

A study on the impact of service quality of stage performance on willingness to continuously watch based on virtual reality technology

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[Abstract]

In this paper, we attempt to explore consumers' willingness to continuously watch stage performances on virtual reality technology platforms and the mediating role of the psychological contract in it through the integration of service quality theory, thus constructing a continuous viewing model and conducting an empirical analysis through SPSS and AMOS. Through the analysis, we came to the following conclusions: 1. Interaction quality, physical environment quality, and outcome quality have a positive impact on psychological contract; 2. The psychological contract has a positive impact on the willingness to continuously watch; 3. Interaction quality, physical environment quality, and outcome quality positively influence the willingness to continuously watch through psychological contract. Therefore, this model can be used by companies to grasp consumers' perceptions of their own service quality and to formulate specific strategies, and it provides new directions and insights for stage performance companies.

▶ **Key words:** interaction quality, outcome quality, physical environment quality, psychological contract, willingness to continue watching

[요 약]

본 논문은 가상현실 기술 플랫폼에서 지속적으로 무대 공연을 관람하고자 하는 소비자의 의지와 그 안에서 심리적 계약의 매개 역할을 탐색하기 위해 서비스 품질 이론을 통합하여 지속적인 관람 모델을 구축하고 실증적 분석을 수행하고자 한다. 본 논문에서는 제안된 가설을 검증하기 위해 SPSS와 AMOS 소프트웨어 분석을 사용하였다. 가설검증을 통해 1. 상호작용의 질, 물리적 환경의 질, 결과의 질이 심리적 계약에 정(+)의 영향을 미치고 2. 심리적 계약이 계속 시청하려는 의지에 정(+)의 영향을 미친다 3. 상호작용의 질, 신체적 환경 품질 및 결과 품질은 심리적 계약을 통해 계속 시청하려는 의향에 긍정적인 영향을 미친 것으로 나타났다. 따라서 이 모델은 기업이 자신의 서비스 품질에 대한 소비자의 인식을 파악하고 특정 전략을 수립하며 무대 공연 기업에 새로운 방향과 통찰력을 제공하는 데 참고할 수 있다.

▶ **주제어:** 상호작용의 질, 결과의 질, 물리적 환경의 질, 심리적 계약, 지속 시청의향

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I. Introduction

With the rapid development of society and economy, people's demand for spiritual civilization has gradually increased, and all countries in the world have increased their support for the development of culture and art, providing a good policy environment for the development of the art performance industry. Benefiting from the improvement of economic level and spiritual consumption demand, the performance market has developed rapidly, and continuous innovation has promoted the transformation and upgrading of the industry. Not only is the scale of the entertainment market in South Korea and China showing a steady upward trend for many years in a row, but countries around the world have placed expectations on the entertainment market.

In recent years, a new round of technological revolution and industrial transformation has been accelerated. Modern information technologies represented by 5G, big data, cloud computing, and artificial intelligence have been widely used, providing a broad space for the innovation and development of performing arts. The new crown epidemic has accelerated the development of performance art communication methods such as online studios and cloud performances, enhanced the vitality of the performance art industry, and promoted the vigorous development of new formats and models. In the future, with the gradual integration and development of the literary and artistic performance industry with the Internet industry information technology industry[1], tourism industry, and digital industry, the form and content of literary and artistic performances will be more abundant, and the comprehensive benefits will be more prominent.

Based on the above background, and based on the trend that the application of virtual reality technology is gradually cultivating stage performances, this study proposes a theoretical model based on the theory of service quality to

explore the behavioral intentions of consumers to continue watching stage performances on virtual reality platforms. Realistic platform, pay attention to the role of psychological contract. Based on this model, this study deeply explores the multi-dimensional aspects of stage performance service quality, introduces psychological contract, and explores how stage performance affects consumers' willingness to watch movies through psychological contract. This study explores the mechanism of service quality, psychological contract, and viewing behavior willingness through empirical methods, and provides useful suggestions for the development of the stage performance industry[2].

