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The Structural Relationship among Viewing Motivation, Viewing Commitment, Reviewing Intention and Game Use Intention of e-Sports Competition Broadcasting

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Abstract

The purpose of this study is to investigate the structural relationship between the viewing motivation, viewing commitment, re-audience intention, and game use intention of e-sports competition broadcast viewers. According to the purpose of the study, an online survey was conducted on 300 college students with experience watching broadcasting of e-sports competitions. After excluding inappropriate data from 8 out of 300 people, 292 people's data were used for final data processing. For data processing, the validity and reliability were verified using SPSS 26 and AMOS 23, and then the research hypothesis was verified. We has the results were shown as follows. First, it was found that entertainment, social intercourse and vicarious satisfaction had a positive effect on viewing commitment, but information has not significantly effect on viewing commitment. Second, it was found that viewing commitment had a positive effect on reviewing intention and game use intention. Third, it was found that reviewing intention had a positive effect on game use intention.

1. Introduction

It is e-sports that represents new sports in the 21st century and expands the scope of sports [1]. Based on the digital platform, e-sports is defined as a term that refers to everything in which competition takes place, including sports elements such as mutual competition by utilizing physical and mental abilities [2]. Such e-sports are competitive sports using computers, networks, and other video equipment, which require physical and intellectual skills, and cyber culture such as field participation such as competition or league, broadcasting, and related community activities also belong to e-sports activities [3].

It was selected as a pilot event for e-sports' 2018 Jakarta Palembang Asian Games, and six events were held, and it was selected as an official event at the 2022 Hangzhou Asian Games. Therefore, e-sports can be seen as firmly establishing itself as an area of sports. These e-sports are developing into an industry as their popularity rises rapidly not only domestically but also globally.

The size of the domestic e-sports industry totaled 97.3 billion won in 2017, with 20.6 billion won in the e-

sports team's budget, 20.53 billion won in streaming, 68.9 billion won in prize money, and 45.28 billion won in broadcasting company sales. In 2020, a total of 120.41 billion won was found, of which 52.86 billion won was spent on e-sports teams, 31.47 billion won on streaming, 13.23 billion won in prize money, and 22.85 billion won in broadcasting company sales. In the future, the e-sports industry is expected to increase the size of the competition along with the increase in streaming-oriented viewers [4]. In these e-sports, broadcasting company sales and streaming are very important parts. This is because e-sports is based on streaming services along with broadcasts based on online platforms different from existing broadcasts.

In recent years, the number of people watching or enjoying e-sports is increasing in line with the current situation in which non-face-to-face sports have become common due to social changes such as COVID-19 [5].

Even in general sports, viewers who watch broadcasting are recognized as very important customers. In the case of domestic e-sports, the average number of viewers in the 2020 LCK spring season was about 220,000, and the total number of viewers was about 1.07 million. Compared to the previous year, the average number of viewers increased by about 78.6% and the total number of viewers increased by about 39.4% [5]. This is also a very important customer in e-sports. However, e-sports provides online platform-based broadcasting and streaming, which is different from general sports, and there are differences in the characteristics of main viewers. Therefore, it can be said that an approach from a different perspective from that of viewers of existing sports broadcasting is necessary. In order to understand the viewers of e-sports broadcasting, it is very important to understand their viewing motives and how these motives ultimately affect the e-sports industry.

Accordingly, the purpose of this study is to understand the viewing motivation of e-sports broadcast viewers and the effect of such viewing motivation on viewing commitment, reviewing intention, and game use intention. Through this, it is believed that basic data for the revitalization of the e-sports industry can be provided.

2. Research Hypothesis

The research hypothesis established in this study was established based on the results of the studies revealed in previous studies. The specific basis for establishing the hypothesis is as follows.

2.1 The Relationship between Viewing Motivation and Commitment

E-sports viewers' motivation to watch can play an important role in viewers' commitment. This relationship between viewing motivation and viewing commitment can be found through previous studies. First, looking at the results of a study conducted on personal broadcasting on the Internet, it was found that viewing motives such as enjoyment and curiosity perceived in the viewer's commitment affect both real-time and non-real-time content [6]. In addition, research results related to the analysis of the effect of viewing motivation on post-watching behavior on sports content showed that viewing motivation affects viewing commitment [7]. In addition, looking at the results of a study related to the relationship between game broadcasting viewing motivation and viewing commitment, it was found that interaction, entertainment/information pursuit, differentiation, empathy/identification for BJ, etc. had a significant effect on viewing commitment [8]. Through the results of the preceding studies above, the following hypothesis was established for the relationship between viewing motivation and viewing commitment.

