

# Factors Influencing the Intention to Participate in Digital Cultural Tourism on the Metaverse Platform

Jiaping Zang  
 Graduate School of Global Business,  
 Kyonggi University  
 (912443082@qq.com)

Eunjin Kim  
 Division of Business Administration,  
 Kyonggi University  
 (ejkim777@kgu.ac.kr)

.....

The metaverse applies various technological means such as digital twin modeling, 3D rendering, and holographic imaging, which can provide an immersive tourism service experience. However, since the development of the metaverse is still in its infancy, there is relatively little research on digital tourism from the perspective of the metaverse. This research empirically studies the factors that promote the participation behavior of users on the metaverse platform for digital cultural tourism. Our results show that users' internal motivations for learning and entertainment and the functions provided by metaverse, which are sensory stimulation and social interaction lead to the intention to participate in cultural tourism on metaverse with the mediating effects of immersion experience and perceived pleasure.

**Keywords** : Metaverse, Cultural Tourism, Immersion experience, Perceived pleasure, Participative behavior.

.....

Received : May 12, 2023    Revised : September 3, 2023    Accepted : September 18, 2023

Publication Type : 학술대회 Fast Track    Corresponding Author : Eunjin Kim

## 1. Introduction

The metaverse is a virtual world that utilizes technological means to link and create, and maps and interacts with the real world, providing a digital living space with a new social system. It provides an immersive experience based on extended reality technology and digital twin technology which generates a mirror image of the real world (Hua, 2022). Its essence is the next generation of the Internet, with the continuous maturity of relevant technological systems, the development prospects, and application scenarios of the metaverse which

continue to be clarified (Shi et al., 2022). Consequently, extensive research efforts have been dedicated to exploring the social, cultural, and economic aspects of the metaverse, encompassing topics such as social commerce, governance structures, and the creator economy (Kim, 2022; Chen & Kim, 2023; Yun et al., 2023).

As the metaverse combines various advanced internet technologies to build a digital virtual physical world for people, it naturally affects the cultural tourism industry through effective promotion, reconstruction, and upgrade of “people, places, and items” (Hua, 2022). It provides opportunities for a

more extensive and feasible development space in the natural ecology of scenic spots, museums, games, and entertainment (Hua, 2022). Researchers showed that the metaverse is highly compatible with the operation of cultural tourism projects in terms of internal quality, supply, and development (Cao & Li, 2023). Taking the Shanghai Museum of Nature as an example, it is shown how museums can effectively combine community interactive game experiences with popular science exhibitions and education to present new scenes, models, and ecosystems on the metaverse (Zhou, 2023). Xu (2023) analyzed the current development status of the metaverse in Guangxi's cultural tourism industry and proposed suggestions for further development. By establishing a metaverse innovation development path for cultural tourism enterprises, Xu and Wang (2023) attempt to provide a strategic guide for cultural and tourism enterprises on the path of Digital transformation. In consideration of issues such as market uncertainty, technological instability, copyright infringement, data security, and unclear industrial ecology, researchers tried to develop a healthy and clear industrial ecological loop for the creation, authorization, and trading of museum digital collections in the context of the metaverse (Wang, 2023).

It is apparent that the emergence of the metaverse provides an important opportunity for digital cultural tourism. However, as the development of the metaverse is still in its infancy in cultural tourism, there is relatively little research done on digital tourism on the metaverse. This study aims at improving the understanding of the immersive

experience and the participative behavior of digital cultural tourism from the perspective of metaverse users. It is necessary to clarify the impact of both individual users' internal motivation and external factors given by the metaverse platform and technologies on their behavior and experience. Our empirical study shows that users' internal motivations for learning and entertainment and the functions provided by metaverse, which are sensory stimulation and social interaction lead to the intention to participate in cultural tourism on metaverse with the mediating effects of immersion experience and perceived pleasure. It is expected that this not only helps relevant technology providers and platforms to build and improve their providing but also extends the understanding of users' motivation for the use of digital cultural tourism.

The paper begins by providing a literature review in the following section. In section 3, we introduce our conceptual model and hypotheses. In section 4, we present the research methodology and the analysis of data. In Section 5, the conclusion of this study is presented.

## 2. Literature Review

### 2.1. S-O-R model

The S-O-R (Stimulus Organism Response) is a general theory that studies human behavior. It is used to explain that when individuals are stimulated by external environments, their cognition and emotions are affected, leading to reactions, and that is,

users' participation behavior is limited by their own emotions and cognition (Loureiro et al., 2013). The S-O-R model is widely adopted in the study of online user behavior. Researchers have shown that when external stimuli perceived online are combined with users' cognitive and emotional states, they can be accompanied by positive or negative reactions. Based on the SOR (stimulus organization response) model, it has explored the impact of emotional mediation mechanism-based social support on user engagement behavior in online health communities (Pan & Lu, 2022). The study showed that social support serves as a "stimulus" (S) factor, and by introducing emotions as an individual's "internalization" (O), the mechanism of "behavioral response" (R) among users in online health communities is formed. In digital tourism, it is studied that the tourist attractions constructed in this virtual world provide users with stimulation, resulting in a certain immersion experience, presence, and interactivity, which have an impact on subsequent participation behavior (Williams & Hobson, 1995). Scholars have applied SOR models to study consumer intention to participate in diverse types of online industries and platforms, therefore, it is expected that this theory also provides firm ground to build a conceptual model in this study as we explore intention to participate in digital cultural tourism on the metaverse platform.

