

The Effect of Experience Economy of VR Contents on Satisfaction

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ABSTRACT

The COVID-19 pandemic has ushered in a new era of untact and we are quickly adapting to this untact era. In the current situation where it is difficult to contact each other face-to-face, Virtual Reality (VR) is an opportunity factor for indirect tourism and a good alternative to viewing cultural heritage. This study showed that the effects of experience economies such as entertainment experience, aesthetic experience, escapist experience, and spiritual experience on VR content satisfaction. Furthermore, we examined whether consumers' perceived risks to COVID-19 moderate the relationship between experience economy and satisfaction. This study investigated 149 people who experienced VR content about Jerusalem. The results have shown that entertainment experience and aesthetic experience have a positive effect on the satisfaction with the VR content. Furthermore, perceived risks about COVID-19 have been shown to moderate the effects of aesthetic experience and spiritual experience on satisfaction. Finally, we provided implications based on our findings.

Keywords VR, Experience Economy, Satisfaction, Perceived Risk, COVID-19

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1. Introduction

The COVID-19 pandemic has changed much of our lives and social distancing and wearing masks have become routine. The COVID-19 pandemic has ushered in a new era of untact and we are quickly adapting to this untact era. The threat of the COVID-19 pandemic has frozen economies around the world, especially in the cultural and tourism industries that have considered face-to-face essential. In each country, overseas travel is inconvenient due to the essential self-isolation period when entering the country, and visits to the Cultural Heritage, part of it, are also very limited. Many museums, exhibition halls, and tourist attractions are currently closed due to social distancing, and the trend is gradually prolonged, contrary to initial expectations. This is a big crisis for both organizations that run cultural heritage and individuals who are potential customers who intend to visit cultural heritage.

In the current situation where it is difficult to contact each other face-to-face, Virtual Reality (VR) can be an opportunity factor for indirect tourism and a good alternative to viewing cultural heritage. In 2022, the global VR and AR market is expected to grow steadily to a huge scale (then estimated at about \$10.5 billions) (Digital-Capital, 2018). In addition, heavy equipment and high price problems, which have been pointed out as the biggest problems in VR experience, are expected to be solved, and many products (such as Apple's AR Glass, Google's lightweight VR headset) will be commercialized from 2021, which will be an amazing catalyst for VR and AR market growth.

Fine and Gilmore (1998) suggested that content experiences such as VR are private that occur within individuals participating in emotional, physical, intellectual, or mental events, so no one has the same experience, and each experience is created by individual interaction with staged events. It proposed entertainment experience, educational experience, escapist experience, and aesthetic experience as components of the experience economy. Since the tourist experience to be explored in this study focuses on cultural heritage, we would like to examine the impact on VR content satisfaction by adding spiritual experience to the experience economy element. Furthermore, this study focused on examining whether people's perceived risks about COVID-19 moderate the impact of experience economy factors on satisfaction of VR content. The results will provide theoretical and practical implications by comparing the magnitude of the influence of each factor in the experience economy on satisfaction of VR content and examining the moderation role of perceived risks about COVID-19.

2. Literature Review and Hypothesis

2.1 Experience cultural heritage through VR

The spiritual cultural heritage experience based on VR has two main advantages. First, VR contributes to enhancing cultural heritage accessibility (Paladini et al., 2019). Beyond the limits of distance, time and cost, many contents that can easily experience cultural heritage viewing through VR are already commercialized. In order to experience the pyramids in Egypt, the Louvre Museum in France, and the Mesa Verde in the United States, VR hardware and based devices (PC, Mobile, etc.) can be used to escape from daily life at any time without having to buy plane tickets.

Second, VR can improve the quality of explanation about cultural heritage. In 2020, the Faroe Islands held a free experience event where locals became remote avatars and allowed tourists who booked online to experience them for a certain time instead of promotional materials or simple filming videos. In addition to the experience time, people can watch what others have experienced. It became a big issue and became popular, and this event led more people to learn about the Faroe Islands and experience the beautiful scenery of it. In addition, if you look at existing studies on travel or cultural heritage viewing, the effect of VR is particularly noticeable in terms of learning. In other words, the usefulness and quality of virtual environments have a very significant impact on VR usage for travel and tourism marketing (Huang et al., 2013).

