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## Virtual Reality and Implications for Destination Marketing

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# Virtual Reality and Implications for Destination Marketing

## Introduction

The use of Virtual Reality (VR) within the tourism sphere is a growing topic of interest among practitioners and academics alike. VR facilitates interaction with virtual environments that expands the user's imagination through creating an immersive experience (Rebelo, Noriega, Duarte and Soares 2012). This type of technology is already having significant impacts on many sectors, from healthcare (Janda et al., 2004) to the military (Rizzo et al., 2015), and tourism is not immune. A non-exhaustive list of potential impacts of VR in tourism include the planning of places and experiences, the elimination of barriers that increase accessibility and open up remote places, the education and guiding of visitors, the preservation of fragile sites (Guttentag, 2010), enhanced entertainment (Healy, van Riper and Boyd, 2016), and the ability to broaden global interaction among travelers (Huang, Backman, Backman and Moore 2013). All these impacts are related to tourists' experiences and activities within a destination; however, there appears to be limited research on the opportunities of VR for destination marketing.

Many researchers have investigated the role of information in influencing travel decisions (e.g. Bieger and Laesser, 2004). Due to the intangible nature of tourism, marketers rely heavily on visual imagery to promote destinations (MacKay and Smith, 2006; Aziz and Zainol, 2011). As technology advances, tourism marketers are developing innovative ways to use visual representation to promote a positive destination image and increase visitation in an increasingly complex and competitive global marketplace (Baker and Cameron, 2008; Echtner and Ritchie, 1991). VR has great potential for destination promotion because of the immersive sensations it can offer, and its ability to communicate how a distant place or experience feels. As a promotional tool VR has the potential to reduce perceived risk of intangible services helping travelers make more informed decisions with more realistic expectations (Klein, 2003).

As consumers become more resistant towards traditional visual media as sources of information (Fransen, Verlegh, Kirmani and Smit, 2015), and as VR becomes more widely accessible (Ulrich, 2015), it is critical for tourism marketers to be more informed on this technology. However, this field is still nascent, and there is little empirical research regarding the use of VR in tourism marketing compared with other more traditional visual media. Therefore, the purpose of this research is to compare the impacts of destination promotional material viewed in VR with other forms of visual promotions (e.g., 2D Video and Websites). This study provides a review of literature on destination image and VR technology in relation to tourism marketing. An explanation of data collection is followed by a presentation and discussion of results. Finally, a discussion on implications for tourism marketers and future research will be provided.

## Literature Review

### *VR and Destination Marketing*

VR and related technologies have substantial potential as promotional tools to encourage real life tourism visits (Fauzi and Gozali, 2015; Tussyadiah, Wang and Jia, 2016). VR is especially intriguing for the tourism sector as a channel to communicate intangible tourism experiences to a

wider audience. The tourism sector has long relied on the use of visual imagery when promoting destinations to communicate with and influence consumers (Dann 1996; Mackay and Smith, 2006; Aziz and Zainol, 2011), but as people are becoming more resistant to traditional visual communication mediums such as brochures, TV commercials, and even websites as primary sources of information (Fransen et al., 2015). Advertisements that provoke positive attitudes are more likely to influence purchase intentions and be considered overall more effective (Spears and Singh, 2004).

Although the adoption of VR is still nascent, it is flourishing, as a growing number of companies and organizations integrate VR elements into their marketing. Many travel promoters have already adopted VR technologies to provide a preview experience of hotel properties, cruise ships and travel experiences (Samuely, 2016; Vitaliev, 2016). However, there is a significant lack of empirical research on the use of this technology for businesses, as well as destinations more broadly.

Mascho and Singh (2014) conducted a qualitative analysis of destinations operating in Second Life, the largest user-created open platform virtual world, to provide users seeking travel information a uniquely personal experience. The authors studied the links between Second Life usage and real life visitation. Although Second Life does create a virtual world and was shown to correlate to real life behaviour, it is not a sensory immersive experience. VR has the potential to more strongly influence travellers' expectations and image of a destination, building connections and expectations before purchase and consumption (Jung and Han, 2014; Rizzo, 2016).

