Article

Virtual Reality Destination Experiences Model: A Moderating variable between Wisesa Sustainable Tourism Behavior and Tourists' Intention to Visit.

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Abstract-This research aims at developing a virtual reality destination experience (VRDE) model as a moderating variable between sustainable tourist behavior (STB) and tourist visit intention (TVI). Portability variable strengthens VRDE, and content quality variable supports VRDE. The research method used was purposive convenience sampling covering 204 respondents who visited the vicinity of Kebon batik village in Klaten, Central Java, Indonesia. The research findings were H1: STB has a significant effect on VRDE, H2: VDRE has an impact on TRVI, H3: portability has a significant effect on VRDE, and H4: content quality did not have an impact on VRDE. The novelty of this research is the VRDE application applied to Community Sustainable Tourist Behavior in developing countries.

Keywords: virtual reality; destination experiences; *wisesa* sustainable community tourism; content quality; portability; intention to revisit

1. Introduction

The COVID-19 pandemic has ravaged Indonesia's tourism industry in the last two years. However, starting in 2022, the pandemic has slowed, and the tourism industry in Indonesia has started to recover again. The tourism industry's contribution in Indonesia reached US$ 16.9 billion in 2019 and fell to US$ 13.6 billion during the 2020 to 2021 COVID-19 pandemic. We are engaging to revive and promote our local wisdom *Wisesa* that means Indonesia's local wisdom and supreme power to create a sustainable environment. We develop the model of sustainable tourism behavior, Virtual Reality and tourist intention to visit at the tourist destination of Kebon, Central Java Indonesia village.   Foreign as well as domestic tourists who visit usually enjoy nature tourism. However, tourists are also interested in experiencing batik tourism using natural coloring materials, including leaves, mangrove tree fruit, wood sap, and herbaceous plants.

Batik is a cultural heritage of native Indonesian fabrics that have been recognized worldwide. Batik cloth can be made into various products such as clothes, blankets, pillowcases, etc. There are two types of batik: stamped batik and written batik. How to make batik with this method can be done by painting with *canting* (a tool to draw pattern and motifs) and affixing wax dots one by one according to the depicted motif. Motifs can be self-made or imitate existing motifs.

Many tourist volunteers who visit are concerned and encourage tourism industry players to have an obligation to realize sustainable tourism development by preventing environmental degradation. Therefore, foreign tourists who are environmentally sound will participate in promoting sustainable tourism behavior [1]; [2]. VR (virtual reality) is a revolutionary technology that fundamentally changes the user's (consumer) experience of entering a three-dimensional world. VR is used in (3D) games, healthcare, retail sales, social connections, and marketing. Facebook also provides a three-dimensional VR service, Facebook Horizon, allowing people to meet in a three-dimensional digital space. The experience of using VR in marketing is still at an early stage. Consumers have not entirely accepted it, and this is because it causes discomfort when users have to use special tools to view objects through a VR headset [3]. However, in subsequent studies, the use of VR for consumers led to an experience that excited them to continue the surfing experience through three-dimensional VR technology [4]. Therefore, the findings of [4] can be said to be a research gap from the study conducted by [3].

There is not many literatures discussing the studies on sustainable tourist behavior on the basis of local wisdom [5]; [2], for visiting and revisiting. Especially for experiential tourists who do not only want to see the beautiful scenery of an environmentally friendly area, but also moderated by the development of modern VR experience technology, this is a novelty of the research; in various previous studies, the VR experience for tourists is an awesome-inspiring and creates the desire to continue to experience it again both digitally and in the real world [6]. However, the VR experience needs to strengthen with variable content quality and portability [4]. The research questions of this paper are as follows:

1.   How does sustainable tourist behavior affect the VR experience?
2.   How does the VR experience affect tourist intention to visit and revisit?
3.   How does content quality affect the VR experience?
4.   How does portability affect the VR experience?

The remaining of this paper is ordered as follows: section 2 illustrates state-of-the art of previous research and hypotheses formulation, section 3 presents the method of research, section 4, research findings and discussions and finally section 5 presents limitation and conclusion.

2. State-of-the Art review of Literature and Hypotheses Formulation.

Local wisdom sustainable tourist behavior on VR on tourist destination experiences.

