



Contents lists available at ScienceDirect

Journal of Destination Marketing & Management

journal homepage: www.elsevier.com/locate/jdmm

Research Paper

Exploring the role of next-generation virtual technologies in destination marketing

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ARTICLE INFO

Keywords:

Destination marketing
Virtual reality experience
Wearable devices
Visit intentions
Cultural heritage site

ABSTRACT

This study aims to investigate the impact of virtual reality experiences created with the newest generation of wearable devices on the intention to visit sites and attractions in a destination. To this end, the paper investigated whether the perceived visual appeal (PVA) of virtual reality and the emotional involvement (EI) of users had a positive impact on the behavioral intentions to visit a cultural heritage site in a destination. Data was collected from visitors via a survey at a destination in Naples (Italy). Study results revealed that the PVA of the virtual reality experience with wearable devices had a positive and significant effect on behavioral intentions towards the site featured in the virtual experience. Moreover, PVA had a positive effect on EI. This study is among the first to empirically investigate the influence of virtual reality experiences, enabled by the latest wearable devices, on destination visit intentions. Study results are relevant for destination marketing organizations seeking to develop effective technology-based marketing strategies that address the pre-visit, on-site and post-visit phase of the visitors' journey. The paper offers specific theoretical and managerial implications.

1. Introduction

The increasingly globalized and competitive tourist market has forced tourism destinations to implement innovative ways to attract visitors to their distinctive places and attractions (González-Rodríguez, Martínez Torres, & Toral, 2016; Pike & Page, 2014; Ritchie & Crouch, 2003; Rivera, Croes, & Zhong, 2016; UNWTO, 2011). In this regard, the use of modern technologies is crucial for destinations. The developments in information and communication technologies in the last two decades have significantly affected the marketing done by destination marketing organizations (DMOs), providing them with unprecedented opportunities and tools to attract and retain visitors (Buhalis & Law, 2008; Gretzel, Fesenmaier, Formica, & O'Leary, 2006; Law, Buhalis, & Cobanoglu, 2014; Law, Leung, & Buhalis, 2009; Li, Robinson, & Oriade, 2017; Neuhofer, Buhalis, & Ladkin, 2012, 2014, 2015). For instance, Neuhofer et al., (2012, 2014) reported a number of best practices of technology-enhanced destination marketing experiences. These examples illustrate how destinations increasingly use technologies for engaging and encouraging potential tourists to come to visit their sites and attractions.

DMOs worldwide now often use the Internet, social media, and

virtual reality (VR) applications to allow potential tourists to virtually experience, explore and assess the destination before their physical visit. The use of these applications for destination marketing has been fueled by the rapid diffusion of portable devices such as tablets and smartphones and their prominent role in travel and tourism experiences (Oh, Lehto, & Park, 2009; Tung & Law, 2017; Tussyadiah, 2013; Wang & Fesenmaier, 2013; Wang, Xiang, & Fesenmaier, 2014). The development of a new stream of wearable devices, including head-mounted displays (HMDs), smartwatches, wristbands, and body-worn cameras, has become one of the major drivers of transformation of tourists' behavior and tourism experiences (Atembe, 2015; Jung, tom Dieck, Moorhouse, & tom Dieck, 2017; tom Dieck, Fountoulaki, & Jung, 2018; Tussyadiah, 2015; Tussyadiah, Jung, & tom Dieck, 2017). This trend highlights the increasing interest and effort in the development of smart tourism destinations through the integration of technological infrastructures and end-user devices for the enrichment and personalization of visitor experiences as well as improvement of residents' quality of life (Buhalis & Amaranggana, 2014, 2015; Wang & Li, 2013).

In this context, the newest generation of VR devices, such as Oculus Rift and Samsung Gear, represent cutting-edge tools for destination marketing efforts by allowing the creation of highly immersive and

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<https://doi.org/10.1016/j.jdmm.2017.12.002>

Received 21 December 2016; Received in revised form 13 December 2017; Accepted 23 December 2017
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realistic virtual experiences. Primarily used in the field of gaming and entertainment, the adoption of these devices is taking off in a variety of different fields, from learning and training to tourism and destination marketing. These advanced devices are expected to have a revolutionary impact on tourism experiences (Tussyadiah, 2014), including the pre-visit stage where awareness, interest and anticipation can be created in the tourist's mind (Jung et al., 2017; Neuhofer et al., 2012, 2015). However, this is a nascent area (Griffin et al., 2017) and empirical studies have not yet sufficiently explored how virtual experiences enabled by HMDs can affect travelers' behavioral intentions towards destination sites and attractions. Given this gap in the field, this study aims to investigate the role of 'next-generation' VR experiences with HMDs in the promotion of tourism destinations, based on the conceptual foundation of experiential marketing. An important stream of research has applied experiential marketing perspectives and constructs in the context of both tourism (e.g. Brent Ritchie, Wing Sun Tung, & Ritchie, 2011; Oh, Fiore, & Jeoung, 2007; Williams, 2006) and destination marketing (e.g. Buhalis, 2000; Hudson & Ritchie, 2009; Ye & Tussyadiah, 2011). Recent research on information technology in tourism has used experiential constructs to understand the use and impact of technologies (Chen & Lin, 2012; Chung, Han, & Joun, 2015; Kourouthanassis, Boletis, Bardaki, & Chasanidou, 2015; Kuo, Chen, & Tseng, 2017; Melián-González & Bulchand-Gidumal, 2017), and more specifically of virtual technologies (Huang, Backman, & Backman, 2012; Huang, Backman, Backman, & Moore, 2013; Jung, tom Dieck, Lee, & Chung, 2016). This research emphasizes the potential of emotional and imaginative responses to virtual experiences in tourism marketing (Huang et al., 2013).

