To travel or not to travel if already experienced it virtually?

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To travel or not to travel if already experienced it virtually?

Nowadays more and more virtual experiences can be gained in advance before visiting a tourist destination. However, the question arises: do these experiences spoil the real future experience and deter from travelling? In our research, we have aimed at investigating the relationship of virtual tourism attitude and travel intention. A sample of 114 respondents experienced a 360-degree virtual reality (VR) video and answered to our questionnaire. In our proposed model, we found significant positive relationships among the latent variables (attitude towards using VR experiences, tele-presence, VR experience enjoyment, perceived usefulness, behavioural intention). Results suggest that the impact on behavioural intention is very strong and in this regard we can conclude that VR videos can have a significant influence in travellers' decision making process, however it is not supported that these experiences and the conveyed information could ruin or even substitute the planned trip.

Keywords: virtual tourism, travel motivations, tourism marketing

Track: Tourism Marketing

1. Introduction

Today's tourist has a hard job. When planning his/her travel, endless number of tourist destinations are there to choose from, furthermore, almost unprocessable amount of information is available about all of them. Although we have basic motivations and requirements regarding a potential destination, the appearance of different marketing stimuli could also have impact on our decision. The spread of ICT has revolutionized the market, as it has transformed the role of the traditional travel agencies (in some sense their role has even disappeared), and there are numerous innovations (e.g. virtual reality (VR)) which have entered the travel sector to help customers in making their decisions. This study aims at investigating the relationship between virtual tourism experience and travel intention, especially whether virtual reality could be really proven to be a double-edge sword (Li & Chen 2019).

2. Tourism and digitalisation

Evolution of the info-communication technology significantly transformed the spatial relations of tourism from the local to global dimension. VR has been developing since the 1960's (Tussyadiah, Wang and Jia, 2017), and it is more and more popular since the 1990's. It is used for creating 3D-environments in several areas from teaching through entertainment to marketing activities, including tourism sector. The dynamic development character of the latter provides perfect field for utilising VR tools. VR was basically introduced in connection with entertainment in the world of video games, and it has spread in all areas of our lives, bringing significant changes in tourism (Gurau, 2007). Virtual reality creates interactive environment while being far away from the physical destination, which this way decreases negative effects of tourism, as a marketing tool it promotes the destination and makes it more attractive, but at the same time it also threatens the tourism sector (Kulakoglu-Dilek, Kizilirmak and Dilek, 2018). In connection with the latter Csapó, Gerdesics, Gonda, Raffay and Törőcsik (2018) highlight the activity of non-travellers, the phenomenon of non-tourism.

Relationship of virtual reality and tourism has been studied by researchers since the appearance of the virtual reality. According to Williams and Hobson (1995) by this time it was used in the theme parks (e.g. Disneyland), as a marketing tool (e.g. simulated experience provided for customers by the tour operators) and for creating artificial tourism products (e.g. virtual tours). Sussmann and Vanhegan (2000) raised the question about VR applications' opportunity to replace traditional tourism products already that time, and they concluded that

relationship between these two is not about substitution but about a supplementary function. However, this research also emphasises that these virtual trips are not only important from the side of replacement, but in some special cases they are the only alternative for tourist segments which physically cannot travel; elders or people living with a disability. In their work Anwar and Hamilton (2005) deal also with the human, geopolitical, economic, technological and environmental effects of tourism, and they devote emphasised attention to the development of virtual technology and the changes needed related to this in the fields of tourism management and tourism marketing. More publications (Pengfei, Xing and Xiuying, 2014; Huang, Backman K., Backman, S. and Chang, 2016; Tussyadiah, Wang and Jia, 2017) highlight the significance of the value created by the VR in six areas; planning and management, marketing, entertainment, education, and the heritage preservation. Relationship of VR and tourism can be separated into three areas; the process of the travel decision with the support of a virtual community (Sussmann & Vanhegan, 2000), application of VR technology in gaining experience (Tussyadiah, Wang and Jia, 2017; Wirth et al., 2017; Neuburger & Egger, 2017), and replacement of physical travel by VR travels (Guttentag, 2010). Graham (2016) claims that VR has an important role in attraction of potential tourists to the destination (in creation of pre-, on-site and post- experiences).