Third, the space interacting in a virtual environment is useful for learning situations, and interaction with virtual objects through experience embodies emotions so that they learn better (Kamplung, 2018). Learning cultural heritage using VR digital tourism guidance platforms works better, and even after learning, we are more aware of the cultural characteristics of our destination and its surroundings (Chiao et al., 2018). When examining the audience's perception of cultural heritage learning and its effectiveness, exhibitions with only text or audio added were inefficient. However, a visual, information-searchable, interactive virtual environment with realistic information related to the topic is best suited for learning (Tost & Economyou, 2009).

Among cultural heritages, especially museums perform various functions and roles such as collecting, investigating, researching, and education, focusing on historical exhibits from the past to the present (Min, 2017). Contextual learning models have presented a large range of frameworks for organizing learning-related information, which means that long-term cultural heritage learning is continuous when personal, physical, and sociocultural contexts interact with each other and is easiest to deliver messages without bias (Falk & Dearing, 2004). Therefore, if the environment is created as a virtual environment, high-quality learning is expected to be possible when viewing cultural heritage.

However, the disadvantages of the virtual reality environment are single-user experiences, which

place severe restrictions on existing museums and exhibition spaces designed for large audiences, and often lack interaction (Carrozzino & Bergamasco, 2010). In addition, many related studies have been stated the current VR experience tends to be less sustainable.

2.2 Experience Economy and Satisfaction

Prior studies suggested the conceptual definitions of four areas of experience in the theory of experience (Oh et al., 2007; Pine & Gilmore, 1998, 1999; Williams, 2006). First, entertainment experience is a concept that includes everything that is created by stimulating or promoting a pleasant, interesting, fun, interesting, and pleasant state, and passive absorption of experience through the senses, as when watching a performance. Educational experience factors are those that exist outside and require the active participation of individuals rather than being immersed in the experience, and refer to the extent to which knowledge or skills related to the experience are perceived by participants. Escapist experience factors are the most frequently used motivations in tourism, which occur when individuals who enjoy the experience actively participate in the experience while being fully immersed in it. This means not only getting out of reality but also going to places and activities worth investing time or effort. If people are deeply immersed in experience activities and show a somewhat passive level of participation compared to deviant experiences, such as having little impact on their surroundings or their activities, they will be able to experience aesthetic experiences. In other words, from an aesthetic point of view, the experienceers experience the same aesthetic experience as space where the object of experience exists is actually there.

Satisfaction is an emotional response in which consumers experience content and subjectively perceive content quality (Song et al., 2011). In other words, the sentiment arising from a mismatch between pre-purchase expectations and post-purchase performance for what the consumer is trying to purchase (Oliver, 1980, 1993; Oliver et al., 1994). Park and Lee (2018) reveal that these experience economy factors have a positive effect on satisfaction through perceived value, and that most prior studies have a significant impact between experience economy factors and satisfaction (Bigné et al., 2005; Oh et al., 2007). Therefore, the following hypotheses were established:

- H1: Entertainment experience will be a positive influence on satisfaction.
- H2: Escapist experience will be a positive influence on satisfaction.
- H3: Aesthetic experience will be a positive influence on satisfaction.
- H4: Spiritual experience will be a positive influence on satisfaction.

2.3 Perceived Risk of COVID-19

Perceived risk is defined as a subjectively perceived risk by consumers (Bauer, 1960) that consumers perceive as uncertainty about whether to realize their purchase objectives (Cox & Rich, 1964), and anxiety about the unexpected consequences of purchasing or using products (Yung & Morris, 2006). According to Bettman (1973), perceived risks tend to increase with lack of information about the product or service, with newer products being purchased, more expensive, more technically complex, and less experience or confidence in the product.

Jacoby and Kaplan (1972) classified perceived risk factors as financial risk, functional risk, physical risk, social risk, and psychological risk. Financial risk refers to monetary losses that may result from the use of goods or services that the consumer is unfamiliar with, and functional risk refers to functional concerns. The idea is that the purchased product is likely to harm the body or health, and that psychological risk is not consistent with one's thoughts after purchasing the product or service. Finally, social risk means the possibility of being misperceived by others.

