

# Research on the Factors Influencing College Students' Willingness to Participate in Sports Online Competitions

<sup>1</sup>Rui Liu, <sup>2</sup>Myeong-Cheol Choi

<sup>1</sup>Associate Professor, School of Physical Sciences, Lingnan Normal University, China

<sup>2</sup>\*Associate Professor, Department of Business, Gachon University, S.Korea, [liurui167@163.com](mailto:liurui167@163.com),  
[oz760921@gachon.ac.kr](mailto:oz760921@gachon.ac.kr)

## Abstract:

The sports cloud competition based on the network online platform breaks through the limitation of the time and space of traditional sports competition, changes the competitive environment and mode of sports competition, and is a new mode of sports competition. The detailed possibility model has been widely used in the study of information processing and attitude change. In order to better explore the sports cloud competition, we take 463 college students in Lingnan Normal University as the survey object based on the concept of detailed possibility model, and collect data through a pre-compiled questionnaire, so as to obtain the factors that affect the willingness of college students to participate in sports cloud competition, and explore the possibility of promoting sports cloud competition. Our results show that the convenience characteristics of the central path level are important factors for college students to participate in sports cloud competitions, and the credits, examinations and exercises at the edge path level can become important factors for college students to participate in sports cloud competitions, which play a positive role in promoting college students' participation in sports cloud competitions and are conducive to the promotion and application of sports cloud competitions.

**Keywords:** Elaboration likelihood Model ; Sports Online Competition ; Willingness to participate ; Information Perception ; Satisfaction

## 1. INTRODUCTION

Sports cloud competition is a new concept of sports competition, which is not limited by time and space, and can become a good supplement to traditional sports competition in a specific period, such as the form of sports cloud competition once became the only form of competition for the normal holding of sports events during the epidemic. In order to better explore this problem, this paper introduces the detailed possibility model into the exploration and discussion of this topic, and then analyzes the factors that may affect college students' participation in sports cloud competition.

At present, the detailed likelihood model has been widely used in the research on information processing and attitude change [1], such as the study that social media platforms can enhance individuals' willingness to exercise by communicating with people with common fitness interests [2], the attractiveness, credibility, professionalism of anchors and their purchase intentions [3], the attractiveness of second-hand information content to individuals [4], consumers' trust attitudes towards shopping platforms [5], and users' attention to social media information [6]. Relevant researchers have

---

Manuscript received: July 12, 2024 / revised: August 12, 2024 / accepted: September 1, 2024

Corresponding Author: [oz760921@gachon.ac.kr](mailto:oz760921@gachon.ac.kr)

Tel: \*\*\*-\*\*\*\*-\*\*\*\* Fax: +82-31-753-8828

Associate Professor, Dept. of Business, Gachon University

Copyright©2024 by The International Promotion Agency of Culture Technology. This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>)

concluded that individuals need to carefully consider the information content related to their own needs when processing information in the central path [7], and believe that the individual acceptance process of information is also a process of persuasion, and they will make a series of credibility judgments, which will then affect the decision to adopt information [8]. It can be found that the exhaustive possibility model is based on the individual's own realistic needs, which depend on the individual's trust in external information, and trust includes the user's trust in the information and related expectations [9]. The core of credibility evaluation lies in how the audience perceives information as "credible" [10], and a large number of studies have also proved that trust is an important factor influencing users' willingness to acquire [11].