3. VR experiences in tourism

Fritz, Susperregui and Linaza (2005) emphasise the application of multimedia content in their publication especially focusing on cultural tourism. This way, besides the traditional incentives, tourist can be provided by additional value such as showing the buildings during an augmented walk, taking the tourists to natural locations which are physically reachless (e.g. high mountain peaks), or ensuring a virtual tour guide for the guest. Tussyadiah, Wang and Jia (2017) claim that VR tools support the potential tourists in imagining and trying the product they are planning to buy, so they are actually tools of „try before buy" method. On the other hand, they certainly strengthen the customer's product knowledge as well, they increase brand awareness, brand recall and deeper imprinting of the experience, the positive attitude and beneficial behavioural reactions. They support the decision also because VR experience creates sensory and motoric relations (walking, moving the head and hand besides the view etc.) (Wirth at al., 2017). They certified in their research that the feeling of presence is getting higher with the increase of interactions in VR reality, furthermore, feeling of presence has positive effect on post-VR attitude change towards the destination. Neuburger and Egger (2017) prove in their

work focusing on museums that implication of the augmented reality significantly supports acquiring own experience, which is considered to be highly important in creation of engagement. VR shows the destination management activity from a formerly not known aspect, but despite of its fast evolution and recognition of its strength it is still not accepted in tourism. Appearance of VR in tourism began with virtual tours and panorama photos, today it is far further than this. However, its development depend highly on the individual's openness and positive attitude towards innovations, their trial, or towards innovation-acceptance. Disztiner, Schögl and Groth (2017) investigated technology acceptance in this area, focusing on the relationship between technology acceptance and contribution of VR to planning a trip. They concluded that the behavioural intention on using these technologies is influenced by openness of the individual towards technological innovations, how much they can enjoy the given VR equipment, deepen the virtual experience and consider the tool useful. Despite of these, this kind of behaviour is not influenced by the ease of the usage of the tool, the availability of the technology, the feeling of individual tense in connection with using the technology or sceptic attitude. Based on these the question appears about using these tools especially for convincing the tourist, thus what are the ways of influencing customer behaviour in the decision-making phase of travelling. Present study focuses on the issue of potential relationship between virtual tourism attitude and the travel intention, supposing before the investigation that a VR experience would stimulate the potential traveller in realising the travel.

4. Research methods and results

In our research we have conducted an experiment in May 2019 with 114 individuals, who were willing to take part. Since the sample is not representative and we have used snowball sampling, our results cannot be generalized, we could only aim at model testing and construct validation. Respondents first had to experience a selected 360 degree video about London (https://www.youtube.com/watch?v=m9EClKA1VeQ) using VR technology, and than answer to an online questionnaire. In terms of demographic variables, 77.6% of respondents are female, and the majority (43.1%) are students aged 20 to 22 (62.9%). They live mainly in county seats (56%) and are single (52.6%). About 58.6% have a baccalaureate and 39.7% have a bachelor's degree. Only 2.5% of the respondents had experiences previously with their own VR device and 10.5% had already experienced a VR video tour for a tourist destination.

In line with the initial objective of the research, we aimed at investigating the attitude to VR experiences and its consequences based on the well-known technology acceptance model

(Davis, 1989) considerations. Our proposed model includes the following constructs: attitude towards using VR experiences, tele-presence, perceived usefulness, VR experience enjoyment, behavioural intention. All of the constructs were measured with items (1-7 point Likert scale) that were adapted to the designed experiment and are based on the literature with the focus on the works of Gerdesics, Nagy and Csapó (2019) and Huang, Backman, K., Backman, S. and Chang (2016).