The current study builds on this literature to investigate the impact of virtual reality experiences created with the newest generation of wearable devices on visit intentions. It researches VR experiences involving a virtual depiction (3D trailer) of a real tourism site in order to provide a better conceptualization of the role of VR experiences in shaping intentions toward actual visitation (Tussyadiah, Wang, & Jia, 2017). Particularly, this study investigated whether the perceived visual appeal of virtual reality experiences with HMDs and the emotional involvement of users had a positive impact on the behavioral intentions to visit a cultural heritage site at the destination. These two experiential factors reflect the potential effect of next-generation VR technologies on the core components of (virtual) destination image (Cho, Wang, & Fesenmeier, 2002; Griffin et al., 2017; Hyun & O'Keefe, 2012), notably the cognitive or perceptual component and the affective or emotional component, and the resultant impact on users' intention to positively engage with the destination.

2. Literature review

2.1. Technology-based marketing of tourism destinations: The potential of virtual reality

In the context of tourism, new technologies have affected the innovation of products, services, processes, and management (Hjalager, 2010). New technologies have also changed the way in which tourism providers create and offer tourism experiences and the way in which tourists perceive and experience destinations (Huang, Backman, Backman, & Chang, 2016). In particular, new technologies have the ability to facilitate the encounters among tourists and destinations, extend the experiential process in time and space, and improve the value co-creation with all the stakeholders involved in the sector (Chen, Kerr, Chou, & Ang, 2017; Neuhofer et al., 2014). New technologies, especially mobile technologies, allow tourists to be involved at the same time in both real and virtual experiences. This occurs during all three phases of the traveling process: pre-visit, on-site/during the trip, and post-visit (Neuhofer et al., 2012). The pre-visit phase represents a crucial moment in the overall experience process, since in this phase tourists develop their expectations about the visit and activate their

decision-making process. In this anticipatory phase, new technologies have an important role to play as tourism providers and destination organizations can promote their products and sites in innovative and more effective ways. The technological tools that are most used to promote destinations and tourism products are websites and social media (Neuhofer et al., 2012, 2014). These technologies are used to collect information and enhance social interactions with other users interested in tourist destinations (Sigala, 2009).

Tourism organizations can use augmented reality (AR) to attract new flows of visitors and enhance their experiences at destinations. The potential of AR to enhance the provision of information about destinations and create enjoyable and interactive experiences for tourists has been discussed and showcased in many studies (Chung et al., 2015; Han, tom Dieck, & Jung, 2017; Jung, Chung, & Leue, 2015; Kourouthanassis et al., 2015; Leue, Jung, & tom Dieck, 2015; tom Dieck et al., 2018; Tschou & Buhalis, 2016). More recent studies on AR have explored its value and adoption in cultural heritage tourism (Cranmer, tom Dieck, & Jung, 2018; Han et al., 2017; Jung, Lee, Chung, & tom Dieck, 2018; tom Dieck & Jung, 2017; Tschou & Buhalis, 2016), while others have explored wearable AR applications (Leue et al., 2015; tom Dieck, Jung, & tom Dieck, 2016; tom Dieck, Jung, & Han, 2016).

In parallel, VR has emerged as a powerful tool for destination marketing. In one of the first studies addressing VR implications for tourism, Williams and Hobson (1995) anticipated its revolutionary effects on the promotion and selling of tourism products. Over the last two decades, several studies highlighted the benefits of VR for promoting tourism products, services and places (Berger et al., 2007; Chen & Lin, 2012; Guttentag, 2010; Huang et al., 2013, 2016; Wan, Tsaur, Chiu, & Chiou, 2007; Williams, 2006). VR can support destination marketers in the creation of memorable experiences to be integrated into their communication strategies and in assisting tourists' information-search and decision-making (Cho et al., 2002; Griffin et al., 2017; Huang et al., 2016; Jung et al., 2017; Tussyadiah & Wang, 2017; Williams, 2006). According to Cho et al. (2002), the usefulness of virtual tour experiences for destination marketing lies in the ability of potential visitors to evaluate the value of the actual experience more accurately. More specifically, they report on the effects of these tools on tourism marketing in the following areas: search ability of experiential attributes, efficiency of visual information search, destination image, confidence of expectation and satisfaction with actual travel experience.

Huang et al. (2013) highlighted numerous potential benefits of virtual worlds. Virtual worlds have been defined as 'persistent virtual environments in which people experience others as being there with them and where they can interact with them' (Schroeder, 2008, p. 2). As clarified by Schroeder (2008, p. 2), the difference between virtual reality or virtual environments and virtual worlds is that the latter refers to persistent online social spaces. In particular, virtual worlds are 'ongoing virtual environments that people experience over time and that have large populations, which individuals share with others as a world for social interaction'. Huang et al. (2013) study focused specifically on the advantages of the virtual world Second Life for tourism marketing, including the potential to provide information and entertainment to users through a virtual environment along with engaging experiences and a platform for global interaction. To achieve these advantages, many destinations invested in virtual worlds as an innovative platform for promotion, communication and attracting potential visitors (Huang et al., 2012).

Studies on VR have also emphasized its potential for promoting cultural heritage and arts from a tourism perspective (Chen, Pan, & Zhang, 2012; Jung et al., 2016; Jung et al., 2017; Pantano & Corvello, 2014; Pantano & Servidio, 2011; Pantano, 2011). As noted by Pantano and Corvello (2014), new virtual tools improve the combination of entertainment and education and offer interactive, enjoyable environments that support tourists in choosing destinations and tourism operators in attracting larger tourism flows. Moreover, VR is particularly

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