## **2. THEORETICAL AND HYPOTHESIS**

### **2.1 Exhaustive Probabilities Model**

In 1983, social psychologists Petty and Cacioppo proposed a model based on the ability of humans to interpret the received information after receiving external information, and named it the Elaboration Likelihood Model (ELM) or the Fine Processing Likelihood Model [12]. In their subsequent research, Petty and Cacioppo further refined the detailed possibility model, pointing out that human cognition and attitudes towards external information are not limited to independent information individuals, but are also closely related to the surrounding environment of receiving information, and then extend to two basic pathways: the central path and the peripheral path [13]. Among them, the central path refers to the individual's analysis, thinking and induction of information related to the problem, which leads to the formation or transformation of attitudes, emphasizing the content of the information itself. The marginal path does not think directly and deeply about the content of the information, but relies on certain contextual cues related to the information to make judgments, which ultimately leads to the formation or transformation of attitudes [14]. In the central pathway, people have a high motivation for information processing and information comprehension, and think the information content deeply and carefully, while in the marginal pathway, people's motivation and information comprehension ability are weak, and they tend to be persuaded by some clues that have little to do with information [15]. The difference between these two information processing paths is that individuals process information-related content through the central path, while information-related clues are processed through the edge path [16]. Relying on the central pathway to influence an individual's attitude requires an individual's input of more cognitive resources, and the attitude formed is more durable and can predict future behavior [17]. Although individuals can form attitudes through one of the two paths, they often combine the two paths to form attitudes [18], and the influence of the central path increases with the increase of an individual's ability to analyze information, and vice versa the influence of the peripheral path increases [19]. It can be seen that the central path refers to people's cognition and attitude towards external information, which is the internalized consciousness formed by the brain after the deep processing of information characteristics. The marginal path is people's cognition and attitude towards external information, not through the characteristics of the information itself, but on the connection between information and environment.

### **2.2 Research Model and Hypothesis**

#### **2.2.1 Research Model**

According to the exhaustive possibility model proposed by Petty and Cacioppo, the formation of students' willingness to participate in sports cloud competition depends not only on the central path of the sports cloud competition itself, but also on the edge path of the sports cloud competition and the associated environment. Based on the detailed possibility model, this research argues that students' willingness to participate in sports cloud competitions is affected by both the characteristics of sports cloud competitions and the associated environment of sports cloud competitions, and on this basis, a model framework of influencing factors of

college students' willingness to participate in sports cloud competitions is proposed (see Figure 1), that is, the characteristics of sports cloud competitions themselves are the central path, and the associated environment of sports cloud competitions is the edge path, and the influencing factors of college students' participation in sports cloud competitions are analyzed according to these two dimensions.

**2.2.2 Research Hypothesis**

Based on the detailed probability model, this paper proposes two paths that affect college students' participation in sports cloud competition: the center path and the edge path, and proposes two influence paths to be moderated by categorical moderating variables. The central path is the path that college students choose the most important way to participate, while the edge path is that college students mainly consider participating.

The convenience of sports cloud competitions will affect the intention of college students to participate. The more convenient the sports cloud competition is, the more concise the process of college students participating in the sports competition, the higher the willingness and satisfaction of college students to participate in the sports cloud competition. Therefore, the following hypotheses are proposed:

Hypothesis1: The convenience of sports cloud competition is positively correlated with the willingness of college students to participate in sports cloud competition.

When the sports cloud competition has a strong attraction to college students, it will strengthen the curiosity of college students and stimulate the intention of college students to participate in the sports cloud competition. When the sports cloud competition brings practical benefits to college students, it will leave a good impression on college students. Therefore, this paper puts forward the following hypothesis:

Hypothesis2a: the ability to add credits in sports cloud competitions is positively correlated with the willingness of college students to participate in sports cloud competitions.

Hypothesis2b: Sports cloud competitions can be converted into exams, which is positively correlated with college students' willingness to participate in sports cloud competitions.

