



Step into tourism virtual reality and explore the world

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Abstract

The tourism sector has been evolving and growing, facing several changes, transformations and innovations following the current technological revolution. This revolution has been taking place at an exponential level, making it crucial for companies to urgently and immediately adapt to the new needs of consumers. Following this increasing tendency, one of the technologies with the highest projected potential for growth and most advanced is Virtual Reality.

The purpose of the present study is to further understand how Virtual Reality can be incorporated as a marketing tool in the strategic plan of tourism companies, answering the research question “To what extent does Virtual Reality, used as a marketing tool, enhance the desire of traveling?”.

In order to assess the aforementioned, this dissertation addressed the predisposition of 20 prospective tourists towards the tool in question and how it would ultimately influence their choices. Once established whether or not it would be relevant to take advantage of this innovation, the perception and approach of 6 tourism professionals and experts about this new method were also explored and analyzed through semi-structured interviews. This analysis was carried out through semi-structured interviews that were then analyzed by Leximancer software which, in turn, identified 4 main themes: "Virtual Reality", "Destinations", "Travel" and "Games" - representing the most mentioned topics. After an extensive and precise analysis of the information previously gathered, the results show that both tourists and tourism professionals were receptive to the incorporation of this technology as a tool to promote tourist destinations.

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Resumo

O sector turístico tem vindo a evoluir e a crescer ao longo do tempo, enfrentando várias mudanças, transformações e inovações alinhadas com a atual revolução tecnológica. Esta revolução tem tido lugar a um nível exponencial, tornando crucial para as empresas a adaptação urgente e imediata às novas necessidades dos consumidores. Seguindo esta tendência crescente, uma das tecnologias mais avançadas e com maior potencial de crescimento é a Realidade Virtual.

O objetivo do presente estudo passa por compreender melhor como a Realidade Virtual pode ser incorporada como ferramenta de marketing no plano estratégico de empresas do setor do turismo, respondendo à pergunta de investigação "Até que ponto a Realidade Virtual, utilizada como ferramenta de marketing, pode aumentar o desejo de viajar?"

A fim de avaliar o descrito anteriormente, nesta dissertação aborda-se a predisposição de 20 potenciais turistas para a ferramenta em questão e a forma como esta acabaria por influenciar as suas escolhas. Uma vez estabelecido se seria ou não relevante tirar partido desta inovação, a perceção e abordagem de 6 profissionais e peritos do turismo sobre este novo método foram também exploradas e analisadas através de entrevistas semiestruturadas. Esta análise foi efetuada através da realização de entrevistas semiestruturadas que foram posteriormente analisadas pelo software Leximancer que, por sua vez, identificou 4 temas principais: "Realidade Virtual", "Destinos", "Viajar" e "Jogos" – representando os tópicos mais mencionados. Após uma extensa e precisa análise do conteúdo obtido, pôde-se concluir que, tanto os consumidores como os profissionais do turismo, se mostraram recetivos à incorporação desta tecnologia como ferramenta de promoção de destinos turísticos.

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Palavras chave: Turismo, Tecnologia, Realidade Virtual

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“Education is the most powerful weapon which you can use to change the world”

- Nelson Mandela

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1. Introduction

The information and communication technologies significant growth has generated immense opportunities and changes in various procedures, methods, and applications (Buhalis & Law, 2008; Kim et al., 2020). Since the tourism sector is one of the most competitive industries in the market (Vodeb, 2012), companies that seek to gain competitive advantages over their competitors ought to adopt tools that differentiate them from their competitors (Owen et al., 2004). Thus, investing in new ways of communicating tourism products to consumers becomes crucial (Law et al., 2009; Yung et al., 2021).

This significant competition in current global markets ends up being reflected in a constant need for adaptation and innovation of tourism enterprises (Vodeb, 2012; Kim et al., 2020), in order to be able to follow existing trends in the market and meet the needs of their consumers (Aln et al., 2012). It is through the ability to acquire and use the information available in the market, that it becomes possible to optimize the management and marketing processes (Law et al., 2009). That said, one of the most promising and innovative current technologies is Virtual Reality (VR) (Jung et al, 2014; Wu et al., 2020). VR facilitates interaction with Virtual Environments (VE) that expand the user's imagination by creating an immersive experience (Rebelo et al., 2012) by stimulating the consumers' senses with computer-generated images (Guttentag, 2010). This advanced technology allows users to enjoy a virtual journey very similar to the real one (Li et al., 2002; Rebelo et al., 2012; Yung & Khoo-Lattimore, 2019), which will eventually be reflected in their choices and desires (Moro et al., 2019).

Therefore, understanding how VR, used as a tool, can be incorporated into the tourism sector is something that needs special attention so that the future in the sector is as promising as possible (Guttentag, 2010; Nayyar et al., 2018).

The present study aims to analyze the role of VR, used as a tool, in shaping the decisions, and modalities of the travel action of prospective tourists while understanding the prospect of using this technology and if its eventual impacts on tourism would be relevant. Hence, this dissertation seeks to answer the research question:

"To what extent could VR, used as a tool, enhance the desire of traveling?".

Overall, the ultimate goal of this dissertation is to conclude whether or not VR could be used as a tool to promote a destination. In order to do so, two goals were established: on one hand, assess the tourists' and prospective tourists' opinions regarding

the use of this technology within this context, and on the other hand understand to what extent this would be applicable in the eyes of the tourism professionals.

Firstly, this dissertation will address the tourists' opinion regarding the use of VR and ultimately understand to what extent this would have an impact in terms of destination promotion, since regardless of what type of products and services a company sells, the customers are the most important part of a business (Grönroos, 2009).

In a later stage, it is crucial to address the testimony of the professionals from the sector. This will help determine whether or not VR should be incorporated as a part of the marketing strategy, if it is already been applied, and also study what is the perspective of the professionals regarding the use of this technology, once gathered the tourists' opinions and taking it into account.

In order to address this, the methodology to be applied will be qualitative, through semi-structured interviews that enable the interviewee to elaborate responses gathering, thus, more comprehensive and broad insights. (Adams, 2015). These semi-structured interviews seek to address perspectives from both tourists, prospective tourists, and tourism professionals.

After the extensive and detailed analysis of the conducted interviews through the Leximancer software, it was possible to perceive the positivity and interest of the interviewees regarding the incorporation of VR in the tourism sector as a promotional tool for tourist destinations. The tourists approached showed that they are familiar with the topic, consider that this technology should be incorporated in the sector, and also that it would be a good supplement in the decision process and choice of destinations to visit. The tourism professionals that were surveyed, argue that this would be a good and promising strategy to implement, representing an important differentiation factor in the market. They also stated that the consumers would certainly search for and use this asset as a way to clarify their choices.

The present dissertation has the following structure: the first chapters will be dedicated to the literature review addressing the concepts of tourism and technology, virtual tourism, and finally virtual and augmented reality (AR), as well as its definitions and dimensions. Within these chapters, the differences between VR and AR will also be approached as well as its main applications in the tourism context. The next section of the dissertation encompasses the methodology chapters, which include the research method, data collection, and the underlying techniques and sampling. Following this, the results will be explained and discussed, and finally, the conclusions which gather the main

findings, theoretical and practical contribution, and lastly raise the possible limitations of this study and recommendations for future research.

2. Literature Review

2.1. Tourism and Technology

In recent times, the current digital transformation has been causing several changes in the population's daily life, making it essential for companies to adapt (Nadkarni & Prügl, 2021).

The tourism sector is no exception (Cuomo et al., 2021). The implementation of new information and communication technologies has been the foundation of change in tourism market competitiveness, being mandatory for tourism companies to continuously adapt (Cho & Fesenmaier, 2002). With digital globalization, tourism has faced several challenges (Toubes et al., 2021) aligned with the new habits, needs and trends in the global tourism market (Sousa & Silva, 2019).

Regarding tourism companies, the intensification of competition in global markets leads to a constant desire for adaptation and innovation, in order to be able to keep up with new market trends and meet consumers' needs (Vodeb, 2012; Beck et al., 2019). The corporate success of a company depends on its ability to follow the current innovations in the market and take advantage of them in its management and marketing strategies (Yung et al., 2021). This approach enables a better management of information coming from the market, using the knowledge acquired as a competitive advantage in the sector, always aiming to meet consumer needs (Law et al., 2009).

The tourism industry has been changing and modifying according to the innovations and changes that have occurred (Mofokeng & Matima, 2018). The products offered are no longer focused only on the quality and value they bring to the customer, but rather on the experience transmitted to the final consumer (Pine & Gilmore, 2013). The theory of "experience economy"¹ emerges as the main model to explain this phenomenon, arguing that according to the vision of a new economic era, the consumer

¹ "Experience economy" - The companies have as their main purpose the creation and provision of extraordinary and memorable experiences for their customers. In this context, organizations are betting on experiences as a differentiating model of their business from their competitors, which is their main competitive advantage (Walls et al., 2011; Pine & Gilmore, 2013).

seeks unique and memorable experiences, being recurrent the demand for services that meet this customer demand (Walls et al., 2011; Pine & Gilmore, 2013).

In line with this, Marketing in the tourism sector has been revolutionizing, becoming increasingly creative and interactive, leading hence to a strong and solid focus on the virtual and digital world (Rafael & Almeida, 2014).

The commitment to the digital by companies and, consequently, by the marketing department managers, has been intensifying, being the use of new and innovative marketing tools crucial to face the existing competition in the market (Law et al., 2009; Yung et al., 2021). It is also noticeable that, in addition to the changes that have occurred and the visible increase in the ease of access to new information, consumers have also undergone changes in their behavior (Huang et al., 2016). The consumers' have become more independent, demanding, dynamic, and proactive, consequently making it mandatory for companies to join efforts to meet the new demands of their customers (Buhalis & Spada, 2000).

Due to the emergence of adaptable and more interactive technologies, the competitive advantages held by tourism companies have been modified in order to keep up with the changes occurring in the sector (Jung et al., 2014; Yung et al., 2021). It is increasingly important to understand which competitive strategies to adopt and how to implement them (Pine & Gilmore, 2013).

Taking into account the intangibility of the tourism product and the technological evolution, tourism companies have felt compelled to use visual and innovative elements in order to make their product stand out and thus be able to persuade the consumer (Cho et al., 2002; Yung et al., 2021).

One of the most promising and advanced technologies of the current era is VR (Guttentag, 2010; Huang et al., 2016; Yung et al., 2021). The use of this new technology and its implementation in the tourism sector represents one of the biggest opportunities in the area and should be taken into consideration when the goal of avenging in the market is underlying (Cheong, 1995; Jung et al., 2014; Yung & Khoo-Lattimore, 2019).

After a \$2 billion investment in acquiring a VR equipment company in 2014, Facebook CEO and founder Mark Zuckerberg said that the technological future is bright, and

increasingly based on vision, or modifying what we see to create augmented and immersive experiences².