II. Literature review

2.1 Quality of Service

According to Cronin and Taylor, service quality is the result of the identifier's judgment of service perception based on their subjective consciousness, and it is a consumer's subjective perceived quality[10]. Therefore, combined with the characteristics of stage performances, this study believes that service quality refers to the service quality perceived by consumers, and is the result of consumers' subjective judgments on the gap between the expected service and the actual perceived service when or after receiving the service. Referring to the multi-level service quality measurement model developed by Brady and Cronin the determinants of service quality are determined as three dimensions: interaction quality(Attitude, Behavior, Behavior), physical environment quality(Waiting time, Design, Social factors) and result quality(Ambient conditions, Tangibles, Valence)[3]. Among them, the interaction quality refers to the customer's subjective evaluation of the service level of the service personnel in contact with them in the process of service delivery; the physical environment quality

refers to the customer's environment of the service place, including the appearance and entity of the actual facility[4]. A subjective evaluation of facility design; outcome quality refers to the final, holistic evaluation of service outcomes, which indicates what customers get and whether the service results achieve customer goals or meet customer motivations[5].

2.2 Psychological contract

The psychological contract was proposed by Argyris in 1960, and the concept first appeared in organizational management research. Scholars specifically divide it into transaction dimension and relationship dimension. The transaction dimension is related to material factors, while the relational dimension is more concerned with consumers' personal emotions. Since the 1990s, marketing scholars headed by Blacero & Ellram and Lushand & Brown have begun to use psychological contracts to study the relationship between consumers and enterprises at a deeper level, which is essentially consumers' expectations for enterprises to fulfill their promises[11][12]. According to Rousseau's (1990) narrow definition of psychological contract, Luo Haicheng (2005) defines customer psychological contract as the customer's perception or belief in the obligations or responsibilities promised by the enterprise. Empirical research has verified the applicability of customer psychological contract in the field of marketing, and pointed out that customer psychological contract includes two dimensions: transaction psychological contract and relational psychological contract[6]. Yang Lin (2010) also verified the existence and two dimensions of customer psychological contract in the marketing context through empirical research in the banking industry. Zheng Xiuzhi and Qiu Lezhi (2018) concluded when studying the relationship between consumer participation, service quality and psychological contract: psychological contract can guide consumers to participate in service and evaluation, and help promote consumer obligations

and fulfill their commitments[7]. In order to explore whether customers also have expectations for the obligations of enterprises when they perceive their own obligations, we introduce the concept of psychological contract into consumer psychology in order to better grasp customer needs and explain customer behavior[8].

III. Research Hypotheses and Model Construction

3.1 Research Model

Based on the literature review, this paper constructs a model of the impact of service quality on persistent viewing action intention, as shown in Figure 1.

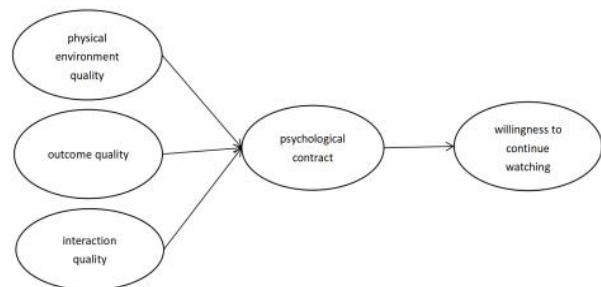


Fig. 1. Research Mode

3.2 Research Hypotheses

3.2.1 Psychological contract and service quality

Brady and Cronin (2001) proposed that in the process of service delivery, the perception of service quality has the greatest impact on the attitude (the friendliness of the practitioner), behavior (faster implementation) and professionalism (practitioner knowledge). Zhao Xin, Wang Shumei (2013) studied the relationship between customer participation, perceived service quality and customer psychological contract construction. Customer participation and perceived service quality positively affect customer psychological contract, and perceived service quality plays a partial mediating role in the relationship between customer participation and

customer psychological contract. Wen Chaoqun et al. took consumers in the telecommunications market as an example and found that there is a relationship between value and consumer psychological contract. In order to achieve sustainable development, enterprises reach transactional psychological contracts with consumers by creating value beyond consumers' expectations; increase trust and identity between enterprises and consumers by maintaining emotional relationships with consumers. Reach a relationship-based psychological contract with consumers[9].