H1. The motivation to watch will have a significant influence on viewing commitment.

2.2 Relationship between Viewing Commitment, Reviewing Intention, and Game Use Intention

E-sports viewers' commitment in watching will be able to positively affect their intention to watch again in the future. Regarding this relationship between viewing motivation and replay intention, Hong and Kwon stated that viewer commitment had a significant effect on viewing intention [6]. In addition, previous studies related to game broadcasting content said that commitment affects game broadcasting viewing [9]. In addition, as a result of confirming whether social live streaming users' commitment experience and interaction affect the use of content, it was confirmed that the users' commitment experience and interaction had a significant effect on the use of content. In other words, it can be seen that the higher the commitment experience and interactivity of individuals in using social live streaming, the more significant the influence on their content consumption and participation behavior [10]. Jung and Cho said that people exposed to programs or advertisements tend to understand, immerse, and focus more on information, and that if they are immersed in TV or are in a positive psychological state at the time of viewing, their interest and purchase will increase [11].

H2. Viewing motivation will have a significant influence on reviewing intention.

H3. Viewing motivation will have a significant influence on game use intention.

H4. Reviewing intention will have a significant influence on game use intention.

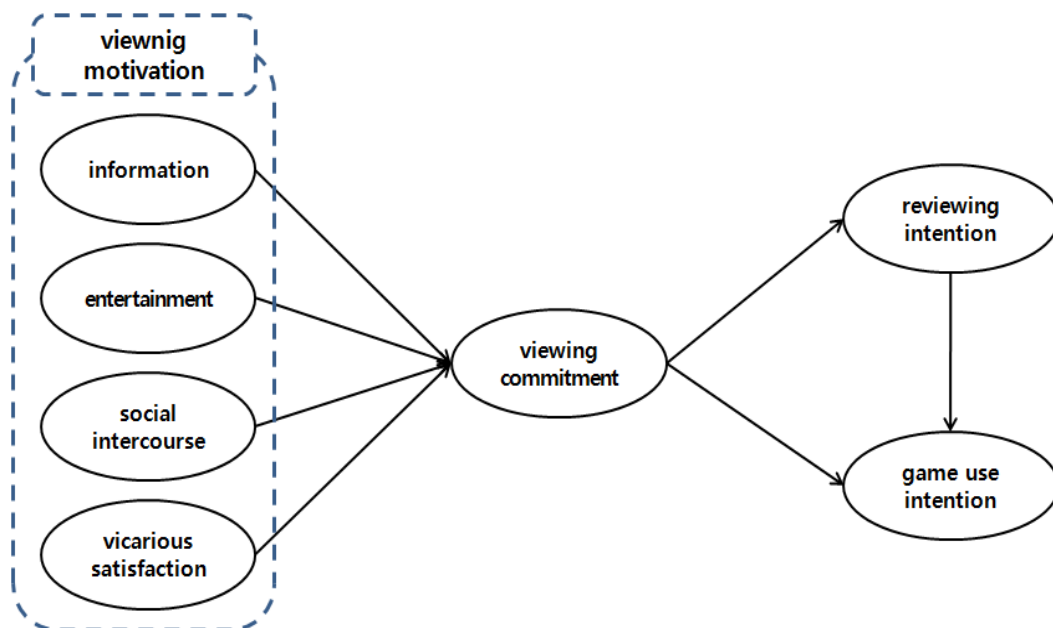Figure 1 shows the model of this study, which was set around the above research hypothesis.

Figure 1. Study model

3. Research Method

3.1 Research Subjects

The subjects of the study were university student viewers who had watched e-sports competition broadcasts, and a total of 300 people were sampled using the Convenience sampling method. Through an online survey,

the completed questionnaire was collected by explaining the purpose of the study to the survey subjects and distributing them with cooperation and consent to respond to the survey through self-administration. In consideration of the readability and consistency of the data, the final valid sample was selected after excluding 8 copies of data that were judged to be inappropriate for the study. The characteristics of the research subjects are shown in Table 1 below.

Table 1. Characteristics of subjects

Division		Frequency(person)	%
Sex	Male	161	55.1
	Female	131	44.9
	Sum	292	100
Grade	1st	122	41.8
	2st	66	22.6
	3st	60	20.5
	4st	44	15.1
	Sum	292	100

3.2 Research Tools

The survey tool used in this study used a questionnaire. The composition of the questionnaire was composed by modifying and supplementing the questionnaire used in previous studies for each concept according to the purpose of this study. Details of the composition of the questionnaire are shown in Table 2 below.