Attitude towards using VR experiences (abbreviated VR attitude)(Gerdesics, Nagy and Csapó, 2019)	I am particularly interested in the "travel" experience provided by virtual reality.
	It is more exciting to have a virtual reality travel experience than a specific trip.
	Because of the potential risks of travel (strikes, natural disaster, terrorism, illness) I would prefer virtual tourism.
	I like to try virtual tourism experiences.
Tele – presence (Huang, Backman, K., Backman, S. and Chang, 2016)	I was completely captivated by the video.
	The virtual world seemed very real to me.
	My experience in the virtual environment seemed consistent with the real world.
Perceived Usefulness (Huang, Backman, K., Backman, S. and Chang, 2016)	I believe that using this VR experience enhances the effectiveness of trip planning.
	These virtual experiences provide great opportunities to introduce travel destinations.
	I believe that using these kind of videos enables me to search travel information more conveniently about a city when planning a trip.
VR experience enjoyment (Huang, Backman, K., Backman, S. and Chang, 2016)	I really enjoyed experiencing this VR video.
	I thought experiencing the VR video was quite enjoyable.
	The VR video experience was fun and interesting.
Behavioural Intention (Huang, Backman, K., Backman, S. and Chang, 2016)	After watching the VR video I wanted to find out more information about London.
	After watching the VR video I gained an interest in visiting London.
	The VR video reinforced my intention to visit London in the future.
	I am willing to recommend this VR video to others, so they could also experience it.

Table 1. Measurement scales

Witmer and Singer (1998, 225) defined tele-presence as "the subjective experience of being in one place or environment, even when one is physically situated in another." In our approach the feeling of tele-presence is influenced by the individual's positive attitude towards using VR experiences. This factor can be also crucial in assessing the perceived usefulness of the video, which impacts the individual VR experiences. Tele-presence has also an impact on the individual experiences or the perceived usefulness. In our model these mediating variables are included in order to predict behavioural intentions.

The model relationships are proposed with the following hypothesis:

H1: Positive attitude to VR experiences has a positive impact on tele-presence.

H2: Positive attitude to VR experiences has a positive impact on perceived usefulness.

H3: Tele-presence has a positive impact on perceived usefulness.

H4: Tele-presence has a positive impact on VR experience enjoyment.

H5: VR experience enjoyment has a positive impact on behavioural intention.

In our analysis we have used the method of variance-based structural equitation modelling (PLS-SEM) in ADANCO. This approach is well-suited for smaller sample sizes and is accepted to test theoretical relationships. The measurement model as well as the structural model (Figure 1) is acceptable (Henseler, Hubona and Ray, 2016) based on the various indices (see Appendix 1). The SRMR value (0.0556) is lower than the threshold (<0.08) at 5% and even at 1% significance level. The applied measurement scales are also acceptable (see Appendix 1), with the exception of the Fornell-Larcker criterion (the AVE of a latent variable should be higher than the squared correlations between the latent variable and all other latent variables) for VR experience enjoyment and tele-presence and behavioural intentions. However based on the HTMT ratio the discriminant validity of these constructs is proven and the AVE (average variance extracted) proves unidimensionality. External validity is also supported, the R^2 value of VR experience enjoyment (82,54%) and behavioural intention (78,05%) is relatively high, while in case of tele-presence (26,05%) and perceived usefulness (35,67%) we found lower values.