Traveling abroad in a COVID-19 environment involves both physical and social risks. Therefore, consumers can try VR experience as a substitute for not being able to travel abroad. Therefore, this study examine whether perceived risk regulates between experience economy and content satisfaction through VR. [Figure 1] represents a research model.

H5: The perceived risk of COVID-19 will moderate the effect of experience economy on satisfaction.

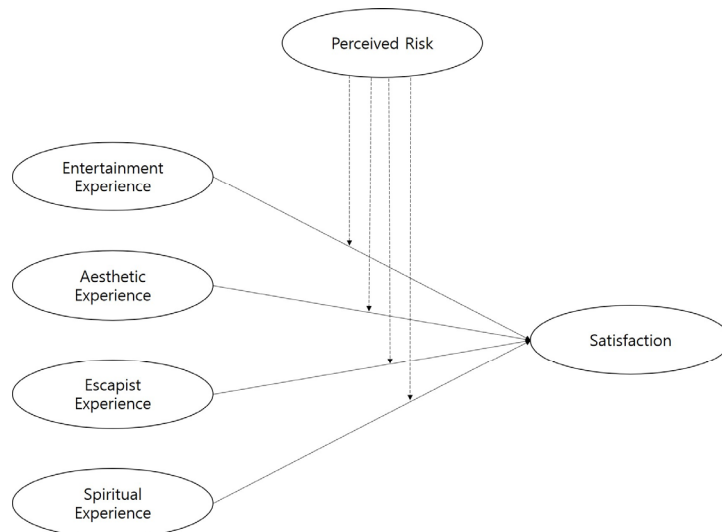


Figure 1. Research Model

3. Methodology

3.1 Research Design and Samples

To experience cultural heritage viewing, VR hardware used HTC VIVE pro, and VR content was selected "The Holy City," which was judged to be the most suitable for research purposes through after experiencing the top 20 of the VIVE travel contents. The content was developed by the Innovation Technology Team of the Tower of David Museum in Israel for the Jerusalem VR experience.

A total of 149 people who visited the laboratory directly after recruiting through a public announcement used the convention sampling method, one of the non-probability sampling methods. Of the 149 participants in the experiment, 72 were male (48.3%), 77 were female (51.7%), 40 were in their 20s (26.8%), 38 were in their 30s (25.5%), 41 were in their 40s (27.5%), and 30 were in their 50s or older (20.1%).

3.2 Procedure

Participants all followed the quarantine rules and prepared heat checks and selective inspection papers, and if there were no problems, hand disinfection and device disinfection were conducted before experience. First, he explained the contents of the experiment and the agreement that he could stop participating in the experiment at any time, and received his signature.

The survey was answered twice before and after. First, we conducted a survey on pre-recognition and COVID STRESS of Jerusalem and experienced VR content. Participants then responded to the survey about main factors such as entertainment experience, escapist experience, aesthetic experience, spiritual experience, and satisfaction.

3.3 Measurement

This study measures entertainment experience, escapist experience, aesthetic experience, spiritual experience, satisfaction, perceived risk of COVID-19 using a Likert 7-point scale (1: not at all, 7: very much). Entertainment experience, escapist experience, aesthetic experience were measured by referring to the measurement items used in Pine and Gilmore (1998). Spiritual experience was measured by referring to Lee et al. (2020) and Satisfaction was measured by referring to Mehmetoglu & Engen (2011). Lastly, perceived risk of COVID-19 was measured by referring to Taylor et al. (2020).

4. Results

4.1 Reliability and Validity

The feasibility and reliability of the measurement tools used in this study were analyzed. We first examine it through the Cronbach's alpha method to measure reliability. This is used for verification of the internal consistency of the measurement tool and is generally judged to be reliable above the baseline of .70 (Wu & Chen, 2017). The reliability of the measurement items, including entertainment experience .958, aesthetic experience .860, escapist experience .838, spiritual experience .881, and satisfaction .951, has been verified with Cronbach's alpha values of .70 or higher.