The dimension of this technology is enormous and the prospection regarding the success of incorporating it in the world is even greater (Hyun & O’Keefe, 2012; Keckes & Tomicic, 2017; Yung & Khoo-Lattimore, 2019; Lo & Cheng, 2020; Chang & Chiang, 2022).

2.2. Virtual Tourism

Due to the importance that the digital world has been acquiring in recent times and the visible technological evolution that has occurred worldwide, the internet and the emerging virtual challenges arise as the main source of information collection and communication tools between consumers and the world (Beck et al., 2019). With the development of digital technology, the tourism industry has increased the use of online channels for content dissemination Mura et al., 2017; Toubes et al., 2021).

The tourism industry has undergone a huge transformation, providing the consumer a broader and more personalized experience (Noorashid & Chin, 2021). It also allows consumers to resort to the virtual tourism experience as a source of formatting and personalizing their choices (Wiltshier & Clarke, 2016).

Virtual tourism is interpreted by several authors as an environment generated and created by computers. Which allows the users to interact and experience different scenarios, through sensory stimulation in order to maximize the sense of belonging in the surrounding VE (Koutsoudis et al., 2007; Spielmann & Mantonakis, 2018; Lo & Cheng, 2020; El-Said & Aziz, 2022). It is not a substitute for physical tourism, but rather a driver and complementary tool to the aforementioned (Griffin et al., 2017; Wreford et al., 2019; Rauscher et al., 2020).

Virtual tourism can be divided into two categories, broad and narrow concepts (Zhang et al., 2022, pp.2):

In a broad sense, virtual tourism focuses on any endeavor to acquire knowledge and information about tourist attractions using a non-immersive mean (Zhang et al., 2022).

² “By far the most exciting future platform is around vision or modifying what you see to create augmented and immersive experiences. When you put on their goggles, you enter a completely immersive computer-generated environment, like a game, or a movie scene or a place faraway. Today, social networks are about sharing moments. And tomorrow, they’ll be about sharing experiences”. **Mark Zuckerberg, 2014**

From a narrow perspective, it is intended to provide the user with the experience of super-real scenes in a three-dimensional (3D) VE through the use of visualization technologies such as VR and AR (Zhang et al., 2022).

Virtual tourism enables users to make an in-depth tourist assessment without the need of visiting a particular destination. Furthermore, it also facilitates the creation of an image of the destination through the virtual experience provided, thus influencing the decision of destination choice (Lu et al., 2022). It is then, by resorting to virtual tourism, that the consumer can manage these expectations and try to minimize the dissatisfaction derived from the differences between the expected and the reality (Guttentag, 2010). This will lead to a reduction of the risk and anxiety among users and an increase in familiarity with particular tourist destinations (Lee & Ho, 2007).

VR is a tool within the virtual tourism scope (Zhang et al., 2022), being considered a great asset in the marketing of companies in the sector when the promotion of a particular destination is underlying (Hobson & Williams, 1995; Adachiet al., 2020). It is also important to emphasize that the prediction of the success of this incorporation, if applied in the best way, is quite positive and promising (Hobson & Williams, 1995; Guttentag, 2010). Furthermore, it will increase the desire of the tourists to physically travel to the observed destinations (Racz & Zilizi, 2019).

2.3. Virtual Reality and Augmented Reality in tourism

During the last few years, there has been an increase in the number of studies about the incorporation of AR and VR in the market, verifying the increasing investment by companies in these technologies as the main differentiation factor in the market (Jingen & Elliot, 2021). The evolution of companies' investment in these immersive technologies is shown in the following graph:

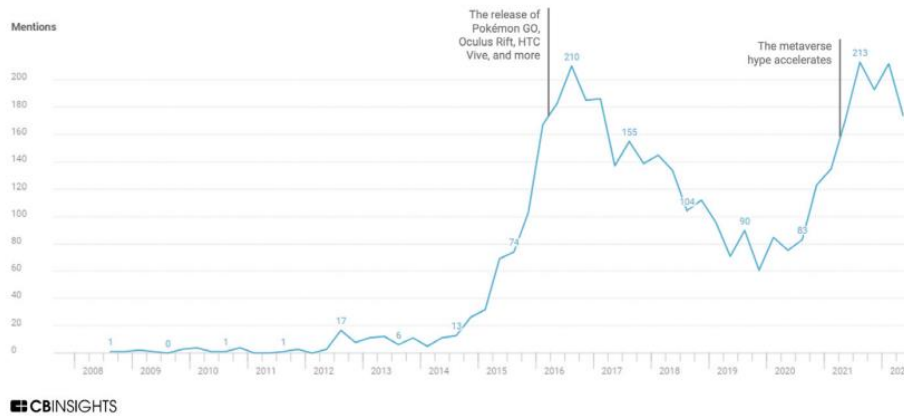


Figure 1: Corporate interest in AR/VR between 2008 and 2022

According to the graph previously presented (see Figure 1), during the intervening years, the AR/VR market has evolved significantly, and it was in 2016, that companies started to sell a vision of what AR/VR could be (CB Insights, 2022). Nowadays, companies are offering a wide variety of mainstream products (CB Insights, 2022), as is noticeable in the case of the company Niantic with the launch of the Pokémon GO game (Hamari et al., 2019). In addition, despite the fact that AR/VR remained largely untested in 2016, recent research has shown that immersive technologies may hold promise for the future (Altinay, 2021; CB Insights, 2022).

Later in this chapter, the concepts of VR and AR will be addressed, as well as the differences between both and also some examples of the incorporation and use of these technologies in the tourism sector.

2.3.1. Virtual Reality

For the scope of this dissertation, the definition of VR to be interpreted and adopted is the one that meets the opinion of some experts in the area, consisting of the use of a 3D environment generated by a computer, with which the user is able to interact and navigate immersively, enabling real-time simulation of the user's senses, and the virtual system is able to make you feel that you are completely immersed in the VE (Burdea & Coiffet, 2003; Gutierrez et al., 2008; Guttentag, 2010; Huang et al., 2013; Yung et al., 2021).

VR enables the user's brain to receive all the sensory input of a certain time and place, being able to interact as if the users were physically there (Hobson & Williams, 1995; Lo & Cheng, 2020).

The virtual environment (VE)³ perceived takes the form of 3D, is generated by a computer, has the purpose of being immersive, interactive and also, simulate the physical presence of a user in the virtual environment, giving him the perception that he is really there (Azuma, 1997; Tori et al., 2006; Kim et al., 2020; Adachi et al., 2020).

Briefly, VR allows the user to drive a virtual robot with a built-in camera where its VR equipment can display the reality, in this case virtual (Penfold, 2008; Ficarra, 2020). Therefore, the user has a feeling of immersion in the VE provided by the VR system (Gutiérrez et al., 2008).

VR can be characterized by three key elements that influence the quality of the user experience (Machado et al., 2002; Yung & KhooLatimore, 2019):

Visualization of the virtual world: The visualization of the virtual world is contingent on several factors, including the manner in which the video is presented to the user, the characteristics of the features that are presented, the quality of the content displayed, and also how the user perceives the videos presented (Yung & KhooLatimore, 2019).

Immersion: Immersion corresponds to the manner in which the user is isolated from reality, specifically from the real world (Tori et al., 2006). In an immersive system like VR, the user ends up losing the possibility of interacting with the real world, inserting himself completely in the virtual experience (Loureiro et al., 2021). The greater the feeling of presence, the more immersive the virtual environment can be considered (Tori et al., 2006; Guttentag, 2010). This ends up leading to an experience closer to reality and with a greater impact on the user of the VR system (Hudson et al., 2019).

Interactivity: The interactivity of a VR system corresponds to the degree of control over the experience, usually achieved through motion sensors or joysticks (Williams & Hobson, 1995). The level of power to interact, modify or influence the behavior of the objects present in the virtual world corresponds to the degree of interactivity between the user and the virtual game (Guttentag, 2010). The greater the existing interactivity, the

³ The virtual environment is a representation of the real physical one. It only exists in the mind of the user and it can be transmitted and shared with others. The purpose of the virtual world is to display a simulation of the real one, mainly involving the user so that the experience can be as close as possible to reality (Azuma, 1997; Azuma et al., 2001; Gutierrez et al., 2008; Yung & KhooLatimore, 2019).

greater the possibility of obtaining a higher level of immersion, always depending on the degree of coordination between the motion sensors and those of the VR system videos themselves (Singh & Lee, 2009; Hyun & O'Keefe, 2012).

According to the degree of the user's sense of presence, VR can be differentiated and characterized as immersive, non-immersive or semi-immersive (Bray, 2002; Singh & Lee, 2009; Guttentag, 2010; Hudson et al., 2019).

The immersive VR is the one in which the user ends up being transported predominantly to the domain of the virtual world, through the use of multisensorial devices capable of capturing the movements and behaviors, reacting to them interactively (Yu & Cheng, 2020). This leads to a sensation of presence in the virtual world (Kimer & Siscoutto, 2007).

On the other hand, non-immersive or semi-immersive VR is characterized by the partial transport of the user into the virtual world, while still remaining predominantly feeling in the real world (Kimer & Siscoutto, 2007; Kyriakou et al., 2017).

2.3.2. Augmented Reality

AR can be defined as a way of displaying digital content where the view of the real world is superimposed with virtual objects, increasing the information available to the user about the surrounding real environment (Danado et al., 2003, p. 1; Kysela & Štorková, 2015, p. 927). It holds the connection between the user and the real physical world, giving the perception that virtual and real elements coexist in the same space. (Azuma, 1997, p.2).

AR systems provide users with a more diverse and personalized content tailored to meet consumers' needs (Loureiro et al., 2020). In the tourism scope, AR enables users to perceive virtual elements in the tourist experience, making it more enriching and interactive (Cranmer et al., 2020). For example: when it comes to guided tours, AR allows incorporating virtual content into the real environment, which means that while the tourist is moving around a certain place, will be confronted by new sources of information, thus making the tourist experience more dynamic (Han et al., 2019). AR has arisen as an effective tool for creating and assimilating information, while providing content in real time for any location in the world (Mohanty et al., 2020).

The incorporation of AR systems in the strategic plans of companies, allows to strengthen the relationship with the customers, due to the fact that the experiences would be more immersive and therefore generate greater consumer satisfaction (Shabani et al., 2019). It is additionally seen as a significant competitive advantage between destinations, providing the tourism enterprises the power to energize the tourism experience and thereby differentiate themselves from the competition (Berryman, 2012).

It is important to highlight the fact that the RA represents a variation of VR, serving as a complement to reality, but not being able to replace it (Azuma, 1997; Berryman, 2012; Kysela & Štorková, 2015). It can be considered as a semi-immersive virtual system, since there is a barrier between the virtual and the physical environment (Kyriakou et al., 2017).

2.3.3. Differences between Virtual Reality and Augmented Reality

Given the three approaches mentioned in chapter 2.2 and considering the level of immersion a VR system has, it becomes crucial to understand what the main differences between VR (immersive experience) and AR (semi-immersive).