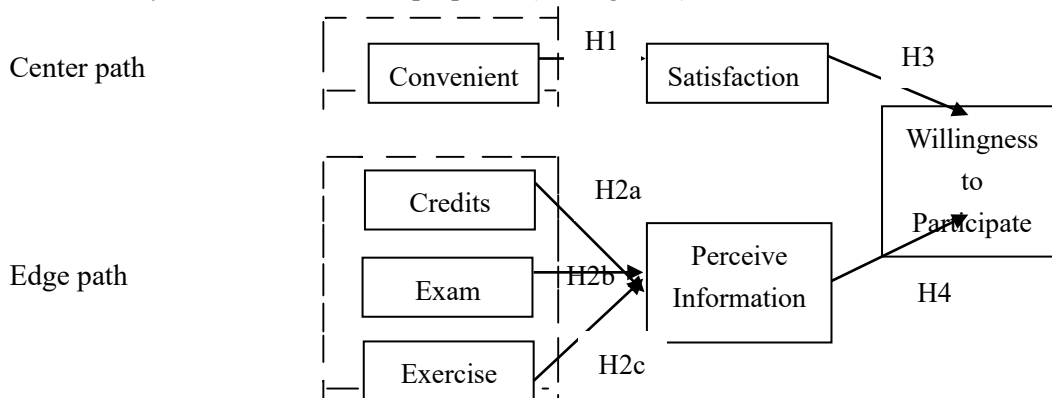
Hypothesis2c: Sports cloud competition can exercise the body, which is positively correlated with the willingness of college students to participate in sports cloud competition.

When the convenience index of the central path of the sports cloud competition and the three indicators of credits, examination and exercise of the edge path play a joint effect, the corresponding two dimensions of satisfaction and perception information are generated, therefore, the following hypotheses are proposed:

Hypothesis3: The willingness of college students to participate in the sports cloud competition is positively correlated with student satisfaction.

Hypothesis4: The willingness of college students to participate in sports cloud competitions is positively correlated with students' perception of information.

In summary, a research model is proposed (see Figure 1).



**Figure 1. Research Model**

### 3. RESEARCH METHODS AND RESULTS

#### 3.1 Research Design

In order to ensure the reliability and validity of the scale, the measurement items in this study refer to the relevant mature scales, and are adjusted according to the research purpose. RiehSY. et al. [20] were used for reliability, Parasuraman et al. [21] were used for perceived trust, and Bhattacharjee et al. were used for satisfaction [22]. The willingness to participate was scaled using Fang et al. [23]. In this study, a questionnaire survey was used to collect data, and a total of 26 questions were set, including 2 basic information questions of the survey subjects, 20 questions about the willingness of college students to participate in sports cloud competitions, and 4 questions about polygraph.

#### 3.2 Data Source

In this study, a questionnaire was conducted on the university students of Lingnan Normal University by random sampling. 500 questionnaires were distributed, 487 questionnaires were recovered, and 463 questionnaires were valid, with an effective rate of 92.6%. The descriptive statistical analysis of the valid questionnaire was carried out, as shown in Table 1.

**Table 1. Descriptive Analysis of Participants (N=463)**

Demographic Variable	Type	Frequency	Ratio (%)
Gender	Male	197	42.55
	Female	266	57.45
Age	Under 18 years old	13	2.81
	18-25 years old	436	94.17
	Over 25 years old	14	3.02
Education	College	57	12.31
	Bachelor's degree	406	87.69

From Table 1, it can be found that the age of college students participating in the survey is mainly concentrated in 18~25 years old (94.17%), and the academic background is mainly bachelor's degree (87.69%).

#### 3.3 Research Process and Results Analysis

##### 3.3.1 Measurement Model

In order to ensure the reliability of the sample data, Smart PLS 3.0 software was used to test the reliability and validity of the sample data. where validity is divided into aggregate and discriminative validity. The reliability was tested by calculating the value of Cronbach's Alpha consistency coefficient. Average variance extracted (AVE) and combined reliability (CR) were used to test the aggregate validity. If the coefficient value of each dimension is more than 0.7, it means that the scale has good reliability and can be used, and if the AVE value is higher than 0.5 and the CR value is higher than 0.7, it means that the scale has high aggregate validity. The results of the analysis are shown in Table 2.