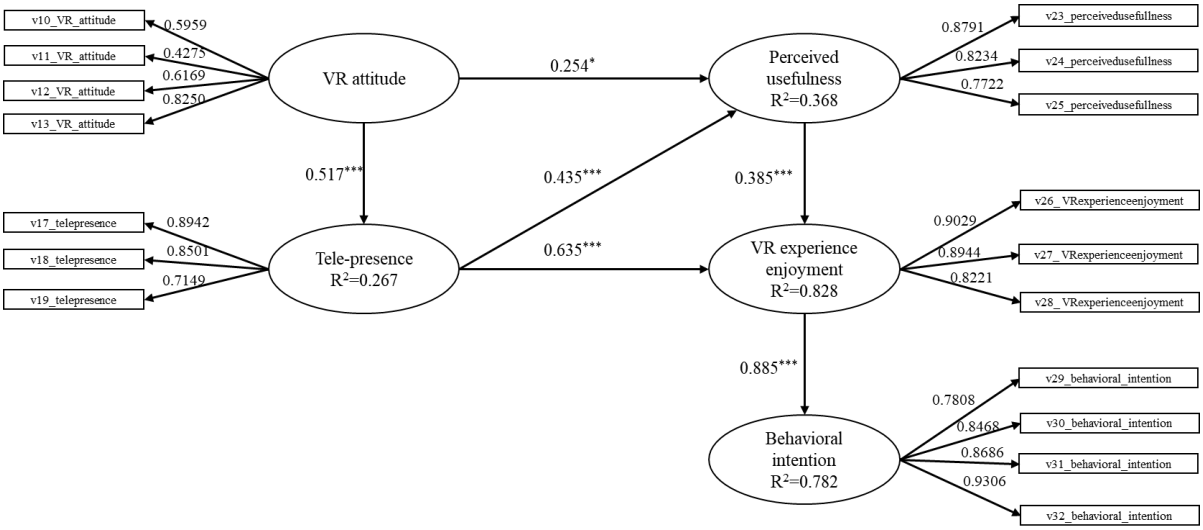

Figure 1. Results of the structural model

All of the proposed relationships in the model are proven to be significant at a significance level of 0.05, so we could accept all of our hypothesis. Based on the Cohen's f^2 values we can conclude that the attitude towards using VR experiences has a significant positive effect on tele-presence. However there is a weaker positive relationship between the attitude

towards using VR experiences and perceived usefulness. Tele-presence has a stronger positive impact on VR experience enjoyment than on perceived usefulness. Perceived usefulness has a strong relationship to VR experience enjoyment and through this mediating variable it has a very strong impact on behavioural intention. In this manner our preliminary expectations were confirmed, but we were also interested in the question whether the impact of the virtual experience could be interpreted in the opposite way, that is, it could discourage people from visiting a destination, just because they have already experienced it virtually and "know" what is it like to be there. In our questionnaire we have included three questions regarding this issue (Figure 2). Our preliminary assumptions were not supported, respondents did not agree with the statements about the substitution effect of VR experience. So the VR experience is not "enough" and cannot substitute (yet) the real experiences. It is only providing information which assists in the decision making process and can be considered as a desirable "spoiler".

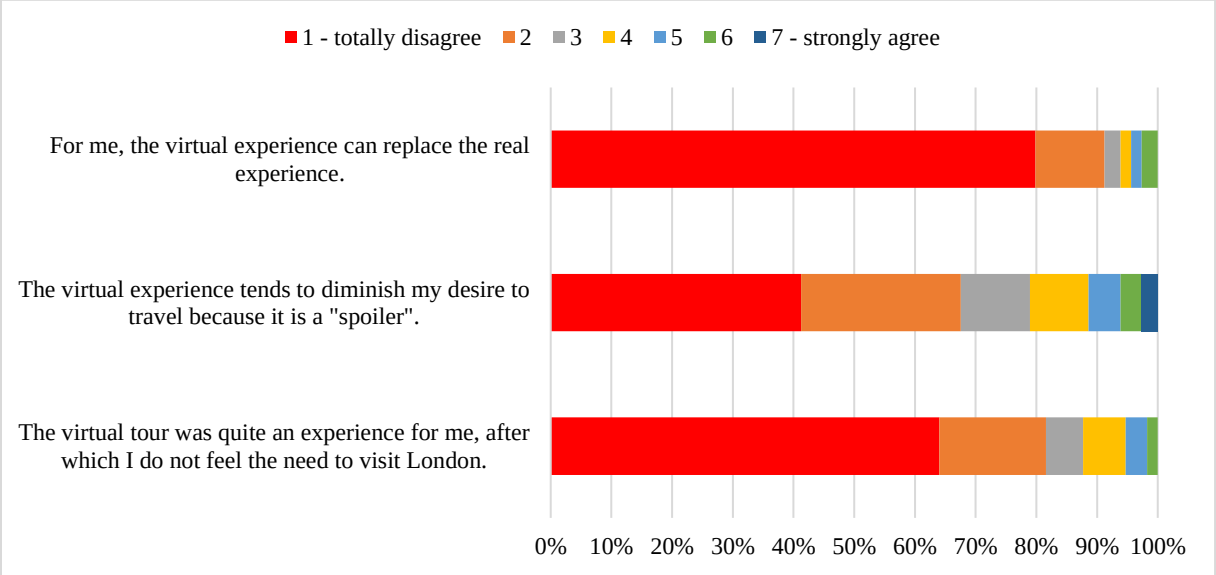

Figure 2. The degree of agreement with the statements used to measure the substitution "effect" of the VR experience