It is possible to perceive the main differences between VR and AR, according to the dimension of artificiality (real world Vs physical world) and space (local Vs remote) (Benford, et al., 1998; Tori et al., 2006):

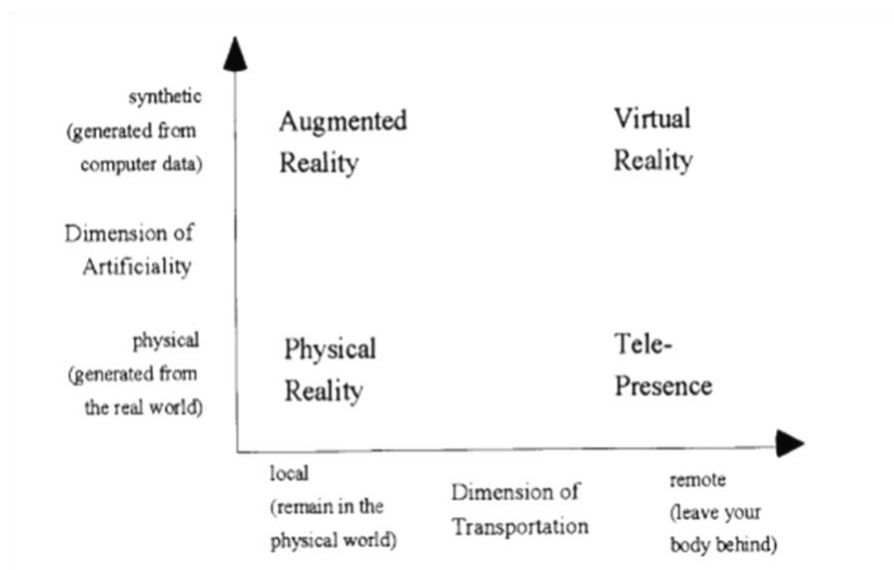


Figure 2: Broad classification of AR and VR shared spaces according to transportation and artificiality (Benford et al., 1998, pp.192)

According to the graphic presented above (see Figure 2) and taking into account the characteristics of a VR system, in order to be possible to visualize more clearly the differences between VR and AR systems, the artificiality and transportation dimensions of the virtual game will be addressed, characterized through the degree of the artificiality of the images and the environment in which the user is placed (Benford et al., 1998; Tori et al., 2006).

VR combines the fact that the physical space of the experience is remote, and the image generation is carried out through the computer, being considered synthetic (Gutierrez, 2010; Bec et al., 2021).

Thus, the big difference between VR and AR is the dimension of space. In a VR system, the user can be completely immersed in the Virtual Environment, whereas in an AR system, the user remains in the real environment where virtual elements are incorporated (Benford et al., 1998; Tori et al., 2006; Gutiérrez et al., 2008; Hudson et al., 2019; Adachi et al., 2020).

VR allows an immersive experience at a distance, allowing the user to interact with a given tourist destination through a VE, without having to actually be present in the destination (Sherman & Craig, 2002; Singh & Lee, 2009; Xiong et al., 2021) – which would be necessary if AR was used (Azuma, 1997; Azuma et al., 2001; Kruijff et al., 2010).

In the present dissertation, when addressing the promotion of a particular tourist destination, it is important to perceive how to influence the prospective tourists without them actually having to go to the place in question. For that reason, it will only be considered the use of VR.

2.4. Applications of Virtual Reality in tourism

VR has been increasingly used in the promotion of tourism-related activities (Adachi et al., 2020). There are also companies that already apply VR in their strategic plans for certain tourism purposes and with the intention of promoting the sector (Rafael & Almeida, 2014).

Due to the intensifying impact of new technologies on the tourism sector, VR appears as a support tool for tourism companies to promote their products and services

(Jung & Han, 2014) and a competitive advantage over their competitors (Vodeb, 2012; Jung et al., 2014). In the course of the last few years, several applications of VR in the tourism sector have appeared on the market, among which the following stand out:

VizioFly: It is a specialized VR and AR company based in Singapore, offering content related to business, film, education, travel, and tourism, among others. One of the main implementations of the company in recent times has been in the area of marketing and virtual tourism. Through the provision of virtual trips using VR, which allows the guests of a particular hotel to immerse themselves in a VE with the ability to perceive the surrounding environment, the company aims to develop a feeling of belonging and pleasure of the user towards the partner hotels (www.viziofly.com).

Hilton Group: The Hilton group resorted to VR but for a different purpose. Hilton Group tried to incorporate the use of VR in the training of their own staff. This was possible due to the creation of immersive environments for their workers, recreating the day-to-day life of different departments of the hotels - and thus providing enriching virtual training with the possibility of saving time and resources, with the ultimate goal of enhancing the learning of its collaborators and even the development of the business.

Marriott Group: The Marriott group sought to use a VR system whose purpose would be to give guests the opportunity to travel virtually to various locations around the world, including New York, London or Hawaii. The ultimate goal of the experience was to give their guests a different and unique experience, attempting to influence them in their decision regarding travel destinations. Furthermore, Marriott Group also provided VR games capable of showing guests the real conditions of its establishments in several locations.

The Virtual Reality Company (Jurassic park experience): According to the co-founder and creative director of VRC Robert Stromberg, "the potential of virtual reality is truly limitless. The technology keeps shocking me. We launched the virtual reality company to bring together the world's greatest storytellers and artists to create amazing experiences for VR. I see several incredible concert halls being built, so we're writing new symphonies.". The author perceives VR opportunities as a vast and broad phenomenon with a huge potential margin for growth. VRC is "a content studio and

production company that combines the best in storytelling, technology, art, and games to create engaging and compelling vr experiences for people around the world (Stromberg, 2014). Their big launch was the "Jurassic World VR expedition". Which is an interactive VR game, that transposes players into visually breathtaking prehistoric jungles where players will engage in a movie-inspired Jurassic world (www.thevrcompany.com).

Google Street View: Google Street View is a tool from Google, whose purpose is the virtual representation of the world's surroundings, allowing the user to perceive any location in the world through a non-immersive VR system. It also enables users to travel around the world in a virtual way, regardless of where it is located (www.google.com/streetview/).

Ascape VR: Ascape VR is the first innovative virtual travel agency. The aim of the company is to provide a set of virtual trips as immersive and close to the real as possible, thus allowing users to be present in certain places where physical presence would not be possible (www.ascapervr.com).

Lisbon Story Center Museum: The museum is located in Praça do Comércio and provides visitors with an interesting virtual experience in order to promote tourism in Lisbon. The experience consists on a VR system in which users have the power to fly over the entire city of Lisbon, being able to observe the most diverse and interesting monuments and sightseeing spots, such as the cristo rei, padrao dos descobrimentos, belém tower, 25 de abril bridge or even a walk by the sea along the Cascais bay.

The Imagy: The Imagy is a company that developed an AR and VR App in which users can interactively observe their surroundings, being able to observe through their mobile devices or VR glasses the historical evolution of historical monuments and landmarks of high interest (www.theimagy.com).

X Plora: X Plora is an AR and VR company in which users can share virtual content with each other and access exclusive virtual content. Users can share on the App real-time 360 degrees images of certain destinations where they are located so that these can be accessed later through VR or AR devices by all users. X Plora also offers pre-

defined AR tours in which users can interactively access monuments, visit museums and stores in a virtual way, and also famous landscapes (www.goxplora.com).

3. Methodology

The following chapter will describe the research question and objectives, the method applied, and its contribution to the particular study, considering the research question conceived for the scope of the dissertation. It will also contribute to the clarification of the data collection techniques, and finally, describe the sample used and the data analysis approach.

3.1. Qualitative Analysis

Qualitative methods are defined as explicit means of interpreting, describing, and analyzing data (Talja, 1999). When the purpose of the research is to understand and analyze a specific process or phenomenon, these methods are the best approach (White et al., 2010). With that being said, within the tourism scope, to analyze if VR could be an effective tool for destination promotion, a qualitative method is the most proper to apply, since this dissertation seeks to analyze and study the phenomenon aforementioned.

Qualitative approaches represent the broadest and most inclusive methods when it comes to the analysis of these phenomena, allowing the researcher to gather all the necessary information and, at a later stage, to analyze and interpret in greater depth the knowledge obtained about the subject in question (White et al., 2010).

This method was the most suitable and appropriate, since this study seeks to analyze the main characteristics of VR and how it can be used as a strategy of differentiation in the tourism industry, assess how tourists who have already experienced VR, perceive the incorporation of this tool as a supplement to their choices when choosing a destination and even how tourism professionals interpret and receive prospective tourists feedback and, their opinion about this tool within the promotion of a destination. The ultimate goal of this dissertation is to analyze and understand how this technology is seen in the market and if it can effectively boost the tourism sector in terms of the promotion of certain tourist destinations.

3.2. Semi-structured interviews and Data collection

To better comprehend and analyze the tourists' and tourism professionals' perspectives, semi-structured interviews were conducted.⁴

Semi-structured interviews are more flexible in terms of the interviewer's arrangement of the script (Malhotra et al., 2017). The researcher can ask follow-up questions, change the order of the questions themselves, or talk about other subtopics related to the broad subject (Magaldi & Berler, 2020). It encompasses pre-defined key questions that help to better define the topics to be addressed, allowing the interviewee to diverge and give more intuitive and imaginative answers (Burnard et al., 2008; Malhotra et al., 2017), while also having the opportunity to respond and elaborate their answers based on open-ended questions posed by the investigator (Alsaawi, 2014; Adams, 2015).

