study, therefore, investigates spectator motives and consumption behaviors based on the interaction effects of live-streaming types and game genres. Convenience sampling was conducted to collect 312 responses from Taiwanese individuals via the Professional Technology Temple. The measurement tools include the motivation scale for sport consumption, esports streaming consumption behaviors, and two moderators (i.e., game genres and live-streaming types). The moderating effects were examined using the PROCESS macro. The results showed that esports spectating motives and consumption behaviors are determined by different types of live-streaming and game genres. A matrix of esports spectator segments was developed to illustrate the findings and managerial implications. The study's findings broaden our understanding of esports consumption behaviors and can contribute to the fast-growing esports marketing literature. In addition, the results are expected to help practitioners better segment their consumer groups to develop more tailored marketing programs.

Keywords: esports; spectator motives; game genres; live-streaming; esports consumption behavior

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1. Introduction

Esports have developed rapidly in the past decade, and esports competitions have become increasingly popular, with top-level tournaments attracting similarly sized audiences to those of traditional sports events. The famous esports game, League of Legends (LoL), attracted more than 200 million viewers for its 2018 World Championships [1]. The dramatic growth of esports consumers and markets has also attracted large corporate sponsors, such as Microsoft, Samsung, and Red Bull. Thus, in 2020, the global esports industry generated approximately U.S. \$1.1 billion and attracted approximately 495 million viewers [2]. Recently, the COVID-19 pandemic has led to the postponement, suspension, and cancellation of live sporting events in the United States. While this unprecedented period disrupted sport, it has facilitated consumers' engagements associated with physical culture (e.g., virtual consumption such as esports games) due to strict public health policy such as lockdowns and social isolation [3,4].

Several studies have examined the growth of esports media consumption, e.g., [5,6]. Although many famous esports tournaments have been broadcast on streaming platforms, such as Twitch, streamers' live-streaming has drawn attention as a new type of medium [7]. This unique consumption activity has become the popular culture among

over 495 million esports audience and 223 million esports enthusiastic consumers in the world [2,8]. People have varying motives to watch different types of game genres and live-streaming. Investigating the relationship between video game genres, streaming content types, and the gratification of live-streaming viewers, Sjöblom et al. [6] found that each video game genre and live-streaming type significantly influenced consumers' gratification. For example, spectators with affective and tension release motives tended to watch action, collectible card games (CCG), and multiplayer online battle arena (MOBA) game genres. However, there might be an interaction effect between game genres and streaming types. Specifically, as an example of the CCG genre, *Hearthstone*, a turn-based card game between two opponents, is a successful esports game. *Hearthstone* is updated to include new content, adding more than 130 new cards every four months. *Hearthstone* streamers promote the upcoming content and strategy competition tournaments to help players build a better deck using the new cards. Thus, *Hearthstone* esports consumers might prefer to communicate with streamers and listen to their explanations.

By contrast, *LoL* is one of the most successful MOBA genre esports games. Competitive players of *LoL* might want to understand the in-game characters' abilities more deeply, control the movement better, and acquire more powerful items earlier than their opponents. Unlike a turn-based card game between two opponents, five (multiple) opponents use their abilities and move continuously as a team in real-time to win the game. Thus, fans of MOBA esports might prefer to watch streamers' actual gameplay in a competitive situation. The interaction effect between game genres and streaming types might exist in spectator motives regarding live-streaming consumption.

This study aims to answer the following research question: How do esports spectator consumption motives influence their consumption behaviors based on the interaction effects of different live-streaming types and game genres? Previous esports studies have mostly explored spectator motives or esports live-streaming consumption separately [9,10]. Although Jang and Byon [11] identified the role of the esports game genre as a moderator, their study was delimited by examining the moderating role of the game genre on the relationship between an esports consumer's beliefs about esports gameplay and esports gameplay intention. As such, there is still a need to explore the moderating effects of both esports game genre and live-streaming variables on the relationship between motive and consumption behavior. Therefore, this study incorporates the motivation scale for esports consumption [9] and the uses and gratification theory (UGT), which have been widely used in studying esports spectator motives to examine why people watch esports via live-streaming, e.g., [6,10]. The UGT is considered appropriate because it helps to understand why and how people consume media to satisfy different needs from the individuals' perspectives.

2. Theoretical Background and Hypothesis Development

2.1. Growth of Esports Market

Esports are "a form of sports where electronic systems facilitate the primary aspects of the sports" [9] (p. 211), which typically take the form of organized video game competitions. These esports events involving predominantly professional gamers are receiving increased mainstream media recognition as sports [12] and popularizing a competitive esports game community worldwide, especially among teenagers and emerging adults. The number of viewers, large competition tournaments, and esports' prize pools have grown in the past decade. Specifically, the revenue was predicted to be over \$900 million in 2018, \$1.1 billion in 2019, and \$1.65 billion in 2021 [13,14]. In 2019, *LoL* winnings accounted for more than \$2,225,000 in the 2019 world championships prize pools, and the International 2019 *Dota 2* tournament offered the highest prize money of \$34,308,060 in a single tournament [1]. In the same year, 1.6 billion people were aware what esports was, and it was 300 million more than in 2017 [14]. Additionally, the *Fortnite* World Cup 2019 Final attracted more than two million live online viewers [15], and 14.41

million hours of the finals were streamed across the official Fortnite channels on Twitch and YouTube [16]. Hamari and Sjöblom [9] claimed that people increasingly watch esports gameplay via live-streaming because of the high level of communication in a live stream. Compared with traditional broadcasting of esports events, it is easier for viewers to communicate and engage with professional esports players or streamers through their personal channels.

2.2. Esports Spectators' Motives

Understanding spectators' motives is essential because these motives can predict behavioral outcomes, such as the frequency of spectating a competition [9]. Esports live-streaming platforms have become a rapidly growing form of new media and a major driving force behind the continued expansion of the esports industry [17]. Existing esports research has centered on esports consumption, focusing on playing and spectating, with findings showing that esports gameplay consumption commonly leads consumers to watch esports via online media [5]. Previous studies have found that the motives for watching live-streaming include learning gameplay strategies, escapism, acquiring knowledge about the games being played, the novelty of new players and teams, and athlete aggressiveness [9]. As esports viewers are eager to host more events in more places, understanding esports audiences' motives can promote esports marketing and improve the audience's experience [18]. Existing research has adapted spectator motives from established sports consumption motive scales, specifically, the motivation scale for sport consumption (MSSC), which is used to measure the motives of sports spectators [19,20]. The MSSC measures vicarious achievements, aesthetics of sport, drama of sport, watching sports as a means to escape everyday life, knowledge acquisition related to the sport, admiring the athlete's skills, social interaction with other spectators, physical attractiveness of the athletes, novelty of new players and teams, and enjoyment of aggression and aggressive behaviors exhibited by athletes. Based on its wide use in sport and esports studies [9], the MSSC is considered appropriate for use in this study. In the context of esports, previous studies have revealed significant connections between the spectator motives of vicarious achievement, aesthetics, escape, acquisition of knowledge, novelty, and enjoyment of aggression and spectators' consumption behavior [9,18].

The UGT approach has evolved to identify how individuals use a communication medium. Previous studies have applied UGT to explore online shopping motives [9,10], examine esports spectating motives [9], and explain why people choose different types of media consumption, such as online games, Facebook, and video streaming [21]. UGT's functional approach helps us to understand how different forms of media engagement relate to the fulfillment of various psychological needs. Thus, the UGT provides a framework for understanding consumer choices and roles in media engagement as behaviors aimed at fulfilling individual psychological needs.

2.3. Esports Live-Streaming Consumption

Originally a niche for gaming, live-streaming has evolved into a platform social media trend [10]. Watching esports via live-streaming has increased in popularity [22], as spectators are not only eager to see the content that a particular streaming medium can provide but also attracted to winning. If the streamer wins in the game, spectators tend to watch more on the streaming platform [23]. Twitch is one of the leading live-streaming platforms, with more than 2 million live-streamers [24]. Facebook Live video and YouTube's Gaming platform both allow people to stream their gaming to an audience. Live-streaming on mobile platforms has also become more popular recently. Social activity is the main motive for people to watch live streams [17]. Social motives, such as meeting new people, having social interactions, and being part of a community, are essential for live-streaming viewers because they enable them to watch live gameplay while interacting with the live stream and other viewers [9,10]. Hamilton et al. [22] claimed that Twitch chat is an integral component of its streams, allowing viewers to

formulate and maintain a sense of openness as well as a playful experience of social association. Similar to traditional sports announcers, esports streamers are often expected to provide continuous reviews of the game and interact with the audience through exaggerated emotional responses to the gameplay [17]. Chen and Lin [25] found that entertainment effects are another motive for watching a live stream. Thus, nowadays, the most popular esports streamers are full-time streamers or retired professional players (e.g., Ninja, Shroud).

