Research Article

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Augmented Reality in Shopping Tourism: Boosting Tourism Development Through Innovation in Barcelona

<https://doi.org/10.2478/ejthr-2021-0001>

received October 10, 2020; accepted April 14, 2021

Abstract: This research explores the attractiveness and innovation of shopping tourism in the Gaudí neighbourhood in Barcelona, Spain, along with the potential for augmented reality (AR) experiences, as well as the impact of visitors' tolerance of technologies. An online survey detected outcomes and offered insights for enrichment similar tourism areas using AR.

The findings are positive, demonstrating significant funding for making use of augmented reality initiatives. This investigation confirms the strength of the Technology Adoption Model (TAM) within the framework of innovative use in a touristic neighbourhood. The study, thus, supports the current use and expansion of the TAM hypothesis by focusing on the less studied shopping tourist's context.

The outcomes provide recommendations for the design of AR projects for segmented tourism experiences, comprising the importance of making AR tourism experiences more enjoyable, pleasant, and exciting, and this research demonstrates that AR practices can enhance tourists' perceived value.

By examining the data collected from 415 tourists in the Gaudí neighbourhood who were willing to enjoy shopping experiences, the outcomes illustrate a correlation between AR tourism experiences and perceived value. Hence, this validated that AR acceptance enables the connection between tourists' perceived value of the Gaudí neighbourhood and AR technology's usability.

Keywords: Shopping tourism; Smart destinations; Augmented reality; Barcelona; Cultural Tourism

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1 Introduction

Shopping Tourism is a segment of tourism with a concrete demand characteristic on retail and shopping as a personal and cultural experience (Timothy, 2017). This segment of tourism truly represents a very innovative and youthful idea that is described as a present and current motivation for travelling and for looking for the purchase of different products during a trip (WTO 2014).

In the last few years, this segment has experienced a large increase of tourism professionals working in the shopping tourism segment to develop their business value proposition in order to provide high-quality shopping tourism experiences that incentivise tourism. The development of this segment implies empirical benefits not only for the area or neighbourhood where the shopping tourism establishment is located but also for the entire destination.

Shopping tourism became so popular in the last few years; hence, UNWTO created a shopping tourism network to manage this emerging segment within the tourism industry.

There is a necessity for improvement in the design of shopping experiences in order to promote both urban and cultural tourism and to increase the expenditure and the loyalty of tourists (Lee & Choi, 2020). Therefore, this paper explores how feasible it is to enhance the shopping tourism experience and how feasible it is to use technologies to develop different tourism segments within a shopping tourism area by incorporating cultural content.

Technology is not only reshaping the nature, the objectives, and the tourism experience of many different tourism resources; it is also part of all the different stages of the customer's journey when travelling (Huang, Backman, Backman, & Chang, 2016). In fact, the reason for adopting new technologies in tourism is to shift travel expectations and open new access to different tourism products and services (Li, Robinson, & Oriade, 2017; Um & Chung, 2019).

Nowadays, we can find numerous technologies that are especially useful in the tourism industry. Within these technologies, there is the technology of the augmented reality, which provides an enormous potential to enhance the experiences of tourists and shopping travellers.

AR is a prominent technology that goes beyond multimedia development or content creation since it makes it possible to reshape and redesign new layers over smartphone screen images through the smartphone's camera (Assaker & Hallak, 2013). AR technology allows us to combine virtual reality with tangible reality in order to incorporate digital pictures within real-time captured images, thereby facilitating interactivity between these images and the tourists.

In the last few years, this technology has been used by different tourism resources and tourism destinations (e.g., cultural spots) (Chung, Han, & Joun, 2015; Dieck & Jung, 2017), as well as by several different tours around the city, which can now be self-managed from a smartphone (Kourouthanassis, Boletsis, Bardaki, & Chasanidou, 2015).

In this regard, tourists can enjoy and discover the destination through a mobile application with augmented reality technology incorporated to increase the experience, allowing for tourism destinations to create interactions with tourism resources, tourism attractions, and tourists (Tussyadiah, Jung & Dieck, 2018).

In terms of a potential shopping tourism application, the question arises if these augmented reality technologies could incorporate new tourism attractiveness to the shopping tourism experience and how feasible the implementation would be within different stages of the customer's journey (García-Milon, Juaneda-Ayensa, Olarte-Pascual, & Pelegrín-Borondo, 2020).