That said, semi-structured interviews were helpful to determine the opinion of prospective tourists and tourism professionals regarding the incorporation of VR in the market. The semi-structured interviews were conducted in Portuguese or English. A total of 100% of the interviewed tourists have Portuguese nationality, while approximately 33% of the tourism professionals have other nationalities. In the case of Portuguese interviews, the transcript is translated to English. Before the interview, each participant received a consent form (see Appendix 2). All participants remain anonymous and were assigned an identification number so that it is possible to distinguish their answers and opinions. The following tables give an overview of the respondents:

Table 1: *Tourism Professionals' Demographic Characteristics*

Tourism Professionals' opinions					
Respondent ID	Respondent Code	Gender	Age	Nationality	Represented Country
Professional 1	#P1	Female	25	Portuguese	Thailand
Professional 2	#P2	Female	39	Portuguese	Dubai
Professional 3	#P3	Female	45	Portuguese	Madeira
Professional 4	#P4	Female	43	Portuguese	Guarda District
Professional 5	#P5	Female	41	South African	South Africa
Professional 6	#P6	Female	36	Turkish	Turkey

⁴ Guideline for semi-structured interviews attached in appendix 1

Table 2: Tourists' and Prospective Tourists' Demographic Characteristics

Group 1 Tourists and Prospective Tourists' opinions				
Respondent ID	Respondent Code	Gender	Age	Nationality
Interviewee 1	#T1	Female	23	Portuguese
Interviewee 2	#T2	Female	27	Portuguese
Interviewee 3	#T3	Female	28	Portuguese
Interviewee 4	#T4	Male	23	Portuguese
Interviewee 5	#T5	Male	23	Portuguese
Interviewee 6	#T6	Male	23	Portuguese
Interviewee 7	#T7	Male	23	Portuguese
Interviewee 8	#T8	Male	23	Portuguese
Interviewee 9	#T9	Male	24	Portuguese
Interviewee 10	#T10	Male	24	Portuguese
Interviewee 11	#T11	Male	24	Portuguese
Interviewee 12	#T12	Male	24	Portuguese
Interviewee 13	#T13	Male	24	Portuguese
Interviewee 14	#T14	Male	24	Portuguese
Interviewee 15	#T15	Male	24	Portuguese
Interviewee 16	#T16	Male	24	Portuguese
Interviewee 17	#T17	Male	25	Portuguese
Interviewee 18	#T18	Male	25	Portuguese
Interviewee 19	#T19	Male	26	Portuguese
Interviewee 20	#T20	Male	26	Portuguese

To study the tourists' and prospective tourists' opinions, 20 semi-structured interviews were conducted, with the purpose of addressing 3 main analysis dimensions and enabling the findings to be interpreted. According to the authors Hagaman & Wutich (2016), to achieve data saturation, a total of 20 to 40 interviews are needed (Hagaman & Wutich, 2016). Due to this fact, a total of 20 interviews were conducted with tourists and potential tourists in order to obtain a generalization of opinions and reach findings. The first part of the interviews was aimed at understanding the profile of the interviewees, allowing thus to determine if their opinion would be relevant to the particular investigation. Secondly, it was deemed important to analyze the perception of respondents regarding VR as a technological tool and, subsequently, as a promotional tool for any tourism destination. Lastly, it was crucial to analyze the possible role that VR

could have in their decision-making process when the choice of a particular destination is underlying.

In order to analyze the opinions of tourism professionals, 6 semi-structured interviews were carried out and structured according to 4 analysis dimensions. In order to obtain sufficiently representative information, the opinions of 6 tourism representatives from 5 different countries were taken into account and analyzed in detail. This institutional view provides a perspective from countries on 3 different continents, being achieved when all data has been redundant and no relevant information has emerged (Padgett, 2008; Aquino & Andereck, 2018). Firstly, it was pertinent to analyze which tourist destination promotion strategies are currently and effectively being used in the market. Then, it was important to assess the degree of familiarity of the interviewees with VR, as well as their perceptions regarding the use of this tool to enhance or modify the image of a tourist destination. Finally, according to the last dimension of the analysis, it was crucial to investigate the respondents' opinions about the possible incorporation of VR as a promotional tool for a tourist destination.

In Appendix 3, there are 2 sample interviews with potential tourists and in Appendix 4, 2 interviews with tourism professionals.

3.3. Data Analysis Tool

For the present study, in order to answer the research question, several interviews were conducted and later transcribed and analyzed. The data collected throughout the interviews were qualitatively analyzed with the software Leximancer, a credible and certified tool that has been useful throughout several studies and research (Sotiriadou et al., 2014). This mechanism withdraws any subjectivity and human bias (Goh & Wilk, 2022), allowing, thus, impartiality provided by the machine learning algorithm (Goh & Wilk, 2022). Leximancer analyses the relationships between the different terms and concepts, providing thus a means to relate them and avoiding possible connections that might have been unnoticed or neglected by the researcher (Crofts & Bisman, 2010). These connections and linkages are presented graphically through conceptual maps (Engstrom et al., 2022) as shown in the next chapter. In these maps, the most important themes are grouped together as the cluster group circle and these groups have different colors (Penn-Edwards, 2010). The more prevalent and prominent the themes are, the warmer the colors

will be – red, orange or yellow; whereas, cooler colors such as green, blue and purple show less frequent and prevailing themes (Engstrom et al., 2022). Also, the size of the gray dots for each topic depends on their recurrence and repetition, and these are linked demonstrating the co-occurrence and connection between the concepts through a line (Engstrom et al., 2022).

4. Results

The following chapter addresses a discussion of the data collected and the results presented in Leximancer software, including a conceptual map (see Figure 3) and the findings to further understand the opinions of tourists, prospective tourists, and tourism professionals about the incorporation of VR in the market.

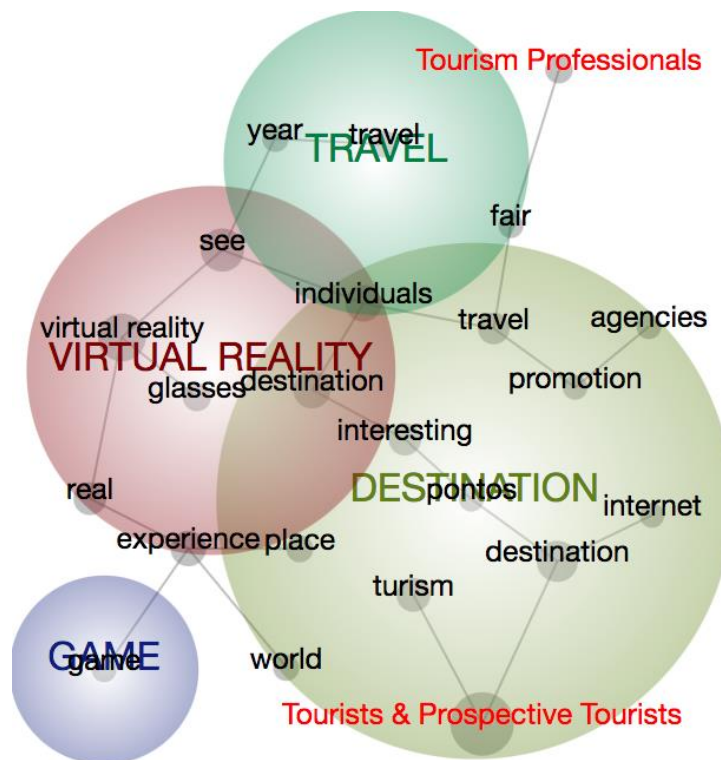


Figure 3: Conceptual Map generated by Leximancer representing the opinion of the tourists and the tourism professionals

The conceptual map retrieved from Leximancer identified four main themes associated with tourists' and professionals' opinions regarding the possible incorporation of VR in the market, which are represented by colored circles that group clusters of concepts together (Leximancer, 2021). As mentioned in the methodology chapter, warm colors represent the most important connotations and cool colors lead to the least important. Additionally, the closer the circles are to one another, the stronger their relationship and attraction. According to figure 4, the four main themes listed by Leximancer are: “VR”, “Destination”, “Travel” and “Game”. It is also important to mention the number of times the themes were addressed (hits). The number of hits of each theme is shown in Table 3.

Table 3: Hits by Theme

Themes	Hits
VR	231
Destination	150
Travel	33
Game	17

The most highlighted theme was "VR", represented through 231 occurrences, associated with the concepts of "real", "glasses", "see" and "experience". It is also important to point out that, according to the representative hot color, this is the theme with more importance and relevance concerning the future analysis of the results, appearing related to both themes: "Destination" and "Travel", containing 150 and 33 hits, respectively (see Table 3).

In Figure 3 it can be noted that, although the most mentioned theme was “VR”, the “Destination” theme is the one that has more concepts associated, making direct connectivity with the concepts of "internet", "tourism spots", "individuals" and "interesting". This is due to the fact that during the process of interviews with tourists, prospective tourists and tourism professionals, they were asked about their opinion about VR technology and its possible incorporation as a tool to promote tourist destinations, which led them to reflect more about the destinations and therefore, formulate their answers in a broader way concerning this theme.

It is also important to remark that the third most mentioned theme was "travel". This is explained by the fact that in all interviews the respondents were asked about how often they travel and by what means they usually do it, hence the concepts of "travel", "fair", "year", and "individuals" appear related.

Finally, the theme "Game" had 17 hits. When obtained the respondents' answers, it was possible to grasp that this concept is only associated with the "experience" concept because it is mainly through the theme "Game" that people were able to discover the VR experience.

5. Discussion of the results

In order to answer the research question "To what extent does VR, used as a marketing tool, could enhance the desire of travelling?" and to ascertain what is the opinion of tourists, prospective tourists, and tourism professionals regarding the use of VR technology to promote tourist destinations, the Leximancer software was used in order to retrieve the concept map containing the most important themes and concepts during the semi-structured interviews, as shown in Table 4.

Table 4: *Groups, Themes and Concepts*

Groups	Themes	Concepts
Tourists and Tourism Professionals	VR	VR, Glasses, See, Real, Experience, Destination, Individuals
	Destination	Destination, Tourism, World, Points, Internet, Interesting, Promotion, Agencies, Travel, Individuals, Place
	Travel	Travel, Year, Fair, Individuals
	Game	Game, Experience

The analysis of the themes and concepts illustrated in Table 4 will be elaborated in order to analyze the different speeches of the interviewed groups. The first part of this discussion will be an introductory explanation and contextualization of the table presented above (see Table 4), where the themes and concepts highlighted will be addressed, in order to explain and justify its frequency and occurrence.

The second part will focus on the opinions of tourists and tourism professionals, explaining the reasons behind the association between this groups and the concepts mentioned in Figure 3 and Table 4.

As a complement to the analysis of all the groups previously mentioned, a detailed and thorough analysis of the interviews was also carried out to discuss the results. Thus, there will be presented some extracts of the answers taken from the transcripts of the semi-structured interviews that were prepared throughout this dissertation, using the respondents' code to identify whose answer it is (see Tables 1 and 2).

5.1. Main Themes and Associated Concepts

According to Table 4, the four major themes that were highlighted by Leximancer were "VR", "Destination", "Travel" and "Game". Among the concepts that appeared associated, the ones with the highest importance according to the analysis of the software used were: "Destination", "VR", "Real", "Experience", "Fair" and "Promotion".

5.1.1. Virtual Reality

The most important theme in the present analysis is "VR", which was mentioned 231 times during the interviews (see Table 3). This encompassed seven important concepts that contribute to the understanding of the theme: "VR", "See", "Destination", "Experience", "Individuals", "Real" and "Glasses" (see Table 4).

The most mentioned concept was "VR" itself, which is related to "Real", "Experience", "See" and "Glasses". The reason behind this fact is that, as described in Appendix 1, initially, the respondents were asked about their knowledge and familiarity with VR, as well as their personal experiences.

Furthermore, it is also worth mentioning that when the respondents were asked about their level of familiarity with VR technology, the sample claimed to have

knowledge about this theme and seemed to have already experienced it for several purposes. This shows that VR technology has been increasingly evolving in recent years (Adachiet al., 2020) and that the prospect of success in the incorporation of this tool in the tourism sector is huge and promising (Yung & Khoo-Lattimore, 2019, Chang & Chiang, 2022).