### ***Destination Image***

Broadly speaking destination image is understood as “the total impression represented in a traveler’s memory as a result of perceived attributes associated with a tourism destination” (Wang and Hsu, 2010, p. 829). This impression can be summarized as “an individual’s mental representation of knowledge, beliefs, feelings and overall perception of a particular destination” (Chen and Tsai, 2007, p. 1116). Destination image can affect visitors’ destination choice before they travel, their level of satisfaction in a destination as they assess their experience against expectations, and in perpetuating the image as returned visitors share their experiences with friends, family and through online posts (Litvin, Goldsmith and Pan, 2008). Destination image has a strong effect on consumer behavior, and marketers’ ability to influence the image potential visitors have is vital for sustainable tourism activity (Agapito, Oom do Valle and da Costa Mendes, 2013).

Destination image is a widely discussed concept, but the term can be broken down into three primary components: a *cognitive* component which refers to the beliefs or knowledge a person has about the attributes of a destination, an *affective* component that concerns the tourist’s feelings toward a destination, and a *conative* component that concerns what a person does with this information (San Martín and Del Bosque, 2008; Wang and Hsu, 2010). Cognitive destination image has typically focused on visitors with experience of a destination (e.g. Alcañiz, García and Blas, 2009; Qu, Kim and Im, 2011; San Martín and Del Bosque, 2008; Wang and Hsu, 2010). Affective destination image is more closely connected to emotions or feelings that are potential visitors’ “decision-making and behaviour processes” (San Martín and Del Bosque, 2008, p. 265) related to perceptions of excitement and pleasure (Wang and Hsu, 2010).

## ***Advertisement Effectiveness***

The ability of marketing efforts, specifically advertisements, to influence consumer choice and attitudes towards tourism destinations and activities is well-studied field (e.g. Shimp 1981). Advertisements can evoke consumption visions (e.g. daydreams and fantasies) inspiring potential consumers to imagine themselves using or experiencing the product or service being promoted (Walters, Sparks and Herington, 2007). Advertisements that provoke positive attitudes, or enhance affective destination image, are more likely to influence purchase intentions (Spears and Singh, 2004). The tourism sector has long relied on the use of visual imagery when promoting destinations to communicate experiences and emotions, and influence consumers (Dann 1996; Mackay and Smith, 2006; Aziz and Zainol, 2011), but people are becoming more resistant to traditional visual communication mediums as primary sources of information (Fransen et al., 2015). It is likely that immersive experiences offered through VR can offer enhanced communication of an intangible experience to potential visitors, and positively impact affective and conative destination image.

## **Methodology**

In this preliminary experimental study, 121 undergraduate students from a large North American urban university were recruited as participants via a university-sanctioned pool where small bonus grades are distributed as incentive. Participants were assigned to one of three conditions (VR, 2D Video or Website), and were asked to complete a survey on their perceptions of South Africa as a tourist destination. Participants were 57.6% female, a mean age of 20, with 40 each in the VR and the Website condition, and 41 in the 2D Video condition. The ratio of gender and the mean age were consistent throughout all conditions.

In the VR condition, participants viewed a 360 video created by the South Africa Tourism Board (3 minutes 45 seconds) using Oculus Rift, a VR head-mounted display (HMD). Participants could virtually experience rock climbing, paragliding, elephant feeding, penguin viewing, a restaurant, kite-surfing, and shark-diving and could look up, down, and all around (South African Tourism Board, 2016a). For the 2D Video condition, the same video was adjusted to remove the 360 element, and played on a laptop in a standard 2D format. For the Website condition, photo screen grabs of articles taken from the South Africa Tourism website were used to create an offline but fully functioning navigational website (South African Tourism Board, 2016b). Participants were given the same amount of time to click and read through pages displaying content and photos representing the activities from the video. All participants were surveyed about their perceptions of South Africa as a tourism destination and the material that they had viewed.