Therefore, we can assume:

H1: Interaction quality has a positive effect on psychological contract

H2: The quality of the physical environment has a positive effect on the psychological contract

H3: Outcome quality has a positive effect on psychological contract

3.2.2 Psychological contract and willingness to continuously watch

Luo Haicheng et al.'s research on the formation mechanism of psychological contract in the service industry shows that psychological contract has a positive impact on consumption intention. Wang Xiaojuan et al. conducted research on consumers' psychological contract in the context of online shopping, and found that the formation of consumers' psychological contract has a significant impact on online shopping behavior willingness. The psychological contract is the psychological expectation of the customer and the merchant for each other. When there is a psychological contract between the customer and the merchant, the customer will be more dependent on the merchant, and the more inclined to maintain a long-term cooperative relationship with the merchant, and choose to repeat purchases .

Therefore, we assume:

H4: Psychological contract has a positive effect on willingness to continuously watch

3.2.3 The mediating role of psychological contract

The research of Xu Juan et al. shows that psychological contract affects the relationship between interactive behavior and farmers' willingness to participate in the co-building of regional brands of agricultural products. Consumers' psychological contract has a significant mediating effect in the influence of interactive behaviors on farmers' willingness to participate in regional brand co-construction of agricultural products. Zhao Jianbin et al. studied the loyalty of customers to the brand community. The customers of the brand community create a psychological contract among the members of the community through the interaction of the virtual network community, and this psychological contract influences the customer's loyalty to the brand community. This is a new perspective, and it also shows that psychological contract plays a mediating role in the influence of brand community in interpersonal interaction and information interaction.

Therefore, we assume:

H5: Interaction quality has a positive effect on persistent viewing intention through psychological contract

H6: The quality of the physical environment has a positive effect on the willingness to continuously watch through the psychological contract

H7: Outcome quality has a positive effect on persistent viewing intention through psychological contract

IV. Empirical Analysis

This article takes users who have participated in virtual reality technology stage performances as the survey objects, and collects data through the online questionnaire web site "wenjuanxing" from November 2021 to February 2022. A total of 432 questionnaires were collected in this online survey. After removing false and missing questionnaires, a

total of 392 valid samples were obtained for data analysis in this study.

Statistical analysis software SPSS22.0 and AMOS24.0 were used for data analysis and hypothesis testing. It mainly includes descriptive statistical analysis, reliability and validity testing, and structural equation modeling. Descriptive statistical analysis is to conduct frequency and percentage statistics on basic travel information and personal information involved in valid sample data to understand the distribution of sample structure. The reliability test mainly reflects the reliability and stability of the measurement results, and is usually measured by four indicators: factor loading coefficient, Cronbach's Alpha coefficient value, construct reliability (CR) and average variance extraction (AVE). Validity test mainly reflects the degree of accuracy of the measurement tools to measure the things to be measured, including content validity, convergent validity and discriminant validity. Structural equation modeling was used to verify the relationship between various influencing factors and the intention of Chinese students to study in Korea.

4.1 Analysis of reliability

The reliability of a questionnaire refers to the degree of consistency of the results obtained when the same method is used to measure the same object repeatedly, that is, the degree of reflecting the actual situation. Cronbach's alpha coefficient is the most commonly used reliability coefficient, and all kinds of empirical studies use this value as a measure to determine the level of reliability.

In this study, SPSS22.0 and AMOS24.0 software were used to calculate the Cronbach's alpha coefficient, construct reliability and mean variance extraction of each variable for reliability test. If the value of Cronbach's α is greater than 0.6, the reliability of the questionnaire is barely passing; if the value of Cronbach's α is greater than 0.7, the reliability of the questionnaire is qualified; if the value of Cronbach's α is greater than 0.8, the

reliability of the questionnaire is good; The value of is greater than 0.9, indicating that the reliability of the questionnaire is excellent.

The results of the tests are shown in Table 4.1, with Cronbach's alpha values for all variables greater than 0.8, which indicates that the valid sample data have high reliability and the measurements have good reliability for the next step of analysis.

Table 1. Cronbach's α values for each variable

Variable	Cronbach's α	items
IQ	0.876	3
OQ	0.866	3
PEQ	0.864	3
PC	0.860	4
WCW	0.860	3
total	0.874	16

4.2 Analysis of validity

Validity testing, or scale validity, refers to the extent to which a measurement instrument or tool is able to accurately measure the thing to be measured, or simply the accuracy and usefulness of a test.