5. Conclusions, limitations, further research questions

Based on the results of the research, it can be concluded that the attitude towards using VR experiences has a less strong effect on perceived usefulness than on tele-presence, which in turn has a really strong impact on VR experience enjoyment. By giving potential tourists the opportunity to experience VR videos, supporting their feeling of being in advance present at

the destination, the impact on behavioural intention is very strong (the strongest relationship in the model is between VR experience enjoyment and behavioural intention). In this regard VR videos can influence travellers' decision making process, however it is not supported that these experiences and the conveyed information could ruin or even substitute the planned trip. Our results cannot be generalized due to sampling method and number of respondents. In order to test the proposed model and measurement scales a large, representative sample would be needed, that is due to the relatively low prevalence of VR devices has limitations. It would be needed to further investigate the model testing it on other VR experiences and compare results with the VR video.

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Appendix 1.

Goodness of model fit (saturated model)

	Value	HI95	HI99
SRMR	0,0510	0,0551	0,0639
d_{ULS}	0,3978	0,4639	0,6240
d_G	0,3363	0,4021	0,4885

Goodness of model fit (estimateed model)

	Value	HI95	HI99
SRMR	0,0556	0,0597	0,0680
d_{ULS}	0,4737	0,5455	0,7065
d_G	0,3417	0,4098	0,4954

Construct Reliability

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's alpha(α)
VR attitude	0,7546	0,7168	0,7192
Tele – presence	0,8713	0,8622	0,8605
Perceived usefulness	0,8685	0,8653	0,8645
VR experience enjoyment	0,9083	0,9064	0,9054
Behavioral intention	0,9213	0,9177	0,9179

Discriminant Validity. Heterotrait-Monotrait Ratio of Correlations (HTMT)

Construct	VR attitude	Tele – presence	Perceived usefulness	VR experience enjoyment	Behavioral intention
VR attitude					
Tele – presence	0,5280				
Perceived usefulness	0,4597	0,5587			
VR experience enjoyment	0,5717	0,8540	0,7463		
Behavioral intention	0,4913	0,7227	0,7539	0,8835	

Discriminant Validity. Fornell-Larcker Criterion

Construct	VR attitude	Tele – presence	Perceived usefulness	VR experience enjoyment	Behavioral intention
VR attitude	0,3997				
Tele – presence	0,2669	0,6778			
Perceived usefulness	0,2292	0,3208	0,6823		
VR experience enjoyment	0,3265	0,7278	0,5546	0,7637	
Behavioral intention	0,2442	0,5296	0,5634	0,7824	0,7368

Squared correlations; AVE in the diagonal.

Effect	Beta	Indirect effects	Total effect	Cohen's f^2
VR attitude -> Tele – presence	0,5166		0,5166	0,3640
VR attitude -> Perceived usefulness	0,2538	0,2249	0,4787	0,0748
VR attitude -> VR experience enjoyment		0,5124	0,5124	
VR attitude -> Behavioral intention		0,4532	0,4532	
Tele – presence -> Perceived usefulness	0,4353		0,4353	0,2198
Tele – presence -> VR experience enjoyment	0,6350	0,1676	0,8026	1,5964
Tele – presence -> Behavioral intention		0,7099	0,7099	
Perceived usefulness -> VR experience enjoyment	0,3850		0,3850	0,5869
Perceived usefulness -> Behavioral intention		0,3406	0,3406	
VR experience enjoyment -> Behavioral intention	0,8845		0,8845	3,5955