Previous studies have examined the relationship between esports spectator motives and esports consumption behaviors (e.g., subscription, time spent, donations, etc.), e.g., [10,21]. The findings have largely shown a positive linear relationship between esports spectator motives and esports consumption behaviors. However, not all consumption behaviors are affected by the same motives. For instance, Sjöblom and Hamari [21] used UGT to examine the relationship between five types of motive (i.e., affective, cognitive, personal integrative, social integrative, and tension release) and four types of usage (i.e., hours watched, streamers watched, streamers followed, and subscription). For the hours and streamers watched, all five motive types were found to be salient, but personal integrative motive showed a negatively significant relationship. Additionally, affective, personal integrative, and social integrative motives significantly influenced the streamers followed. For subscription, only social integrative was found as a salient motive [21]. As such, the current study seeks to capture esports live-streaming engagement as consumption in terms of three factors: (1) time spent live-streaming, (2) channel subscriptions, and (3) amount of money donated. Time spent is assessed by how much time spectators spend on the esports live-streaming platform. According to Anttila [23], the average watching time on Twitch is 106 min per day per viewer. Channel subscriptions involve making direct financial investments to support a streamer's channel. Viewers with subscriptions typically receive a badge next to their name and can use customized emoticons to express their feelings or intended tone [10]. Spectators tend to subscribe to social media mainly to strengthen their contact with the channel community [21]. Some streamers' subscriptions also make it easy for viewers to follow them because they provide a live-streaming schedule and send an alarm when they start their live stream.

The last engagement factor is donations. Donations are different from subscriptions because they do not provide access to content. However, the host is usually grateful to the donor and celebrates their donation in the chat room and/or displays their name as a primary donor or recent donor in the stream [10].

2.4. Game Genres and Live-Streaming Types

In esports live-streaming, a streamer broadcasts gameplay for spectators to watch [23] via a platform. Based on a systematic review of Twitch content, we divided different types of live-streaming into the following categories: casual, let's play, competitive, how to play, review, speed-run, and talk show [6] (Table 1).

Table 1. Live-streaming types.

Live-Streaming Types	Description
Compete	Competitive matchmaking, esports tournament, and matches.
Casual	No strict structure or aim, relatively explorative. Commentary and gameplay may focus and adapt to the discussion forming around the stream.
Let's play	The streamer plays a new esports game. The aim is commonly to simulate the experience the average consumer's experience when starting to play the esports game.
Talk show	Streamers are good game players and great entertainers. The popular streamers who play esports games indicate that engaging with stream chat is the most important to satisfy their viewers. The viewers are not just looking for gameplay but also entertainment with streamers' talking and reaction.
How to play	The streamer plays a game in an instructive/demonstrative manner to teach viewers the strategies and intricacies of the game they are playing.
Reviews	The streamer gives a concise review of a game. Reviews provide an analytical and sometimes also critical approach to the game.
Speed-run	Streamers who play popular esports games not only play well but also entertain their viewers. Thus, streamers make speed-run content such as the fastest death, first kill, solo win, etc. Sometimes, viewers bet donations for the success of those speed-run missions.

Source: [6] (p. 164).

Esports comprises different types of game genres. Jang and Byon [11] categorized esports game genres into three broad categories based on the common features: imagination, physical enactment, and sports simulation. Another typology of esports based on the traditional video game genres was proposed by Sjöblom et al. [6], who categorized esports game genres into action, CCGs, MOBA, battle royale, and sports. MOBA games are the most frequently viewed on Twitch. Sjöblom et al.'s [6] categorization was adopted because it is streaming-based, and that has advantages in terms of utility in the current study. Table 2 presents the game genres and their descriptions.

Table 2. Game Genres.

Genres	Description	e.g.,
Action	Games that offer intensity of action as the primary attraction.	Super Smash Bros: Ultimate
Multiplayer online battle arena (MOBA)	Players use powerful units known as heroes and are assisted by allied heroes and AI-controlled fighters called creeps. As in role-playing games, players level up their hero and use gold to buy equipment during the mission.	League of Legends, Arena of Valor
Battle royale	Battle royale games involve a large number of players, ranging from dozens to hundreds, who start with minimal equipment and then must eliminate all other opponents while avoiding being trapped outside of a shrinking safe area, with the winner being the last player or team alive.	Apex Legends, PUBG
Collectible card game (CCG)	A kind of strategy card game.	Hearthstone, Shadowverse
Sport simulation	Games based on athletic teams and events.	FIFA

Source: [6] (p. 163).

Examining the relationship between game genres and spectator motives, Sjöblom et al. [6] found that esports spectators have different motives for watching different types of esports. Specifically, spectators with affective and tension release motives watch action, CCGs, and MOBAs; spectators with information motive watch action and MOBAs; spectators with learning motive watch CCGs and MOBAs; spectators with personal integrative motive watch action; and spectators with social integrative motive watch

action and MOBAs. Based on their empirical findings, we expect an interactive effect of different spectating motives and game genres on consumption behaviors.

Concerning the antecedents of esports live-streaming, Sjöblom et al. [6] found that esports live-streaming types are closely related to spectating motives. For instance, spectators with affective and tension release motives watch such live-streaming types as casual, competitive, and let's play; spectators with information motive watch casual and let's play; spectators with learning motive watch casual and competitive; spectators with personal integrative motive watch casual and let's play; and spectators with social integrative motive watch let's play, casual, and competitive.

When observed on Twitch, specific game genres are broadcast through specific live-streaming types. For example, on Twitch, MOBA and CCG are often broadcast via the competitive live-streaming type, battle royale games are often broadcast via the let's play type, and action and sports are often broadcast via the casual type.

In sum, while previous studies have revealed the impacts of game genres and live-streaming types on spectating motives [6,10,21], none have examined the interaction effects of game genres and live-streaming types on the relationship between esports spectating motives and esports consumption behaviors. Thus, it remains unknown how esports spectators' motive influences different consumption behaviors while simultaneously considering different game genres and live-streaming types in the relationships. We thus posit the following hypothesis:

Hypothesis 1. *The interaction of game genres and live-streaming types moderates the relationship between esports spectator motives and esports live-streaming consumptions (donation, subscription, and time spent).*

Hypothesis 1a (H1a). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' vicarious achievement motive and esports live-streaming consumptions.*

Hypothesis 1b (H1b). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' aesthetics motive and esports live-streaming consumptions.*

Hypothesis 1c (H1c). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' drama motive and esports live-streaming consumptions.*

Hypothesis 1d (H1d). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' escape motive and esports live-streaming consumptions.*

Hypothesis 1e (H1e). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' acquisition of knowledge motive and esports live-streaming consumptions.*

Hypothesis 1f (H1f). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' physical skill of the athletes motive and esports live-streaming consumptions.*

Hypothesis 1g (H1g). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' social interaction motive and esports live-streaming consumptions.*

Hypothesis 1h (H1h). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' physical attractiveness motive and esports live-streaming consumptions.*

Hypothesis 1i (H1i). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' enjoyment of aggression motive and esports live-streaming consumptions.*

Hypothesis 1j (H1j). *The interactive effect of game genres and live-streaming types moderates the relationship between esports spectators' novelty motive and esports live-streaming consumptions.*

These hypothesized relationships were summarized into Figure 1.