## 2.2. Internal Motivation to Participate in the Metaverse

Studies have investigated the influence of various

internal motivations on online behavioral intention (Raman et al., 2022). Venkatesh et al. (2012) included hedonic motivation as a major factor in the development of the technology adoption model. Raman et al. (2022) showed that internal motivation such as autonomy, competence, and relatedness positively affects the intention to use online course management platforms. In the recent study of Al-Adwan et al. (2023), it is shown that internal motivation, which is perceived enjoyment, influences the user adoption of metaverse-based learning platforms. However, as the metaverse is a relatively new phenomenon, few have studied the internal motivation of the metaverse users.

In the digitization of tourism, learning motivation has been an important issue in cultural tourism (Packer & Ballantyne, 2016). Learning motivation infers to the inner needs of self-improvement, knowledge enrichment, and insight growth (Wang, 2023). It is shown that learning motivation online promotes the adoption of online learning platforms (Chen & Keng, 2019). In the context of virtual cultural learning, previous studies showed that learning motivation and immersive experiences are closely related (Chen, 2017). Researchers also suggested that metaverse architecture can build online education systems, which have unique advantages in students' knowledge absorption and effectively align with participants' learning motivation (Almarzouqi et al., 2022).

Entertainment motivation corresponds to the need for relaxation, pleasure, and exploration (Wang, 2023). Studies have revealed that entertainment motivation plays a crucial role in shaping tourist

behavior (Pestek and Sarvan, 2021), along with a propensity to embrace technology (Venkatesh et al., 2012). It is shown that entertainment motivation significantly influences the intention of travel application users (Zhou et al., 2022). Multiple respondents stated that the purpose of participating in digital cultural tourism in the metaverse is to relax, release stress, and explore new things (Wang, 2023).

### 2.3. External Stimulus on the Metaverse

Metaverse is known to provide virtual environments that encompass diverse sensory stimuli, which include tactile, visual, and auditory factors (Han et al., 2022). Studies have shown that sensory stimuli trigger immersive experiences for users, thereby deeply immersing themselves in the process of participation (Fettweis, 2014). Experience gained through sensory stimuli further increases pleasure and behavioral intentions (Loureiro et al., 2021). Sensory stimuli hence become an important consideration in the development of metaverse tourism (Runhua & Jing, 2023).

Real-time multisensory social interactions form the core of the metaverse, where individuals engage and communicate with each other in real-time (Hennig-Thurau et al., 2023). The social interaction function provides a highly immersive interactive experience and diverse social scenes in the metaverse, in combination with the existence of digital avatars, which can help to meet the different needs of users and to eliminate physical barriers to give them a stronger sense of immersion (Inceoglu &

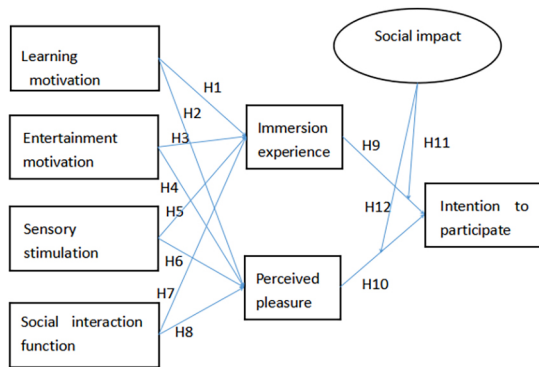
Ciloglugil, 2022). The social interaction experience facilitated by avatars, therefore, amplifies the pleasure derived from engaging in the metaverse (Lee et al., 2023).

### 2.4. Social Impact

Social impact is fundamentally characterized as the alteration in an individual's behaviors brought about by interacting with another person or a group perceived as similar, desirable, or knowledgeable (Kelman, 1958). In the acceptance of technology, many researchers have studied how individuals respond to social influence based on shared values. It is shown that individuals tend to internalize the opinions of others over time and place more importance on their own judgments as a result (Venkatesh & Morris, 2000). Zhou (2011) demonstrated the substantial impact of group norms on user participation in online communities. Book et al. (2018) illustrated that online traveler reviews serve as a form of social influence.

## 3. Research model and hypothesis

In this study, following the S-O-R model, we examine the internal motivation and external stimuli that can trigger the immersion experience and the perceived pleasure, which are part of internalization. The impact of an immersion experience and perceived pleasure on the intention to participate is explored in consideration of the moderating effect of social impact. The research model is shown in Fig. 1 below.



〈Figure 1〉 Research Model

### 3.1. Relationships between learning motivation and immersive experience/perceived pleasure

In the virtual cultural learning context, researchers have shown that learners who are motivated to learn about cultures are more likely to engage with and benefit from immersive experiences (Chen, 2017). Studies have verified that there is a significant positive correlation between learning motivation and immersive experience in learning (Li, 2015). As cultural tourism is associated with learning the culture itself, we develop the following hypothesis.

H1. Learning motivation positively affects the immersive experience.

In cross-cultural communication, it has been shown that motivation to learn culture promotes perceived pleasure (Chen & Starosta, 1998). Researchers investigated the relationship between learning motivation, perceived pleasure, and learning outcomes and found that learners' learning motivation can affect their emotional pleasure during the learning

process, thereby affecting their learning outcomes (Gomez et al., 2010). Based on previous research, this study formulates the following hypothesis.

H2. Learning motivation positively affects perceived pleasure.