Consequently, it would be interesting to research how augmented reality could help visitors to discover new benefits of the shopping tourism experience in territories where cultural tourism is the most relevant tourism resource enhancing the shopping experience. In fact, different territories, which are not popular for shopping tourism, can get benefits from this development activity (Malkowski, Mickiewicz, & Malkowska, 2020).

2 Literature Review

2.1 Shopping Tourism in Urban Destinations

Shopping tourism became an important tourist activity and source of income at different destinations because of the vast amount of expenditures that tourists interested

in shopping used to do (Liberato, Liberato, & Silva, 2020). It is empirically demonstrated through different previous researchers that the tourists looking for experience shopping activities when travelling to a different destination, they use to stay more nights in the destination, becoming a valuable traveller considering that these tourists use to spend much more money than traditional travellers (Choi, Heo, & Law, 2016). Unfortunately, there is only a limited number of investigations that took into consideration how valuable shopping tourism is for some travellers. The incorporation of the concept of the augmented reality technology does not exist in the academic literature about shopping tourism.

Shopping tourism represents a sustainable way of discovering cities since we are not only talking about discovering different brands and shops but also talking about local artisans in handicrafts, whose products help communities to develop at any stage. It is assumed that this segment is becoming more popular within urban destinations (Tosun, Temizkan, Timothy, & Fyall, 2007).

From the perspective of these tourism destinations, the shopping tourism segment became an appealing interest within urban tourism destinations because of their profit increase and profitable impacts for the tourism destination (Silva, Breda, Brandão, Costa, & Costa, 2020).

Most of the tourism destinations represented by urban cities try to increase their competitiveness through a combination of resources to attract different tourism segments. Hence, it is important to find out how an urban tourism destination, full of culture and heritage, improves its results due to more shopping tourism attractiveness (Zaidan, 2016).

Therefore, any kind of tourism segment must try to find a way to create cooperation between their tourism products and more innovative technologies since it would be necessary to evaluate the diverse tourism development strategies (Hall, & Williams, 2019). The implementation of the technologies could also be particularly useful in the shopping segment since it will allow these segments to offer additional interesting content to be used in creating new shopping experiences (Poncin, Garnier, Mimoun, & Leclercq, 2017).

Considering all the necessary evidence used to promote a city or some neighbourhood as a tourist shopping destination, it is essential to incorporate strategies with the participation of different additional content, such as cultural content or heritage-based content, but one must use technologies to motivate travellers as one of the strategic lines to boost the competitiveness of the sector (MINCOTUR 2019).

Based on all the previously mentioned facts, it is assumed that it would be possible to observe an empirical increase of the growing popularity of the usage of smartphones during the tourism experience within some areas of concrete touristic cities due to the potential of this technology to be adopted early. The adoption of these technologies is very much related to geo-located services and tourist information; however, this is not specifically related to augmented reality yet (Tan & Ooi, 2018).

The adoption of modern technologies by tourists is constantly growing. However, there is a lack of research on the use of specific technologies such as augmented reality (Yun, & Khoo-Lattimore, 2019). If we investigate some concrete tourism segments, such as shopping tourism, we will find an evident lack of research on the use of technologies during the whole customer journey.

Research concerning products and goods that tourists are interested in buying is quite limited (Julier, Lanzagorta, Baillot, Rosenblum, Feiner, Hollerer, & Sestito, 2000). Nevertheless, it is empirically stated that there is a growing research line within general nonsegmented tourism experiences. This research seeks to provide findings about how augmented reality can improve not only the satisfaction of shopping tourists within cultural and urban destinations but also the perceived value of these experiences for tourists.

It is also significant to consider how important the adoption of augmented reality is in the tourism industry because augmented reality is increasingly used as an experience channel within the tourism industry. However, little is known regarding the actual value of AR for the tourism industry since most research is still in its infancy (Cranmer, Dieck, & Fountoulaki, 2020).

Nowadays, physical space and virtual space are interwoven, creating a phenomenon that can be described using the term 'phygital' in the travel industry. Consequently, augmented reality and virtual reality are cited as examples of state-of-the-art 'phygital' spaces (Neuburger, Beck, & Egger, 2018).

Hence, augmented reality is an emerging technology that enhances (through additional digital contents) and leverages the tourist experience creating opportunities for an immediate experience (Serravalle, Ferraris, Vrontis, Thrassou, & Christofi, 2019).

But, as mentioned previously, there is an evident lack of progress on the theories and research methodologies about augmented reality in tourism. Nevertheless, it is quite obvious that there are fruitful directions for advancing the current understanding of augmented reality in tourism (Wei, 2019).