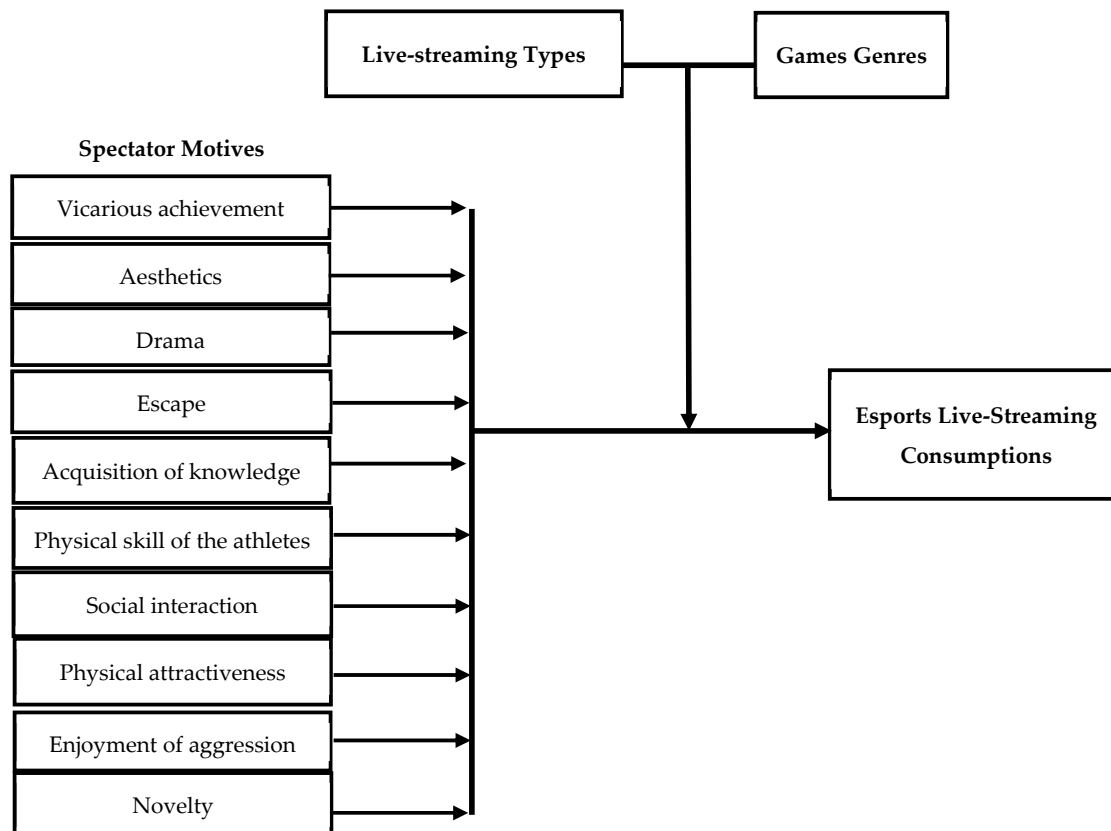


Figure 1. The hypothesized conceptual framework.

3. Method

3.1. Sampling

The data were collected through the Professional Technology Temple (PTT), Facebook, and a professional forum in Taiwan in March 2019. PTT is the largest bulletin board system in Taiwan (like Reddit) and has a function for collecting academic questionnaires. If one wants to collect academic questionnaires on PTT, one must go through a rigorous review and wait for a response, ensuring a quality response. The surveyors offer electric money (i.e., P dollars) to participants as a reward when they complete questionnaires. Overall, the 21–30-year-old age group ($n = 241$, 77.2%) was most prevalent in the responses, and most participants were male ($n = 225$, 72.1%). In terms of education, most participants indicated their education level as college/university degree ($n = 197$, 63.2%). MOBA ($n = 119$, 38.1%) and competitive ($n = 149$, 47.8%) were the most

popular esports game genre and live-streaming type, respectively (Table 3). Although we used convenience sampling, our sample characteristics are similar to those of general esports consumers, such as sex [26,27], age [26], and game genre [28]. Tests (independent samples *t*-test and one-way ANOVA) of differences between groups of sex, age, and education level in esports live-streaming consumptions (donation, subscription, and time spent) were conducted to justify the potential sampling bias. The results showed no differences (sex, $t_{donation} = -0.35$, $t_{subscription} = -1.11$, $t_{time\ spent} = -0.94$; age, $F_{donation} = 0.53$, $F_{subscription} = 2.28$, $F_{time\ spent} = 0.89$; education level, $F_{donation} = 2.16$, $F_{subscription} = 1.99$, $F_{time\ spent} = 1.96$, $p > 0.05$).

Table 3. Demographics ($n = 312$).

Variable	Frequency	%
Sex		
Male	225	72.1
Female	87	27.9
Age group		
21–30 years	241	77.2
31–40 years	41	13.1
41–49 years	18	5.8
50 years and older	12	3.8
Education		
Senior high school	31	9.9
College/university	197	63.2
Graduate and above	84	26.9
Game genres		
Action	49	15.7
MOBA	119	38.1
Battle royale	40	12.8
CCG	31	9.9
Sport	25	8.1
Other	48	15.4
Live-streaming types		
Compete	149	47.8
Casual	86	27.5
Let's play	32	10.2
Talk show	23	7.4
Other	22	7.1

3.2. Measurement

Two bilinguals translated the survey from English to Chinese and back-translated it into English to ensure content accuracy. There were four parts to our survey. First, we measured 10 esports spectator motives by adapting items from the MSSC [19]. Each of the 10 constructs was measured with three items. The constructs were (1) vicarious achievement, (2) aesthetics, (3) drama, (4) escape, (5) knowledge acquisition, (6) athletes' physical skill, (7) social interaction, (8) physical attractiveness, (9) enjoyment of aggression, and (10) novelty. All items were evaluated on a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). Second, the esports consumption behaviors were assessed using three items, specifically "How many hours do you spend watching esports per day?", "How many months in total have you been subscribed to a channel/stream on esports?", and "Estimate how much money (New Taiwan Dollar) you have donated in total to esports streamers" [10]. Third, two questions were about live-streaming types and game genres: "Which live-streaming types of esports ("competitive," "casual," "let's play," "talk show," or "other") do you watch the most online?" and "Which game genres

(“action,” “MOBA,” “battle royale,” “CCG,” “sport,” and “other”) do you watch the most online?” [6]. One more screening question was used to ensure that the participants were qualified for the survey: “Please specify a game you often watch online and describe your most favorite character(s) and episode(s).” The last part of the survey consisted of demographic questions, including sex, age, education level, employment, and income.

3.3. Data Analysis

The dataset was checked for missing data, outliers, and normality via SPSS 25.0. After verifying the assumption test, the measurement model was estimated via confirmatory factor analysis (CFA) to evaluate its psychometric properties via AMOS 25.0. Lastly, the hypothesis was tested via Haye’s PROCESS macro, Model 3 [29].

4. Results

4.1. Descriptive Analysis, Assumption Test

All skewness (<3.0) and kurtosis (<3.0) values of all items measuring motive and esports consumption behavior items were found to be acceptable, except for time spent (skewness = 3.51 and kurtosis = 18.05). By performing the bootstrapping approach with a sample size of more than 300, the non-normality issue was resolved [30]. Owing to the online questionnaire setting, respondents completed all questions before submitting questionnaires; thus, there were no missing data. Outliers were checked with the Z-score value and identified as outliers if the Z-score value was either greater than 3 or less than −3. Based on the criterion, two cases identified as outliers were excluded from further analysis.

4.2. Measurement Model

The results of the CFA showed that the overall model fit was satisfactory ($\chi^2 = 904.39$, $p < 0.001$, $\chi^2/df = 2.51$, CFI = 0.94, and RMSEA = 0.07). All factor loadings were statistically significant, ranging from 0.60 to 0.96, demonstrating good convergent validity [31] (Table 4). None of the confidence intervals included the value of 1, indicating evidence of discriminant validity for all factors (Table 5). In terms of factor reliability, all composite reliability (CR) and average variance extracted (AVE) values were above the recommended thresholds of 0.70 and 0.50 [32], indicating that all factors in the measurement model were deemed reliable. Overall, the measurement model demonstrated adequate psychometric properties.

Table 4. Results of the measurement model.

Items	M	SD	Kurt.	Skew	SFL
Vicarious achievement (CR = 0.93; AVE = 0.81; α = 0.93)	5.07	1.33	0.32	−0.63	
I feel a personal sense of achievement when the team does well.	5.01	1.39	−0.50	−0.04	0.92
I feel proud when the team plays well.	5.09	1.42	−0.52	−0.08	0.93
I feel like I have won when the team wins.	5.09	1.44	−0.56	0.08	0.85
Aesthetics (CR = 0.94; AVE = 0.84; α = 0.94)	5.26	1.30	0.52	−0.74	
I enjoy the gracefulness associated with the esports game.	5.30	1.38	−0.72	0.30	0.86
I appreciate the beauty inherent in the esports game.	5.25	1.38	−0.61	0.06	0.96
I like the beauty and grace of the esports game.	5.22	1.36	−0.63	0.17	0.93
Drama (CR = 0.88; AVE = 0.70; α = 0.88)	5.48	1.28	0.78	−0.92	
I enjoy the drama of close esports games.	5.46	1.39	−0.79	0.32	0.78
I enjoy the uncertainty of close esports games.	5.51	1.45	−0.92	0.52	0.87
I enjoy it when the outcome of the game is not decided until the very end.	5.47	1.44	−0.91	0.41	0.86
Escape (CR = 0.92; AVE = 0.79; α = 0.89)	4.37	1.57	−0.52	−0.25	
The esports game provides an escape from my day-to-day routine.	4.33	1.66	−0.27	−0.51	0.84
The esports game provides a distraction from my everyday activities.	4.43	1.76	−0.36	−0.65	0.90
It provides me with an opportunity to escape the reality of my daily life for a while.	4.34	1.78	−0.22	−0.80	0.93
Acquisition of knowledge (CR = 0.92; AVE = 0.80; α = 0.92)	5.40	1.29	1.15	−0.97	
I can increase my knowledge about the esports game.	5.38	1.38	−0.88	0.90	0.84
I can increase my understanding of the strategy by watching the esports game.	5.38	1.37	−0.99	1.17	0.94