### 3.2. Relationships between entertainment motivation and immersive experience/perceived pleasure

Previous studies that explored the factors that influence users' immersive experiences in virtual reality leisure activities found that entertainment motivation is positively related to immersion experience (Huang & Yang, 2018). Researchers analyzed user reviews of virtual reality video games and found that entertainment value is one of the key drivers of the immersion experience (Huang and Lin, 2019).

It has been studied that entertainment motivation is positively associated with perceived pleasure in mobile social game contexts (Chen & Lee, 2018). Research on the effects of communication load and internet multitasking on perceived stress and psychological health impairments found that entertainment use was negatively related to perceived stress and positively related to pleasure (Reinecke et al., 2017). Based on the previous studies, the following hypothesis is developed.

H3. Entertainment motivation positively affects the immersive experience.

H4. Entertainment motivation positively affects perceived pleasure.

### 3.3. Relationships between sensory stimulation and immersive experience/perceived pleasure

Previous studies on the use of virtual reality therapy in the treatment of anxiety disorders showed that sensory stimulation in virtual environments can enhance the immersive experience and therapeutic outcomes (Wiederhold & Wiederhold, 2005). In virtual space, it is shown that sensory stimuli trigger immersive experiences for users, thereby deeply immersing themselves in the process of participation (Fettweis, 2014). The study on the retail space design strategy from the perspective of immersive media revealed that sensory design enhances consumers' hedonic pleasure (Gong & Du, 2021). Therefore, the following hypothesis is formulated.

- H5. Sensory stimulation positively affects the immersive experience.
- H6. Sensory stimulation positively affects perceived pleasure.

### 3.4. Relationships between Social interaction function and immersive experience/perceived pleasure

Studies on virtual reality (VR) revealed that it enhances social presence with its function for social interaction (Biocca et al., 2003). Diverse social interactive scenarios in the metaverse in combination with the presence of digital avatars bring a sense of pleasure and immersion (Inceoglu & Ciloglugil, 2022). Research has found that social interactive function and immersion state during the gaming

process have a significant positive impact on the willingness of game players to continuous use (Duan, 2022). Therefore, we formulate the following hypothesis:

- H7. Social interaction function positively affects the immersive experience.
- H8. Social interaction function positively affects perceived pleasure.

### 3.5. Relationships between immersive experience/perceived pleasure and intention to participate

In the study of tourism live streaming, it is shown that immersive experience affects purchase intention (Li et al., 2020). In the context of online bookstores, previous studies showed that immersive experience increases purchasing intention (Kang & Mun, 2014). Researchers studied the influencing factors on online game consumer intention to participate and confirmed that perceived pleasure significantly affects participation intention (Wang, 2009). Therefore, we formulate the following hypothesis.

- H9. Immersive experience positively affects the intention to participate.
- H10. Perceived pleasure positively affects the intention to participate.

### 3.6. Moderating Effect of Social Impact on the Relationship between Immersive Experience/Perceived Pleasure and Intention to Participate

Social influence can be defined as the gradual process of individuals aligning themselves with and

embracing shared values, leading to the internalization of those values (Venkatesh & Morris, 2000). From this perspective, social influence has often been examined as a moderator in studying online social media participation (Park & Lee, 2017). In the study of player involvement in the game, that is, the game time, it is shown that social forces can effectively intervene in players' excessive gaming behavior (Wang, 2009). Researchers showed the moderating effect of social influence on the relationship between consumer perceived value and impulse buying behavior in mobile commerce (Yang et al., 2021). Based on previous research, the following hypotheses are developed.

- H11. Social impact plays a moderating role in the relationship between immersive experience and intention to participate.
- H12. Social impact plays a moderating role in the relationship between perceived pleasure and intention to participate.

## 4. Research methodology

### 4.1. Measurement of variables

There are 8 variables in the questionnaire: learning motivation, entertainment motivation, sensory stimulation, social interaction function, immersion experience, perceived pleasure, Intention to participate, and social impact. The measurement scales used for each variable were drawn from previous studies with proper adaptations and modifications in

consideration of the metaverse.

The questions were measured on a 5-point Likert scale (1 = strongly disagree, 5= strongly agree). Learning motivation items refers to that of Wu et al. (2015) and contains 4 items; Entertainment motivation refers to that of Wu et al. (2015) and contains 4 items; Sensory stimuli refer to that of Yang et al. (2016) and contains 3 items; Social interaction function refers to that of Qiao et al. (2016) and contains 4 items; immersion experience refers to that of Jackson and Marsh (1996) and contains 4 items; perceived pleasure refers to that of Gstaettner et al. (2017) and contains 4 items; Intention to participate refers to that of Acito (2000) and contains 4 items; Social impact refers to that of Feng and Zhu (2010) scale and contains 3 items. Table 1 below shows the measurement items and their reference for each construct.