2.2 The Value Perceived

From the tourist and the tourism destination perspectives, it is interesting to consider the concept of the value perceived on both sides. On one side, from the tourism destination perspective, any augmented reality technology development should be aligned with tangible benefits and a positive perception of value for the tourism companies and services (Boksberger, & Melsen, 2011).

On the other side, the tourists will adopt this technology by making use of it if they perceive a positive value. In this research, it is going to be applied that the value of perceived concept, as a theoretical model, is scientifically accepted since it represents an objective analysis of purposes instead of both joy and excellence (Chen & Chen, 2010).

The value perceived in a tourism destination is known as the progression by which a tourist obtains, chooses, classifies, and understands evidence at the tourism destination to produce a significant illustration of the value of the tourism destination (Prebensen, Woo, Chen, & Uysal, 2012). The comparisons of the value perceived depend on different tourist situations and different contexts, and these perceptions of the value change depending on different situations in frameworks (Sanchez, Callarisa, Rodriguez, & Moliner, 2006).

Yet, there is an extremely limited number of investigations that analysed the value perceived of shopping tourism (Wu, Chen, Chen, & Cheng, 2014), and there is no research exploring if the augmented reality experiences help to enhance the tourist customer journey.

Hence, it is important to include the concept of incorporating additional content to be displayed through different technologies to enhance the shopping tourism experience, as for example, the content based on the cultural tourism experience (Lee, & Wicks, 2010). This insertion of additional content will be useful as research to include cultural tourism content through technologies. The augmented reality applications would be valuable for the shopping tourists, augmenting their experience in a concrete shopping area of the tourism destination (Fritz, Susperregui, & Linaza, 2005).

Therefore, this research paper reveals whether augmented reality applications within shopping tourists inspires the tourists through additional content and increases the value perceived of the shopping experience as a whole. Subsequently, the intention of this research is to assess how the value perceived is linked to the tourist's inclinations for augmented reality experiences when shopping in concrete urban areas (Rabbiosi, 2015), particularly in an urban tourist area where shopping tourism

is a growing potential activity to complement the cultural tourism as a whole. The research explores these concerns:

- What is the value perceived and the augmented reality cultural content preferences of shopping tourists of the Gaudi neighbourhood in Barcelona?
- What is the real value perceived by tourists regarding the potential increase of the shopping tourism experience due to the augmented reality technology adoption in the Gaudí neighbourhood in Barcelona?

3 Methodology

In this research, combined methodologies have been used—namely, qualitative shopping tourist shadowing surveillance field methods, known as ‘participant observation’, combined with some detailed interviews. Both methodologies were used to comprehend how augmented reality attachment in the shopping tourism customer journey could improve shopping tourism experiences in the Gaudi neighbourhood. As a second stage, the outcomes were verified by applying a quantitative online survey answered by shopping tourists in the Gaudi neighbourhood of Barcelona.

3.1 The Gaudi Neighborhood in Barcelona

The Gaudi neighbourhood is locally known within the Eixample district, a widely known district of Barcelona where the Sagrada Familia Gaudi’s Cathedral stands, and which can be found in the centre of the neighbourhood (Hernández-Cros, Josep Emili 1987). The shopping area surrounds the Avenue of Gaudí within this district and is characterized by long straight streets and square blocks. This was a modern architectural design made for the well-being of the local population. Today, the Gaudí neighbourhood is one of the most visited areas of Barcelona as it is easy for thousands of tourists to find and so as to visit the world-famous Sagrada Familia.

On the other hand, there is the fact that one of the weakest points of this area is the very limited time of permanence of the tourists (despite their interesting local shopping area) since their time of permanence lasts only long enough to get into the cathedral, after which they leave to another area of the city (Cocola-Gant, & Lopez-Gay, 2020). This is the reason that local shops and local businesses joined the Gaudí neighbourhood commerce association and decided to create initiatives to try to attract and retain tourist permanence for a longer time

in the neighbourhood. For that reason, they created the Gaudi Shopping App to provide information about where to eat, stay, or shop, along with discounts and promotions as well as cultural multimedia and 3D multimedia content, all of which is displayed through augmented reality technologies via smartphones. Consequently, this research provides findings about how augmented reality can improve the satisfaction of shopping tourists within cultural and urban destinations and the perceived value of these experiences for tourists.