[7] show that digitalization through VR and sustainability represents a synergy that enables stakeholders and tourists to prevent environmental damage caused by tourism during travel and in tourist destination areas. Natural resources and the environment will be maintained, which is also strengthened and supported by a study by [8]. Further studies conducted by [9], revealed that the use of VR technology is significant in promoting environmental sustainability and because VR users are very impressed with the use of three-dimensional VR, which provides an immersive experience. [5] supports the study that local wisdom *Bapak Aksa (Wisesa)*, a supreme power to promote sustainability in Central Java Indonesia, has significantly promoted sustainability in tourist behavior. Value-Belief-Norms theory can predict sustainable tourist behavior and should apply in the destination management organization [2].

[9] revealed that VR technology opens numerous opportunities for both business interests and controlling environmental damage to maintain sustainability. The advantages of using VR technology can provide a high validity, high presence VR environment leading to real-world reactions and interactions between humans and VR. Furthermore, [6] revealed that VR technology could save communication costs between sales representatives and tourists, primarily to disseminate sustainability to tourists. For example, VR operators can take 3-dimensional videos of 360^0 panoramas at tourist destinations and provide various information about tours with the theme of sustainability and environmental

preservation that triggers the curiosity and fascination of the tourists. Based on the discussion, the hypothesis formulation is as follows:

H1: Sustainable tourist behavior affect VR experiences significantly.

VR Experiences on tourists' visit and revisits intentions.

VR or virtual reality has become viral by combining virtual and natural to create 3-dimensional visualizations [10]. We identify four stages of virtual reality (VR), namely pure real presence, augmented virtually, currently growing and attracting attentiveness in the tourism business [11]. VR technology is applied to the tourism industry, allowing tourists to experience and feel the sensation when they try VR applications [12]. The researcher also stated that VR experiences include six dimensions, namely basic VR, 360^0 video, video replica, live motion, interactive VR, and landscape sensations.

In today's digital era, technological innovation in visualization is the main key point to destination marketing. VR marketing attributes and tourist satisfaction will affect visit intention [13]. VR travel content consists of telepresence, focused attention, and temporal distortion. [14] confirmed that the VR travel experience creates the immersed feeling and the blunted sensation at passage time; this affects the positive experience of tourists visiting tourist destinations that they have experienced in VR. The researchers also revealed that the technological features of VR, vividness, and interactivity would stimulate humans and tourists, affecting the experience evaluation using VR and encouraging behavioral intentions to visit tourist destinations [13].

According to [15], tourist satisfaction is the dominant factor that encourages tourists to visit and revisit the destination. Therefore, the authors suggest a theoretical model improve tourists' satisfaction model from the perspective of tourists' motivation and destination image to boost destination revisit. Based on the discussion, the following proposed hypotheses:

H2: VR experience significantly affects the intention to visit.

Content Quality to VR Experience.

The use of VR allows customers to experience the sensation of their presence and engagement on a three-dimensional computer. VR is a technology of digitalization that brings creations of digitalization to the actual world. VR technology brings customers to a digital creation ecosystem [16]. A study conducted by [17] supports that VR technology could be used for marketing purposes, especially in interacting with customers or prospective customers. The concept of VR technology is interaction with content as objects that are integrated with hardware [18]. VR content is a promotional tool that is widely used in marketing activities. Studies on VR content affect customers' perceptions and can change their behavior [19]. Current research reveals that VR content is an opportunity for telepresence [20]; [21], which is beneficial for both intention and attitude. Consumers can have the ability to control the product or service in making decisions to buy products. Studies on VR content increase the ability of consumers to patronize a product or service [22]. On the other hand, VR content is also able to increase customers' perceptions of the quality of the advertised product or service [23]. Based on the discussion the following hypothesis is proposed as follows:

H3: Content Quality affects VR experience significantly.

Portability and VR Experience.

Portability is important for tourists who visit the destination because they carry a mobile phone both to communicate and when they record photos and videos of VR content. Portability is also important in the use of mobile devices which is the perception of the mobile devices they use [24]. The operators easily use their gadgets wherever they are. Therefore, many studies on adoption of mobile devices reveal the findings that portability on the mobility of tourists has a substantial positive effect in the use of VR. [25], examines

the determinants that affect personal acceptance of mobile devices relevant to strengthen VR experiences.