The survey was constructed by adapting items from previously established scales on affective destination image (pleasant/unpleasant, relaxing/stressful, entertaining/boring, cheerful/sad, friendly/unfriendly (Martínez and Alvarez 2010) good/bad, positive/negative, favourable/unfavourable (MacKenzie and Lutz, 1989)) and conative destination image (intent to: visit in next 5 years, seek information on destination, suggest destination to others, tell others about the advertisement). Attitudes towards the advertisement were also recorded by adapting a scale from Walters et al., (2007) that asked about the quality of mental images that came to mind and the ability to view oneself at the destination. Lastly, we collected some demographic information (age, gender). All questionnaire items were presented in a Likert scale or a bi-polar format ranging from 1-7.

Regarding affective destination image, the 8 items associated with the construct were analyzed with a principal components analysis, using an oblique direct oblimin rotation. An initial reliability test revealed a Cronbach's alpha of 0.913 ( $N = 121$ ), and the inter-item correlation matrix showed no items for which all correlations were lower than 0.3 (Field, 2013). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy had an appropriately high value (0.915), and, Bartlett's test of sphericity was highly significant,  $\chi^2 (28) = 625.785, p < 0.001$ . Using the common method of extracting factors with eigenvalues above one, the principal components analysis resulted in a single factor with an eigenvalue of 5.073 explaining 63.4% of the total variance. The smallest factor loading was 0.640, easily exceeding the frequently used criterion of 0.32 (Tabachnick and Fidell, 2013). Because the items represented a single factor and all items loaded well onto that factor, the item scores were averaged to produce a single affective destination image score. For the attitude towards ad scale (7-items, see Walters et al., 2007), we used the pre-established items from the existing literature. Cronbach's alpha values for were .88.

We conducted a series of one-way ANOVAs with the media formats (VR, 2D Video, Website) as the independent variable, and affective destination image, ad effectiveness, and the four conative destination image items as dependent variables. For most of the analyses, we used Tukey's HSD post-hoc comparison tests to identify significant differences among the media formats. However, two of the conative items ("seek further information on South Africa" and "share information about what you have just watched") did not pass an assumption of ANOVA (homogeneity of variance), so Welch tests were used instead of ANOVA, and Games-Howell post-hoc tests were used instead of Tukey's HSD. Games-Howell tests do not produce homogeneous subsets, and therefore group superscripts are not presented in the results table for these items.

When considering destination options, we took into account factors pertaining to VR technology and demographic relevance. From a technological standpoint, it was important to select a 360 video produced by a destination marketing organization (DMO) that presumably intended to affect destination image, and that was also replicable as both a 2D video and website. There are few DMO produced VR videos that that have consistent information available in other visual media. In addition, the South Africa video includes eye contact that provide social interaction and an enhanced sense of presence, a particular benefit of VR (Tussyadiah et al., 2016). Further, it was felt that South Africa was distant enough both geographically and financially from the location of the university that few people would have a strong, evolved and nuanced destination image (only 1 of all the participants had been to South Africa). Finally, the experiences in the video broadly matched potential interests of this demographic (Moscardo and Benckendorff, 2010).

## Results

A summary of the results presenting means, standard deviations, and F-values is provided in Table 1. Regarding affective destination image, there was a significant overall effect among the conditions ( $F=3.95, p < .05$ ). The post-hoc comparison indicated participants in the VR condition rated the affective destination image to be higher than those in the Website condition. Regarding ad effectiveness, there was an overall significant effect ( $F=6.75, p < .01$ ). The post-hoc analyses revealed VR participants rated the effectiveness to be higher than the Website and the 2D Video.

Regarding intention to visit, there was a marginal significant overall effect ( $F=2.56, p = .09$ ). The post-hoc comparison yielded one marginal significant effect. Participants in the VR condition

reported their intention to visit higher than those in the Website condition. Regarding seeking further information about South Africa, there was an overall significant effect ( $F=4.45$ ,  $p < .01$ ). The post-hoc comparison yielded one significant effect. Participants in the VR condition were more likely to seek further information about South Africa than those in the Website condition. Regarding suggesting South Africa to others, there was an overall significant effect ( $F=6.46$ ,  $p < .01$ ). For this item, the post-hoc comparison identified two significant differences. Participants in the VR condition reported they would suggest to others more so than those in the other two conditions. Finally, regarding sharing information about the advertisement with others, there was an overall significant effect ( $F=22.00$ ,  $p < .001$ ). Post-hoc comparison identified two significant differences. Participants in the VR condition reported that they would share with others more so than those in the website and 2D video conditions.