**Table 2. Confirmatory Factor Analysis and Reliability Analysis (N=463)**

Variables		Estimate	AVE	CR	Cronbach's Alpha
Convenience	a1	0.744	0.612	0.863	0.788

(Willingness to Participate)	a2	0.755			
	a3	0.817			
	a4	0.811			
	b1	0.772			
Credits (Perceived Trust)	b2	0.794	0.629	0.872	0.807
	b3	0.810			
	b4	0.796			
	c1	0.767			
Exam (Satisfaction)	c2	0.834	0.698	0.902	0.855
	c3	0.897			
	c4	0.838			
	d1	0.736			
sWorkout (Reliability)	d2	0.793	0.625	0.869	0.800
	d3	0.824			
	d4	0.806			
	e1	0.800			
Satisfaction	e2	0.808	0.644	0.856	0.748
	e3	0.837			
	f1	0.908			
Perceiving Information (perceiving trust)	f2	0.910	0.831	0.929	0.885
	f3	0.888			
	g1	0.831			
Willingness to Participate	g2	0.776	0.672	0.860	0.756
	g3	0.850			

From Table 2, it can be found that the Cronbach's alpha value of each variable is greater than 0.7, the CR value is greater than 0.7, and the AVE value is greater than 0.5, indicating that the loading distribution of question factors is better. Therefore, it can be concluded that the questionnaire has good reliability and aggregate validity.

The correlation coefficient results between the variables in this paper are shown in Table 3, and there is a significant correlation between the variables in this model, which lays a good foundation for further in-depth analysis. Through further analysis, it is found that the correlation coefficients between each dimension are greater than 0.5, indicating that the seven dimensions included in the questionnaire are not only independent, but also closely related to the content to be measured by the questionnaire, which verifies that the questionnaire has good structural validity

**Table. 3 Correlation Analysis**

	Mean	SD	1	2	3	4	5	6	7
Convenient	3.938	0.67	1						
Credits	3.892	0.77	0.617*	1					
Exam	3.998	0.71	0.651*	0.739*	1				

		2	*	*				
Workout	4.042	0.61	0.611*	0.556*	0.648*		1	
		7	*	*	*			
Satisfaction	4.001	0.63	0.542*	0.545*	0.563*	0.635*		1
		5	*	*	*	*		
Perceiving Information	4.084	0.60	0.591*	0.569*	0.652*	0.631*	0.617*	
		3	*	*	*	*	*	1
Willingness to Participate	4.126	0.67	0.627*	0.584*	0.683*	0.687*	0.668*	0.681*
		1	*	*	*	*	*	*

\*p < 0.05, \*\* p < 0.01

**3.3.2 Structural Model Testing**

(1) Multicollinearity Test

Variance inflation factor (VIF) was used to test the multicollinearity between the variables, and the VIF values of each variable in this study were less than 10, indicating that there was no obvious multiple commonality among the variables in this study.

(2) Path Analysis

In this study, the Bootstrapping technique was used to construct a structural equation model to test the correlation and significance. The test is based on the magnitude of the T-statistic and the P-value to determine the significance of the relationship. The results of the analysis are shown in Table 4.

**Table 4. Path Coefficient and Significance Test (N=463)**

Path	Estimate	S.E.	t	p	Result
Convenience → satisfaction	0.395	0.067	5.857	0.000	Founded
Credits → perceive information	0.314	0.065	4.814	0.000	Founded
Exams → perceive information	0.228	0.064	3.586	0.000	Founded
Exercise → perceive information	0.348	0.063	5.512	0.000	Founded
Satisfaction → willingness to participate	0.432	0.064	8.837	0.000	Founded
Perceive information → willingness to participate	0.429	0.062	7.948	0.000	Founded