[26] also revealed in their study that portability in streaming media is a crucial factor that positively affects the usefulness of the VR experience. [27] also supports this VR experience, they introduced VR portability devices to provide stimuli through the eyes to enhance the VR experience through VR text spelling and navigation. Based on the discussion we propose hypotheses as follows:

H4: Portability has significant effect on VR experience.

3. Research Method

Respondent Profile

This study was undertaken in April 2022 to August 2022, the respondents were those who visit in the vicinity of tourism destination at Kebon2 village, during the data collection, 204 respondents have been the participant of the research. They were either foreign tourists or domestic tourists. We conduct purposive convenient sampling, which was those who visit in another vicinity of destination area, mostly to enjoy the panorama and learning or experiencing how to craft Batik natural dyes.

Table 1. Sample Analysis.

| Item	Classification	Number of People	Percentage %
Gender	Male	96	47
	Female	108	53
Age	Under 17	8	0.04
	18 – 30	62	30
	31 – 40	79	38
	41 – 50	35	17
	51 – 60	20	14.96
Origin	Foreign	132	64
	Domestic	72	36
Visit Kebon	Not Yet	200	98
	First time	4	2

Source: Processed Primary Data.

The sample data indicate that in terms of gender most of the respondents were female, and foreign tourists with age bracket 31 to 40 years old and mostly they have not been visiting Kebon. Therefore, the VR destination experiences will have them to visit the destination physically.

Location

The location chosen is the natural dye batik community cluster in Bayat Central Java Indonesia. The reason we chose this location is because the natural dye batik community it has continuously developed by university researchers for six years, as our commitment to foster and develop small and medium enterprises that are environmentally sound and sustainable. However, since we would attract the other vicinity destination tourists to visit Kebon village, we develop VR technology to enable tourists to experience 3-D images of Kebon village through VR gadget. The following example of our VR 3-dimension images as follows:

VR on Batik Tulis (hand-made batik)
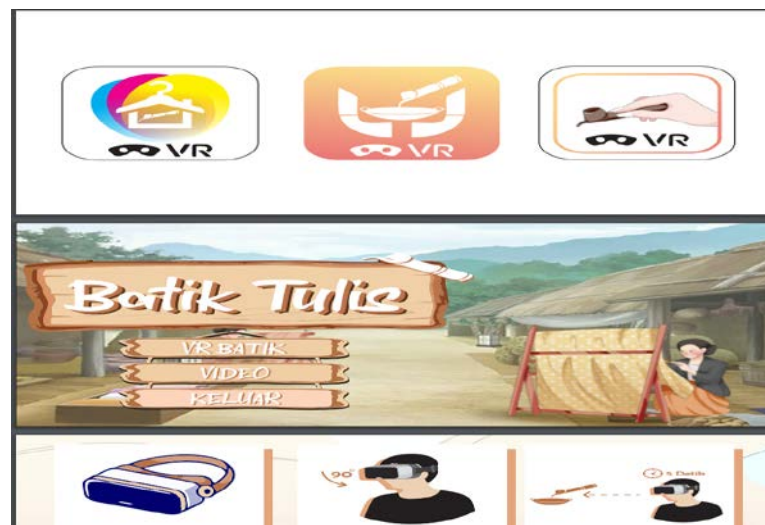
Note: Batik *Tulis* means hand-made batik.

Figure 1. The Example of Kebon's VR.

Outer Model Testing (Measurement Model)

This research entitled "Virtual Reality Destination Experiences Model: A Moderating variable between *Wisesa* Sustainable Tourism Behavior and Tourists' intention to visit, analyzed by utilizing the Smart-PLS 3.0 software.

a. Convergent Validity

Convergent Validity can be determined using loading factor values. The definition of factor loadings is value that indicate the relationship among the values of statement item through a construct indicator that measures the construct. The validity criterion is the factor loading value larger than 0.7. The outcome process of data utilizing Smart-PLS version 3.0, the loading factor value obtained as follows:

Table 2. Loading Factor Values.

