

## **A Study on the Viewing Experience and Performance of Professional Baseball Team: The Team Performance Side and the Fan Performance Side \***

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### **Abstract**

*The purpose of this study is to analyze the structural relationship among fan experience, fan satisfaction, team attachment, psychological well-being, team loyalty and quality of life. Specifically, the structural equation model is analyzed for the team performance side leading to fan experience-fan satisfaction-team attachment-team loyalty and the an performance side leading to fan experience-fan satisfaction-psychological well-being-quality of life. The survey to achieve the goal of this study is a professional baseball fan. 150 pilot envestigation and 348 main envestigation were selected as the final effective samples. Data processing was done with SPSS 23 for frequency analysis, exploratory factor analysis and reliability analysis. Also, AMOS 21 was used for confirmatory factor analysis and structural equation model analysis. The results of the analysis are as follows: First, fan experience had a positive effect on the fan satisfaction. Second, fan satisfaction had a positive effect on the team attachment. Third, fan satisfaction had a positive effect on the psychological well-being. Fourth, team attachment had a positive effect on theteam loyalty. Fifth, psychological well-being had a positive effect on the quality of life.*

**Keywords:** *Professional Baseball, Fan Experience Management, Team Performance, Fan Performance*

### **1. Introduction**

Pine and Gilmore who presented the theory of experience economics argued that the industry would change in the form of providing consumers with experience beyond products [1]. This argument became more persuasive in the 2000s, and was proposed by Prof. Burnt Schmidt of Columbia Business School for a management solution called customer experience management that required management of experience at all points of contact with the customer [2]. This pointed out the limitations of customer satisfaction management that appeared in the 1980s and CRM that appeared in the 2000s, and in the recognition of a more complementary and effective management solution, companies such as Starbucks, Canon, DuPont, Apple, and Citibank are providing excellent customer experiences. He is committed to victory in the arena of competition [3]. In accordance with these trends in the business industry, academic research focusing on

customer experience is also being conducted in various fields in Korea [4]. In the field of sports industry, research has been recently focused on participatory sports, but there is no research on viewing sports.

Therefore, this study aims to grasp the relationship between experience attributes and performance variables according to the journey of fans before, during, and after viewing, targeting the most popular professional baseball in Korea. As for the performance variable, a structural equation model is established based on previous research in consideration of the team side and the customer side, and an empirical study is conducted to provide implications.

## **2. Study Hypothesis**

The current study established hypothesis based on theoretical bases from previous literature. The causal relationships among fan experience, fan satisfaction, team attachment, psychological well-being, team loyalty and quality of life were the focus of the study. The following sections discuss the detailed relationship between these concepts, based on the model of the current research.

### **2.1 Relationship Between Fan Experience and Fan Satisfaction**

The fan experience of professional Baseball fans will have a positive impact on fan satisfaction. These relationships can be identified by the results of prior studies studied in relation to fan experience and fan satisfaction. Kim said that customer experience in the service industry plays an important role in improving customer satisfaction, and examined the relationship between customer experience and customer satisfaction through empirical research [5]. And Choi & Jin said in a festival-related study that emotional experience has a positive effect on satisfaction [6]. The above preceding studies show that empirical values can affect images. Therefore, the following hypotheses have been established:

Hypothesis 1. Fan experience will have a significant effect on fan satisfaction.

### **2.2 Relationship Between Team Satisfaction and Fan Attachment**

The team satisfaction will have a positive impact on fan attachment. In relation to this relationship, In a study on the franchise industry of Cho, customer satisfaction has a positive effect on brand attachment, and in a study on the service industry of Ra customer satisfaction has a positive effect on store attachment [7, 8]. In addition, Kim & Choi's research on the aviation service industry showed that the satisfaction of users has a positive effect on brand attachment [9]. The results of these preceding studies show that team satisfaction affect fan attachment. Therefore, the following hypotheses have been established:

Hypothesis 2. Team satisfaction will have a significant effect on fan attachment.