I can learn about the technical aspects by watching the esports game.	5.42	1.38	−0.91	0.74	0.90
Physical skill of the athletes (CR = 0.96; AVE = 0.89; α = 0.96)	5.71	1.32	1.71	−1.28	
The superior skills are something I appreciate while watching the esports game.	5.69	1.36	−1.16	1.24	0.93
I enjoy watching a skillful performance in the esports game.	5.72	1.36	−1.19	1.33	0.96
I enjoy watching a well-executed performance.	5.71	1.37	−1.17	1.20	0.94
Social interaction (CR = 0.91; AVE = 0.78; α = 0.91)	4.72	1.42	−0.18	−0.41	
I enjoy interacting with other people when I watch an esports game.	4.90	1.52	−0.48	−0.19	0.85
I enjoy socializing with other people when I watch a game.	4.58	1.55	−0.35	−0.26	0.89
I like having the opportunity to interact with other people.	4.65	1.54	−0.31	−0.30	0.91
Physical attractiveness (CR = 0.87; AVE = 0.70; α = 0.78)	4.58	1.38	−0.23	−0.33	
I enjoy watching players who are physically attractive.	5.12	1.60	−0.57	−0.55	0.60
An individual player's "sex appeal" is a big reason why I watch esports.	4.90	1.62	−0.42	−0.63	0.93
The main reason I watch esports is because I find the players physically attractive.	3.73	1.73	0.16	−0.80	0.93
Enjoyment of aggression (CR = 0.84; AVE = 0.63; α = 0.83)	4.50	1.37	0.04	−0.29	
I enjoy the fighting and rough play during the esports game.	4.17	1.64	−0.23	−0.46	0.86
I enjoy the aggressive behavior of the esports players.	5.02	1.65	−0.6	0.20	0.68
I enjoy the hostility and intimidation that are part of the esports game	4.30	1.64	−0.21	−0.48	0.83
Novelty (CR = 0.93; AVE = 0.82; α = 0.93)	4.81	1.41	0.04	−0.54	
I like having the opportunity to watch a new esports team.	4.62	1.55	−0.44	−0.41	0.89
The opportunity to attend games with a new team is fun.	4.81	1.51	−0.54	−0.07	0.93
I enjoy the novelty of a new esports team.	5.09	1.45	−0.60	0.05	0.89
Donate	247.75	271.81	1.70	1.72	NA
Subscription	5.71	4.72	0.27	−1.60	NA
Time spent	1.26	1.33	3.51	18.05	NA

Note: CR = composite reliability; AVE = average variance extracted; Kurt. = kurtosis, Skew. = skewness; NA = not applicable; SFL: standardized factor loading.

Table 5. Interfactor correlations.

Construct	1	2	3	4	5	6	7	8	9	10
1. VAM	1									
2. AM	0.66 ^a (0.54, 0.75) ^b	1								
3. DM	0.64 (0.53, 0.74)	0.74 (0.64, 0.82)	1							
4. EM	0.51 (0.39, 0.61)	0.46 (0.34, 0.56)	0.53 (0.42, 0.64)	1						
5. AKM	0.65 (0.52, 0.75)	0.73 (0.64, 0.81)	0.82 (0.75, 0.88)	0.56 (0.45, 0.66)	1					
6. PSAM	0.64 (0.53, 0.73)	0.70 (0.60, 0.78)	0.80 (0.72, 0.87)	0.46 (0.36, 0.57)	0.80 (0.81, 0.91)	1				
7. SIM	0.49 (0.36, 0.60)	0.57 (0.47, 0.66)	0.55 (0.44, 0.66)	0.49 (0.36, 0.60)	0.62 (0.52, 0.72)	0.54 (0.43, 0.65)	1			
8. PAM	0.50 (0.37, 0.60)	0.55 (0.43, 0.65)	0.61 (0.49, 0.70)	0.54 (0.43, 0.64)	0.61 (0.51, 0.70)	0.67 (0.58, 0.75)	0.55 (0.43, 0.65)	1		
9. EAM	0.59 (0.44, 0.70)	0.59 (0.46, 0.70)	0.61 (0.56, 0.79)	0.54 (0.46, 0.70)	0.61 (0.55, 0.78)	0.67 (0.50, 0.80)	0.55 (0.55, 0.75)	0.61 (0.43, 0.74)	1	
10. NM	0.68 (0.58, 0.78)	0.59 (0.48, 0.70)	0.65 (0.54, 0.75)	0.47 (0.35, 0.59)	0.74 (0.65, 0.81)	0.65 (0.54, 0.74)	0.60 (0.50, 0.71)	0.52 (0.39, 0.62)	0.52 (0.65, 0.83)	1

Note: ^a Correlations between latent variables; ^b confidence interval of bias-corrected percentile method; bootstrap = 1000 times, 95% confidence interval; VAM = vicarious achievement motive, AM = aesthetics motive, DM = drama motive, EM = escape motive, AKM = acquisition of knowledge motive, PSAM = physical skill of the athletes' motive, SIM = social interaction motive, PAM = physical attractiveness motive, EAM = enjoyment of aggression motive, and NM = novelty motive.

4.3. Moderating Effects

The results did not confirm the interaction effect of game genres and live-streaming types on the relationships between vicarious achievement and donation ($B = -7.88$, $SE = 5.24$, $CI = -10.15$ – 2.42) and between vicarious achievement and time spent ($B = 0.01$, $SE = 0.02$, $CI = -0.04$ – 0.04).

We found the interaction effect of game genres and vicarious achievement on esports streaming subscriptions ($B = -0.26$, $SE = 0.11$, $CI = -0.48$ – 0.36) when spectators watched

esports via the let's play and talk show live-streaming types. However, the interaction effect was not found when spectators watched esports via the competitive/casual ($B = -0.21$, $SE = 0.11$, $CI = -0.43-0.01$) and other ($B = -0.17$, $SE = 0.15$, $CI = -0.48-0.13$) live-streaming types (Figure 2). Thus, H1a was only partly supported.

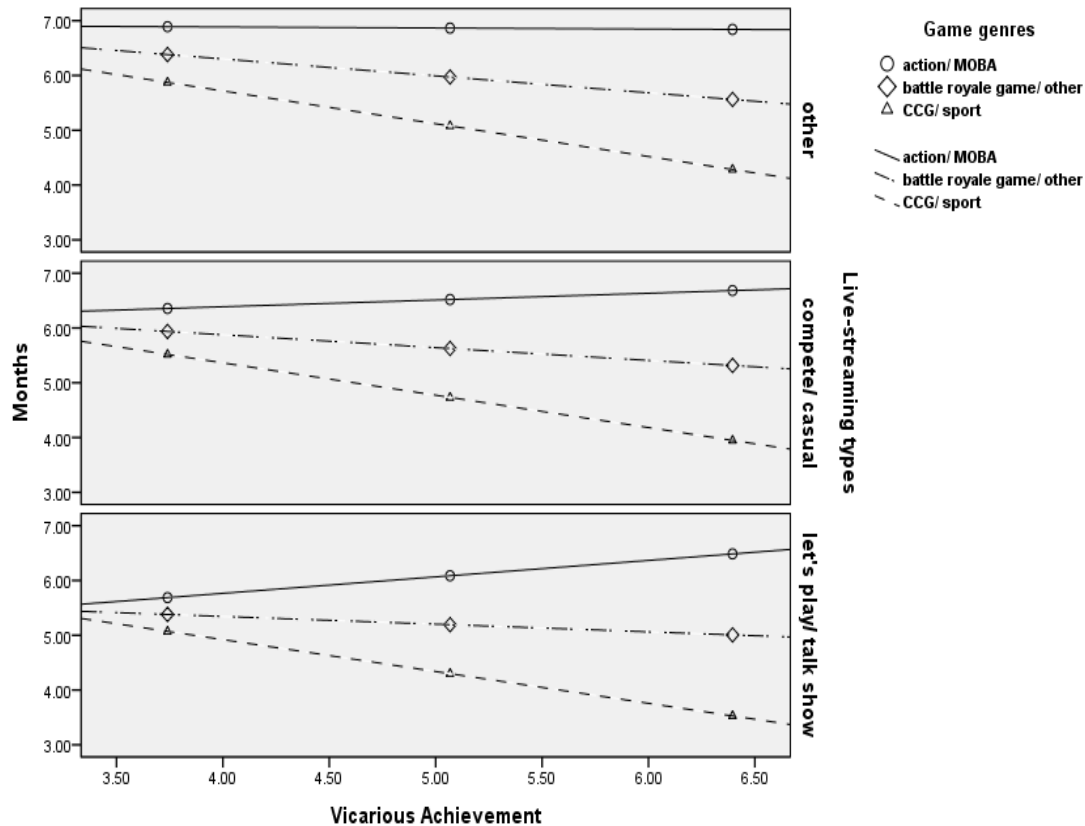


Figure 2. Interactive effects of vicarious achievement, stream types, and game genres on subscription (months).