Variables	Indicators	Indicators Notation	Outer Loading
Sustainable Tourist Behavior	Value	SCB1	0.957
	Belief	SCB2	0.962
	Norms	SCB3	0.956
VR Destination Experiences	Immersion	VR1	0.954
	Interaction	VR2	0.942
	Usability	VR3	0.945
	Illusion	VR4	0.945
Visit Intention	Newness seeking	VI1	0.966
	Learning local knowledge	VI2	0.972
	Natural environment	VI3	0.949
	Social environment	VI4	0.939
Content Quality	Ease of use	CC1	0.960
	Degree of users 'immersion	CC2	0.987
	Visual attractiveness & quality of 3-D images	CC3	0.976
Portability	Ease of utilization (easy to carry)	P1	0.936
	Mobility	P2	0.948
	Hedonic value	P3	0.912

Source: Processed Primary Data (2022).

Table 3. Cross Loading Value.

	Content Quality	Portability	Sustainable Tourist Behavior	Virtual Reality Destination Experiences	Visit Intention
CC1	**.960**	.913	-.886	-.872	-.955
CC2	**.987**	.947	-.919	-.919	-.966
CC3	**.973**	.923	-.904	-.907	-.923
P1	.828	**.936**	-.877	-.903	-.831
P2	.898	**.948**	-.856	-.882	-.932
P3	.940	**.912**	-.884	-.893	-.910
SCB1	-.865	-.885	**.957**	.927	.841
SCB2	-.905	-.938	**.962**	.977	.908
SCB3	-.897	-.865	**.956**	.916	.861
VI1	-.952	-.933	.889	.886	**.966**
VI2	-.991	-.959	.922	.926	**.972**
VI3	-.895	-.913	.848	.870	**.949**
VI4	-.882	-.844	.810	.801	**.939**
VR1	-.876	-.907	.939	**.964**	.840
VR2	-.879	-.924	.929	**.942**	.891
VR3	-.880	-.905	.936	**.945**	.884
VR4	-.874	-.900	.923	.945	.847

Source: Primary data processed (2022).

The data analysis by using Smart-PLS 3.0, in table 3 mentions that the value of cross-loading indicates the relationship value concerning constructs is higher than the relationship with other constructs. The constructs' finding have good validity of discriminant.

The next gauge is to assess the root of AVE value with the correlation amongst constructs. The criterion is that the root value of AVE is larger than the interaction amongst constructs. A measurement model would have an improved validity of discriminant value. If AVE's square root value in each construct is larger than the relationship of the two model's constructs. The minimum necessity of AVE value is larger than 0.50. Therefore, all AVE's result value and its square root in each construct has met the minimum requirement shown in table 4 as follows:

Table 4. Average Variance Extracted Value (AVE).

	Average Variance Extracted (AVE)
Content Quality	.947
Portability	.869
Sustainable Tourist Behavior	.918
Virtual Reality Destination Experiences	.901
Visit Intention	.915

Source: Primary data (2022).

Table 4 depicts that the value of AVE for all constructs is larger than 0.50 and the least value 0.869 on the Portability variable and the greatest .947 for the Content Quality variable. This value has met the minimum standard of 0.50. The next measure is to contrast the value of square root with association amongst constructs in the research model. The results reveal the association amongst constructs with the value of square root AVE in the Fornell-Larcker Criterion table as follows:

Table 5. Fornell-Larcker Criterion.

	Content Quality	Portability	Sustainable Tourist Behavior	Virtual Reality Destination Experiences	Visit Intention
Content Quality	**.973**				
Portability	.953	**.932**			
Sustainable Tourist Behavior	-.928	-.936	**.958**		
Virtual Reality Tourist Behavior	-.924	-.958	.982	**.949**	
Visit Intention	-.974	-.955	.908	.912	**.956**

Source: Primary data processed (2022).

Table 4 and 5 show that the value of AVE square root in each construct is bigger than the value of correlation, therefore, the construct model has good discriminant validity.

Table 6. Composite Reliability Value.

	Composite Reliability
Content Quality	.982
Portability	.952
Sustainable Tourist Behavior	.971
Virtual Reality Tourist Behavior	.973
Visit Intention	.977

Source: Primary data (2022).

The composite reliability findings computation show that the value is larger than 0.7. Therefore, the value has good reliability and meets the minimum standards.

Inner Model Test or Structural Model.

Subsequently, the next step assesses the inner model or structural model. The estimation of the inner model was undertaken by observing at the value of R-square in the construct of dependent variable and the value of T-statistic based on the test of path coefficient. The larger the R-square value, the better the research model is. In addition, the value of path coefficient indicates the level of significance in the hypotheses testing.

a. Determination Test or Variance Analysis (R2)

Determination test or Variance Analysis (R2) is a test conducted to find out the effect of the independent variables over the variable of dependent. The value of determination coefficient can be seen in table 7:

Table 7. R-Square Value

	R Square
Virtual Reality Destination Experiences	.978
Visit Intention	.833

Source: Primary data processed (2022).