### **2.3 Relationship Between Fan Satisfaction and Psychological Well-being**

Psychological well-being in individual leisure can be explained as how much they are satisfied with their lives through leisure activities and can be defined as a positive mental state. Therefore, it can be predicted that the satisfaction of leisure activities through viewing the game for professional baseball fans will increase the psychological well-being. In this regard, in the study of Kwak and Kim, school life satisfaction of adolescents was analyzed as a factor that positively influences self-acceptance of psychological well-being, environmental regulation, and life purpose [10]. In a study by Jeon, disabled person satisfaction in leisure is statistically significant was found to have a significant positive effect [11]. Therefore, the following hypothesis was established for the relationship between fan satisfaction well-being and psychological

well-being:

Hypothesis 3. Fan satisfaction will have a significant effect on psychological well-being.

### 2.4 Relationship Between Team Attachment and Team Loyalty

The relationship between attachment and loyalty has been studied in various fields such as service, brand, store, and tourism. In most studies, attachment suggests the role of an antecedent variable in loyalty. In a study by Jeon & Lee on professional sports, which is the subject of this study, it was said that the team attachment felt by professional baseball fans has a positive effect on team loyalty [12]. In addition, Byeon’s study verified the mediating effect of attachment in the relationship between the authenticity and loyalty of a professional baseball team [13]. Therefore, the following hypothesis was established for the relationship between team attachment and team loyalty:

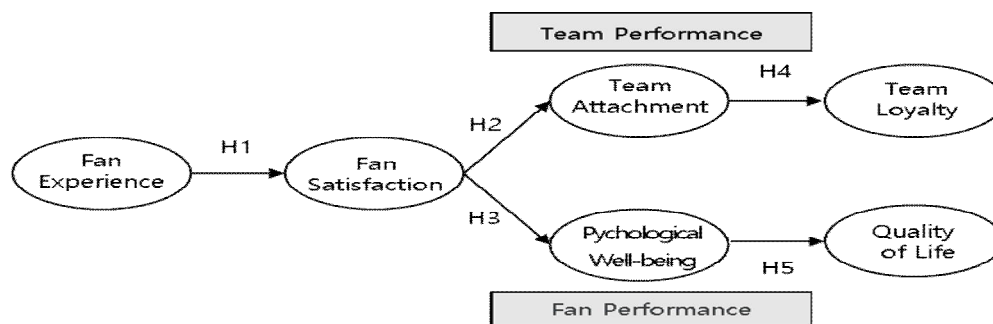
Hypothesis 4. Team attachment will have a significant effect on team loyalty.

### 2.5 Relationship Between Psychological Well-being and Quality of Life

The brand psychological well-being will be an important role in quality of life. In the relationship between psychological well-being and quality of life, psychological stability is predicted to play a role as a causal variable in improving the quality of life. For this reason, a sense of psychological well-being is a concept in which an individual feels well on his or her maturity and functioning well, which means a 'meaningful life'. The measurement of psychological stability measures how efficiently an individual's activities are performed in the individual's environment [14]. Therefore, people with a high sense of psychological stability regard life as meaningful, and this perception is judged to be more highly aware of the quality of life. This relationship can also be confirmed by Park, Kim, & Kwon's study on female line dance participants and Lee's study on elderly life sports participants [15, 16]. Therefore, the following hypothesis was established for the relationship between psychological well-being and quality of life:

Hypothesis 5. Psychological well-being will have a significant effect on quality of life.

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

The subjects of this study were professional baseball fans, and pilot survey and main survey were conducted. The subjects of the survey had the experience of viewing a professional baseball game, and were selected by comprehensively considering the support team, the number of visits, and the degree of

involvement. Sampling was performed using the convenience sampling method, and the survey was conducted using the online survey system of KSDC(Korean Social-Science Data Center). The final subjects were 150 fan in the pilot survey and 348 fan in the main survey.

### 3.2 Research Tools

The research tool of this study is questionnaire. To measure all concepts, the questions used in the preceding studies were modified and supplemented to the purpose of this study. In the questionnaire, fan experience of 27 questions, team satisfaction of 4 questions, team attachment of 4 questions, psychological well-being of 4 questions, team loyalty of 3 questions and quality of life of 5 questions.

## 4. Results

### 4.1 Analysis of Validity and Reliability of Exogenous Variables

The viewing experience was derived through exploration of previous research and in-depth interviews with 20 professional baseball fans. In this regard, the scale development procedures used by Park Kwon's study and Jeong Kwon's study were conducted to verify the validity and reliability of the scale [17, 18]. The content validity verification and pilot investigative EFA step, main investigation EFA, CFA, and SEM steps were followed. The research was conducted by conducting expert conference meetings at each step and process, securing feasibility and reliability.