### 4.2. Data collection

A total of 387 samples were collected in China for this survey. Invalid data were filtered out based on the screening question "Have you participated in digital cultural tourism in the metaverse?" and logical inconsistencies in the questionnaire answers, as well as identical responses to all questions. A total of 365 valid samples were selected, and the effective response rate was 94.32%. From the gender distribution of the respondents, the proportion of males was slightly higher at 50.4% than that of females at 49.6%. In terms of age, the 19-25 and 26-30 age groups had the largest number of respondents, accounting for approximately 43.0%

<Table 1> Survey Questionnaire Items

Constructs	Items	Measures	Sources
Learning motivation	LM1	I am motivated to increase my knowledge through digital cultural tourism on the metaverse.	Wu et al. (2015)
	LM2	I want to gain useful knowledge for my future through digital cultural tourism on the metaverse.	
	LM3	I want to keep up with the constantly changing knowledge through digital cultural tourism on the metaverse.	
	LM4	I want to improve cultural literacy through digital cultural tourism on the metaverse.	
Entertainment motivation	EM1	I want to escape from the tedium through digital cultural tourism on the metaverse.	Wu et al. (2015)
	EM2	I found digital cultural tourism on the metaverse interesting.	
	EM3	I assume digital cultural tourism on the metaverse is part of leisure.	
	EM4	Digital cultural tourism helps to fill the emptiness of life.	
Sensory stimulation	SS1	The metaverse provides the visual effects of digital tourism.	Yang et al. (2015)
	SS2	The metaverse provides the auditory effects of digital tourism.	
	SS3	The metaverse provides the demonstrative effect of digital tourism.	
Social interaction function	SIF1	Digital cultural tourism on the metaverse provides chance to make interaction with new people.	Qiao et al. (2016)
	SIF2	Digital cultural tourism on the metaverse provides the opportunity to expand my social circle.	
	SIF3	Digital cultural tourism on the metaverse provides a highly interactive function.	
	SIF4	Digital cultural tourism on the metaverse provides diverse social scenarios.	
Immersion experience	IE1	In having digital cultural tourism on the metaverse, I have a clear understanding of what I want to do.	Jackson and Marsh (1996)
	IE2	In having digital cultural tourism on the metaverse, my attention is completely focused.	
	IE3	In having digital cultural tourism on the metaverse, I am really on it.	
	IE4	In having digital cultural tourism on the metaverse, I clearly know that I could participate it very well.	
Perceived pleasure	PP1	I enjoy digital cultural tourism on the metaverse.	Gstaettner et al. (2017)
	PP2	I enjoy various interactive experiences in digital cultural tourism on the metaverse.	
	PP3	I can get a lot of fun from digital cultural tourism on the metaverse.	
	PP4	I enjoy the various sensory stimuli brought by digital cultural tourism on the metaverse.	
Intention to participate	IPT1	I have a strong intention to participate in the digital cultural tourism on the metaverse.	Acito (2000)
	IPT2	I would recommend the digital cultural tourism on the metaverse to my friends.	
	IPT3	Participating in the digital cultural tourism on the metaverse would become one of my usual activities.	
	IPT4	I enjoy being a member of the digital tourism on the metaverse.	
Social impact	S11	Digital cultural tourism on the metaverse was recommended by experts.	Feng and Zhu (2010)
	S12	My family and friends participated digital cultural tourism on the metaverse.	
	S13	Digital cultural tourism on the metaverse is popular among many people.	

and 25.2% of the total samples, respectively, with the middle-aged and young people being the main

group. In terms of educational background, the proportion of undergraduate students was the highest,



accounting for approximately 42.7% of the total, followed by college and graduate students. In terms of occupation, the proportion of enterprise employees was the highest, accounting for approximately 76.4% of the total. In terms of monthly income, the number of people with incomes between 6000-10000 yuan and 10001-15000 yuan was the highest, accounting for approximately 26.0% and 22.7% of the total, respectively.

## 5. Data Analysis

### 5.1. Descriptive Statistics

The mean value range of learning motivation, entertainment motivation, sensory stimulation, social interaction function, immersion experience, perceived pleasure, participating behavior and social impact is between 3 and 4, and the standard deviation is all greater than 0.5, which indicates no extreme mean value of the respondents' scores on each variable item. From the skewness and kurtosis values of each variable, the maximum value of the absolute value of skewness is less than 3, and the maximum value of the absolute value of kurtosis is less than 10, which indicates meeting the requirements of normal distribution.

### 5.2. Reliability Analysis

Cronbach's  $\alpha$  coefficient value was used to test the reliability. It is generally believed that the reliability coefficient of test results Cronbach's  $\alpha$  is greater than 0.70. It is shown that Cronbach's  $\alpha$  values

of learning motivation, entertainment motivation, sensory stimulation, social interaction function, immersion experience, perceived pleasure, intention to participate, and social impact are between 0.840 and 0.946, indicating good internal consistency and reliability. The results are shown in the table below.

〈Table 2〉 Reliability Analysis Results

Construct	N of items	Cronbach's $\alpha$
Learning motivation	4	0.933
Entertainment motivation	4	0.840
Sensory stimulation	3	0.906
Social interaction function	4	0.922
Immersion experience	4	0.889
Perceived pleasure	4	0.926
Intention to participate	4	0.946
Social impact	3	0.901

### 5.3. Validity Analysis

In this study, the convergent validity and discriminant validity of each variable were tested, and the specific testing process and results are as follows.

#### 5.3.1. Convergent Validity

Convergent validity refers to the degree of convergence between variables and their constituent indicators. It is generally believed that when the standardized loading coefficient of a variable is greater than 0.5, the composite reliability (CR) is greater than 0.7, and the average variance extracted (AVE) is greater than 0.5, it indicates that the convergent validity of the variable is good. The