3.2 Participant Observation

It is commonly accepted that there are significant advantages to participant observation methodologies when favourably contrasted with customer service questionnaires (Bowen, 2002). The objective of using this methodology is to analyze tourist satisfaction/dissatisfaction, but it is also possible to research other tourist behaviour questions. Therefore, it is usually assumed that tourism companies and tourism destinations should promote the usage of this methodology.

Observation, particularly participant observation, has been used in a variety of disciplines as a tool for collecting data about people, processes, and cultures in qualitative research (Kawulich, 2005). The participant observation is used in this investigation to find a new point of view about tourism behaviour (Musante, & DeWalt, 2010) when visiting the Gaudi neighbourhood through the augmented reality technology implemented in the smartphone application.

This methodology will present an empirical mixed activity of data collection, providing insights on the implication of the cultural content, which is included in the augmented reality sections at the Gaudí neighbourhood shopping tourism application. In January 2020, the author explored the Gaudi neighbourhood to study and explore through observation technique the shopping tourism behaviour around the area. All relevant content was filmed and documented to provide a contrast with the augmented reality application provided by the Gaudi shopping association, and this association oversaw providing legal support on GDPR rights, based on the anonymity of the filmed materials and the image rights regulations of the association.

Following this first step, a total of 35 complete interviews were made about tourists who made purchases in the neighbourhood shops and used the smartphone application to deeply understand the value perceived of using the augmented reality application discovering more shop-

ping spaces at this neighbourhood. Once the objectives of this research were identified, a detailed script of the interview was created in order to get answers to explain the different exploratory interests of this research, based on the initial acquisition of details provided by the neighbourhood association and local citizens. In this script, we wanted to understand if the satisfaction of the experience within the tourist activities was perceived as something given from the technology adoption within the cultural and urban district, whether visited or not. The drafted questions were submitted in the format of generic interview questions. Once the feedback from the association collaborators was received, the questions were customized and tailored, including the suggestions provided by the industry and the tourist stakeholders of the neighbourhood. The total number of questions was corrected and written into an interview paper, which was used for getting results and building a proper qualitative analysis to reach the expected results. In order to easily identify the tourists who were more willing to use the app, we counted collaborating with different district shops.

There were also five interviews with five owners of different shops about their impressions on the potential use, application, and the possibilities to attract more tourists. Regarding previous methodologies, they were analyzed by the different value perceptions related to the augmented reality functionalities of the shopping association applications to enhance the quality of the customer journey of the tourists. The different augmented reality 3D experiences included the location of shops, restaurants, accommodation services, cultural points of the neighbourhood with concrete cultural audio guides of different points, interactive maps, and a wide range of information, enhancing the tourist experience.

3.3 Survey Form Design

Based on the previous research methodology, as well as on the literature review, the survey was designed to evaluate two different areas of knowledge: the value perceived of the technology to be used during the tourism experience and the AR potential technology adoption of this tourist application on shopping preferences. Regarding the drafted questions, there are two different blocks as mentioned. About the value perceived block, there were a total of 10 questions drafted, (Q1–Q10), and regarding the technology adoption block, there were a total of 5 questions drafted (Q11–Q15). The data was treated properly according to the objectives of the research.

3.4 Collection of Survey Form Data

The data was compiled through an online survey form. This form was built on Google Forms, and it was issued through email and social networks as an effective internet-based collection of data (Tierney, 2000). Tourists were introduced to the Gaudí neighbourhood in Barcelona in the introduction of the survey. As a second stage, the survey explained the augmented reality application and the characteristics to the participants through a short-written paragraph. Finally, the respondents provided anonymous demographic details. There were collected as a total of 415 filled survey forms. The data collection used indiscriminate random sample methodology, and the representativity of the survey participants is unknown. Consequently, this research is exploratory in terms of testing the used model.

4 Results

4.1 Profile of Respondents

Table 1 shows the profile of the participants. Most of the respondents are young females. Married participants with children total 42%, followed by single participants. Among the participants, only 10% are older than 56 years old.

4.2 Survey results

According to Table 2, we have different responses divided into two blocks: the value perceived and the technology adoption.

Gender	Percentage	Age Range	Percentage
Male	42%	18-25	28%
Female	58%	26-35	21%
Civil Status	Percentage	36-45	25%
Married w/children	9%	46-55	16%
Married w/kids	42%	56-65	7%
Single	48%	Above 65	3%
Other	1%	n=415	

Table 1: Profile of Respondents.

Table 2: Survey Results.