The value of R^2 in table 7 shows that the variables of Content Quality, Sustainable Tourist Behavior and Portability can explain the Virtual Reality Destination Experiences construct variable by 97.8% and the remain 2.2% described by other constructs outside this study. Meanwhile, Virtual Reality Destination Experiences explained the Visit Intention variable by 83.3% and the remain 16.7% described by variables outside this study.

b. Hypotheses test

We undertake hypotheses tests to assess the inner structural model which consists of R^2, coefficients parameter, and T-statistics. Values that need consider are the significance

values amongst constructs, T-statistics, and P-values. The test utilizes of Smart-PLS 3.0 software through Boot strapping testing. The criteria managed in this research were T-statistic is larger than 1.96 and a significance level of P-value is 0.05 coupled with a positive beta coefficient. The results depict the model in Figure 2; the hypotheses tests are significantly proven, except content quality variable to the VR destination experiences.

The result of hypothesis test is as follows:

Table 8. Path Coefficients Result.

|	Original Samples (O)	Mean of Samples (M)	Deviation Standard (STDEV)	T-Statistic (O/STDEV)	P Values
Content Quality -> Virtual Reality Destination Experiences	.163	.158	.194	0.841	0.401
Portability -> Virtual Reality Destination Experiences	-.425	-.450	.242	1.759	0.039
Sustainable Tourist Behavior -> Virtual Reality Destination Experiences	.735	.704	.150	4.909	0.000
Virtual Reality Destination Experiences -> Visit Intention.	.912	.915	.030	30.440	0.000

Source: Primary data processed (2022)
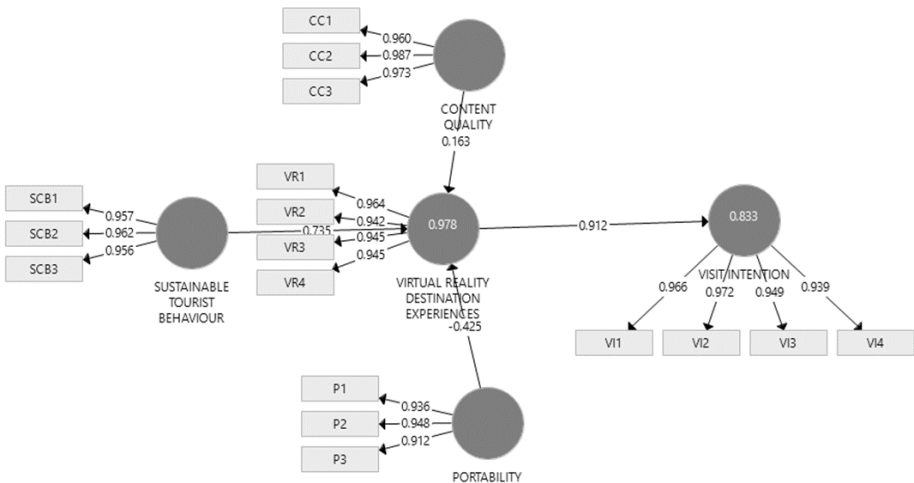
Figure 2: Research Model Result.

4. Research Findings and Discussion

Statistical calculations using Smart-PLS version 3 reveal that sustainable tourist behavior has a significant effect on the use of VR destination experiences 0.00<0.05. Value, Belief and Norms foreign as well as domestic tourists believe it to preserve the environment, even they also give priority when visiting tourist destinations that are environmentally sound and maintain its sustainability. This study supported by various previous studies including [28]; [29]; [30], who revealed that the individual taking of tourists in contexts, including eco-tourism, ecosystem, sustainability, is based on the belief in the existence of Value, Belief and Norms (VBN). VBN is a model that explains individual behavior actions or intentions that are determined by the existence of fundamental concepts from values, beliefs, and norms. VBN extends the norm activation model that focuses on specific beliefs on awareness and willingness to take responsibility related to environment preservation. This study also identifies the characteristics of tourists who come as important points that guide tourists, including the existence of biospheric, altruistic, and egoistic values. altruistic value is a prominent aspect that leads to pro-social environmental behavior. The current environmental approach paradigm emphasizes the importance of reciprocal relations between humans and their environment. Meanwhile, awareness is

a consequence of a belief related to the condition of individuals who actively participate in protecting the environment. The individual norm is a consequence of the moral obligation to minimize environmental degradation.