<Table 3> Results of Convergent Validity Test

Construct	Items	loading	CR	AVE
Learning motivation	LM1	0.864	0.935	0.783
	LM2	0.944		
	LM3	0.901		
Entertainment motivation	LM4	0.828	0.843	0.573
	EM1	0.720		
	EM2	0.725		
	EM3	0.817		
Sensory stimulation	EM4	0.762	0.907	0.710
	SS1	0.784		
	SS2	0.865		
Social interaction function	SS3	0.889	0.923	0.751
	SF1	0.825		
	SF2	0.899		
	SF3	0.912		
Immersion experience	SF4	0.825	0.894	0.681
	IE1	0.861		
	IE2	0.697		
	IE3	0.794		
Perceived pleasure	IE4	0.931	0.927	0.762
	PP1	0.854		
	PP2	0.795		
	PP3	0.926		
Intention to participate	PP4	0.912	0.947	0.816
	PB1	0.869		
	PB2	0.918		
	PB3	0.929		
Social impact	PB4	0.897	0.903	0.757
	SI1	0.884		
	SI2	0.903		
	SI3	0.822		

results of the convergent validity test for each variable in this study are shown in Table 3. It can be seen from the table that the standardized loading coefficients of each variable are greater than 0.5,

the composite reliabilities (CR) are all greater than 0.7, and the average variances extracted (AVE) are all greater than 0.5, indicating that the variables have good convergent validity.

### 5.3.2. Discriminant Validity

The results of the discriminant validity test for each variable in this study are as follows. The table below shows that the square root of the average variance extracted (AVE) for each variable is greater than the correlation coefficient between variables, indicating that there is good discriminant validity between variables in this study.

### 5.4. The Structural Model

In this study, we constructed the structural equation model (SEM) using AMOS 26.0. To identify the moderating effect of social impact, we created interaction terms by multiplying two latent variables: one involving immersive experience\*social impact and the other involving perceived pleasure\*social impact. Then, we analyzed the effect of the interaction term on the dependent variable through the structural model in AMOS. The fit of the

structural model was examined, and the results showed that the fit indices were as follows:  $\chi^2/df=2.304$ , GFI=0.932, IFI=0.933, TLI=0.986, CFI=0.926, and RMSEA=0.060. This indicates that the fit of the structural model in this study is acceptable (Qin, 2020). Table 5 presents the results of hypothesis testing.

From the table, it can be observed that the standardized path coefficient of learning motivation on immersive experience is 0.149 ( $p<0.05$ ), which indicates a significant positive effect of learning motivation on immersive experience. Therefore, H1 is supported. As the standardized path coefficient of learning motivation on perceived pleasure is 0.153 ( $p<0.05$ ), H2 is confirmed. The standardized path coefficient of entertainment motivation on immersive experience is 0.189 ( $p<0.05$ ). Hence, H3 is supported. The standardized path coefficient of entertainment motivation on perceived pleasure is 0.235 ( $p<0.05$ ). Therefore, H4 is confirmed. As the standardized path coefficient of sensory stimulation

<Table 4> Results of Discriminant Validity Test

	Learning Motivation	Entertainment Motivation	Sensory Stimulation	Social interaction function	Immersion Experience	Perceived Pleasure	Intention to participate	Social Influence
Learning motivation	0.885							
Entertainment motivation	0.579***	0.757						
Sensory stimulation	0.544***	0.605***	0.843					
Social interaction function	0.545***	0.555***	0.563***	0.866				
Immersion experience	0.425***	0.440***	0.445***	0.431***	0.825			
Perceived pleasure	0.440***	0.468***	0.462***	0.466***	0.483***	0.873		
Intention to participate	0.334***	0.391***	0.380***	0.318***	0.325***	0.295***	0.903	
Social influence	0.140*	0.221***	0.235***	0.283***	0.174**	0.106*	0.450***	0.870

Note: \* p-value<0.05; \*\* p-value<0.01; \*\*\* p-value<0.001.

<Table 5> Path Coefficients

Path relationship			Estimate	S.E.	C.R.	P
Learning motivation	→	Immersion experience	0.149	0.068	2.183	0.029
Entertainment motivation	→	Immersion experience	0.189	0.088	2.148	0.032
Sensory stimulation	→	Immersion experience	0.182	0.072	2.528	0.011
Social interaction function	→	Immersion experience	0.150	0.063	2.398	0.016
Learning motivation	→	Perceived pleasure	0.153	0.074	2.058	0.040
Entertainment motivation	→	Perceived pleasure	0.235	0.096	2.453	0.014
Sensory stimulation	→	Perceived pleasure	0.191	0.079	2.430	0.015
Social interaction function	→	Perceived Pleasure	0.205	0.069	2.987	0.003
Immersion experience	→	Intention to participate	0.347	0.070	4.935	0.000
Perceived pleasure	→	Intention to participate	0.237	0.061	3.876	0.000
Immersion experience*Social Impact	→	Intention to participate	0.116	0.053	2.172	0.030
Perceived pleasure* Social Impact	→	Intention to participate	0.166	0.062	2.672	0.008

on immersive experience is 0.182 ( $p < 0.05$ ), H5 is supported. The standardized path coefficient of sensory stimulation on perceived pleasure is 0.191 ( $p < 0.05$ ). Therefore, H6 is confirmed. The standardized path coefficient of social interaction function on immersive experience is 0.150 ( $p < 0.05$ ). Hence, H7 is supported. As the standardized path coefficient of social interaction Function on perceived pleasure is 0.205 ( $p < 0.05$ ), H8 is supported. The standardized path coefficient of immersive experience on Intention to participate is 0.347 ( $p < 0.01$ ). Therefore, H9 is confirmed. The standardized path coefficient of perceived pleasure on intention to participate is 0.237 ( $p < 0.01$ ). Hence, H10 is supported.

The interaction term between immersive experience and social impact has a significant positive effect on intention to participate ( $\beta = 0.116$ ,  $p < 0.05$ ), which indicates a significant positive moderating role.