	QUESTION	YES	NO	DK
VALUE PERCEIVED	Q1 Augmented reality app motivates me to stay more in Gaudí area	53%	42%	5%
	Q2 The app is very helpful for tourists	89%	7%	4%
	Q3 The cultural 3D content motivates me to discover more of Gaudí area	93%	5%	2%
	Q4 The app provides help for shopping tourism purposes	74%	26%	0%
	Q5 The app is updated and allow me to easily explore the Gaudí area	48%	39%	3%
	Q6 The cultural 3D content is helpful to have a deep view of Gaudí area	93%	5%	2%
	Q7 The app itself is a perfect guide to experience shopping easily	71%	15%	14%
	Q8 Is easier to engage with Gaudi area shops due to the use of the app	32%	66%	2%
	Q9 Augmented reality is more useful than 2D information	28%	64%	8%
	Q10 Augmented reality content is more attractive than 2D information	93%	7%	0%
TECHNOLOGY ADOPTION	Q11 I would not need help to use the application, it is very intuitive	69%	24%	7%
	Q12 I understand what the augmented reality experience is, and how to use it	56%	41%	3%
	Q13 I will use this technology instead of a map, or a maps application	34%	62%	4%
	Q14 I will use this technology in other tourism destinations	38%	48%	14%
	Q15 I prefer other technologies (ex.beacons) rather than augmented reality	24%	31%	45%

Regarding the block of the value perceived, the most positive responses were for the affirmations ‘The cultural 3D content motivates me to discover more of Gaudi area’ (Q3), ‘The cultural 3D content is helpful to have a deep view of Gaudi area’ (Q6), and ‘Augmented reality content is more attractive than 2D information’ (Q10). These answers represent the interest of the tourists in the positive impacts and influence of the 3D augmented reality technology on the tourism experience, providing positive answers regarding these sentences. On the other hand, the most negative responses were ‘Is it easier to engage with Gaudi area shops due to the use of the app?’ (Q8), and ‘Augmented reality is more useful than 2D information’ (Q9), demonstrating that the usability of the application is not established enough within the shops of the neighbourhood. The second answer provides information regarding the (current) preference on the most traditional technological information sources in smartphones. These represent a contrast among the responses since participants responded that 2D displayed information is more attractive.

Regarding the second block referred to as the technology adoption, the highest positive percentage answers are ‘I would not need help to use the application. It is very intuitive’ (Q11) and ‘I understand what the augmented reality experience is, and how to use it’ (Q12). These answers represent an easy adoption perception by the researched tourists; on the other hand, the highest negative percentage responses were ‘I will use this technology instead of a map, or a maps application’ (Q13), and

‘I will use this technology in other tourism destinations’ (Q14). We clearly see a big contrast regarding the previous answers, since respondents declared that they preferred to use traditional information sources instead of augmented reality technology, and they also expressed their doubts to use these kinds of technologies in different destinations.

Within the value perceived block, the research demonstrates that this technology is considered helpful, and it provides help and content as a way to be guided through the area (Yovcheva, Buhalis, & Gatzidis, 2012). On the other hand, regarding technology adoption, we also realized how technology is considered very modern and not used widely, since most of the respondents do not know about similar technologies mentioned in the survey.

5 Implications and Discussion

5.1 Research Implications

Theoretically, this research undoubtedly advances the present figures of shopping tourism and technology experience literature in numerous ways. The first key theoretical contribution is moving forward with the augmented reality shopping tourism investigations to a starting point since it was not researched previously, and providing precise results for the value perceived of augmented reality on mixing cultural content and shopping tourism activities, created to be implemented in an urban tourism desti-

nation, specifically in cultural places (Dieck & Jung, 2017). There are some investigations on augmented reality in the tourism literature (Dieck, & Jung, 2018), tourist adoption (van der Heijden, 2004), and also how emotional considerations tend to affect the tourist's decision to adopt or reject different applied technologies (Chung et al., 2015; Jung et al., 2015, 2016). Hence, unfortunately, there are no empirical studies on shopping tourism preferences regarding the usability of augmented reality technologies, whether urban destination or sun and beach destinations.

As an important neighbourhood of one of the most touristic cities in Barcelona, Spain, the Gaudí neighbourhood is all about culture, architecture, and local life; that is why the impact of tourism should be minimized adopting new segments of tourists as the shopping segment. The results of this research demonstrate how tourists determine a positive perception of the value of these technologies in general, arguing and confirming that this technology is useful to help in having a good experience (Yung & Khoo-Lattimore, 2019).