The KMO and Bartlett's tests of sphericity were carried out on the selected data. If the statistic of Bartlett's sphericity test corresponds to a significant probability P-value, the original hypothesis is rejected as suitable for factor analysis and vice versa; and the general KMO metric is: 0.9 or above means very suitable for factor analysis, 0.8 means suitable, 0.7 means average, 0.6 means not very suitable, and 0.5 or below means extremely unsuitable. Below 0.5 means extremely unsuitable. Through the test of KMO and Bartlett, we obtained the KMO value of 0.852; the approximate chi-square value of the sphericity test result was 5273.253, and the corresponding P value was 0.000, which was less than the significance level of 0.05, indicating that this questionnaire has a high level of significance. The validity of the method has high statistical significance, and it is suitable for factor analysis.

Table 2. KMO & Bartlett's Test of Sphericity

Test items		test result
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,852
Bartlett's Test of Sphericity	Approx. Chi-Square	5273.253
	df	120
	Sig.	0.000

Table 3. Factor loading, CR & Square root of AVE

items	Factor loading	CR	AVE
PC4	0.831	0.8747	0.797
PC3	0.816		
PC1	0.775		
PC2	0.766		
IQ1	0.878	0.9058	0.873
IQ2	0.871		
IQ3	0.870		
OQ3	0.854	0.8859	0.849
OQ2	0.849		
OQ1	0.845		
PEQ2	0.900	0.8964	0.862
PEQ1	0.879		
PEQ3	0.804		
WCW2	0.857	0.8690	0.830
WCW1	0.822		
WCW3	0.810		

As shown in Table 4.3, the standardized factor loading of the observed variables and corresponding latent variables of each measurement item are greater than 0.7, and the average variance extraction (AVE) of all variables is greater than 0.5, indicating that the measurement has good convergent validity. In addition, as shown in Table 4.4, the square root of the AVE value of each latent variable is greater than its correlation coefficient with other latent variables, which indicates that each latent variable has good discriminant validity.

Table 4. Pearson product-moment correlation coefficient

	IQ	PEQ	OQ	PC	WCW
IQ	0.762				
PEQ	.170*	0.743			
OQ	.099*	.309*	0.721		
PC	.318*	.279*	.324*	0.635	
WCW	.276*	.324*	.435*	.494*	0.688

4.3 Empirical testing

Structural Equation Modeling (SEM) is a commonly used statistical modeling method. It analyzes the correlation between variables based on the covariance matrix of each variable and is described with graphs, such as path graphs and causal model graphs.

Based on the theoretical model and research hypotheses, the relationship between the variables was investigated using structural equation modelling using AMOS 24.0 software. Based on the research hypothesis and the basic findings of the correlation analysis, a structural equation model was constructed for the study. This is illustrated in Figure 2.

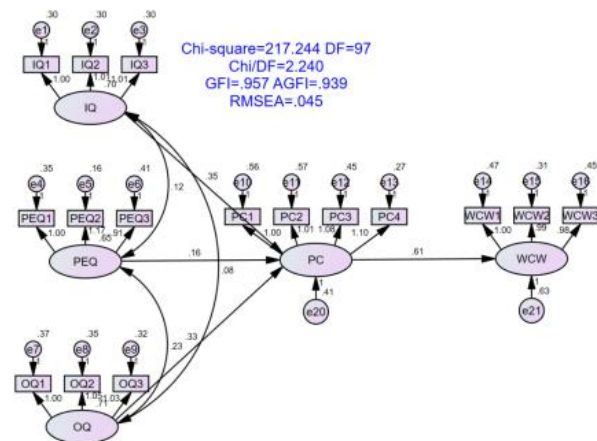


Fig. 2. Diagram of normalisation factors for the structural equations

Before the path analysis of the model, this paper uses AMOS software to judge whether the fitting of the model and the data is suitable, and obtains the fitting indicators as shown in Table 4.5.