The interaction term between perceived pleasure and social impact has a significant positive effect on intention to participate ( $\beta = 0.166$ ,  $p < 0.05$ ), indicating a significant positive moderating effect. This implies that as the level of social impact increases, it positively affects the relationship between the immersive experience and the intention to participate and the relationship between perceived pleasure and the intention to participate.

## 6. Conclusion

Using the S-O-R model as a framework, this study explores the factors that influence user involvement in cultural tourism on the metaverse platform. This study provides several theoretical and practical implications. Although internal motivation

is acknowledged as a significant factor driving user adoption of technologies, its influence on user behavior within the metaverse platform has not been sufficiently explored in previous research. Our findings reveal the substantial influence of learning motivation and entertainment motivation in shaping user intentions towards cultural tourism in the metaverse. In this study, we also have identified the significance of sensory stimulation and the social interaction function provided by the metaverse platform as essential external stimuli. It is demonstrated that immersion experience and perceived pleasure play mediating roles in explaining how internal motivation and external stimuli impact user intentions for cultural tourism on the metaverse. Our results indicate that developers of the metaverse cultural tourism must provide informative and enjoyable multi-sensory cultural tourism content which demonstrates various social interaction scenarios to effectively promote user participation.

Moreover, we present findings that indicate the role of social impact as a moderator in the relationship between immersion experience and intention to participate, as well as between perceived pleasure and intention to participate. These results align with previous studies highlighting social influence as a mechanism for internalizing shared values. Our results indicate that the digital cultural tourism industry can effectively utilize social influence to enhance user participation. Specifically, metaverse cultural tourism providers can strengthen participation intention by prominently showcasing the adoption of their platform by existing group members or a substantial number of individuals.

This study is exploratory research in the field of digital cultural tourism on the metaverse. As the metaverse continues to evolve, there is a need for further empirical investigations to validate more comprehensive models regarding user participation in cultural tourism on the metaverse. It should be noted that this study examined only a limited set of internal motivation and external stimuli factors. Future research, therefore, should aim to explore additional internal motivations and external stimuli that were not addressed in this study. Furthermore, it would be beneficial for future studies to categorize digital cultural tourists in order to examine potential variations in internal motivation and responses to external stimuli among different groups. This approach would enable researchers to offer more targeted implications tailored to specific service categories. Despite the aforementioned limitations, this study adds significant value to the progressing research on digital cultural tourism within the metaverse and establishes a foundation for future investigations in this area.

## Reference

- AI-Adwan, A., Li, N., AI-Adwan, A., Abbasi, G., Albelbisi, N., & Habibi, A. (2023). Extending the Technology Acceptance Model (TAM) to Predict University Students' Intentions to Use Metaverse-Based Learning Platforms. *Education and Information Technologies*, <https://doi.org/10.1007/s10639-023-11816-3>.
- Almarzouqi, A., Aburayya, A., and Salloum, S. A. (2022) Prediction of User's Intention to Use

- Metaverse System in Medical Education: A Hybrid SEM-ML Learning Approach. *IEEEAccess*, 10, 43421-43434.
- Biocca, F., Harms, C., & Burgoon, J. (2003) Toward a more robust theory and measure of social presence: Review and suggested criteria. *Presence: Teleoperators and Virtual Environments*, 12(5), 456-480.
- Book, L. A., Tanford, S., Montgomery, R., & Love, C. (2015). Online traveler reviews as social influence price is no longer king. *Journal of Hospitality & Tourism Research*, 42(3), 445 - 475.
- Cao G.S. & Li, J. (2023) Exploration of Cultural Tourism Project Operation in the Context of the Metaverse. *Modern Media*, 31 (04), 99-103.
- Chen, Y., & Keng, C. (2019). Utilizing the Push-Pull-Mooring-Habit Framework to Explore Users' Intention to Switch from Offline to Online Real-Person English Learning Platform. *Internet Research*, 29(1), 167-193.
- Chen, G. M., & Starosta, W. J. (1998) *Foundations of intercultural communication*. Allyn & Bacon.
- Chen, K.K. (2017) A Study on User intention to participate in Virtual Brand Communities Based on Social Impact. Harbin Institute of Technology.
- Chen, Y., & Kim, E. (2023). Factors Affecting User Intention towards Metaverse Shopping: An Application of the S-O-R model. *Journal of Intelligence and Information Systems*, 29(2), 303-321.
- Duan, J.L. (2022) From Knowledge to Behavior: A Study on the Factors Influencing the Continuing Use Intention of Teenage Game Players under the Innovation Diffusion Path [J]. *Journal of Shanxi Youth Vocational College*, 35 (02), 24-31.
- Feng J. & Zhu, D. (2010) Research on the Social Impact of IT Project, the 2<sup>nd</sup> International Conference on Information Science and Engineering, 556-559.
- Fettweis, G. (2014) The tactile internet: Applications and challenges. *IEEE Vehicular Technology Magazine*, 9 (1), 64-70.
- Gstaettner, A.M., Rodger, K., & Lee, D. (2017) Visitor Perspectives of Risk Management in a Natural Tourism Setting: An Application of the Theory of Planned Behavior, *Journal of Outdoor Recreation and Tourism*, 19, 1-10.
- Gomez, E., Wu, D., & Passerini, K. (2010). Computer-supported Team-based Learning: The Impact of Motivation, Enjoyment, and Team Contributions on Learning Outcomes. *Computers & Education*, 55, 378-390.
- Gong, S.Y., & Du, Z.M. (2021) Analysis of Retail Space Design Strategies from the Perspective of Immersion Media. *Furniture and Interior Decoration*, 12, 122-126.
- Han, D., Bergs, Y., & Moorhouse, N. (2022). Virtual Reality Consumer Experience Escapes: Preparing for the Metaverse. *Virtual Reality*, <https://doi.org/10.1007/s10055-022-00641-7>
- Hennig-Thurau, T., Aliman, D., Herting, A., Cziehso, G., Linder, M., & Kubler, R. (2023). Social Interactions in the Metaverse: Framework, Initial Evidence, and Research Roadmap. *Journal of the Academy of Marketing Science*, 51, 889-913.
- Hua, W.,Y. (2022) Design and development strategies for digital cultural and tourism products based on metaverse thinking. *Footwear Technology and Design*, 2 (20), 22-24.