It also includes the fact that cultural content was helpful to have our broader knowledge of the Gaudí neighbourhood, representing a more attractive content to be used by shopping tourists. The results of this research empirically demonstrate how tourism destinations looking to develop new tourism segments can establish an important research line about the use of augmented reality at these destinations. In this regard, this research analyzed the value perceived in the technology adoption, revealing that augmented reality among shopping tourists is not yet adopted, given a continued preference for traditional sources of information, but it also claims that this technology is much more attractive in providing quality content (e.g., cultural), which helps tourists to better understand the area being visited (Kysela, & Štorková, 2015).

In a similar way, another empirical implication outlined from this research suggests that augmented reality technology increases the tourism experience value perceived by the shopping tourist. It is obvious that augmented reality is not considered one of the main reasons to visit and to shop in this neighbourhood, but it is important to mention that this technology increases the value perceived of the overall experience (Linaza, Marimón, Carrasco, Álvarez, Montesa, Aguilar, & Diez, 2012). Therefore, this investigation showcases theoretical implications to include the research of the augmented reality technology when creating and building segmented experiences for tourists.

5.2 Practical Implications

Augmented reality represents one of the most important technological developments for the tourism industry in the last few years. Thus, we can find different examples of where to apply these technologies to the tourism industry (Loureiro, Guerreiro, & Ali, 2020).

The empirical evidence taken from this research demonstrates that creating augmented reality experiences could be a significant way of enhancing the customer journey and the overall experience for the tourists. The results showcase that the participants are motivated by discovering the neighbourhood through cultural 3D content. In the same way, these results provide suggestions to create additional augmented reality products and content for urban areas. For example, augmented reality content delivers knowledge about the area where the tourists stay; cultural content helps this knowledge to be discovered in a very realistic way.

The comments received from the participants suggest that the application is very intuitive and provides useful information to easily explore the neighbourhood. But we have to mention that some issues and concerns can occur since international travellers could experience connectivity problems regarding their mobile telephone network; thus, it will be necessary for the local shops and local tourism companies to help to spread information about the use of the application and its adoption by all the shopping tourists.

6 Conclusions

This research demonstrates how important is the value perceived when introducing technologies within the tourism experience. The capability is easily enhanced when technologies help with the experience design. Hence, no matter if it is a shopping tourism experience or a gastronomical experience or a business tourism experience, technology is redesigning the way that we live the tourism experiences. Through the survey realized to the participants, it has been stated that the value perceived is larger than the percentage of the technology adoption by the tourists, but certainly, the redesign of the tourism experience is truly convenient for both the shops and the tourism companies, the tourists, and visitors. But, in conclusion, it is also defined that no matter the grade of positive or negative technology adoption, the tourists indicate that these technologies provide an empirical value. This investigation unveils new theoretical aspects of the aug-

mented reality technologies opening a new and important research line about how the value is perceived around this technology. The research validates the usability of these technologies during tourism experiences no matter the segment or the place the tourism experience takes place. The results indicate that tourism companies and tourism destinations must make an effort to facilitate the adoption of different smart technologies within the tourism experience to motivate travellers to use any kind of technology that could enhance their experience. This investigation is one of the first to research the feasibility of augmented reality for shopping tourists; therefore, it provides more knowledge about the different aspects of the experience through the value perceived about the content, the facilities, or the engagement of this technology.

In regard to the future, research lines could be developed along different lines. First of all, we must consider interest to establish qualitative research in order to provide findings of more concrete, valuable emotions perceived and aligned with this research. It could also be interesting to do research based on the overall customer journey of the tourist, rather than only when you use the smartphone application, and including additional data collection to suggest many more different additional augmented reality experiences. Finally, another interesting line could be the examination of how tourists could use these technologies to engage with similar travellers in the same destination, creating common experiences and sharing a value based on this technology. It is true that this topic is very innovative, and it is revealing interesting opportunities to research about since augmented reality is not extended around tourism destinations and tourism resources as of yet, but there are wider opportunities to create more investigations on these procedures, including some more combinations of the value perceived in the technology adoption.

There are also more research opportunities about the problems faced by tourists related to the connectivity intention, the content provided, or about the culture of the tourist, which opens another additional parallel concept to integrate into the research. All these proposals serve to develop successful applications of augmented reality technologies regardless of the segment of the tourists.

Bionotes

Jonathan Gomez Punzon^a has a PhD in Tourism Management and is currently teaching at Rey Juan Carlos University and Les Roches Global Hospitality School. In the area

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