Table 2. Composition of survey tools

Factors	Items
Information	4
Entertainment	3
Social intercourse	3
Vicarious satisfaction	4
Viewing commitment	4
Reviewing intention	4
Game use intention	4

3.3 Data Analysis

For data processing, frequency analysis was conducted to understand the characteristics of the survey target and the general tendency of the sample using SPSS 26, and an internal consistency reliability test of each concept was conducted through Cronbach's α. Confirmatory factor analysis(CFA) was performed using AMOS 23 to analyze the intensive validity and discriminant validity of the scales. A structural equation model(SEM) was performed to verify the established research model and hypothesis.

4. Results

4.1 Validity & Reliability Analysis

The confirmatory factory analysis was done for the testing of convergent validity and discriminant validity. The maximum likelihood(ML) method which assumes multivariate normality was used for substantial analysis. In the analysis process, the standard loading value of 1 question of repurchase intention was removed as below .5. The fit of the confirmatory factor analysis was evaluated for the confirmation of the optimal condition of the construct and the variation configuration and the results are shown in Table 3.

Based on the opinion that the fit index in a structural equation model can be judged together with other indexes by a relative index instead of an absolute criteria [12], the fit was verified with the TLI and CFI suggested by Netemeyer, Boles, McKee & McMurrian the X^2/df value (less than standard 3) and RMSEA proposed by Kim though the X^2 value did not meet the standard [13, 14]. The results of TLI=0.913, CFI=0.930. X^2/df=2.361 and RMSEA=0.068 show that the fit was relatively satisfactory. In addition, all the scores of the standardized regression weights (over 0.5), the value of average variance explained (AVE) and construct reliability (over 0.7) were more than the standard value showing the satisfactory convergent validity.

Table 3. Confirmatory factory analysis & reliability

Factors		S.E.	M.E.	C.R	AVE	Cronbach's α
Information	2	0.950	0.100			
	3	0.691	0.479	0.836	0.637	0.846
	4	0.659	0.457			
Entertainment	1	0.906	0.154			
	2	0.913	0.138	0.902	0.755	0.886
	3	0.734	0.418			
Social intercourse	1	0.880	0.231			
	2	0.776	0.415	0.878	0.706	0.878
	3	0.863	0.239			
Vicarious satisfaction	1	0.799	0.217			
	2	0.818	0.224	0.928	0.763	0.890
	3	0.855	0.172			
	4	0.804	0.220			
Viewing commitment	1	0.838	0.143	0.915	0.783	0.865

	3	0.843	0.200			
	4	0.802	0.227			
	1	0.656	0.411			
Reviewing intention	2	0.744	0.327	0.864	0.615	0.818
	3	0.791	0.278			
	4	0.728	0.322			
	1	0.625	0.400			
Game use intention	2	0.895	0.192	0.876	0.708	0.840
	3	0.879	0.219			

X^2=479.306(df =203, p =0.000), X^2/df =2.361, TLI=0.913, CFI=0.930, RMSEA=0.068

Fornell & Larcker stated that there is discriminant validity between the two constructs if the value of AVE of each construct is more than the squared value of the correlation coefficient [15]. Therefore, the value of AVE presented in Table 3 was compared with the squared value of the correlation coefficient of each concept in the correlation analysis in Table 4. As the value of AVE is more than the squared value of the correlation coefficient, the scales used in this study have discriminant validity.

After the verification of convergent validity and discriminant validity, Cronbach's α testing was conducted for the verification of the reliability of the internal consistency of each factor. As shown in Table 3, the values of Cronbach's α in all factors are over .7 suggested by Nunnally & Bernstein thus proving the internal consistency of all the factors [16].

Table 4. Correlation analysis

Factors	1	2	3	4	5	6	7
Information	1						
Entertainment	0.502***	1					
Social intercourse	0.264***	0.306***	1				
Vicarious satisfaction	0.392***	0.355***	0.268***	1			
Viewing commitment	0.341***	0.424***	0.428***	0.377***	1		
Reviewing intention	0.358***	0.491***	0.243***	0.479***	0.425***	1	
Game use intention	0.247***	0.318***	0.191***	0.372***	0.259***	0.337***	1

***p<0.001

4.2 Fit of the Model & Hypothesis Test Results

As a result of verifying the fit of the model, TLI=0.904, CFI=.921. X^2/df=2.487, RMSEA=0.071. Through this, it was confirmed that the model set in this study was relatively suitable.