In addition, exploratory factor analysis (EFA) was conducted for validity testing. To this end, Varimax rotations were used, and the number of factors was set to an Eigen value of 1 or higher. To determine whether the collected data are suitable for factor analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett tests are checked. In general, if the KMO value is 0.5 or higher and the Bartlett's test of sphericity is less than .05, determine that the data are suitable for factor analysis (Wu et al., 2011). As you can see in Table 1, the KMO of this study data is .903, and the Bartlett's sphericity test is also significant ($\chi^2 = 2486.344, p < .01$). Since the factor loading values of all variables in Table 1 are above baseline .5, the composition of the subfactors of the experience economy and satisfaction is good and the questionnaire explains the latent variables well (Pittman et al., 2007). In addition, [Table 2] shows correlation and descriptive statistical results between each factor.

Table 1. The Results of Reliability and Validity Test

Variables	Factor Loading				
	1	2	3	4	5
Entertainment Experience (Cronbach's $\alpha = .958$)					
I enjoyed the VR experience	.878	.259	.194	.192	.131
I felt interesting during VR experience.	.829	.288	.198	.229	.092
The VR experience was pleasant.	.827	.342	.073	.225	.080
It was fun to VR experience.	.824	.374	.145	.225	.086
Satisfaction (Cronbach's $\alpha = .951$)					
VR experience was satisfactory compared to expectations.	.301	.821	.249	.237	.131
I am satisfied with the VR experience.	.396	.808	.210	.239	.133
Overall, I am satisfied with VR experience.	.413	.794	.155	.222	.125
VR experience was great.	.454	.641	.254	.276	.191

Variables	Factor Loading				
	1	2	3	4	5
Spiritual Experience (Cronbach's $\alpha = .881$)					
The VR contents experienced were spiritual.	.060	.189	.866	.132	.207
I enjoyed religious or spiritual experiences during VR experience.	.124	.185	.861	.209	.121
During the VR experience, I gained insight into the Holy Land of Jerusalem.	.209	.179	.685	.374	.191
During the VR experience, the surroundings felt peaceful.	.403	.138	.607	.116	.359
Aesthetic Experience (Cronbach's $\alpha = .860$)					
VR contents are well decorated in harmony.	.224	.348	.228	.727	.134
VR content design is attractive.	.322	.181	.287	.715	.283
VR content design has strengthened the experience of Jerusalem.	.339	.309	.285	.686	.152
Escapist Experience (Cronbach's $\alpha = .838$)					
I wanted to stay in VR experience and I didn't want to go back to my daily life.	.059	.125	.179	.164	.893
I felt that I was living in a world that emerged from VR, away from reality.	.175	.165	.363	.187	.793
Eigen Value	3.972	3.188	3.007	2.215	1.896
Percentage of Variance	23.362	18.753	17.686	13.027	11.155
Cumulative Percentage	23.362	42.115	59.801	72.828	83.983

.KMO = .903, Bartlett's test: $\chi^2=2486.344$, $df=136$, $p<.01$

Table 2. Correlation Analysis and Descriptive Analysis

Variables	(1)	(2)	(3)	(4)	(5)
(1) Entertainment Experience	1				
(2) Aesthetic Experience	.655**	1			
(3) Escapist Experience	.355	.521	1		
(4) Spiritual Experience	.487	.652	.586	1	
(5) Satisfaction	.731	.688	.410	.541	1
M	6.168	5.662	3.805	4.715	5.877
SD	.983	.942	1.643	1.392	1.170

Notes: * $p < .05$, ** $p < .01$

4.2 Results

Regression analysis was conducted to examine the impact of experience economy factors on satisfaction. The results shows that entertainment experience ($\beta = .571$, $t(144) = 7.005$, $p < .01$) and escapist experience ($\beta = .364$, $t(144) = 3.641$, $p < .01$) were a positive influence on satisfaction. Therefore, H1 and H2 were supported. However, aesthetic experience and spiritual experience were not a positive influence on satisfaction. Therefore, H3 and H4 were not supported. [Table 3] depicted the results of regression analysis.

