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The Effects of Social Media Engagement of e-Sports Broadcasting Viewers on Viewing Commitment, Viewing Satisfaction and loyalty

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Abstract

The purpose of this study is to investigate the structural relationship between media engagement, viewing immersion, viewing satisfaction, and loyalty of e-sports viewers. In order to achieve the purpose of this study, a survey was conducted on 300 college students with experience in watching e-sports in Seoul, Gyeonggi-do, and Chungnam. Data processing was done with SPSS 26 for frequency analysis, Cronbach's α analysis. Also, AMOS 13 was used for confirmatory factor analysis and structural equation model analysis. We have the following results. first, among the sub-factors of media engagement, functional engagement and communal engagement had a significant effect on viewing commitment. Second, among the sub-factors of media engagement, emotional engagement had a significant effect on viewing satisfaction. Third, it was found that viewing commitment and viewing satisfaction had a significant effect on loyalty. From the results of this study, it can be seen that the media engagement of e-sports viewers affects loyalty through viewing commitment and viewing satisfaction.

Keywords: e-Sport, Media Engagement, Viewing Commitment, Viewing Satisfaction, Loyalty

1. Introduction

E-sports is becoming a representative content of the 4th industry and a global cultural event. These e-sports have grown since the 2000s as broadcasting has been carried out through TV and the Internet. E-sports are developing like sports, with players, clubs, and competitions and leagues progressing, not just games, but fans forming through competition, wins, and rules. It has become equipped with the external and internal shape and structure of sports. This trend of e-sports shows the possibility and value of sports as an [1].

Sports and media have maintained a business relationship for a considerable period of time. With the development of media technology, sports broadcasting has repeatedly evolved in various ways, and accordingly, changes in program production techniques and styles have played a major role in creating a new sports media environment [2]. The development of these media is adapting to the needs and market environment of sports consumers who change too quickly by developing and providing various sports media contents.

Among them, e-sports especially applies a new media environment quickly and broadcasts of the game are underway. In other words, the broadcast of the game is being conducted centering on online media. This is being broadcasted in the direction of various communication in the existing one-way broadcast. According to these media characteristics, e-sports viewers try various communication when watching broadcasts. It is to look for other people's comments or alerts related to the game online, such as SNS. This has become an important part of e-sports viewers as communication such as watching the game and sharing information with others at the same time.

In order to approach the various communication effects of these media in more detail, the concept of engagement has recently emerged [3]. Media engagement is defined as active intervention or participation using media, and is a concept more specialized in media among engagement [4]. Viewers will also have differences in the effectiveness of communication according to the special experience of using media [5, 6].

Media engagement can also play an important role for e-sports viewers. 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. Due to the nature of the online platform, real-time two-way communication with various viewers or broadcasting subjects takes place along with broadcasting viewing of the game. 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 engagement and how it ultimately affects broadcasters who watch and broadcast e-sports broadcasting. In other words, media engagement, a special experience that e-sports viewers can gain while watching the broadcast, can play an important role in enhancing the effectiveness of broadcasting through understanding of e-sports broadcast viewers.

Accordingly, the purpose of this study is to understand the engagement of viewers of e-sports broadcasting and the effect of such poet engagement on viewing commitment, viewing satisfaction and loyalty. Through this, it is believed that basic data to maximize the effect of e-sports broadcasting can be provided.

2. Research Hypothesis

The research hypothesis established in this study was set around the results of the relationship between each variable revealed in previous studies. The research hypothesis established in this study and the evidence accordingly are as follows.

2.1 Relationship between Media Engagement and Viewing Commitment

Media engagement of e-sports broadcasting viewers will play an important role in engagement with the city hall Looking at previous studies related to this relationship, studies related to social media engagement of Olympic broadcasting viewers have shown that emotional engagement has a positive effect on commitment among sub-factors of media engagement [7]. In addition, several previous studies have revealed that engagement affects immersion [8, 9]. Therefore, the following hypothesis was established for the relationship between media engagement and viewing commitment.

Hypothesis 1. Media engagement will have a significant effect on viewing commitment.
   Hypothesis 1-1. Media engagement will have a significant effect on viewing commitment.
   Hypothesis 1-2. Media engagement will have a significant effect on viewing commitment.
   Hypothesis 1-3. Media engagement will have a significant effect on viewing commitment.

2.2 Relationship between Media Engagement and Viewing Satisfaction

Media engagement of e-sports broadcasting viewers will play an important role in viewing satisfaction Looking at previous studies related to this relationship, it can be confirmed through the results that media engagement has a positive effect on usage satisfaction in a study of single media users [10]. In addition, in previous studies that investigated the relationship between engagement and satisfaction, it was said that engagement affects satisfaction [11, 12]. Therefore, the following hypothesis was established.