The results of verifying the hypothesis established in this study are as follows. First, it was found that entertainment, social intercourse and vicarious satisfaction had a positive effect on viewing commitment, but information has not significantly effect on viewing commitment. Second, it was found that viewing commitment had a positive effect on reviewing intention and game use intention. Third, it was found that reviewing intention had a positive effect on game use intention. Details of the results of this study are shown

in Figure 2 and Table 5.

Table 5. Fit of the model & hypothesis verification result

Hypothesis				Estimate	S.E.	t
H1-1	Information	→	Viewing commitment	0.045	0.041	1.100
H1-2	Entertainment	→	Viewing commitment	0.167	0.046	3.615***
H1-3	Social intercourse	→	Viewing commitment	0.182	0.040	4.547***
H1-4	Vicarious satisfaction	→	Viewing commitment	0.219	0.063	3.466***
H2	Viewing commitment	→	Reviewing intention	0.478	0.072	6.690***
H3	Viewing commitment	→	Game use intention	0.148	0.067	2.221*
H4	Reviewing intention	→	Game use intention	0.231	0.073	3.183**

X^2=519.849(df =209, p =0.000), X^2/df =2.487, TLI=0.904, CFI=0.921, RMSEA=0.071
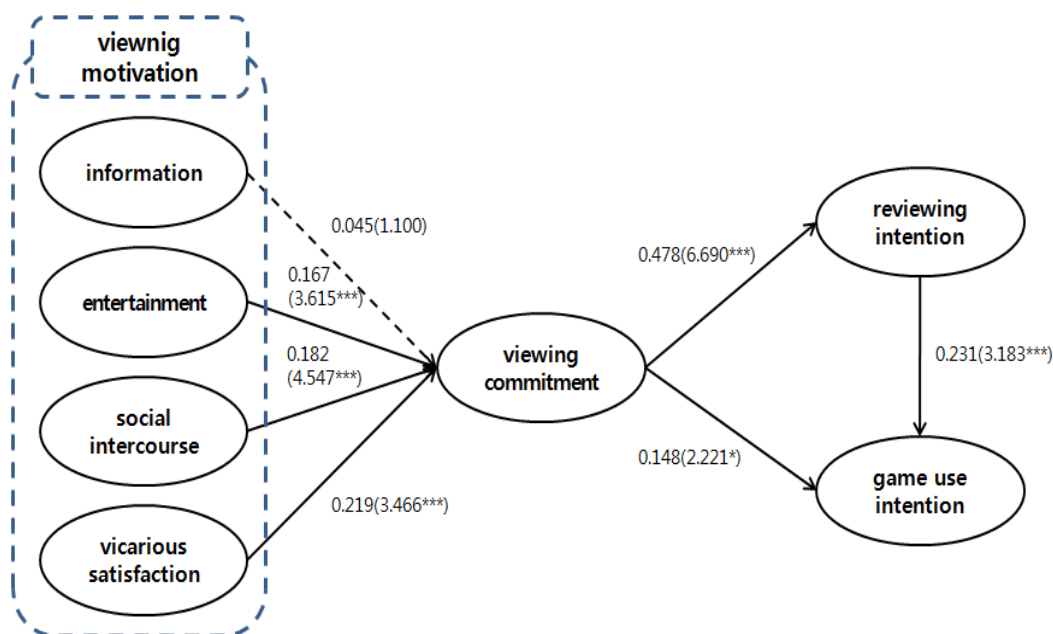*$p<0.05$,**$p<0.01$, ***$p<0.001$

Figure 2. Result model

5. Conclusion

Through the results of this study, it can be seen that entertainment, social intercourse and vicarious satisfaction among the viewing motives of e-sports competition broadcast viewers positively affect the viewing commitment, and the intention of re-watching and game use. Through these results, it can be seen that viewers who watch broadcasts of e-sports competitions watch broadcasts to satisfy entertainment, social intercourse, and variable situations. The importance of viewing motivation of viewers of e-sports competitions can be confirmed, and the importance of entertainment, social relations, and vicarious satisfaction, which play an important role in viewers' commitment, should be recognized. This can be said to be an important part for both broadcasting officials and game companies that conduct broadcasting.

In other words, efforts to satisfy viewers' viewing motivation suggest that broadcasters and game companies need a joint strategy, not an effort, respectively. By satisfying viewers' viewing motivation, broadcasters can

increase their intention to rewatch, and game companies will be able to increase their intention to use their games. Therefore, broadcasters and game companies that host e-sports competitions should cooperate together to find strategies that can satisfy viewers' viewing motivation. In particular, in the results of this study, entertainment, social intercourse and vicarious satisfaction, which were found to have a positive effect on viewing commitment, should be recognized as important and efforts should be made to increase them.

Acknowledgement

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