- Huang, H. Y., & Lin, J. C. (2019) Understanding user experiences in virtual reality video games: A content analysis of game reviews. *International Journal of Human-Computer Interaction*, 35 (5), 428-438.
- Huang, S. C., & Yang, S. H. (2018). Factors influencing users' immersive experiences in virtual reality leisure activities. *International Journal of Human-Computer Interaction*, 34(12), 1133-1143.
- Inceoglu, M.M. & Cilogluligil,B. (2022) Use of metaverse in education. International Conference on Computational Science and Its Applications. Springer, Cham, 171-184.
- Jackson S.A. & Marsh, H.W. (1996) Development and Validation of a Scale to Measure Optimal Experience: The Flow State Scale. *Journal of Sport & Exercise Psychology*, 18, 17-35.
- Kang, J. H., & Mun, J. (2014) The effects of website quality on customer satisfaction and purchase intention in the online bookstore: Moderating role of brand equity. *Journal of Business Research*, 67(11), 2284 - 2290.
- Kelman, H. (1958). Compliance, Identification, and Internalization: Three Processes of Attitude Change. *The Journal of Conflict Resolution*, 2(1), 51-60.
- Kim, E. (2022). The Creator Economy on the Metaverse Platform. *Journal of Intelligence and Information Systems*, 28(4), 275 - 286.
- Lee, H., Chang, K., & Uhm, J. (2023). How Avatar Identification Affects Enjoyment in the Metaverse: The Roles of Avatar Customization and Social Engagement. *Cyberpsychology, Behavior, and Social Networking*, 26(4), 255 - 262.
- Li, C.Y. (2015) A Study on the Relationship between Personality Traits, Learning Motivation, and Learning Immersion Experience of College Students. Harbin Engineering University.
- Li, T.T., Sun, Y.J., & Liu, J. (2020) The impact of immersion experience of tourists in Hebei Canal Culture tourist attraction on their willingness to revisit. *Tourism Overview*, 18, 19-21.
- Loureiro, S., Koo, D.M., & Ribeiro, L. (2013) Effects of atmospherics on emotions and intention with respect to involvement in different shopping environments. *Journal of Global Scholars of Marketing Science*, 23(4), 435-459.
- Loureiro, S., Correia, J., & Japutra, A. (2021). How Escapism Leads to Behavioral Intention in a Virtual Reality Store with Background Music? *Journal of Business Research*, 134, 288-300.
- Packer, J., & Ballantyne, R. (2016). Conceptualizing the visitor experience: A review of literature and development of a multifaceted model. *Visitor Studies*, 19(2), 128-143.
- Pan, T., & Lu, Y. (2022) Research on the influencing factors of user intention to participate based on SOR model in online health communities. *Information and Documentation Services*, 43 (2), 76-83.
- Park, N., & Lee, K. M. (2017) Social presence in social media: Predictors and effects on user's emotional well-being. *Cyberpsychology, Behavior, and Social Networking*, 20 (7), 421-427.
- Pestek, A. & Sarvan, M. (2021). Virtual reality and modern tourism. *Journal of Tourism Futures*, 7, 245-250.
- Qiao, H., Zhang, B., Zhao, Y. (2016) A Study on the Motivation Factors of User Participation in Collaborative Knowledge Production Based