From Table 4, it can be concluded that the convenience of sports cloud competition has a significant positive impact on college students' participation in sports cloud competition ( $\beta=0.395$ ,  $t=5.857$ ), and the hypothesis that "H1: The convenience of sports cloud competition is positively correlated with the willingness of college students to participate in sports cloud competition" is established. The convenience of credits ( $\beta=0.314$ ,  $t=4.814$ ), examination ( $\beta=0.228$ ,  $t=3.586$ ) and exercise ( $\beta=0.348$ ,  $t=5.512$ ) brought by sports cloud competition has a significant positive impact on college students' participation in sports cloud competition. H2c: Sports cloud competition can exercise the body, which is positively correlated with the willingness of college students to participate in sports cloud competition". There was a significant positive impact on the willingness to participate in the sports cloud competition ( $\beta=0.432$ ,  $t=8.837$ ), and the hypothesis "H3: The willingness of college students to participate in the sports cloud competition is positively correlated with student satisfaction" was established. There is a significant positive impact on the willingness to participate in sports cloud competition ( $\beta=0.429$ ,  $t=7.948$ ), and the hypothesis "H4: The willingness of college students to participate in sports cloud competitions is positively correlated with students' perception of information" is

established. Figure 2 shows the output of the model path.

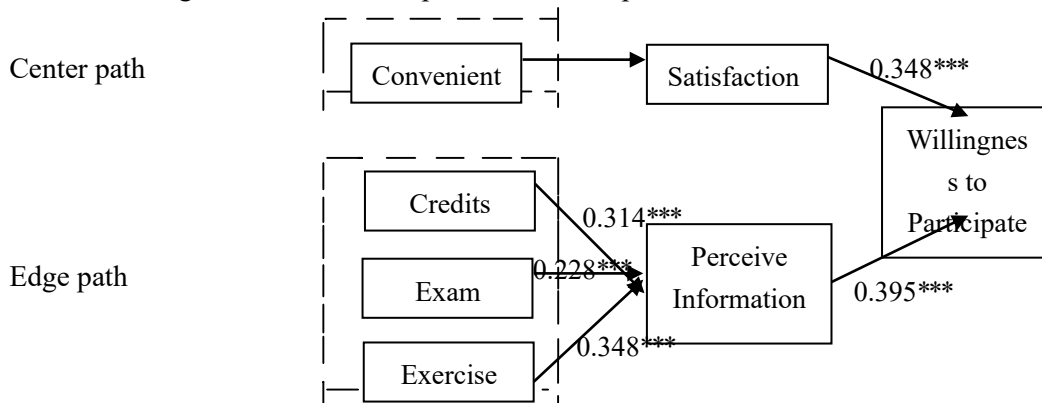


Figure 2. Result of The Model Path

\*p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

## 4. CONCLUSION

### 4.1 Results and Discussion

First, the convenient characteristics of the central path of sports cloud competition are very important factors to promote college students' participation in sports cloud competition. Traditional sports competitions are usually held in a fixed time and space field, and students often need to go to the competition venue to watch or play when participating in traditional sports competitions. At the same time, it can also be effectively connected with the online network platform to realize the digital advantages of "sports competition + network", and students can gain greater autonomy and independence in the time and space field of sports cloud competition.

Second, the credits, exams, and exercises of the edge path of sports cloud competition can become very important factors to promote college students' participation in sports cloud competition. Students at the higher education level will have sports-related courses, and the assessment of physical education courses is mainly based on various forms of examinations, and most of them are directly linked to credits. Due to the different assessment forms of physical education courses, when the sports cloud competition can be used as the final examination form of the physical education course or increase the test scores, students can also give full play to their own subjective initiative in the sports cloud competition, and then enhance their willingness to participate in the sports competition. At the same time, due to the enhancement of subjective initiative, the sense of acquisition and satisfaction of students' physical exercise in the sports cloud competition will also be strengthened.