The results showed no interaction effect of game genres and live-streaming types on the relationships between aesthetics and donation ($B = -6.43$, $SE = 5.87$, $CI = -17.98-5.12$) or between aesthetics and subscription ($B = -0.06$, $SE = 0.09$, $CI = -0.24-0.11$). The interaction effect of game genres and aesthetics on time spent ($B = 0.08$, $SE = 0.04$, $CI = 0.01-0.18$) when spectators watched esports via let's play and talk show was found via PROCESS macro. However, the interaction effect was not detected when spectators watched esports via competitive/casual ($B = 0.09$, $SE = 0.04$, $CI = -0.01-0.19$) and other ($B = 0.09$, $SE = 0.06$, $CI = -0.03-0.22$) (Figure 3). Overall, H1b was partly supported.

No interaction effect of game genres and live-streaming types on the relationships between drama and donation ($B = -0.72$, $SE = 7.75$, $CI = -15.96-14.53$), between drama and subscription ($B = -0.07$, $SE = 0.10$, $CI = -0.26-0.11$), or between drama and time spent ($B = 0.01$, $SE = 0.02$, $CI = -0.04-0.05$) was found. Thus, the results did not support H1c.

The interaction effect of game genres and live-streaming types did not moderate the relationships between escape and subscription ($B = -0.04$, $SE = 0.07$, $CI = -0.19-0.10$) or between escape and time spent ($B = -0.01$, $SE = 0.01$, $CI = -0.03-0.02$). Furthermore, we found the interaction effect of game genres and escape on donation ($B = -12.5$, $SE = 6.12$, $CI = -24.8-0.69$) when spectators watched esports via let's play and talk show. However, the interaction effect was not supported when spectators watched esports via competitive/casual ($B = -4.21$, $SE = 6.20$, $CI = -16.4-7.99$) and other ($B = 2.60$, $SE = 8.43$, $CI = -13.9-19.2$) (Figure 4). Therefore, results partly support H1d.

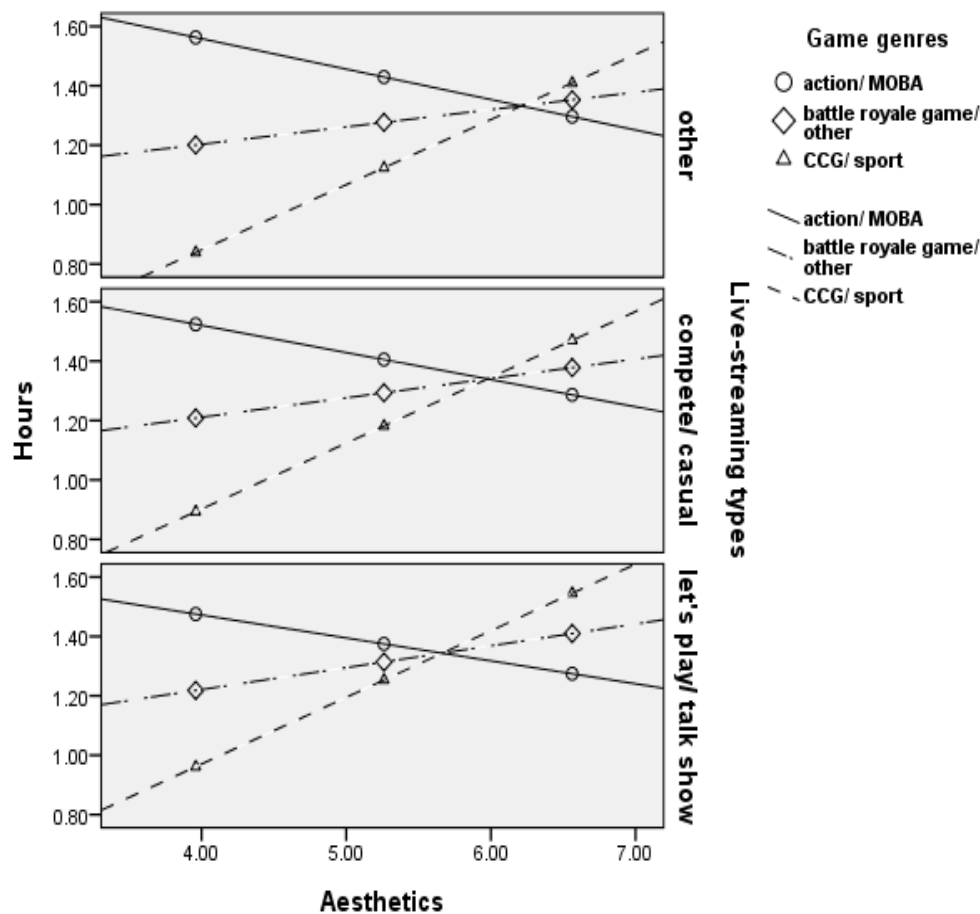


Figure 3. Interactive effects of aesthetics, stream types, and game genres on time spent (hours).

We found that the interaction effect of game genres and live-streaming types did not moderate the relationship between knowledge acquisition and donation ($B = -0.31$, $SE = 5.52$, $CI = -11.17-10.55$). In addition, Figure 5 supports the interaction effect of game genres and knowledge acquisition on subscriptions ($B = -0.25$, $SE = 0.11$, $CI = -0.48-0.02$) when spectators watched esports via let's play and talk show. However, the results did not confirm the moderating effect when spectators watched esports via competitive/casual ($B = -0.11$, $SE = 0.11$, $CI = -0.35-0.11$) and other ($B = -0.01$, $SE = 0.16$, $CI = -0.32-0.32$).

As shown in Figure 6, the interaction effect of game genres and knowledge acquisition on time spent ($B = 0.08$, $SE = 0.03$, $CI = 0.003-0.159$) when spectators watched esports via let's play and talk show was found. However, no interaction effect was found when spectators watched esports via competitive/casual ($B = 0.08$, $SE = 0.04$, $CI = -0.002-0.17$) and other ($B = 0.09$, $SE = 0.05$, $CI = -0.02-0.20$). Overall, H1e was partly supported.

No interaction effect of game genres and live-streaming types on the relationships between physical skill of the athletes and donation ($B = -0.07$, $SE = 7.13$, $CI = -13.97-14.11$), between physical skill of the athletes and subscription ($B = -0.13$, $SE = 0.09$, $CI = -0.31-0.05$), or between physical skill of the athletes and time spent ($B = -0.01$, $SE = 0.05$, $CI = -0.06-0.36$) was found. Thus, the results did not support H1f.

Figure 7 displays the interaction effect of game genres and social interaction on subscription ($B = -0.27$, $SE = 0.12$, $CI = -0.51-0.02$) when spectators watched esports via competitive and casual and the interaction effect of game genres and social interaction on subscription ($B = -0.36$, $SE = 0.12$, $CI = -0.61-0.12$) when spectators watched esports via let's play and talk show, both of which supported a moderating effect. However, the

results did not confirm the interaction effect when spectators watched esports via other ($B = -0.19$, $SE = 0.17$, $CI = -0.53-0.13$). Furthermore, there is no interaction effect of game genres and live-streaming types on the relationships between social interaction and donation ($B = -2.74$, $SE = 5.24$, $CI = -13.05-7.585$), or between social interaction and time spent ($B = 0.02$, $SE = 0.02$, $CI = -0.02-0.06$). Thus, H1g was only partly supported.