According to the respondents' answers, it is possible to observe the occurrence of the aforementioned concepts in the following sample sentences:

*"Sure. (...), the **experience** consisted of being in the body of a surfer through **VR**. By putting on the **VR glasses**, I became the surfer represented in the game, being able to maneuver the board and **see** my surroundings according to my will (...)" (Code: #T9).*

*"I took a trip (...) to Berlin (...) and one of the monuments we visited, the Berlin tower, had a very interesting **VR experience** (...). Basically, we put on the **VR glasses** and it was like we were flying above the city of Berlin and we were able to **see** the whole city's historical evolution (...)" (Code: #T19).*

"Yes, I am aware of what VR technology is" (Code: #T10).

*"when I was in the **VR airplane experience**, I felt that the fact that it was so **real** was something really amazing" (Code: #T7).*

*"(...) also once to visit museums online, doing a visit to certain museums through the use of **VR** in which I could **see** all the content of the museum in a totally virtual way and from a distance" (Code: #T7).*

*"(...) In the example of the Eiffel tower **experience**, I would certainly want to **see** that view in the **real world**" (Code: #T14).*

In addition, the interviewees were inquired about what they liked most about the experiences described above (see Appendix 1), resulting in the concepts of "Real", "See", "Experience" and "Place" being linked (see Figure 3). Following, some extracts from the answers in the interviews according to this topic:

*"the **experience** of putting a device on my face that allows me to log in to another **place**, enables me to see that **place** and makes me feel like I was out of my reality and that is fascinating"* (Code: #T5).

*"(...) we were able to have an **experience** as close to the **real** thing as possible"* (Code: #T20).

*"(...) anything that I can simulate as much and as **real** as possible will always be beneficial"* (Code: #T13).

*"Because I realized that that's not so different from **real** life, after all, I see an amazing and huge resemblance to the **real** and surrounding environment"* (Code: #T13).

*"I also think that the simulation of the **real** environment is something amazing, the fact that VR is able to simulate reality so realistically and almost perfectly, is fascinating"* (Code: #T6).

*"(...) I felt that the fact that the **experience** was so **real** was something really surprising"* (Code: #T7).

*"(...) this is really **real**. It's so immersive that you actually feel like you're there. And that, at the time I remember, even scared me a little bit"* (Code: #T1).

*"It gives that perspective of immersion, of presence, of a **place** that isn't real, but you end up feeling that you are there and experiencing it without being able to touch it, of course, because it's virtual"* (Code: #T12).

In line with the interviewees' answers, the huge occurrence and connection of the concepts of "Real", "See" and "Experience" is due to the fact that the great majority of respondents mentioned that the characteristics of the experience they appreciated the most was the fact that they could "live" a virtual and fictitious reality in a realistic way, very close to the real experience, being able to connect with that virtual environment. This is in line with the authors Yung & KhooLatimore, 2021, who argue that the three elements that characterize a VR system are: Virtual world visualization, immersion, and interaction

with the virtual environment (Yung & KhooLatimore, 2021), as mentioned throughout the Literature Review. According to the respondents' opinion and in line with the statement of the authors mentioned above, it is clear that the possibility of visualizing the virtual world in a totally immersive way and as close to the real as possible was what they valued the most and what made the experience interesting, fascinating, incredible and amazing:

*"I think it would be **incredible** if we could preview destinations or tourist attractions before actually being in those locations, I feel it would only have advantages"* (Code: #T14).

*"in the VR experience, there are also those movements, which end up being **fascinating and amazing**"* (Code: #T19).

*"I found the experience very **interesting** (...)"* (Code: #T10).

The sense of presence in the virtual world is also one of the main features of VR technology (Yu & Cheng, 2020), and was also mentioned by the vast majority of respondents as an important aspect that made them enjoy the experience.

Regarding the connection between the concepts "See" and "Destination", when the respondents were asked about the eventual incorporation of VR to promote tourist destinations, they all acknowledged that taking the first glimpse at the destination before actually traveling, would be helpful to determine which destination they want to travel to. The following phrases are some examples of the respondent's answers:

*"There's a very well-known beach in Thailand and I've already been there. But nowadays, if I would never be in that **destination** and if I could have that VR experience, I think it would be very beneficial because then I have a better idea of what I'm going to. Instead of just **seeing** pictures on Google (...) I have a more depth experience"* (Code: #T12).

*"If I am undecided between two destinations and I know more about one of them, if I acquire that added knowledge by **seeing the destination** through VR, it would weigh heavily on my choice and decision"* (Code: #T4).

*"Yes, definitely! I think it's a good way to complement my choices and decisions regarding **destinations**" (Code: #T5).*

*"Yes (...) it could be a good tool to see the **destinations** or sights (...)" (Code: #T7).*

*"Yes, I think it would be very useful indeed! It would be a kind of an incentive to go to a certain **destination** and it would always be an added value for tourism in general, namely for **destinations** in particular" (Code: #T6).*

*"As long as what I was about to **see** was well elaborated and as close to real as possible, I am sure it could influence me or even help me to decide which **destination** to choose" (Code: #T6).*

5.1.2. Destination

The second most important theme is "Destination", with 150 hits (see Table 3). Associated with this main theme are the concepts of "Destination", "Tourism", "Internet", "World", "Place", "Interesting", "Promotion", "Agencies", "Individuals" and "Travel" (see Figure 3).

First, it was sought to understand how and/or by what means individuals choose their travel destination, which in turn led to the massive occurrence of the concepts of "Destination", "Internet", "Travel", "Agencies" and "Promotion" (see Table 4). Most respondents stated that when they were deciding where to travel to, they mostly resorted to the Internet as the main source of information and helper in traveling decision-making, as discussed by Yung et al., 2021, Who stated that the companies are investing in different and new ways of communicating tourism products. The interviewees also mentioned that they often look for campaigns available on travel agencies' websites in order to choose cheaper destinations.

When asked about how respondents choose their destination, they revealed that it is based on what they see of touristic points of interest on the internet, in a totally virtual way, i.e., virtual information retrieval is very much behind consumers' choices (Lu et al.,

2022). This thus explains the connection between the concepts of "Destination", "Points" and "Interesting" present in the conceptual map in Figure 3.

It is possible to perceive the occurrence of the concepts mentioned in the last two paragraphs in the following examples:

*"(...) through my research on the **Internet** and **travel agencies'** websites" (Code: #T14).*

*"I usually look on the **Internet** about any **promotions** from **travel agencies** or which **destinations** I'm interested in" (Code: #T17).*

*"But most of the time, when I'm deciding the place I want to **travel** to, I literally search on the **internet**. This means that I see the **destinations** that I'm interested in and then I do a search of those same **destinations** and make my decisions" (Code: #T18).*

*"Yes, I even think it's the first step before actually proceeding to travel. In fact, nowadays, one of the things we use the most to decide where to **travel** to is the **Internet**" (Code: #T4).*

*"I usually search through the **Internet**, always trying to look for new **destinations** or **promotions** (...) I also use the existing online tools like **travel agencies'** websites" (Code: #T5).*

*"You can see all the tourism **interesting points** and also the real reactions of the people who visit them, so you can see whether or not it is worth visiting these places" (Code: #T20).*

The visible technological characteristics behind respondents' choices of travel destinations reflect the concept of virtual tourism. Virtual tourism is an industry that has gained increasing importance and is serving as a complement to the decision-making of tourists for their travel actions (Wreford et al., 2019; Rauscher et al., 2020).

This leads back to the "VR" theme, where the concepts of "Promotion" and "Destination" are once again intertwined. When confronted with the possible incorporation of this technology in the tourism sector as a tool to promote tourist

destinations, the entire sample seemed to consider it an interesting and appealing initiative. It is in accordance with the authors Hobson & Williams, 1995 and Adachi et al., 2020, who argue that VR, when used for such purposes, can stimulate tourists' desire to visit the places they have seen through VR (Lee & Ho, 2007; Hobson & Williams, 1995; Adachi et al., 2020). In light of the aforementioned, the following are some examples of responses:

*"VR could be a great technology for **destination promotion**, we can feel more in our mind the experience we are going to have"* (Code: #T8).

*"I think it would be awesome if we could visualize **destinations** or tourist attractions before we were actually in those places, I feel like it would only have advantages"* (Code: #T12).

*"For example, for certain events or businesses, it is quite feasible to apply a VR for physical experience **promotion**, as in tourism"* (Code: #T8).

*"VR could be a great technology for **destination promotion**, we can feel more in our mind the experience we are going to have"* (Code: #T8).

5.1.3. Travel

The theme "Travel" emerges as the third most repeated theme throughout the interviews, with a total of 33 occurrences (see Table 3). This theme is related to the concepts of "Travel", "Year", "Individuals" and "Fair" (see Table 4).

Firstly, all respondents were asked about how often they travel and also what is the purpose of their travels. This justifies the occurrence of the concept "Year", and it is possible to perceive the incidence of this concept in the following examples of answers:

*"I usually travel about 2 or 3 times a **year**"* (Code: #T5).

*"I usually travel every summer...at least twice in the summer and at Christmas too, so 3 or 4 times a **year**"* (Code: #12).

"I usually try to do at least one big trip and 2 or 3 small ones a year" (Code: #T2).

When confronted about the incorporation of VR technology to promote tourist destinations, respondents said that it would be very advantageous to make VR systems and equipment available at travel and tourism "Fairs" in order to publicize certain destinations or places these concepts are evident in some of the following answers:

*"(...) at travel **fairs** with the end consumer or travel agents (...) it made perfect sense to incorporate that kind of marketing tool"* (Code: #P1).

*"Therefore, what I think is that if there was a place where I could (like for example at a **tourism fair**) go in and observe the destinations, I am absolutely sure that I would want to try it"* (Code: #T8).

"I think people who go to travel fairs like to have that experience, not least because it's not a very common thing" (Code: #P5).

"Being present at travel fairs and events, having these VR glasses where the person puts them on and can almost feel like they are in those places" (Code: #P3).

"(...) perhaps I would suggest making these experiences and initiatives available at travel agencies or tourism fairs" (Code: #T9).

5.1.4. Game

Finally, the theme "Game" was designated by the Leximancer software as the fourth theme with the most occurrences, having been mentioned 17 times (see Table 3). Associated only with the concept of "Experience", as illustrated in Figure 3. When assessing the respondents' degree of familiarity with VR technology, the great majority admitted that their experience using VR is mostly because of video games. This can be verified in the following excerpts:

*"I've tried it on the **game** side (...)" (Code: #T12).*

*"(...) those **VR** glasses that I have used to play video **games** or even watch videos"*
(Code: #T8).