### 4.2 Theoretical Contribution and Practical Implication

In this study, the factors influencing college students' participation in sports cloud competition were divided into the edge path and the central path, and the specific indicators affecting college students' participation in the two paths were studied. The conclusions obtained through empirical analysis provide some enlightenment for the development of sports cloud competition in higher education. (1) While the sports cloud competition brings convenience, the characteristics of the "cloud" have become an important attribute of the competition, so it also brings a new sports competition model. Due to the particularity of sports competitions, the process of migrating sports competitions to online platforms has been actively explored,

and the process of exploration should also focus on the platform construction, organization form and evaluation form of sports cloud competitions. (2) "Sports competition + network" is the core of sports cloud competition, and sports cloud competition should always focus on the competition process of online platforms, and make full use of the advantages of online digital platforms to break the time and space limitations of traditional sports competitions. If the form of sports cloud competition wants to be promoted in the higher education section, it must take into account the actual needs and orientations of students.

### 4.3 Limitations and Future Research

Based on the factors influencing college students' willingness to participate in sports cloud competitions, this study shows that the convenience of the central path of sports cloud competitions and the credits, examinations and exercise factors of the edge paths play a positive role in college students' participation in sports cloud competitions. However, there are some limitations in this study: (1) There is only one school surveyed, and the level and category of schools can be expanded in the future, such as comprehensive universities, arts and sports universities, or vocational universities. (2) Only the influence of categorical moderating variables is considered, and continuous moderating variables can be introduced to build models in the future, such as the organizers and managers of sports cloud competitions. (3) There are relatively few variables in the model, and other variables in the model can be replaced or subdivided in the future to further expand and improve the model.

### ACKNOWLEDGEMENT (OR FUNDING)

Project of Federation of University Sports of China (202203009)

### REFERENCE:

- [1] J. Kitchen P, Kerr G and E. Schultz D, et al. The elaboration likelihood model: review, critique and research agenda. *European Journal of marketing*, 48(11/12): 2033-2050, 2014. <https://doi.org/10.1108/EJM-12-2011-0776>
- [2] Divine A, Watson P M and Baker S, et al. Facebook, relatedness and exercise motivation in university students: a mixed methods investigation. *Computers in Human Behavior*, 91: 138-150, 2019. <https://doi.org/10.1016/j.chb.2018.09.037>
- [3] He, W. and Jin, C. A study on the influence of the characteristics of key opinion leaders on consumers' purchase intention in live streaming commerce: based on dual-systems theory. *Electronic Commerce Research*, 1235–1265, 2022. <https://doi.org/10.1007/s10660-022-09651-8>
- [4] Chang H H, Lu Y Y and Lin S C. An elaboration likelihood model of consumer respond action to facebook second-hand marketplace: Impulsiveness as a moderator. *Information & Management*, 57(2):103171, 2020. <https://doi.org/10.1016/j.im.2019.103171>
- [5] Urbonavicius S, Degutis M and Zimaitis I, et al. From social networking to willingness to disclose personal data when shopping online: Modelling in the context of social exchange theory. *Journal of Business Research*, 136:76-85, 2021. <https://doi.org/10.1016/j.jbusres.2021.07.031>
- [6] Wang L, Hu H H and Yan J, et al. Privacy calculus or heuristic cues? The dual process of privacy decision making on Chinese social media. *Journal of Enterprise Information Management*, 33(2):353-380, 2019. <https://doi.org/10.1108/JEIM-05-2019-0121>
- [7] Li K, Zhou C and Yu X. Exploring the differences of users' interaction behaviors on microblog: The moderating role of microblogger's effort. *Telematics and Informatics*, 59: 101553, 2021. <https://doi.org/10.1016/j.tele.2020.101553>