Table 5. Model Fit Table

Items	CMIN/DF	NFI	TLI	CFI	RMS EA	GFI	AGFI
Ideal value	>1, <3	>0.9	>0.9	>0.9	<0.08	>0.8	>0.8
	2.172	0.959	0.971	0.977	0.045	0.957	0.939

Structural model analysis mainly uses the significance of the path coefficients to test, mainly based on the CR and p value to judge the significance, when the CR value is greater than

1.96 and the p value is less than 0.05, there is a significant relationship between variables, according to the AMOS output results and C.R. The value reference standard is used to verify the hypothesis of each path. The relevant results of this study are shown in Table 4.6. The data show that all the hypotheses in all models have passed the test, and the model is established.

Table 6. Model Estimated Parameters

				Estimate	S.E.	C.R.	P	Result
H1	PC	<-	IQ	0.349	0.042	8.38	***	Y
H2	PC	<-	PEQ	0.157	0.043	3.667	***	Y
H3	PC	<-	OQ	0.327	0.043	7.542	***	Y
H4	WCW	<-	PC	0.607	0.056	10.768	***	Y

In the path analysis of interaction quality and psychological contract, CR > 1.96 and p-value less than 0.001 reached the significance level, and the standardized path coefficient was 0.349, indicating that interaction quality positively and significantly influences psychological contract, thus accepting the hypothesis H1: interaction quality has a significant positive influence on psychological contract.

In the path analysis of physical environment quality and psychological contract, CR > 1.96 and p-value less than 0.001 reached the significance level, and the standardized path coefficient was 0.157, indicating that physical environment quality positively and significantly influences psychological contract, therefore hypothesis H2: Physical environment quality has a significant positive influence on psychological contract is accepted.

In the path analysis of outcome quality and psychological contract, the CR > 1.96 and p-value less than 0.001 reached the significance level and the standardized path coefficient was 0.327, indicating that outcome quality positively and significantly influences psychological contract, therefore hypothesis H3: outcome quality has a significant positive influence on psychological contract is accepted.

In the path analysis of psychological contract and

continued viewing intention, CR > 1.96 and p-value less than 0.001 reached the significance level, and the standardised path coefficient was 0.607, indicating that psychological contract positively and significantly influenced continued viewing intention, therefore hypothesis H4: Psychological contract has a significant positive influence on continued viewing intention was accepted.

We tested the mediating effect of psychological contract. We conducted a three-stage regression analysis, and we can see that in all regression results from the first stage to the third stage, all the regression test p-values are less than 0.001, indicating that the regression is meaningful, and the psychological contract has a mediating effect here. indicating that assumptions H5-H7 are acceptable.

V. Conclusions

5.1 Research conclusions and contributions

Virtual reality technology has the potential to promote the further development of the film and television industry. There is still a long way to go to lead innovative changes in the film and television industry. The combination of virtual reality technology and the film and television industry will also face opportunities and challenges. This paper provides a model to explore consumers' behavioral intentions for continuous viewing of stage performances on virtual reality platforms, and also explores the mediating role of psychological contracts between service quality and viewing intentions. And the following results are obtained: service quality (interaction quality, physical environment quality and outcome quality) positively affects psychological contract, and through psychological contract, it positively affects willingness to continuously watch.

This study makes the following contributions: firstly, it improves on the limitations of existing research by examining service quality and developing a behavioral intention model for

continuous viewing of stage performances on a virtual reality platform; secondly, it proposes a dimension of the psychological contract that has not been discussed in existing theory, and this paper examines the mediating role of the psychological contract in depth; finally, it suggests specific ways in which online companies can make efforts to improve service quality, for example, by using this model to understand consumers' perceptions of their own service quality and to develop specific strategies.

5.2 Research shortcomings and future developments

Although this study also carried out innovative research, it also has the following limitations. Based on these deficiencies, further supplementary research will be conducted in the future.

First, in addition to the factors studied in this paper, there may be other factors that affect consumers' continued viewing willingness. Future research should dig deeper into the relevant influencing factors.

Secondly, this study is mainly aimed at the stage performance industry based on virtual reality technology, and the single test object may cause certain deviations in the relationship between the relevant variables in this study. Future research will further verify the applicability of this research model in other fields.

Finally, this study relies on a student population to collect data, which has relatively limited exposure to virtual reality technology, which may limit the generalizability of the results. To overcome this limitation, future research needs to add more diversity to the composition of the sample frame, including more age groups as sample respondents.

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