*"I have some **VR** glasses at home and have used them many times to play video **games** (...)" (Code: #T5).*

*"for example, when I played the video **game**, I felt like I was really a character in the **game** (...)" (Code: #T14).*

VR is still a technology under development and is mostly used in the field of video games (Muñoz-Saavedra et al., 2020), although there is a high future prospect about the incorporation of this technology in the tourism sector (Zhang et al., 2022). This justifies and explains the connection between the concepts of "Game" and "Experience".

5.2. Relationship between groups, themes and concepts

After an in-depth and precise analysis of the most mentioned and relevant themes and concepts, it becomes essential to understand which concepts appear associated with the opinions of tourists and prospective tourists, as well as of tourism professionals.

According to the answers of the tourists and prospective tourists, the concepts "Destination", "Tourism", "Internet", "Points" and "Interesting" emerge as associated, as shown in Figure 3.

One of the key aspects of the analysis, in order to determine whether VR is suitable as a tool for promoting tourist destinations, is to analyze the opinions of tourists and potential tourists.

The concepts "Internet", "Points" and "Interesting" are associated with this group of respondents in the scope of their responses (see Figure 3). When assessing how to choose tourist destinations, they maintain that what determines their choices is the search on the internet for tourist points of interest. As mentioned in this chapter in topic 5.1.2.

When the respondents were asked about the incorporation of VR technology in the tourism sector, the great majority said that it would be a great promotion tool, which led them to reflect on the possible incorporation of this technology as a promotion tool for tourist destinations, with very positive and promising answers. This goes in line with the authors Racz & Zilizi, 2019 and Zhang et al., 2022, who argue that VR can be a useful tool to promoting tourist destinations (Racz & Zilizi, 2019 and Zhang et al., 2022). The following extracts from the interviewee's responses demonstrate the positivity of tourists and prospective tourists regarding the incorporation of VR in the tourism industry for the promotion of tourist destinations:

"(...) VR could be a great technology to promote destinations (...)" (Code: #T8).

"I would say that in terms of tourism it would help us a lot in deciding where to travel because it will bring the person closer to the type of experience they are going to encounter, which ends up being super advantageous. I think it's going to help and even accelerate people's decision-making ability when it comes to choosing a destination to visit" (Code: #P6).

"I had never thought about it before, but I thought now that, for example, if I have the idea of going to a destination, one way to help me decide, might be to have a VR experience that allows me to see what it would see in that particular place" (Code: #T18).

"Experiencing any destination in a digital way. It's a game changer in the way we can see the world. It's a more global and closer way, through technologies we can do tourism and get to know the whole world with these tools. I think it can be very important for the future, for people's personal development and our culture, to have these kinds of tools" (Code: #T11).

The responses of tourism professionals highlight the concepts of "Fair", "Travel", "Promotion" and "Agencies" (see Figure 3).

Once the opinions of tourists and potential tourists have been analyzed, this dissertation sought to analyze what the opinions of tourism professionals are regarding the incorporation of VR technology for the promotion of tourist destinations.

Firstly, the high occurrence and association of the concepts "Fair", "Travel" and "Promotion" with the answers of the professionals of the area, is due to the fact that, when asked about how they advertise and promote the tourism product, professionals refer that they mostly resort to the participation and presence in events and travel fairs in order to increase the destination's visibility. Which refers to the growing evolution of the tourism sector and the emergence of new and innovative ways to promote the tourism product (Mura et al., 2017; Toubes et al., 2021). Accordingly, the following are some excerpts from the responses of the industry professionals:

*"Our communication strategies go a lot through various types of events, we do **travel fairs**, we do conferences (...)"* (Code: #P1).

*"South African tourism uses all the common **promotion** strategies, from traditional advertising in magazines, participation in **travel fairs** - for example, we organize participation in the tourism exchange, in roadshows (...)"* (Code: #P5).

*"We, at this moment, have **promotions** at **travel fairs**, virtual or in person, as it happened now at the World Travel Market (...)"* (Code: #P3).

When confronted about the incorporation of VR technology for the promotion of tourist destinations, all the answers from the representatives of the studied destinations were positive and showed a huge interest in this technology. This fact is possible to ascertain in the following excerpts:

"I think it's a novelty that normally people who go to fairs, enjoy having that experience, not least because it's not a very common thing. So, I think it's very interesting" (Code: #P5).

"So, what did VR really bring? First of all, curiosity. To be able to see with our eyes what simply existed in our imagination, right? For example, I believe that VR, if used well, can bring emotions that are stored inside of us (...) for sure. The right way, how we use the sites, for sure VR will make all the difference in a choice. Because it's one thing to look at a brochure, but it's another thing to be there" (Code: #P4).

"Maybe if you saw Bangkok through VR as it really is, a city that has a lot of culture, a lot of things to do, temples and all, you would definitely get a completely different image of Thailand and probably your desire to go there would increase" (Code: #P1).

"I think that if you are immersed in an environment like that and you see beautiful images (...) it is obvious that you want to go there. Or at least it's there on your list that you'd like to go to" (Code: #P2).

6. Conclusion

A summary of the main findings is provided in the last chapter, which addresses both the research question ("To what extent does VR, used as a marketing tool, could enhance the desire of travelling?") as well as the research objectives (understand what are the opinions of the tourists and tourism professionals regarding the incorporation of VR in the tourism sector for destination promotion) that had previously been defined. Further, limitations and contributions to knowledge will be discussed before concluding with suggestions for future research.

6.1. Main Conclusion

This dissertation aims to analyze what are the opinions of tourists and tourism professionals about the incorporation of VR technology in the tourism sector for the promotion of tourist destinations, allowing to understand whether the desire to travel by tourists would increase after the use of VR. To accomplish this, 20 semi-structured interviews were conducted with tourists, and subsequently, 6 semi-structured interviews were carried out with tourism representatives from 5 different countries: South Africa, Dubai, Thailand, Portugal (Madeira and Guarda District), and Turkey. Following this, the Leximancer software generated a concept map (see Figure 3) in order to analyze the results and reach conclusions.

Firstly, when approached the topic "Virtual Tourism", the vast majority of the sample showed knowledge about this topic and stated that they used this type of tourism as the main source of formatting their choices regarding the choice of their destinations.

This demonstrates the enormous growth of this type of tourism and its positive impact on the sector (Toubes et al., 2021).

When it comes to VR technology, all the tourists said they had already experienced it and were quite familiar with it. When confronted with the possible incorporation of VR in the tourism sector, the majority admitted to never having used it for this purpose but expressed a huge interest and curiosity. This fact proves that the use of this technology to promote tourist destinations would be something innovative and new on the market, and would certainly arouse interest and curiosity in tourists, and therefore, it would be totally advantageous to use this technology as a differentiation strategy in the tourism sector, being its future prospect very promising.

Tourism professionals also proved to be completely familiar with VR technology - even though only two have actually used this technology for promotional purposes. All the respondents considered that it would be a good tool to use at travel fairs and tourism events when the intent of promoting destinations is underlying. In addition to the positive and promising feedback from the professionals interviewed, those who have actually used VR to promote tourist destinations stated that the feedback from users was very positive and that they only see advantages behind the incorporation of this technology in the tourism sector.

According to what was argued and addressed in the literature review, the impact that VR may have in the tourism sector is surprising and promising, and this technology should be developed in the best possible way in order to improve and personalize the consumer experience. It is also perceptible, through the analysis of the opinions of the two interviewed groups, that VR should be used as a tool to promote destinations in order to make the sector more attractive and thus increase firms' revenue.

6.2. Theoretical Contribution

There have been several studies within the tourism scope regarding the use of VR for tourism promotion in the past. However, there is very limited information available about the incorporation of this technology for tourism destination promotion and its possible impacts on destination marketing. The theoretical information from previous studies allowed to understand that this technology is seen as an innovative and promising

tool in the market (Guttentag, 2010; Yung et al., 2021) but it is not yet tested or studied in depth.

Unlike most existing studies on this topic, this dissertation presents a perspective from the consumer (tourists) and the supplier (Tourism Professionals), providing a view based on the end users' opinions. In addition, studying destination promotion fills a gap in the literature, since past studies have largely focused on tourism promotion in general rather than specific tourism destinations. This dissertation shows that there are indeed a huge positivity and prediction of success in the incorporation of this technology as a tool to promote tourist destinations.

6.3. Practical Contribution

According to the results achieved, this dissertation proved that the incorporation of VR for the promotion of tourist destinations is beneficial for companies in the sector and tourists see it as something positive and determinant in their choices. It is also possible to conclude that this initiative should take place at travel events or fairs, since tourism professionals explained that they are not able to implement this innovative technology in travel agencies. This inevitably leads to an increased focus on tourism representatives, and this tool can be incorporated into the marketing planning of destinations in order to increase their visibility and revenue. It is also important to note that implementing this technology in tourism entails a relatively high investment and needs detailed planning to achieve success. This study aims to clarify the opinions about this technology and to contribute to the possibility of effective implementation of VR for the promotion of tourist destinations, presenting some suggestions for future research in chapter 6.5 and also some limitations that made it impossible to conclude with 100% certainty what would be the impacts of the incorporation of this tool as a means of promoting tourist destinations.

6.4. Limitations

There were some limitations to this dissertation that could open up several avenues for further research. This study is limited by the accuracy of the responses to the interviews, since they may not accurately reflect reality as a whole. In the present study, the market context is exclusively Portuguese, which limits the veracity of generalizations.

Additionally, the number of responses might not have been sufficient, as there should have been more responses. The availability of some destination representatives also caused some difficulty in getting in touch with them.

The initial purpose of this dissertation was to study the same topic through a focus group. In this case, there would be a larger and bigger sample, as it would not be mandatory for participants to have already experienced VR. However, due to the lack of time and resources, the present approach was defined. Nonetheless, the present dissertation could serve as a theoretical foundation for future research on the subject where practical methods ought to be applied.

6.5. Future Research

A broader approach could be adopted in the future and a more international context studied, as these insights may not directly apply to other cultures. Additionally, a focus group could have enabled a more authentic and definite conclusion by gathering a larger number of responses. Furthermore, for future research, it would be interesting to develop a more thorough and meticulous case study on VR where images of certain destinations would be shown to the participants to assess their perceptions and opinions regarding the overall practical experience and ultimately verify whether or not this had, in fact, turn into actual sales for the destination, or actual trips to the destinations (if studying from a tourists' perspective).

Due to the fact that the tourists and tourism professionals are heterogeneous groups, it could be very interesting to perform a typological analysis in this context, trying to identify potential diversities or types, thus privileging the categories used. This analysis would allow to compare nuances of different authors and would originate a greater diversity with regard to the answers of the interviewees.