- on Self Determination Theory. *Modern Intelligence*, 36 (9), 16-184.
- Qin, Y.S. (2020) Fostering brand - consumer interactions in social media: the role of social media uses and gratifications. *Journal of Research in Interactive Marketing*, 14(3), 337-354.
- Raman, A., Thannimalai, R., Rathakrishnan, M., & Ismail, S. (2022). Investigating the Influence of Intrinsic Motivation on Behavioral Intention and Actual Use of Technology in Moodle Platforms. *International Journal of Instruction*, 15(1), 1003-1024
- Reinecke, L., Aufenanger, S., Beutel, M., Dreier, M., Quiring, O., & Stark, B. (2017) Digital stress over the life span: The effects of communication load and internet multitasking on perceived stress and psychological health impairments in a German probability sample. *Media Psychology*, 20(1), 90-115.
- Runhua, P., & Jing, C. (2023). Innovative Development Strategies for “Immersive” Cultural and Tourism Night Tours from a Metaverse Perspective. *Academic Journal of Business & Management*, 5(8), 58-63.
- Shi, P.,H., Wang, Y.J. & Li ,Z. (2022) Research on the application prospects, main scenarios, risk challenges, mode paths, and countermeasures of the metaverse in the field of culture and tourism. *Journal of Guangxi Normal University: Philosophy and Social Sciences Edition*, 58 (4), 98-116.
- Venkatesh, V. & Morris, M.G. (2000). Why don't men ever stop to ask for direction? Gender, social influence and their role in technology acceptance and usage behaviour. *MIS Quarterly*, 24 (1), 115 - 137.
- Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, 36(1), 157-178.
- Wang, M. (2009) Research on Consumer intention to participate of Digital Spiritual Products. Nanjing University of Aeronautics and Astronautics.
- Wang, Q. (2023) Research on virtual digital humans from the perspective of the metaverse. *Art and Technology*, 36 (4), 3.
- Wang, X. (2023) Research on Risk Anomie and Governance Regulation of Digital Collections in Museums from the Perspective of Metaverse. *Journal of Southwest University for Nationalities*, 44 (04), 155-163.
- Wiederhold, B., & Wiederhold, M. (2005) *Virtual reality therapy for anxiety disorders: Advances in evaluation and treatment*. American Psychological Association. <https://doi.org/10.1037/10858-000>
- Williams, P. & Hobson, J. (1995) Virtual reality and tourism: fact or fantasy? *Tourism Management*, 16 (6), 423- 427.
- Wu F., Wang, C., & Li, J. (2015) Development of Adult Online Learning Motivation Scale under Unconstrained Condition. *Modern Distance Education Research*, 4, 60-65.
- Xu, X. & Wang, X.Y. (2023) Co creation of the Metaverse: Digital Innovation Behavior of Listed Cultural and Tourism Enterprises. *Library Forum*, 1-10.
- Xu, Y. (2023) How Guangxi's Cultural and Tourism Industry Embraces the Metaverse. *Cooperative Economy and Technology*, 7, 34-36.
- Yang, C., Zhong, K., & Wang H. (2016) Sensory



- Marketing: A Literature Review and Prospects. *Foreign Economics & Management*, 38 (5) 69-85.
- Yang, F., Tang, J., Men, J., & Zheng, X. (2021). Consumer Perceived Value and Impulse Buying Behavior on Mobile Commerce: The Moderating Effect of Social Influence. *Journal of Retailing and Consumer Service*, 63, 102683.
- Yun, H., An, J., & Park, S. (2023). An Exploratory Study for Metaverse Governance in the Public Sector. *Journal of Intelligence and Information Systems*, 29(1), 353 - 376.
- Zeiler, M.D. and Fergus, R. (2014) Visualizing and Understanding Convolutional Networks. In: European Conference on Computer Vision, Springer, Cham, 818-833.
- Zhou, M. (2023) Exploring the New Ecology of Exhibition and Education of "Museum+ Metaverse" - Taking the Shanghai Museum of Nature as an Example. *Science Education and Museum*, 9 (02), 21-27.
- Zhou, T. (2011). Understanding Online Community User Participation: A Social Influence Perspective. *Internet Research*, 21(1), 67-81.
- Zhou, T., Song, Y., & Zhou, P. (2022). Continued use intention of travel apps: from the perspective of control and motivation. *Technology Analysis & Strategic Management*, 34(6), 703-716.

국문요약

## 메타버스 플랫폼에서의 문화관광 활동 참여 의도에 영향을 미치는 요인에 관한 연구

장지아핑\* · 김은진\*\*

메타버스는 다양한 기술 수단을 활용하여 몰입형 관광 서비스 경험을 제공할 수 있어 문화관광 산업에 큰 혁신을 가져올 것으로 예상되나 관련 연구는 아직 미미한 실정이다. 이에 본 연구는 S-O-R 모델을 기반으로 메타버스 플랫폼에서의 문화관광 활동 참여 의도에 영향을 미치는 요인을 분석하는 것을 목표로 하였다. 본 연구 결과는 문화관광 참여자의 학습 및 오락에 대한 내적 동기와 메타버스가 제공하는 다양한 감각 자극 및 사회적 상호작용과 같은 기능이 몰입 경험과 인지된 즐거움을 매개로 참여 의도에 유의미한 영향을 미치는 것을 보여주었다. 본 연구는 이를 통해 문화관광 산업의 메타버스 플랫폼 구축에 활용될 수 있는 다양한 실무적 시사점을 제시한다.

**주제어** : 메타버스, 문화관광, 몰입 경험, 지각된 즐거움, 참여행동

논문접수일 : 2023년 5월 12일    논문수정일 : 2023년 9월 3일    게재확정일 : 2023년 9월 18일  
원고유형 : 학술대회 Fast Track    교신저자 : 김은진

---

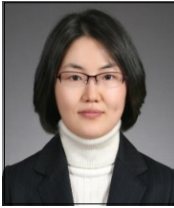
\* 경기대학교 글로벌비즈니스학과  
\*\* 교신저자 : 김은진  
경기대학교 경영학부  
(16227) 경기도 수원시 영통구 광교산로 4-42  
Tel: +82-31-249-9503, E-mail: ejkim777@kgu.ac.kr

## 저 자 소개



장지아핑

현재 경기대학교 글로벌비즈니스학과 박사과정에 재학 중이다. 주요 연구분야는 디지털 마케팅과 디지털 투어리즘으로 관련 연구를 진행하고 있다.



김은진

KAIST 경영대학원에서 MIS 전공으로 석사, 박사학위를 취득하였다. 현재 경기대학교 소프트웨어경영대학 경영학부에 교수로 재직 중이다. 주요 관심분야는 온라인 프라이버시, 정보보안, 공유경제 및 지식 공유 플랫폼 등 플랫폼 경제의 경제학적, 사회학적 이론 분석이다.