The exploratory factor analysis selected only Varimax and questions with factor loading greater than 0.5 for each factor, both in the pilot and in the main investigation. The exploratory factor analysis of the viewing experience satisfied the criteria of KMO and Bartlett's test, and it was analyzed into 8 dimensions and 27 items. As are shown in Table 1, the values of Cronbach's  $\alpha$  in all factors are over 0.7 suggested by Nunnally & Bernstein thus proving the internal consistency of all the factors [19].

In the confirmatory factor analysis, the first and the second confirmatory factor analysis were performed for the parceling of the items of exogenous variables. 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 2.

The first confirmatory factor analysis showed that the suitability was satisfactory for TLI=0.905, CFI=0.920, and RMSEA=0.074, and the second confirmatory factor analysis for the parceling of items showed that the suitability was generally satisfactory for TLI=0.907, CFI=0.937, and RMSEA=0.114(Kim's study) [20]. 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 [21].

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 [22]. 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. As the value of AVE is more than the squared value of the correlation coefficient, the scales used in this study have discriminant validity.

**Table 1. Exploratory factor analysis and reliability of exogenous variables**

Factors	Item	Pilot Investigation			Main Investigation		
		Factor Loading	$h^2$	Cronbach's $\alpha$	Factor Loading	$h^2$	Cronbach's $\alpha$
Viewing plan/purchase	1	0.744	0.741	0.868	0.826	0.811	0.879
	2	0.709	0.735		0.808	0.802	
	3	0.825	0.775		0.786	0.752	
	4	0.758	0.721		0.743	0.696	
Stadium movement	1	0.869	0.887	0.920	0.883	0.889	0.920
	2	0.879	0.888		0.887	0.910	
	3	0.789	0.789		0.782	0.785	
Entrance stadium	1	0.668	0.799	0.872	0.761	0.771	0.860
	2	0.746	0.789		0.670	0.704	
	3	0.568	0.682		0.639	0.716	
	4	0.688	0.722		0.675	0.654	
Move to seat	1	0.700	0.815	0.912	0.536	0.751	0.907
	2	0.823	0.899		0.836	0.905	
	3	0.784	0.843		0.829	0.889	
	4	0.691	0.753		0.687	0.764	
Game viewing	1	0.843	0.855	0.805	0.864	0.868	0.848
	2	0.691	0.800		0.800	0.832	
Amenities/Services	1	0.863	0.830	0.823	0.816	0.814	0.857
	2	0.668	0.714		0.688	0.781	
	3	0.812	0.772		0.795	0.821	
Event/Cheering	1	0.658	0.682	0.837	0.729	0.744	0.823
	2	0.751	0.861		0.694	0.810	
	3	0.710	0.793		0.645	0.732	
Move after match	1	0.709	0.849	0.882	0.713	0.808	0.894
	2	0.805	0.847		0.767	0.813	
	3	0.614	0.836		0.642	0.779	
	4	0.602	0.752		0.715	0.795	
Kaiser-Meyer-Olkin=0.898				Kaiser-Meyer-Olkin=0.926			
Bartlett's test=3147.473, $df=351$ , $Sig=0.000$				Bartlett's test=7217.532, $df=351$ , $Sig=0.000$			

**Table 2. Confirmatory factor analysis of exogenous variables**

Factors	Item	1 <sup>th</sup> CFA					2 <sup>th</sup> CFA				
		$\beta$	$1-\lambda^2$	$t$	AVE	C. R	$\beta$	$1-\lambda^2$	$t$	AVE	C. R
Viewing plan/purchase	1	0.833	0.306								
	2	0.888	0.211	19.489***	0.650	0.881	0.618	0.618			
	3	0.764	0.416	16.026***							
	4	0.730	0.467	15.063***							
1	0.913	0.166									
Stadium movement	2	0.957	0.084	29.064***	0.801	0.923	0.616	0.621	9.685***	0.502	0.888
	3	0.809	0.346	20.974***							
	1	0.805	0.352								
Entrance stadium	2	0.784	0.385	15.697***	0.608	0.861	0.805	0.352	11.800***		
	3	0.799	0.362	16.073***							
	4	0.730	0.467	14.362***							
	1	0.805	0.352								