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Appendices

Appendix 1 - Guideline for semi-structured interviews

Tourists' and Prospective Tourists' opinions				
Explored Topic		Source in the literature	Reframed question	Purpose of the question
Tourism and technology	Decision making process	Wong & Yeh, 2009	Do you travel often? When you travel, how do you decide where you want to go?	It would be interesting to understand the participant's decision making process when choosing a destination. It would also be useful to know what are the main factors that contribute to this: whether it is through social media, word of mouth, advertising or through any travel agency's type of promotion or campaign. Differential factor.
	Virtual Tourism	Wiltshier and Clarke, 2016	Are you familiar with the term "Virtual Tourism"? Have you ever experienced it? Has virtual tourism ever had any impact when it comes to deciding where to travel to? How?	Assess to what extent the participant is familiarized with the term. Analyze whether participants have ever resorted to the virtual tourism experience of formatting and personalizing their choices when travelling.
Virtual Reality	Familiarity with VR	Atsiz, 2021	Do you know what VR is? Have you ever experienced it? For what purpose did you use VR?	Shows the level of familiarity with VR.
	Characteristics and advantages of VR	Yung & KhooLatimore, 2019	What did you enjoy the most about the experience? What do you consider the main advantages or benefits of VR?	This set of questions aims to further assess how participants perceive VR, and what factors (mentioned throughout the literature review) are highlighted by the respondents. In line with this, it would be interesting to relate this with the overall sense of presence which is approached in the literature review.
	Applications of VR	Guttentag, 2010	In your opinion, for what purpose could VR be useful for?	Indicates the perception of participants regarding the dimension of VR, and ultimately if tourism related situations are mentioned.
	Applications of VR within the tourism scope	Griffin et al., 2017	How do you think VR could be incorporated in the tourism sector? How do you think a destination could incorporate VR to be promoted? Do you believe the use of VR could be a useful tool for tourism promotion? How?	Asks for the participants' opinion regarding the incorporation of VR as a tourism promotion tool.
Impact of VR in the decision making process within the tourism scope		Rainoldi, 2018	Do you think VR could help you when deciding where to travel to? Do you think VR could eventually influence your perception of a destination? If you visited a destination through VR, do you believe it would make you want to go there? If VR was available for a "virtual trip" to a destination, would you resort to it?	Address whether or not VR would be a decisive factor in the decision making process of the participants when travelling. Understand if participants perceive the use of VR as a useful tool for tourism promotion when it comes to deciding the destination. Assess the overall predisposition of participants to resort to VR if available in these terms. Positive answers reveal that VR could indeed be a relevant marketing tool as a differential factor within the tourism scope.

Tourism Professionals' opinions			
Explored Topic	Source in the literature	Reframed question	Purpose of the question
Strategies used	Chang, 2022	What strategies do you use to communicate and promote a destination?	Analyze which means of promotion and marketing are applied in the market. It would be interesting to know if virtual tourism and/or VR are mentioned.
Virtual Tourism	Tiusanen, 2017	Is virtual tourism included in any kind of promotion strategy for any destination? If so, how?	This indicates to what extent virtual tourism is already considered for destination promotion.
	Wang, 2002	What is your opinion regarding Virtual Tourism?	Asks for their opinion about the subject. A positive feedback could show that virtual tourism is growing and could become a relevant tool.
Virtual Reality	Familiarity with VR	Beck et al., 2019 Are you familiar with the term? Has VR ever been used as part of any strategy to promote a destination in this company/agency? If so, how? If not, why?	Assess to what extent the participant is familiarized with the term and understand if this tool would be significant when promoting a certain destination.
	Advantages and benefits of VR	Disztinger & Groth, 2017 If implemented, what do you think VR advantages and benefits would be when promoting a destination?	Indicates the perception regarding the dimension of VR, its eventual advantages and benefits in order to understand whether or not this tool would fit in this market.
	Impact upon consumers	Mcfee, 2019 Do you think VR could eventually enhance the image of a destination and ultimately influence consumers' choices regarding where they want to travel to? What would be the expectations regarding this kind of initiative?	Explains to what extent the use of VR could influence consumers' perception of a certain destination. Furthermore, to understand how this tool could influence their choices. Calculate the ultimate progression and reach that this initiative could have in the market.
	Impact upon the destination		How do you think this would ultimately impact the destinations that ought to use VR as a marketing tool of promotion?

Appendix 2 - Consent form for interviews

Step into tourism virtual reality and explore the world

Master thesis by Rodrigo Cruz, submitted in partial fulfillment of requirements for the MSc in Management with Specialization in Strategic Marketing, at Catolica Lisbon SBE

Dear participant,

Firstly, I would like to thank you for taking the time to share your valuable time and insights with me. Below you will find a brief description of the research purpose and some guidelines for participation.

Research Purpose:

In the last few years, the concept of VR has been a theme that has been studied by several authors. The incorporation of this technology in the tourism sector has given much to talk about. How and/or through which means this technology can be incorporated into the strategic planning of tourism enterprises is something that needs special attention. This dissertation will focus specifically on the analysis of the possible incorporation of this technology in the promotion of tourism destinations. In this context, the opinions of potential tourists and tourism professionals will be further analyzed.

Guidelines:

I confirm that I am over 18 years old

I can withdraw during the interview at any point and do not have to answer all questions.

The purpose was explained to me.

I had the opportunity to clarify any doubts or questions.

I confirm that I am aware of and fine with my interview getting recorded.

I understand that all information is confidential.

I acknowledge that my real identity will be anonymous, and I will be assigned a number that can be referred to.

I voluntarily agree to participate in this research study.

If you have any further question, you can contact me under the following email: s-rmfcruz@ucp.pt

Appendix 3 - Tourists' and Prospective Tourists' Interview Transcripts Examples

Interview 1 (Portuguese, 23, Male) (Code: #T4)

Interviewer: Good afternoon, my name is Rodrigo Cruz and I'm doing my master's Dissertation about VR and the possible incorporation of this tool in the tourism sector. I would like to ask you a few questions. I'll start by asking about your age, nationality, and how often you usually travel.

Respondent: I'm 23 years old and I'm Portuguese. At the moment I'm studying, so I still don't travel as much as I would like to... Still, I manage to make a trip every 6 months or so.

Interviewer: As far as choosing your destination, how do you base your choice? By what means?

Respondent: I usually choose where I'm going by seeing other people in certain places, seeing where my friends usually go, and also often through internet research. Sometimes even just by the prices of the destinations, since I am a student, the price ends up being a determining factor in my choice. If by chance, I come across a relatively cheap destination or some kind of promotion, I try to find out more about that destination and see if it really interests me.

Interviewer: Concerning the term virtual tourism, have you ever heard of it?

Respondent: Yes. I have an idea; I think it consists of anything related to tourism and technology or the virtual world. For example, if I go to see images or videos of Barcelona, I would say that I am doing virtual tourism.

Interviewer: Exactly, succinctly speaking, I'd say you have a good grasp on the subject. So, do you think that you've used this form of tourism as a driver for physical tourism?

Respondent: Yes, I even think it is the first step before actually going on a trip. By the way, nowadays, one of the things we use the most to decide where to travel is the internet.

Interviewer: Right. So, do you feel that using virtual tourism has an impact on your choices and decisions?

Respondent: Yes, certainly.

Interviewer: Have you ever heard of the term VR? Have you ever used it?

Respondent: Yes, I have heard! I sometimes use Google Street View and I end up visualizing that a lot, for example on the last trip I took, I used that tool to figure out

where to go and what to actually visit. I'm also aware of those VR glasses that I've used to play video games or even watch videos.

Interviewer: Taking the example you mentioned earlier, did you just use those VR glasses you were referring to for the two purposes you mentioned?

Respondent: Yes, it was only for video games or for watching videos or movies.

Interviewer: Focusing then on the experiences you had of using VR, what did you find most interesting and what did you like the most?

Respondent: I think it is a kind of a shortcut to things, it feels like you're in a place before you're there, and so I think it's a very close approximation to reality.

Interviewer: So, do you feel that you can create a better picture of what you are going to visit or observe before you go there, and can better support your opinion?

Respondent: Yes, it is a kind of pre-experience.

Interviewer: And with regard to the tourism sector specifically, how do you think VR could be incorporated? Can you think of any kind of initiative?

Respondent: Actually, I once went to a travel fair to buy a slightly cheaper trip and to discover destinations with promotions. I think that taking into account what we talked about during this interview, it would be a good initiative to make VR available for us, enabling us to perceive those same destinations. For example, I know very little about Eastern European countries and I think it could be interesting to incorporate VR to make possible the visualization of those less-known destinations, namely, to visualize landscapes, monuments, and main streets, among others... It seems to be very positive for those destinations.

Interviewer: Do you feel that this could be decisive in your choice between destinations?

Respondent: Yes, most likely.

Interviewer: Do you think it would be a good initiative for these destinations to use VR to promote themselves?

Respondent: Yes, I think it would be a great initiative.

Interviewer: How could VR help you decide where to go? For example, if you are undecided between destinations.

Respondent: If I am undecided between two destinations and I know more about one of them, particularly if I gain that added knowledge by perceiving the destination through VR, it would weigh heavily on my choice and decision.

Interviewer: Do you think that visualizing the destination in question through VR, would influence your perception of that destination?

Respondent: Yes, without a doubt! Because sometimes it's also very easy to go to Google and see images of places where we might want to go, but that content is made to sell us any destination in the best possible way, which ends up running away from reality and disappointing me. So, to avoid this, I usually resort to Google Street View as I said before. Of course, I can only see the street, I can't move around, and can only visualize it on the screen... But until today, it was the only option I had.

Interviewer: Taking into account that Google Street View is a non-immersive VR, do you think immersive VR technology could enter the market for destination promotion?

Respondent: Yes, I see a huge opportunity here for the incorporation of VR for that purpose.

Interviewer: One last question. If you had these VR systems available and you were looking for a destination to visit, would you turn to this tool to enhance your choices?

Respondent: I even think it would be one of the things I would look for more, I'm sure.

Interviewer: Thank you very much for your attention, I hope you found the topic interesting, and that perhaps we can meet later in a tourist post to experience destinations through VR.

Interview 2 (Portuguese, 26, Male) (Code: #T19)

Interviewer: Hello, my name is Rodrigo Cruz and I am doing my master's dissertation on the topic of VR when incorporated into the tourism sector. For this, I would like to ask you some questions.

I will start by asking you about your name, age, nationality and how often do you usually travel?

Respondent: Hello, I'm 26 years old and Portuguese. I usually travel every 3 months.

Interviewer: When you travel, how do you make your choices? By what means?

Respondent: In general, if traveling with the family, we usually have a sort of family meeting to discuss and google it to try to find destinations, attractions, and sights of possible interest.

Interviewer: Perfect. And have you ever heard of the term Virtual Tourism?

Respondent: Yes, from what I have come to realize, I have performed a virtual tourism experience where I was presented with a VR setup...

Interviewer: Let me interrupt you for a second. Before I get to that topic, I would like to give you a brief introduction to virtual tourism.

Briefly, virtual tourism consists of tourism activities that make use of technology.

Respondent: So, does virtual tourism incorporate VR?