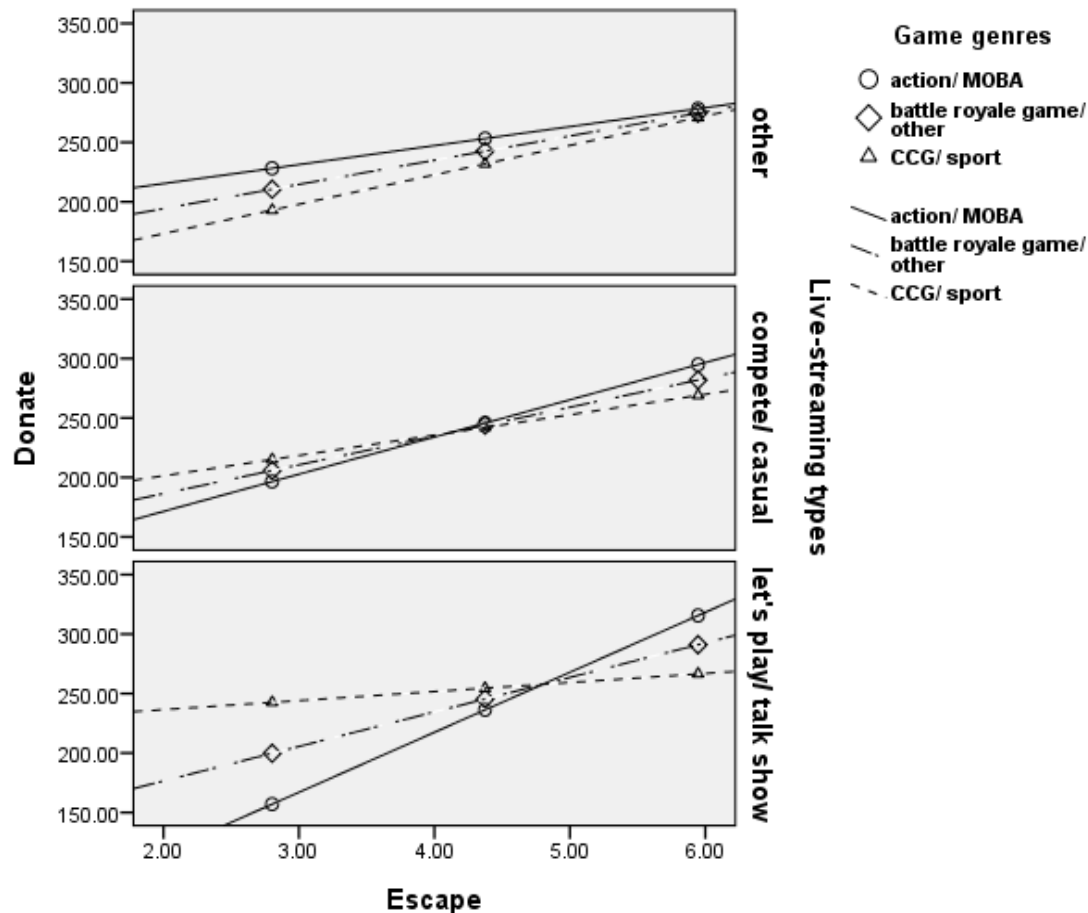


Figure 4. Interactive effects of escape, stream types, and game genres on donation.

We found that there was no interaction effect of game genres and live-streaming types on the relationships between physical attractiveness and donation ($B = -6.80$, $SE = 4.90$, $CI = -16.45-2.85$), between physical attractiveness and subscription ($B = -0.06$, $SE = 0.08$, $CI = -0.21-0.09$), or between physical attractiveness and time spent ($B = -0.01$, $SE = 0.02$, $CI = -0.05-0.04$). There was also no interaction effect of game genres and live-streaming types on the relationships between enjoyment of aggression and donation ($B = -6.88$, $SE = 4.71$, $CI = -16.16-2.40$), between enjoyment of aggression and subscription ($B = -0.03$, $SE = 0.08$, $CI = -0.20-0.13$), or between enjoyment of aggression and time spent ($B = -0.01$, $SE = 0.02$, $CI = -0.06-0.03$); no interaction effect of game genres and live-streaming types on the relationships between novelty and donation ($B = -3.98$, $SE = 4.76$, $CI = -13.34-5.38$), between novelty and subscription ($B = -0.15$, $SE = 0.09$, $CI = -0.30-0.02$), or between novelty and time spent ($B = -0.01$, $SE = 0.02$, $CI = -0.05-0.04$) was found. Thus, H1h, H1i, and H1j were not supported.

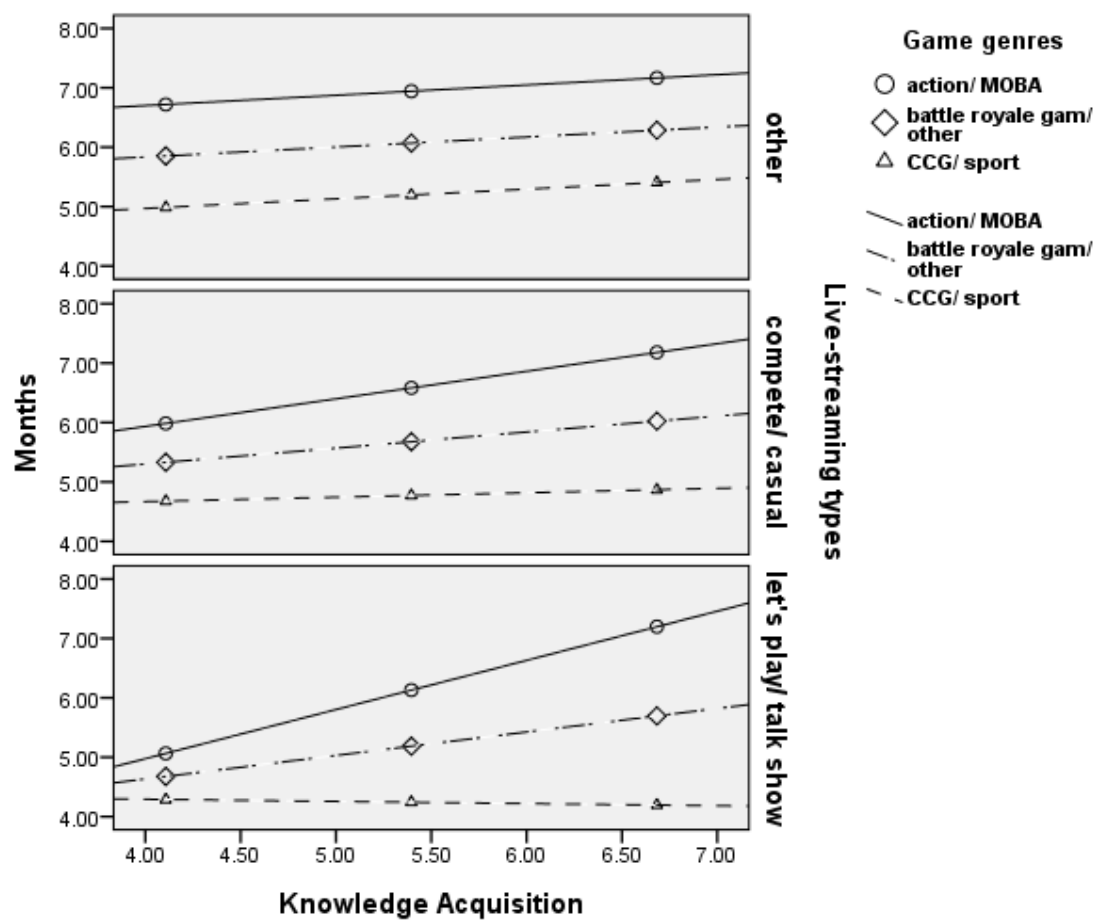


Figure 5. Interactive effects of knowledge acquisition, stream types, and game genres on subscription (months).

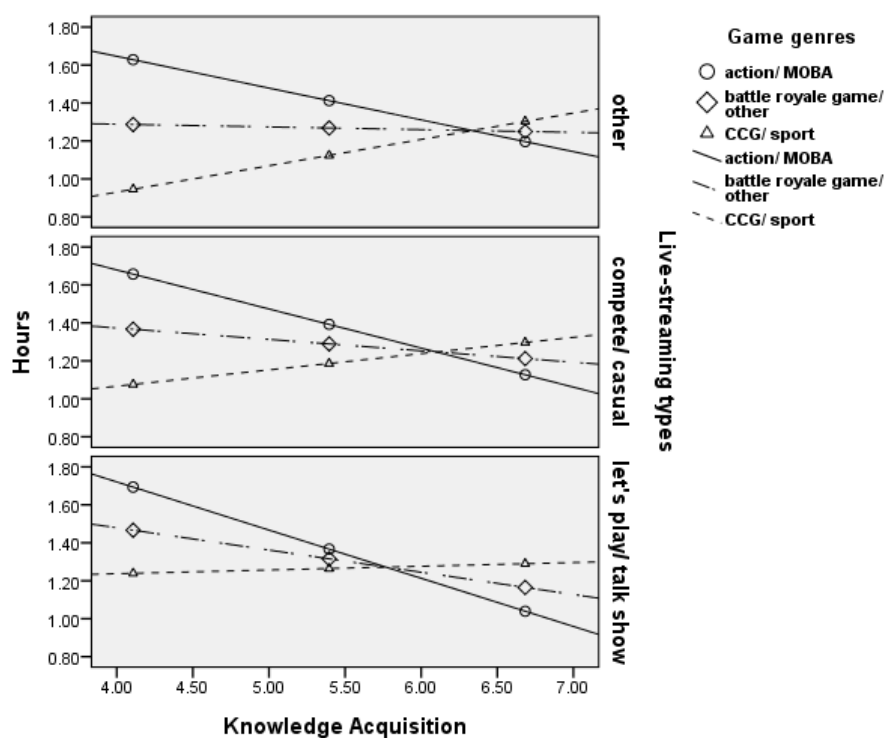


Figure 6. Interactive effects of knowledge acquisition, stream types, and game genres on time spent (hours).