Move to seat	1	0.685	0.531						
	2	0.949	0.099	16.124***	0.718	0.909	0.797	0.365	11.714***
	3	0.929	0.137	15.886***					
	4	0.799	0.362	13.904***					
1	0.803	0.355							
Game viewing	2	0.917	0.159	13.735***	0.743	0.852	0.585	0.658	9.297***
	1	0.757	0.427						
Amenities/Services	2	0.854	0.271	15.853***	0.673 <sup>a</sup>	0.860	0.679	0.539	10.387***
	3	0.847	0.283	15.731***					
	1	0.666	0.556						
Event/Cheering	2	0.891	0.206	13.703***	0.632	0.835	0.743	0.448	11.164***
	3	0.811	0.342	12.945***					
	1	0.884	0.219						
Move after match	2	0.847	0.283	20.089***	0.691 <sup>a</sup>	0.899	0.784	0.385	11.567***
	3	0.749	0.749	16.996***					
	4	0.838	0.838	20.599***					
	1	0.884	0.219						

1<sup>st</sup> CFA:  $\chi^2=863.495(df=296, p=0.000)$ , TLI=0.905, CFI=0.920, RMSEA=0.074

2<sup>nd</sup> CFA:  $\chi^2=103.985(df=19, p=0.000)$ , TLI=0.907, CFI=0.937, RMSEA=0.11

\*\*\* $p<0.001$ , <sup>a</sup> within-factor correlated measurement error

**Table 3. Correlation analysis of exogenous variables**

Factors	1	2	3	4	5	6	7	8
Viewing plan/purchase	1							
Stadium movement	0.455**	1						
Entrance stadium	0.660**	0.553**	1					
Move to seat	0.490**	0.485**	0.687**	1				
Game viewing	0.500**	0.288**	0.577**	0.391**	1			
Amenities/Services	0.402**	0.424**	0.585**	0.594**	0.465**	1		
Event/Cheering	0.389**	0.465**	0.585**	0.648**	0.482**	0.713**	1	
Move after match	0.530**	0.461**	0.651**	0.606**	0.566**	0.756**	0.768**	1

\*\* $p<0.01$

#### 4.2 Analysis of Validity and Reliability of Measurement Model

A confirmatory factor analysis was performed on the measurement model. 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 4. The confirmatory factor analysis showed that the suitability was satisfactory for TLI=0.915, CFI=0.923, and RMSEA=0.072. 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.

The aforementioned Fornell & Larcker' study 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. Therefore, the value of AVE presented in Table 5 was compared with the squared value of the correlation coefficient of each concept in the correlation analysis. As the value of AVE is more than the squared value of the correlation coefficient, the scales used in this study have discriminant validity. As are shown in Table 4, the values of Cronbach's  $\alpha$  in all factors are over .7 thus proving the internal consistency of all the factors.

**Table 4. Confirmatory factor analysis and reliability of measurement model**

Factors	Item	$\beta$	$1-\lambda^2$	$t$	AVE	C. R	Cronbach's $\alpha$
Fan Experience	Viewing plan/purchase	0.615	0.622		0.503	0.889	0.884
	Stadium movement	0.616	0.621	9.694			
	Entrance stadium	0.800	0.360	11.751			
	Move to seat	0.783	0.387	11.579			
	Game viewing	0.585	0.658	9.294			
	Amenities/Services	0.687	0.528	10.485			
	Event/Cheering	0.756	0.428	11.297			
	Move after match	0.793	0.371	11.657			
Fan Satisfaction	1	0.739	0.454		0.666	0.888	0.880
	2	0.886	0.215	16.715			
	3	0.916	0.161	17.215			
	4	0.704	0.504	13.080			
Team Attachment	1	0.920	0.154		0.766	0.928	0.957
	2	0.932	0.131	31.016			
	3	0.923	0.148	30.079			
	4	0.907	0.504	28.576			
Psychological Well-being	1	0.919	0.155		0.834	0.952	0.952
	2	0.949	0.099	32.657			
	3	0.901	0.188	27.875			
	4	0.882	0.222	26.337			
Team Loyalty	1	0.863	0.255		0.691	0.870	0.869
	2	0.872	0.240	20.621			
	3	0.754	0.431	16.514			
Quality of Life	1	0.842	0.291		0.627	0.891	0.888
	2	0.856	0.267	19.657			
	3	0.782	0.388	17.134			
	4	0.888	0.211	20.775			
	.5	0.542	0.706	10.269			