Hypothesis 2. Media engagement will have a significant effect on viewing satisfaction.

Hypothesis 2-1. Media engagement will have a significant effect on viewing satisfaction.

Hypothesis 2-1. Media engagement will have a significant effect on viewing satisfaction.

Hypothesis 2-1. Media engagement will have a significant effect on viewing satisfaction.

2.3 Relationship between Viewing Commitment, Viewing Satisfaction and Loyalty

Looking at previous studies on the relationship between viewers' immersion in viewing, viewing satisfaction, and loyalty, it is found that viewers' immersion and viewing satisfaction have a positive effect on channel loyalty [13]. In this regard, a study of media sports viewers found that channel commitment had a positive effect on channel loyalty [14]. And it was found that satisfaction with broadcasting had a positive effect on loyalty [15]. Therefore, the following hypothesis was established.

Hypothesis 3. Viewing commitment will have a significant effect on loyalty.

Hypothesis 4. Viewing satisfaction will have a significant effect on loyalty.

The following figure 1 shows a model built around the hypothesis of this study
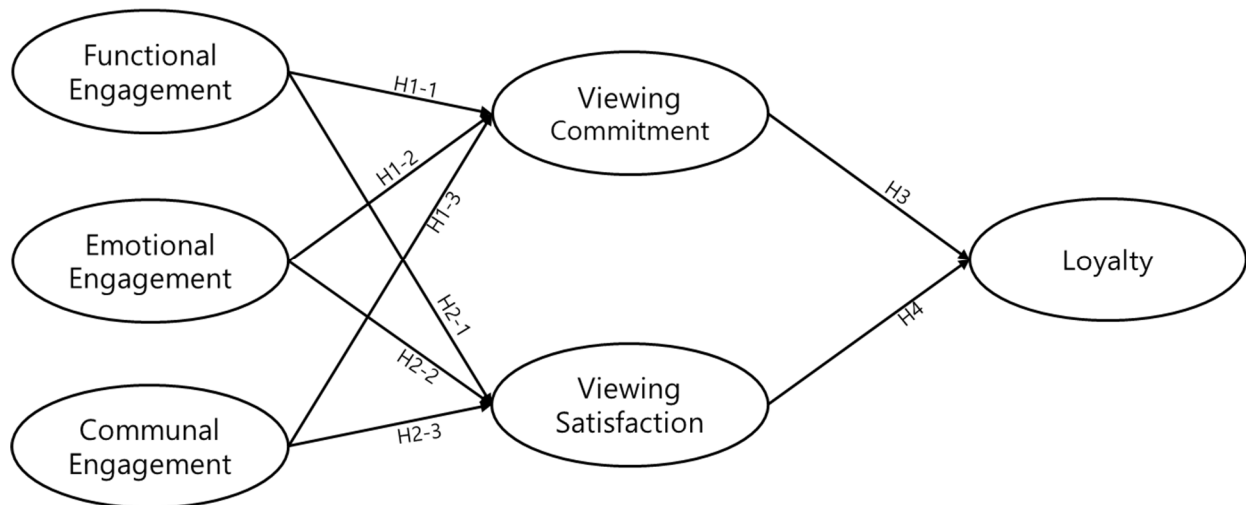

Figure 1. Study model

3. Research Method

3.1 Research Subjects and Sampling Method

The subject of the study was university student viewers who had experience in communicating through SNS or broadcast chat windows while watching streaming broadcasts of e-sports competitions. 300 university students at universities located in Seoul, Gyeonggi and Chungnam were sampled using the convenience sampling method. The survey was conducted by explaining the purpose of the study to the survey subjects and distributing it with cooperation and consent to respond to the survey through self-assessment. In consideration of the legibility and consistency of the data, the final effective sample was selected after excluding six questionnaires that were deemed inappropriate for the study. The general characteristics of the survey subjects are shown in Table 1 below.

Table 1. Characteristics of subjects

Division		Frequency(person)	%
Sex	Male	185	62.9
	Female	109	37.1
	Sum	294	100
Grade	1st	95	32.3
	2st	80	27.2
	3st	64	21.8
	4st	55	18.7
	Sum	294	100

3.2 Research Tools

A questionnaire was used as a survey tool in this study. Based on the questions used in previous studies, the content validity was secured through three experts in the major field and used in the survey. The measurement items of each constituent concept and the items of the source variable were measured on a Likert 7-point scale with 7 points for 'very yes' and 1 point for 'very not'. Looking at the composition of the survey, engagement was based on the questions used in the study of Lim, Hwang, Kim, and Biocca (2015) [6], the questions used in the study of Hwang, Kim, and Kim (2014) [14], and the satisfaction of viewing was based on the questions used in the study of Jun (2017) [11]. The contents of the questionnaire composition are shown in Table 2.

