Exploring the impact of virtual reality experiences on intention to visit tourism destinations: the moderating effect of interactivity

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Abstract

The objective of this paper is threefold: first, to analyze how the experience of visiting a tourist destination using VR technologies influences the destination image and the intentions to visit; second, to evaluate the role of the sense of presence in the generation of the consumer experience; and third, to examine the moderating effect of the level of interactivity of the technology. Specifically, the model includes the variables sense of presence (Makransky et al., 2017), customer experience (Bleier et al. 2019), destination image (Molinillo et al., 2018), and intention to visit (Flavián et al., 2019). According to previous literature, it is proposed that sense of presence positively impacts customer experience (Fan et al., 2022), which influences destination image (Beerli & Martín, 2004) and both variables determine intention to visit (Lin et al., 2023; Tan & Wu, 2016).

A lab-based experiment was conducted in which two factors were manipulated: tourist destination (Paris n = 42, vs. Singapore n = 37) and type of VR technology (Google Earth n = 25, StreetView n = 25, 360 video n = 29). Participants were undergraduate students, which represent a valid population group employed by previous research in VR (Flavián et al., 2021). Participants were randomly assigned a technology and destination and interacted for 10 minutes with the destination through VR. When concluding the experience, participants completed a questionnaire. The mean age was 20.84 years (SD = 2.992). Fifty-three percent were female, 40.5% had not used virtual reality devices before and 68.4% had taken at least one international trip in the past three years.

It was controlled that they had not visited the tourist destination, as familiarity with the destination can influence its image and consumer behavior (see Shi et al., 2022). Similarly, the degree of perceived interactivity was controlled for (Yim et al., 2017) (M = 5.495, SD = 1.394, α = .857). The results indicate that the perceived levels of interactivity in each type of technology are different, $F_{(2, 49.158)} = 19.317$; $p < .001$. Specifically, significant differences were observed between Street View and Google Earth (StreetView: M = 5.530; Google Earth: M = 6.595, SD = 0.645; diff. = 1.065; $p < .005$) and between 360 videos and Google Earth (360 video: M = 4.704, SD = 1.706; Google Earth: M = 6.595, SD = 0.645; diff. = 1.892, $p < .001$). Significant differences were also found between 360 videos and Street View (diff. = 0.825, $p < 0.05$). No significant differences were found in the analysis of intention to visit according to proximity to the destination viewed (Paris vs Singapore) ($F_{(1, 75.328)} = 0.994$; $p > 0.05$).

Next, the Partial Least Squares (PLS) regression method was used to evaluate the predictive ability of the proposed model. First, the measurement model was evaluated by means of indicator and construct reliability, convergent validity and discriminant validity. Subsequently, the structural model was studied, by which it was verified that all the hypothesized relationships were fulfilled. Afterwards, a multigroup analysis (MGA) was performed to assess the moderating effect of VR technology type on the hypothesized relationship model. Table 1 shows that there are no significant differences between the three technologies in the effects of social presence on customer experience, nor in the effects of social presence on destination image. However, there are significant differences in the effects of customer experience and destination image on intention to visit. The results show that Google Earth produces the highest mean intention to visit (M = 5.843, SD = 1.374) compared to StreetView (M = 5.210, SD = 1.471) and 360 video (M = 4.889, SD = 1.644).

Table 1. Comparison of the model (Google Earth vs StreetView vs 360 Video)

	Dif. (Google Earth vs StreetView)	Dif. (Google Earth vs 360 Video)	Dif. (StreetView vs 360 Video)
Sense of Presence → Experience	0.049 n.s.	0.062 n.s.	0.013 n.s.
Customer Experience → Destination Image	0.376 n.s.	0.171 n.s.	-0.204 n.s.
Customer Experience → Visit Intention	**-0.064*****	**-0.042*****	**0,022*****
Destination Image → Visit Intention	**0.083*****	**-0.032 *****	**-0.116*****

Note. Significant differences are shown in bold. Dif. (differences)

Consistent with earlier research (eg. Alyahya and McLean, 2021; Flavián et al., 2019a), this article offers quantifiable proof about how different technologies (Google Earth, Street View, and 360 Video) can effectively promote tourism destinations. It underscores the critical role that customer experience plays in shaping the image of a destination and the intention to visit. Differing from prior studies, this research specifically targets tourist destinations. In a novel approach, it concurrently examines the impact of VR technologies on crafting a destination's image and motivating potential visits. This information is pertinent to tourism marketing professionals and immersive technology developers, who can leverage these insights to optimize the promotion and attractiveness of tourist destinations. Based on the findings, it's advisable for tourist destinations to utilize VR to craft a pre-visit image, particularly with more immersive technologies. The study also recognizes several constraints and potential areas for future investigation: the participant sample was relatively small and may not represent the full spectrum of tourists; the research centered on three specific immersive technologies, but the field is wide-ranging and consistently evolving; future studies could delve into and compare the effects of other immersive technologies, such as the metaverse (see to Buhalis et al., 2023).

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