\*\* $p < 0.01$ .**Table 5. Correlation analysis of measurement model**

Factors	1	2	3	4	5	6
Fan Experience	1					
Fan Satisfaction	0.360**	1				
Team Attachment	0.419**	0.710**	1			
Psychological Well-being	0.340**	0.625**	0.724**	1		
Team Loyalty	0.443**	0.728**	0.824**	0.742**	1	
Quality of Life	0.581**	0.382**	0.420**	0.450**	0.409**	1

\*\* $p < 0.01$ .

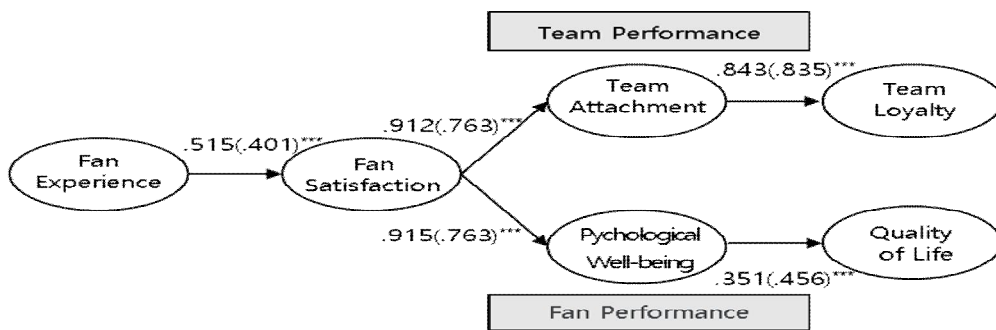
### 4.3 Hypothesis Verification Result

The test results of the hypothesis of the path analysis and path of the research model are shown in the table6 and figure 2 below.

**Table 6. Hypothesis verification result**

Hypothesis				B	$\beta$	s.e	t	Result
H1	Fan Experience	→	Fan Satisfaction	0.515	0.401	0.083	6.185***	O
H2	Fan Satisfaction	→	Team Attachment	0.912	0.763	0.067	13.524***	O
H3	Fan Satisfaction	→	Psychological Well-being	0.915	0.682	0.076	12.053***	O
H4	Team Attachment	→	Team Loyalty	0.843	0.835	0.046	18.248***	O
H5	Psychological Well-being	→	Quality of Life	0	0.456	0.042	8.322***	O

\*\*\* $p < 0.001$  /  $\chi^2 = 961.732$  (df=344,  $p = 0.000$ ), TLI=0.915, CFI=0.923, RMSEA=0.072



**Figure 2. Result model**

**4. Conclusion**

Through the results of this study, it was confirmed that the experience of viewing professional baseball and satisfaction with it can improve team attachment and team loyalty, which are performance of the team. In addition, it was confirmed that the psychological well-being and quality of life, which are the performance of professional baseball fans, can be improved.

Through the COVID-19 Pandemic, social distancing and the social environment in the era of untact clearly poses a great threat to the viewing sports industry. However, humans have pursued life through self-realization in social relationships. As shown in the empirical analysis results of this study, it is suggested that the favorable experience of watching a professional baseball game can improve not only the team performance but also the quality of life of an individual.

As of 2021, spectator sports such as professional baseball are faced with bad news such as climate change, infectious diseases, the departure of the younger generation to the game industry, and the violence of players at school. One breakthrough in this business environment is to return to the basics.

The most important thing in the professional sports ecosystem is the fans. First, we need to analyze the fans' viewing experience in more detail. Through this, the best service should be provided at each viewing section and experience point. In addition, it is important to provide the best fan experience in the entire viewing section through reinforcement of channels where fans can hear complaints and immediate action on complaints. The follow-up study is expected to provide more practical implications for professional baseball fan experience management by organizing experiences before, during, and after viewing in multiple dimensions.



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