Table 2. Research tools

Factors		Items
Engagement	Functional	4
	Emotional	4
	Communal	4
Viewing commitment		4

Viewing satisfaction	4
Loyalty	4

3.3 Data Processing

For data processing, frequency analysis was performed to understand the characteristics of the survey and the general tendency of the sample using SPSS 26, and Cronbach's α test was performed to test the reliability of internal inertia of each concept. Confirmatory factor analysis was performed using AMOS 23, and the intensive validity and discriminant validity of the scales were analyzed. A structural equation model was performed to verify the established research model and hypothesis.

4. Results

4.1 Validity and 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. 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>.

Table 3. Confirmatory factory analysis & reliability

Factors	S.E.	M.E.	C.R	AVE	Cronbach's α
functional engagement 1	0.778	0.395			
functional engagement 2	0.818	0.331	0.883	0.653	0.887
functional engagement 3	0.847	0.283			
functional engagement 4	0.788	0.379			
emotional engagement 1	0.827	0.316			
emotional engagement 2	0.791	0.374	0.890	0.670	0.885
emotional engagement 3	0.883	0.220			
emotional engagement 4	0.769	0.409			
communal engagement 1	0.809	0.346			
communal engagement 2	0.895	0.199	0.891	0.671	0.885
communal engagement 3	0.812	0.341			
communal engagement 4	0.755	0.430			
viewing commitment 1	0.853	0.272			
viewing commitment 2	0.910	0.172	0.919	0.739	0.916
viewing commitment 3	0.878	0.229			
viewing commitment 4	0.794	0.370			

viewing satisfaction 1	0.873	0.238			
viewing satisfaction 2	0.841	0.293	0.895	0.740	0.895
viewing satisfaction 3	0.866	0.250			
loyalty 1	0.859	0.262			
loyalty 2	0.784	0.385	0.889	0.667	0.887
loyalty 3	0.858	0.264			
loyalty 4	0.760	0.422			

X^2=389.059(df =215, p =0.000), X^2/df =1.810, TLI=0.959, CFI=0.965, RMSEA=0.053

Based on the opinion that the fit index in a structural equation model can be judged together with other in dexes by a relative index instead of an absolute criteria[16], the fit was verified with the TLI and CFI suggest ed by Netemeyer, Boles, McKee & McMurrian[17] and the X^2/df value (less than standard 3) and RMSEA pr oposed by Kim though the X^2 value did not meet the standard[18]. The results of TLI=.959, CFI=.965. X^2/df =1.810 and RMSEA=.053 show that the fit was relatively satisfactory. In addition, all the scores of the stand ardized regression weights (over .5), the value of average variance explained (AVE) and construct reliability (over .7) were more than the standard value showing the satisfactory convergent validity.

Fornell & Larckerstated 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[19]. Therefore, the value of A VE presented in <Table 4> was compared with the squared value of the correlation coefficient of each conce pt in the correlation analysis. As the value of AVE is more than the squared value of the correlation coefficie nt, the scales used in this study have discriminant validity.

After the verification of convergent validity and discriminant validity, Cronbach's α testing was conducte d 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[20] thus proving the inte rnal consistency of all the factors.

Table 4. Correlation analysis

Factors	1	2	3	4	5	6
functional engagement	1					
emotional engagement	0.483***	1				
communal engagement	0.592***	0.773***	1			
viewing commitment	0.524***	0.358***	0.444***	1		
viewing satisfaction	0.408***	0.669***	0.584***	0.284***	1	
loyalty	0.389***	0.590***	0.579***	0.323***	0.531***	1

***p<0.001

4.2 Hypothesis Verification Result

In order to verify the research hypothesis established in this study, a structural equation model analysis was conducted using AMOS 23. Specifically, first, among the sub-factors of media engagement, functional engagement and communal engagement had a significant effect on viewing commitment. Second, among the

sub-factors of media engagement, emotional engagement had a significant effect on viewing satisfaction. Third, it was found that viewing commitment and viewing satisfaction had a significant effect on loyalty. The results are shown in <Table 5> and <Figure 2>.