Virtual Reality (VR) Destination Experiences has significantly influenced Tourist Visit Intention (TVI). VR Destination Experiences has major influence on Tourist Visit Intention since p-value < 0.05 or 0.00<0.05. This study revealed that the experiences given to tourists who initially only visited the vicinity of tourist destinations of Kebon village had a strong intention to visit Kebon tourist destination. VR experiences give the impression of immersion, interaction, usability, and illusion to either foreign or domestic tourists. This study integrates various experiences of tourists including immersion, interaction, usability, and illusion. the findings of this research are consistent with the findings of research conducted by [31]; [11]; [32], Various components of VR experiences affect satisfaction with using VR. VR operators shooting 360^0 movies. Providing visitors with various themes of travel destinations including budget, dark tourism, religious or sharia tourism, games and simulation for various ages, genders, origins of visitors.

Tour operators can take advantage of VR technology optimally with immersion to be able to experience being present in the real world without being physically present. VR technology is also able to save time and costs by allowing direct communication between tourists and tourist marketers, besides that VR connoisseurs will experience a virtual journey excitement to provoke the curiosity of tourists to physically visit Kebon tourist destinations. In this study, VR experience significantly influences the tourist respondents' intention to visit. Indicators on visit intentions are a) tourists looking for something new, b) learning about local knowledge and wisdom, including what we prioritize is learning to make batik on a piece of cloth, coloring with natural dyes, putting wax on the cloth as a separator between colors. Kebon offers to see and live in the village of Kebon to enjoy not only environmental views, but also to practice preserving the environment by introducing recycling processes in the batik industry. In addition, in the spirit of togetherness, the local inhabitants to facilitate the engagement program for instance to live in.

Content Quality has not significantly influenced VR Destination Experiences. The proposed hypothesis has rejected the influence between content quality and VR Destination Experiences   0.40>0.05. The components of Content Quality are ease of use, degree of users 'immersion, visual attractiveness, and quality of 3-D images. The better the video quality, 3-D images, the better the level of user's immersion on VR experience, the content quality also affects the immersive environment for the user's perceived performance [33]; [34]. Ease of use is the extent to which a person considers that utilizing VR hardware will require less effort to operate the gadget. In other words, ease of use gives users access to mental effort [18]. Visual attractiveness is a crucial factor to provide a tourist destination experience through VR. Visual attractiveness is related to being an ICT aesthetic product, when users reject content quality, this indicates that the creation of existing VR content quality is not in accordance with what the users want. This happens because the creation of VR is in the introductory stage and there needs an improvement and refinement that needs to undertake so that the quality of the content is better. However, respondent's suggestion and insight to improve the VR technology have been particularly useful for forthcoming 3-D images development.

Portability has significantly influenced VR Destination Experiences, p-value & significantly 5%, the hypothesis result is 0.039<0.05 thus this study accepted the hypothesis test. The components of easy to carry, mobility and hedonic value. Portability is a principal factor in mobile devices, portability also defined as users' perception of VR gadgets [25]; [26]; [35]. Users can easily carry and use their gadgets wherever they are. The findings of this study provide evidence that portability has a significant impact on VR experiences. In other words, based on user experience, they prefer portable devices such as mobile phone and tablet. larger media such as tablet and desktop are also desirable when the tourists do not mobile. Hedonic value in the form of pleasure or emotional response to watching VR, such as playfulness and having fun, is more focused on portable devices.

This happens because the quality of VR content has been adequate applied to small screen gadgets such as mobile phones.

5. Limitation and Conclusion

This study has limitation that the technology of VR is in early stage of development, the users felt unpleasant to wear VR glasses. Therefore, the VR and its tools need to improve to facilitate the users friendly VR. The limitation also to address the question why the model development rejected hypothesis between content quality and VR destination experiences. The model encourages the next research agenda to break down specifically sustainable tourist behavior and VR destination experiences to include the use of TAM (technological acceptance model).

Acknowledgement

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11 of 11

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