Table 3. Results of Regression Analysis

Variables	Unstandardized Coefficients		Standardized Coefficients	t	p
	β	SE	Beta		
(Constant)	-.181	.418		-.433	.666
Entertainment Experience	.571	.082	.480	7.005	.000
Aesthetic Experience	.364	.100	.293	3.641	.000
Escapist Experience	.020	.046	.028	.433	.665
Spiritual Experience	.084	.062	.100	1.353	.178

Dependent Variable: Satisfaction

Next, We investigated whether perceived risk would be moderated between the experience economy and satisfaction. To this end, we conducted a hierarchical regression analysis proposed by Baron and Kenny (1987). The results showed that the interaction effect between aesthetic experience and perceived risk of COVID-19 was a positive influence on satisfaction ($\beta = .216$, $t(139) = 2.673$, $p < .01$), while the interaction effect between spiritual experience and perceived risk of COVID-19 was a negative influence on satisfaction ($\beta = -.132$, $t(139) = -3.052$, $p < .01$). Therefore, H5 was partially supported.

Table 5. Results of Testing The Interaction Effect of Experience Economy and Perceived Risk of The COVID-19 on Satisfaction

Variables	Model 1		Model 2		Model 1	
	β	t	β	t	β	t
(Constant)	-.181	-.433	-.258	-.540	.498	.475
Entertainment Experience (A)	.571	7.005**	.571	6.983**	.819	2.975**
Aesthetic Experience (B)	.364	3.641**	.367	3.645**	-.476	-1.454
Escapist Experience (C)	.020	.433	.022	.461	-.007	-.058
Spiritual Experience (D)	.084	1.353	.083	1.341	.640	3.323**
Perceived Risk (M)			.015	.336	-.264	-1.014
A \times M					-.058	-.925
B \times M					.216	2.673**
C \times M					.009	.273
D \times M					-.132	-3.052**
R ²	.618		.619		.649	
Δ R ²	-		.000		.030*	

Notes: * $p < .05$, ** $p < .01$

5. Conclusion

This study examined that the effects of experience economies such as entertainment experience, aesthetic experience, escapist experience, and spiritual experience on satisfaction of VR content. Furthermore, we examined whether consumers' perceived risks to COVID-19 moderate the relationship between experience economy and satisfaction.

The results of the study are as follows. First, entertainment experience, aesthetics experience, has been shown to have a positive effect on satisfaction. In addition, looking at the standardization factor, we find that entertainment experience (std. $\beta = .480$, $p < .01$) have a greater impact on satisfaction than aesthetic experience (std. $\beta = .293$, $p < .01$). This suggests that when planning content through VR, it is necessary to focus on ways to strengthen entertainment experience.

Second, the perceived risk is shown to moderate the positive effect of aesthetic experience on satisfaction. With the high perceived risk about COVID-19, consumers will find it difficult to visit the tourist attractions directly. It judged to the consumers were satisfied with the fact that it experienced the aesthetic experience of tourist attractions through VR and indirectly experienced tourist attractions. Therefore, it can be expected that emphasizing aesthetic experiences on tourist attractions will further promote VR experiences for consumers who perceive physical and social

risks such as COVID-19.

Third, the perceived risk is shown to moderate the negative effect of spiritual experience on satisfaction. It judged to the consumers were dissatisfied with the fact that they couldn't visit in the holy land while it experienced the spiritual experience of tourist attractions through VR. Therefore, for religious believers who can perceive spiritual experiences relatively easily, it is a more effective approach to provide tourist with entertainment experience through VR tour contents rather than providing them with places like sacred sites through VR.

This study has the following limitations: First, the study provided some people with VR content in Israel, such as the Holy Land. In future studies, it is deemed necessary to compare sacred sites and general optical sites together to identify the relationship between each experience economy element and content satisfaction. Second, this study focused on external environmental factors such as COVID-19. However, considering reports of people complaining of dizziness through VR, it is judged that experiencing tourist attractions through VR may perceive some physical risks. Therefore, it seems necessary to look at the physical risks of VR in future studies. Finally, this study focuses on the relationship between experience economy and satisfaction. In future studies, it seems necessary to examine their relationship in detail by adding variables such as purchase intention, continuous use intention, and visit intention.

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