Table 5. Hypothesis verification result

	Hypothesis			Estimate	S.E.	*t*
H1-1	functional engagement	→	viewing commitment	0.526	0.104	5.075***
H1-2	emotional engagement	→	viewing commitment	-0.176	0.173	-1.014
H1-3	communal engagement	→	viewing commitment	0.467	0.220	2.122*
H2-1	functional engagement	→	viewing satisfaction	0.091	0.097	0.936
H2-2	emotional engagement	→	viewing satisfaction	1.026	0.179	5.741***
H2-3	communal engagement	→	viewing satisfaction	-0.062	0.212	-0.294
H3	viewing commitment	→	loyalty	0.191	0.054	3.559***
H4	viewing satisfaction	→	loyalty	0.497	0.053	9.423***

X^2=411.534(df =217, p =0.000), X^2/df =1.896, TLI=0.954, CFI=0.961, RMSEA=0.055
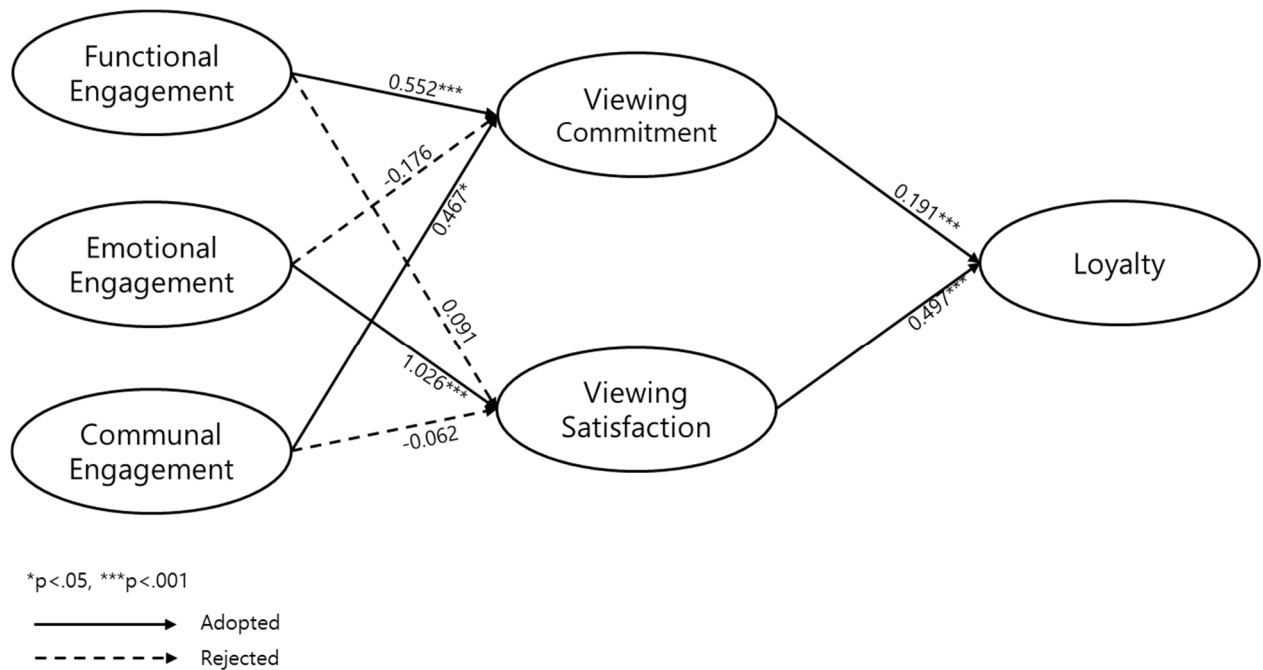*p<0.05, ***p<0.001

Figure 2. Result model

5. Conclusion

This study investigated the structural relationship between media engagement, viewing commitment, viewing satisfaction, and loyalty of e-sports viewers. As a result, it was found that functional engagement and communal engagement, which are sub-factors of media engagement, had a significant effect on viewing commitment, and emotional engagement had a significant effect on viewing satisfaction. In addition, it was

found that viewers' viewing commitment and satisfaction with viewing formed through engagement had a significant effect on loyalty.

Through these results, it can be seen that engagement of e-sports viewers positively affects viewing commitment and viewing satisfaction, ultimately affecting loyalty. It can be said that viewing commitment and viewing satisfaction are very important factors to be recognized from the perspective of media that broadcast e-sports. This is because viewers' immersion in viewing and satisfaction play a very important role in directly forming loyalty to the media.

In the media that broadcasts e-sports, various strategies should be sought to positively form viewers' engagement. The more positive the engagement of viewers is formed, the higher the loyalty to the media ultimately increases. This means that if viewers satisfy the functional, emotional, and communication parts by watching e-sports and communicating with various people, loyalty to the media will eventually increase through viewing commitment and viewing satisfaction. Therefore, it should be built so that e-sports viewers can quickly and conveniently communicate with a satisfactory communication environment.

Acknowledgement

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