- [8] Ho S Y and Bodoff D. The effects of web personalization on user attitude and behavior: An integration of the elaboration likelihood model and consumer search theory. *MIS Quarterly*, 38(2):497-520, 2014. <https://www.jstor.org/stable/26634936>
- [9] Lin X, Wang X and Hajli N. Building e-commerce satisfaction and boosting sales: The role of social commerce trust and its antecedents. *International journal of electronic commerce*, 23(3): 328-363, 2019. <https://doi.org/10.1080/10864415.2019.1619907>
- [10] Choi W and Stvilia B. Web credibility assessment: Conceptualization, operationalization, variability, and models. *Journal of the Association for Information Science and Technology*, 66(12):2399-2414, 2015. <https://doi.org/10.1002/asi.23543>
- [11] Wongkitrungrueng A and Assarut N. The role of live streaming in building consumer trust and engagement with social commerce sellers. *Journal of business research*, 117: 543-556, 2020. <https://doi.org/10.1016/j.jbusres.2018.08.032>
- [12] Petty R E and Cacioppo J T, Schumann D. Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of consumer research*, 10(2): 135-146, 1983. <https://doi.org/10.1086/208954>
- [13] Petty R.E. and Cacioppo J.T. The Elaboration Likelihood Model of Persuasion. *Advances in Consumer Research*, 19(4):123-205, 1984.
- [14] Zeng Jianghong, Huang Xiangrong and Yang Yalan. Research on the Factors that Influence Brand Promotion Effect in Crowdfunding: Based on Elaboration Likelihood Model Perspective. *Management Review*, 34(9):170-180, 2022.
- [15] SEARS D O. Review of communication and persuasion: Central and peripheral routes to attitude change. *Public Opinion Quarterly*, 52:262-265, 1988.
- [16] Bhattacharjee A and Sanford C. Influence processes for information technology acceptance: An elaboration likelihood model. *MIS quarterly*, 30(4):805-825, 2006. <https://doi.org/10.2307/25148755>
- [17] Tang L R, Jang S S and Morrison A. Dual-route communication of destination websites. *Tourism Management*, 33(1):38-49, 2012. <https://doi.org/10.1016/j.tourman.2011.01.021>
- [18] Sussman S W and Siegal W S. Informational influence in organizations: An integrated approach to knowledge adoption. *Information systems research*, 14(1): 47-65, 2003. <https://doi.org/10.1287/isre.14.1.47.14767>
- [19] Petty R E, Brinol P and Tormala Z L. Thought confidence as a determinant of persuasion: the self-validation hypothesis. *Journal of personality and social psychology*, 82(5): 722, 2002. <https://doi.org/10.1037/0022-3514.82.5.722>
- [20] Jin X L, Yin M and Zhou Z, et al. The differential effects of trusting beliefs on social media users' willingness to adopt and share health knowledge. *Information Processing & Management*, 58(1):102413, 2021. <https://doi.org/10.1016/j.ipm.2020.102413>
- [21] Wu W Y, Qomariyah A and Sa N T T, et al. The integration between service value and service recovery in the hospitality industry: An application of QFD and ANP. *International Journal of Hospitality Management*, 75: 48-57, 2018. <https://doi.org/10.1016/j.ijhm.2018.03.010>
- [22] Kim M J, Lee C K and Jung T. Exploring consumer behavior in virtual reality tourism using an extended stimulus-organism-response model. *Journal of travel research*, 59(1): 69-89, 2020. <https://doi.org/10.1177/0047287518818915>
- [23] Fang Y H and Chiu C M. In justice we trust: Exploring knowledge-sharing continuance intentions in virtual communities of practice. *Computers in human behavior*, 26(2): 235-246, 2010. <https://doi.org/10.1016/j.chb.2009.09.005>
- [24] Kim, J. A Case Study of eSports' NFT utilization and Discussion of Activation Plan. *The Journal of the Convergence on Culture Technology*, 9(2): 493-502, 2023. <https://doi.org/10.17703/JCCT.2023.9.2.493>

- [25]Chen R, Wang Y, Choi M, He Z and Li M. A Study on the Success Factors of Sinar Mas Group in Indonesia. *International Journal of Advanced Culture Technology*, 11(2): 118-124, 2023. <https://doi.org/10.17703/IJACT.2023.11.2.118>
- [26] Xia Y, Li M, Zhang J, Choi M and Kim H. The Competitiveness Analysis of Geely Automobile Group. *International Journal of Advanced Culture Technology*, 12(2), 402-408, 2024. <https://doi.org/10.17703/IJACT.2024.12.2.402>