**Table 1:** One-way ANOVA and Welch Test Results

	Virtual Reality (n=40)	2D Video (n=41)	Website (n=40)	
Affective Destination Image	6.36 <sup>b</sup> (SD=.66)	5.92 <sup>ab</sup> (SD=.80)	5.85 <sup>a</sup> (SD=1.10)	F=3.95*
Ad Effectiveness	5.75 <sup>b</sup> (SD=1.20)	5.04 <sup>a</sup> (SD=.93)	4.82 <sup>a</sup> (SD=1.36)	F=6.75**
Intention to Visit	4.73 (SD=1.83)	4.56 (SD=1.80)	3.83 (SD=2.05)	F=2.56+
Seek Further Info	5.60 (SD=1.37)	5.34 (SD=1.41)	4.60 (SD=1.85)	F=4.45**
Suggest Destination to Others	5.50 <sup>b</sup> (SD=1.36)	4.56 <sup>a</sup> (SD=1.58)	4.33 <sup>a</sup> (SD=1.69)	F=6.46**
Share Info on Ad with Others	6.15 (SD=1.14)	4.88 (SD=1.63)	4.03 (SD=1.69)	F=22.00***

➤ \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

➤ + denotes marginal significance

➤ Note: Superscripts indicate groups that are significantly different based on Tukey's HSD post-hoc tests, with different letters denoting membership in different homogeneous subsets. Superscripts are not reported for the "Seek further info" or "Share info" variables" because Games-Howell post-hoc tests were used, and this test does not produce homogeneous subsets.

## Conclusion and Discussion

VR helped people generate more positive emotions towards the destination. VR is a more engaging form of advertisement that helps people feel like they are in the destination participating in the activities. Destination marketers should consider using VR to engage and build relationships with potential visitors, but need to follow up with more traditional call to action marketing.

In terms of conative destination image VR seems to offer real potential. Although respondents in the VR condition were not statistically more likely to state an intent to visit in the next five years, they were more likely to research information about the destination and share information about the advertisement with friends and family. This is particularly interesting, as an anecdotal concern

among industry is whether VR will encourage interest in specific places, or just in the virtual experience and the technology itself, bypassing opportunities for physical destinations (e.g. Freeman, 2016). Although the results here are preliminary, there does seem to be a suggestion that VR can be beneficial to destination marketers. The novelty of VR experiences is also an unknown factor here. It is possible that there is amazement in trying a new technology, and that upon widespread acceptance, excitement will wane. It is important to note however that of the 40 participants in the VR condition 28 had used some type of VR HMD previously, and 25 of these had used two of the most sophisticated VR consumer technologies available at least once.

Although intent to visit only showed a marginal difference, it is important to remember that many participants are unlikely to be in a position to consider substantial long haul trips in the near future, which will impact their intent to visit. It is possible that with other types of participants, or other destinations, the opportunity VR provides to feed daydreams and fantasies of actually visiting the destination may convert more easily into intent to visit.

In conclusion, this study has shown that VR does appear to have a positive impact on affective and conative elements of destination image in comparison with other forms of visual promotion. However, there are some limitations to this study. Our participants were not (as far as we know) actively considering purchasing a vacation, and for many, South Africa is likely out of consideration in the near term. It is also important to note that the consistency between the three visual mediums and creating a natural context is difficult to truly manage given financial and methodological restraints. For example, most consumers will research a vacation online by visiting several resources over a period of time. As well the 2D video was created to be viewed as a 3D video, maneuverable on screen by dragging the image with a mouse cursor. However, true consistency between conditions is difficult, if not impossible, and despite these limitations it is hoped that this study still provides credible insight.

Additional research is recommended to build on the foundations of this study to further understand the implications and opportunities of VR for tourism marketers. Future studies should consider the durability and impact of the affective destination imagery; for example, are VR videos easier to recall with more durable influence than other mediums that affect future destination choice? Further, the impacts of VR with participants who are further along the path to purchase, and actively considering purchasing a vacation would provide useful insight. Finally, investigation into the components a VR video should include, in particular because of its distinct immersive nature, would help DMOs take advantage of this technology.

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