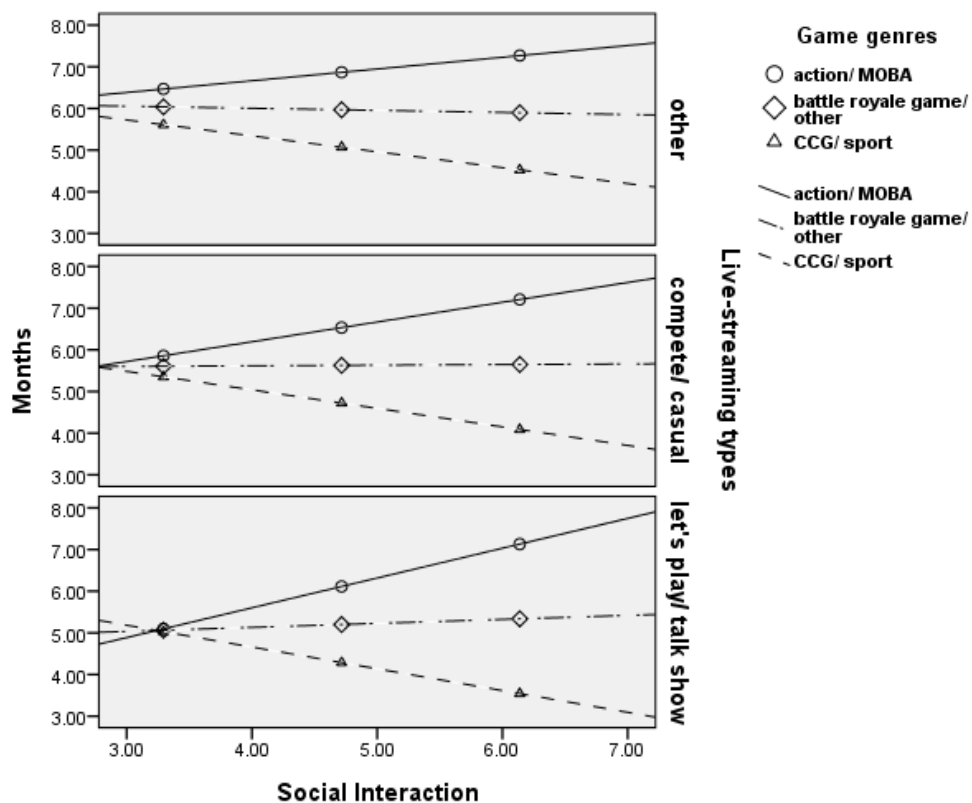


Figure 7. Effects of social interaction, stream types, and game genres on subscription (months).

5. Discussion

This study explored how esports spectator motives influence their consumption behaviors based on the interaction effects of different live-streaming types and game genres. Extending from previous studies that have examined the influence of esports spectator motives, game genres, and live-streaming types on consumption separately, e.g., [12,21,33], the current study tested the interaction effect of game genre and live-streaming type to expand our understanding of UGT in esports live-streaming consumption beyond what has been reported in previous esports studies, e.g., [18,24,33]. This approach is a unique way to explore and broaden our understanding of esports spectators' consumption behaviors. Furthermore, based on the moderation effect, the matrix of four different groups was drafted for precise future marketing. These are discussed in more detail in the following paragraphs. Overall, this study provides new evidence that esports spectators' live-streaming consumption is determined by the interactions of their motives, game genres, and live-streaming types. The findings contribute to the existing body of knowledge about esports spectators' consumption behavior and help answer why people spend time and money viewing esports streaming content.

The genres for traditional video games are diverse because game types fall into different categories depending on different features [11]. Thus, while genres are different, some video games are considered mixed genres because they can often include multiple features of genres. For instance, while Apex Legends includes the FPS feature (first-person shooter; a game centered on weapon in a first-person perspective), it falls under the battle royale genre due to the scavenging, survival, and the last man standing rule. To connect esports game genres with live-streaming types, we combined the genres as follows: CCG/sport, battle royale/other, and action/MOBA. CCG and sport were combined because of the importance of the players'/cards' status. In the sport genre, even if the in-game players are based on real-world players, the programmed status of the in-game players in terms of their passing, stamina, and speed is important, while the cards' status is important in CCG. Thus, esports consumers of CCGs and sports might want similar consumer types of streaming. We combined battle royale and other because battle royale includes various features, such as FPS, scavenging elements, survival, and controlling in-game vehicles. We combined action and MOBA because both types of esports fans are likely to watch live-streaming to see the controlling of characters, item building, and usage of skills. The findings showed that compared with spectators of CCG/sport and battle royale/other, spectators of action/MOBA with higher vicarious achievement, social interaction, and knowledge acquisition motives are more likely to subscribe to a live-streaming platform when watching esports via let's play and talk show, and those with higher social interaction motive are more likely to subscribe to a live-streaming platform when watching esports via competitive and casual. Social interaction was consistently found to be associated with esports live-streaming subscriptions [10,21]. The findings of this study are consistent with those of previous studies and further validate that live-streaming subscriptions are motivated by vicarious achievement and knowledge acquisition. Notably, previous studies have not considered game genres and live-streaming types when examining motives for live-streaming subscriptions. However, Sjöblom et al. [6] found that the MOBA game genre was associated with learning motive (e.g., knowledge acquisition), and action was associated with information-seeking motive, let's play, talk show, and competitive. Casual streaming types were related to social integrative motive, and let's play was associated with information-seeking motive. Thus, this study validates that esports viewers are motivated to subscribe to live-streaming channels because they seek gratifications of social interaction, vicarious achievement, and knowledge acquisition. However, these needs are more likely to be fulfilled among viewers of action/MOBA genres via let's play, talk show, competitive, and casual streams. Action games tend to feature single-player experiences and lower levels of stress while playing [6]; thus, viewers are likely to be motivated by social interaction needs with streamers and subscribers while seeking to gain gameplay skills in an entertaining

environment. Strategically, streamers with competitive and casual streams serving social gratifications of action/MOBA viewers can boost subscribers, while those with let's play and talk show streaming styles can increase their financial performance by providing deeper involvement with the socializing environment (e.g., membership and voting activities) [10,21], writing supportive comments on most viewers' favorite teams to identify with them, and providing updates of playing tactics and strategies of action/MOBA genres.

The findings showed that compared with spectators of action/MOBA and battle royale/other, spectators of CCG/sport with higher aesthetics and knowledge acquisition motives are more likely to spend time on live-streaming platforms when watching esports via let's play and talk show. Similar to previous studies, esports spectating (e.g., watching frequency and hours of watching) is motivated by knowledge acquisition [9,33] and MOBA game genres; however, taking motives, game genres, and streaming types into account, Sjöblom et al. [6] found that CCG/sport, learning (i.e., knowledge acquisition), let's play, and talk show were not correlated. Notably, we found that knowledge acquisition is a powerful factor driving not only subscription to live-streaming platforms but also time spent watching via the same streaming types (i.e., let's play and talk show). Our findings, by integrating motives, game genres, and live-streaming types, can generate sound suggestions for esports consumption. The results indicated that esports viewers of CCG/sport are motivated by aesthetics and knowledge acquisition to spend more time watching esports than viewers of action/MOBA and battle royale/other. This finding may be explained by the following example of Hearthstone in the CCG game genre. Its spectators may engage with dedicated communities to gain information and knowledge about current playing tactics of mainstream card sets. As spectators are also players, spending time watching a live stream of Hearthstone can gratify knowledge acquisition needs. The streamers of talk show and let's play types are usually good players who provide playing tips or entertaining interaction for viewers, resulting in a significant increase in time spent viewing.

Our findings also indicated that the aesthetic aspects relating to beauty and gracefulness could be a factor motivating viewers of sport game genres (e.g., NBA 2K) to spend time on live-streaming platforms, particularly via the let's play and talk show types. This finding contrasts with prior research, which found that aesthetics motive is negatively associated with esports watching [9] and attendance [18]. The differences may be explained by Hamari and Sjöblom's [9] perspective that viewers focusing on the aesthetic aspects are different from those focusing on the technical and rule-based aspects. In this regard, those viewers favoring the action/MOBA and battle royale/other game genres may focus more on technical needs, as these game genres are more complex than sports genres in terms of performance and are highly competitive. Entertainment and basic tips for viewers of sports genres via such streaming types as let's play and talk show, which have less competitive and intensive characteristics are much more needed via other live-streaming types.

The findings also showed that compared with spectators of CCG/sport and battle royale/other, spectators of action/MOBA with higher escape motives are more likely to donate to a live-streaming platform when watching esports via let's play and talk show. The findings support those of Sjöblom et al. [6], who found that the action/MOBA game genres and let's play and talk show live-streaming types are significantly associated with tension release (e.g., escapism, relaxing entertainment, and habitual pass time). Although the MOBA game genres are played in a high-intensity situation, spectators can be gratified when playing and can escape from daily worries into the simulated competitive community. Since gameplay in a high-intensity situation typically causes longer playing time, which may lead to a higher depressed mood [34], the players of MOBA game genres might be attracted by the opportunity to release their tension. The action game genre features single-player experiences, and the actual action can provide an opportunity for viewers to let their minds wander. Although Hilvert-Bruce et al. [10] found social

interactions to be the motive for donating, the current study elucidates that viewers are motivated to donate due to escapism when game genres and live-streaming types are considered. Although this study can provide deeper insights into donation motives, we only examined Taiwanese esports viewers. Thus, future research is needed across cultures for external validity.

UGT explains that people seek and consume different kinds of media that fulfill individual psychological needs. Based on UGT, this study explains why esports viewers spend so much time and money watching, subscribing to, and donating to esports live-streaming. Beyond the motive–consumption relationship, the current study suggests that live-streamers who want to grow their viewer base should not only consider how to meet viewers' needs but also recognize specific needs that can only be fulfilled via specific game genres and live-streaming types.

5.1. Practical Implications

Matrix of Esports Interaction Effects Segments. Chang et al. [35] created a matrix of fitness center users, comprising heavy users (high fitness innovativeness, high duration of stay, high revisit frequency), project users (high fitness innovativeness, low duration of stay, low revisit frequency), specific users (low fitness innovativeness, high duration of stay, high revisit frequency), and laggards (low fitness innovativeness, low duration of stay, low revisit frequency). Based on the segmentation [35], we constructed the following matrix of esports consumer segments (Figure 8) to illustrate the managerial implications. Specifically, esports consumers can be categorized into four different groups by their motive and consumption levels: heavy users (high motive, high consumption), project users (high motive, low consumption), specific users (low motive, high consumption), and laggards (low motive, low consumption). The four groups have different implications concerning marketing strategies for different game genres and live-streaming types. The following implications are based on the results of the interactive effects.

High C.S.	Heavy user	Specific user
	Project user	Laggards
Low C.S.		
	High MV	Low MV

Figure 8. Matrix of esports interaction effects segments.

Heavy user. Heavy users have high levels of motive and consumption behavior. These esports spectators tend to be highly involved in watching esports content on live-streaming channels. Game publishers and live-streamers can now understand consumers' specific needs about specific game genres and consumption of channels of live-streaming types. Practically, when the goal is to boost subscriptions to live-streaming types, such as let's play, talk show, competitive, and casual, strategies and resources should be prioritized to target spectators of action and MOBA game genres and to gratify their needs for social interaction (Figure 7), vicarious achievement (Figure 2), and knowledge acquisition (Figure 5). When the goal is to increase money donation to live-streaming

types, such as let's play and talk show, promotion strategies can target spectators of action and MOBA game genres and gratify their need to escape (Figure 4). When the goal is to encourage a longer duration of stay on live-streaming channels, such as let's play and talk show, promotion strategies should address the aesthetic needs of spectators of the CCG and sport game genres (Figure 3). For example, successful streamers do not just talk but use aesthetic and fun visual effects or video clips, including popular memes (i.e., inside jokes). To entertain viewers, streamers have to joke around via chat by continuously using attractive visual resources.

Project user. Project users have relatively high motive but low consumption behavior. Their consumption behaviors could be elevated when strategies are put in place appropriately and focused on specific game genres and live-streaming types. For example, project users have high aesthetics and knowledge acquisition motives in spectating action and MOBA game genres but spend less time on live-streaming channels, such as let's play and talk show (Figures 3 and 6). Esports fans of action and MOBA game genres highly enjoy the fight; the competitive, fast, intensive game rhythm; and superb game operation. Thus, to increase spectator stickiness, the designers of these game genres and live-streaming types of let's play and talk show should prevent the excessive gratification of the needs of aesthetics and knowledge acquisition.

Furthermore, this study found that those with high vicarious achievement and social interaction motives in spectating CCG and sport game genres are less likely to subscribe to live-streaming channels like let's play, talk show, competitive, and casual (Figures 2 and 7). It is reasonably speculated that esports fans of CCG and sport seek mostly competition between two opponents, so an excessive provision of social interaction may be seen as a disturbance, which may decrease spectator subscriptions. Instead, CCG and sport esports fans prefer beautiful and fancy screens. Therefore, to have a longer subscription, CCG and sports content and live-streaming types of let's play, talk show, competitive, and casual should address strategies that can gratify project users' aesthetic needs. For instance, streamers tend to use a fancy design for their screen overlay and banners because the live stream needs to show various information on the screen, such as streamers' face, game screen, chatting window, latest donation, latest follower, and latest subscriber. To attract viewers, the banner design is also important to show the list of loyal followers' ID, streamers' mascot, total donation amount, streaming schedule, etc., which require a proper size and location in the attractive design of templates. Generally, streamers and managers can provide promotional campaigns for spectators on the live-streaming platform, such as half-price subscriptions and regular sweepstakes, to encourage project users to shop on the platform. Furthermore, streamers and managers may provide user-friendly video guides to help project users learn how to subscribe and donate to increase consumption.

Specific user. Specific users have low motive but a high level of consumption behavior. Although they have low motive to watch specific game genres via specific live-streaming channels, they may have specific esports spectating purposes. For this segment of esports spectators, we found that specific users have low vicarious achievement and social interaction motives in spectating CCG and sport game genres but subscribe for more months to live-streaming channels, such as let's play, talk show, competitive, and casual (Figures 2 and 7). Moreover, the consumers in this segment of specific users have low aesthetics and knowledge acquisition motives in watching action and MOBA game genres but spend more time on live-streaming channels, such as let's play and talk show (Figures 3 and 6). For the specific users, we infer that some of them are probably on a quest for information about esports games to decide whether to play, some are playing already but may want to seek information before they decide whether to play more seriously, and others are slightly interested in specific game types but largely enjoy live-streaming. The results can help to streamline these inferences.

Laggards. Laggards innately have low motive and low consumption behavior. This segment of live-streaming consumers may switch easily to other streamers. They might

not want to invest much time or money in watching live-streaming and wish to take what they want from streamers effectively. This study found that laggards have low vicarious achievement, social interaction, and knowledge acquisition motives in spectating action and MOBA game genres (Figures 2, 5 and 7). Laggards may subscribe for fewer months to live-streaming channels, such as let's play, talk show, competitive, and casual; they have low escape motive in spectating action and MOBA game genres (Figure 4). Laggards may donate less money to and spend less time on live-streaming channels, such as let's play and talk show, and have low aesthetics motive in spectating CCG and sport game genres (Figure 3). While we did not examine the transfer within segments, Laggards might become project users or specific users if they continuously watch live streams in the future. Beginner live-streaming consumers might be included in this segment because they may have just started to learn how to enjoy live-streaming or may not yet have found their favorite streamers.

5.2. Limitations and Future Study Suggestions

This study has several limitations. First, this study examined six selected game genres based on the features of the Taiwan esports context. While the sample represents Taiwanese esports fans' preferences for esports games well, each genre's proportion in this study's sample was not equivalent. For instance, although the sport genre was included, only 8.1% of respondents chose this genre of esports games. The data used in this study were skewed toward MOBA (38.1%) because LoL is most popular in Korea, China, and Taiwan [2]. Thus, esports game genres were not fully explored and understood. Future researchers may need to explore various esports genres and categorize them according to the purpose of the research. Therefore, to understand the esports market fully, sport management scholars might need to explore the esports genre more precisely. Second, although we made a concerted effort to collect data representing esports consumers, the data used in this study were somewhat skewed toward young males from Taiwan. For the last several years, esports has garnered surging attention from diverse groups (e.g., female, late millennials). While men are dominant in the data of this current study, 67% of men and 65% of women play mobile games at least once a month in the urban online population in Taiwan [28]. According to the need to understand diverse groups, while Jang and Byon [36] recently indicated the moderating effects of sex on the perceptions of esports gameplay consumption, there is still limited esports research focused on sex. Further, esports has become a global phenomenon and will be included as a medal sport in the Hangzhou 2022 Asian Games. Esports might also be included as a demonstration sport at the 2024 Paris Olympics. Therefore, future scholars could collect more diverse data to conduct a cross-comparison of sex, generations, and cultures using the tested model in this study.

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