Interviewer: Exactly. VR presents itself as a variant of virtual tourism with very specific characteristics.

After this short explanation, do you think you have already resorted to virtual tourism?

Respondent: Yes, without a doubt.

Interviewer: And do you feel that the use of virtual tourism has had an impact on your decision when it comes to choosing your destinations?

Respondent: More or less. I wouldn't say that it directly influenced my choice of destination because, a priori, you decide the destination, and only at a later stage do you start searching for what you really want to visit or do. But, via the use of virtual tourism, whether it is searching for content or tourist information, I have made many different choices due to the use of virtual tourism.

Interviewer: Taking then the term you mentioned before, do you know what the term VR consists of, and have you experienced it?

Respondent: Yes, of course! I took a trip with my family to Berlin about 1 month ago and one of the monuments we visited, the Berlin tower, had a very interesting VR experience at the end. Basically, we put on the VR glasses and it was like we were flying above the city of Berlin, being able to observe a kind of chronological and historical evolution of the city. Which was really funny and interesting because you can actually see the physical change in the city over the years.

Interviewer: Very interesting. And in your opinion what did you find most interesting and therefore what did you like the most?

Respondent: Without a doubt, what fascinated me the most was the fact that VR works over 360°. When you turn your head to any side, you can see what's around you and that's fascinating. I've never been able to perceive that in any other virtual game before. It's a good representation of the environment and it's also accurate.

Interviewer: In other words, in your opinion, perhaps the proximity to the real world is one of the features that has fascinated you the most?

Respondent: Yes, very close to the real thing. To the point that sometimes I feel bewildered during the experience. That is, when I'm inside the experience, I'm sitting in a certain place and when I move or wiggle in reality, in the VR game there are also those movements, which end up being fascinating and amazing.

Interviewer: So, you think that, in your opinion, the feeling of being completely immersed in the virtual environment was also one of the features you liked the most?

Respondent: Exactly, no doubt about it!

Interviewer: Ok, perfect. And in your opinion, regarding the tourism sector, how do you think VR could be incorporated? Do you have any ideas about a possible initiative?

Respondent: Actually, I think so. Looking at the potential of the terms you presented to me (virtual tourism and VR), whether it's in the initial tourism process, i.e., you're selling someone the idea of going to a certain destination, being able to present them the VR glasses in which the person can visualize and get a more realistic idea of what they would observe would be incredible. Or even, as it happened to me, is precisely on the destination and being presented with this initiative to promote some local action or monument. I think these could be initiatives to be studied and possibly implemented, they would have many possible applications. I think there is room to explore.

Interviewer: Ok, thanks for your opinion. Regarding the promotion of a destination, as you mentioned in the previous question, do you think that this destination could or should incorporate VR to promote itself?

Respondent: No doubt about it! So, at this point... With the technological advancement that has occurred in recent decades, younger people will certainly start looking for these kinds of initiatives and foster their choices and decisions based on that.

Interviewer: So, you think it would be a good tool as far as tourism promotion is concerned?

Respondent: Yes, without any doubt.

Interviewer: When it comes to your decision of choosing which destination to visit, do you think VR could be a good help?

Respondent: I think so. For example, if there is a company that makes available to me the destinations that I like most through VR, I am sure that would simplify my choices and decisions, thus making it easier to choose which destination to go for.

Interviewer: So, do you feel that it would change your perception of these destinations?

Respondent: Yes, I really think so.

Interviewer: And by curiosity, do you think that for the worse or for the better?

Respondent: I think it's subjective. it depends on how things are presented to me and also the content that I viewed. But if it's in line with my expectations, definitely for the better.

Interviewer: Sure, I understand. And do you think that after seeing these destinations through VR, your desire to go to these places might increase?

Respondent: I think so, it's a very strong experience. You end up being completely immersed in that reality and it feels like you really feel like you are there, I think it ends up being a good shortcut for you to really get a glimpse of a country, a land, or even some strange place that you would like to visit.

Interviewer: Right. Finally, if these VR systems were already applied in the market and available to the public for the promotion of tourist destinations, would you resort to them?

Respondent: Yes, I'm absolutely sure about it. I consider this to be a great technological advance and in general, I think people would all resort to it, it makes sense. That is, before you go to a distant and new place that you want to visit, you first want to understand if the characteristics of those places actually match your interests and desires. If there was a chance to visualize all this beforehand, it would certainly help me to decide. So, it is something that could revolutionize the whole experience of selling travel, tourism, locations, or sights.

Interviewer: So, according to what you mentioned, do you think that the incorporation of this tool in the tourism sector could be a fundamental key to changing the tourism sector for the better?

Respondent: Yes, without a doubt! I really think so. Because tourism is an activity that people do and that depends a lot on your perception of the place where you are, of what surrounds you, of what you are doing, if you like the activity you are doing or not... If you have a kind of window into that world before you really "enter" it, you guarantee in a certain way the effectiveness of your choice.

Interviewer: In other words, you end up seeing less risk of disappointment when it comes to your choices?

Respondent: Exactly, I guess so.

Interviewer: Thank you very much for your attention, I hope you found the topic interesting, and that perhaps we can meet later at a tourist event to experience destinations through VR.

Appendix 4: Tourism Professionals' Interview Transcripts Examples

Interview 1 (Guarda district, 43, Female) (Code: #P4)

Interviewer: Hello, my name is Rodrigo Cruz and I am doing my master's dissertation on the possible incorporation of VR for destination promotion. For this, I would like to ask you some questions. I'll start by asking you what kind of strategies do you use to promote your destination?

Respondent: Hi. Beyond what you have seen of VR, of this innovation, it's not always possible to accomplish this kind of situation of promoting through VR. But, in this specific case of the Mondego footbridges, they hadn't even been inaugurated at the time. What does this do? For one thing, the human being is curious by nature, right? So, it fostered curiosity in the first place.

Interviewer: Let me just ask you a couple of questions before we take the VR example. Is that okay?

Respondent: Of course, absolutely.

Interviewer: In general, what strategies do you use to promote yourselves? Not only this action that you did at BTL.

Respondent: Tourism has several types of possibilities to promote itself. One of them is tourism fairs, both national and international. Then we have several activities that promote, at the county level, our city through television divulgation. That is, not only through tourist information in the exact place but also through TV promotion and social networks. Events that nationally, and even internationally, people can get a glimpse of our region, and in this way, we promote it.

Interviewer: Regarding virtual tourism, other than this VR initiative, have you ever used it?

Respondent: To my knowledge, I don't think so. But I don't want to lie to you either.

Interviewer: Focusing on VR, you have already used this strategy as promotion, can you summarize how was this VR experience?

Respondent: I'm going to speak as a tourism technician who was simply accompanying the dissemination process because the conception belongs to a private company.

Interviewer: Perfect, I wanted feedback from a person who has been on the ground and behind the conception of the idea, not the VR developers.

Respondent: It's a VR that nobody knows about yet, or that people speculate about, but nobody knows what it is. So, by nature we are curious beings, right? This curiosity of the word, having knowledge of the word ... so what did VR come to bring? First, curiosity. To be able to see with our own eyes what simply existed in our imagination, right? For example, I believe that VR, if used well, can bring emotions that are stored inside of us... thank God we have the vision because it is the vision that allows us this. And so, it is transposing feelings that we have inside and that then those images, or that moment or event of VR, transmits to us and that makes us feel things that, at that moment and in that space of time, are unique. No matter how many times we see it again, it's not the same. The first time is always impactful. Do you understand? Because no matter how many times you do it again, the emotion remains. And we are still happy, but the first time is the one that always remains, that impact.

Interviewer: Do you think the use of VR could help consumers or influence them to decide where to go or where to travel to?

Respondent: For 100% sure. The right way, the way we use the sites, for sure VR will make all the difference in a choice. Because it is one thing to look at a brochure, but it is another thing to be there.

Interviewer: would you say that the big advantage is the feeling of being able to go to the place without actually being there? The sense of presence?

Respondent: That's right. Because I believe it creates the same emotion. Of course, you won't have all your senses sharpened, of course not. The sense of smell, touching wet leaves... of course you're not going to get the same feeling. But the emotion that is intended, I believe that VR allows us to feel that emotion of looking and thinking "I want to go here". When it's raining like this here and you think "I wish I was over there in the Bahamas, lying there drinking".

Interviewer: So, do you think it would be a good tool to incorporate in the marketing of destinations?

Respondent: For sure, it is a good bet.

Interviewer: And by the way, since you were in the field during this action, how were people's reactions when they finished the experience?

Respondent: It was just like that. Of "breathtaking", really. It was like we were floating on air. What happens? It brings us such opposite sensations. First, a sense of peace and an overwhelming sense of adrenaline at the same time. That's it, I think it's really this

aspect that VR gives is that people, when they finish watching it are like "Wow, I have to go there, this is like that...".

Interviewer: Did you feel that, immediately, it almost increased people's desire to go there?

Respondent: Yes, and always positively, never "oh my God, oh what a fear". Of course, people were like, "Oh my God, I'm going to fall. But in the end, "and is it already open?". Because then they ask "and where is it? And is it open? Can I go there?".

Interviewer: did you feel that you immediately aroused their interest in going to your destination?

Respondent: Of course, they did. People were immediately curious to know. They might not even know Guarda, nor know its location on the map of Portugal. But after the experience, they always wanted to go.

Interviewer: Thank you so much for your opinion.

Interview 2 (Madeira, 45, Female) (Code: #P3)

Interviewer: Hello, my name is Rodrigo Cruz and I am doing my master's dissertation on the possible incorporation of VR for destination promotion. For this, I would like to ask you some questions. I'll start by asking you what kind of strategies do you use to promote your destination?

Respondent: Hello! We, at this moment, have promotions at fairs, virtual or in person, as it happened now at the World Travel Market. We visited our operators door to door and organized visits and meetings for example in England, in the operators' homes, because it is very important to make contact with the staff and also receiving visits provided by us. The familiarization trips - the fam trips -, in which we invite some of the operators to come to Madeira - on our behalf, obviously -, and do some activities, stay in a hotel, for three or four days, more or less. Our strategy at the moment is that obviously we have a simple website and we also have Instagram and Facebook and we are always posting posts. To be honest, like every destination does.

Interviewer: And have you ever heard of Virtual Tourism?

Respondent: Can you explain to me exactly what you mean by that?

Interviewer: Basically, Virtual Tourism is connected with all the tourism activities with the technological component. For example, virtual tours, virtual reality... have you ever used it in your strategies?

Respondent: Thinking that way, I would say yes. Especially after the pandemic, where everything was done online, in webinars, and all that.

Interviewer: And VR, are you familiar with the term?

Respondent: Sim, of course.

Interviewer: And have you ever used it in your strategies?

Respondent: Não, nada. O mais virtual que nós temos são as redes sociais.

Interviewer: E acha que a Realidade Virtual, utilizada, por exemplo, para promover alguns locais da Madeira, algumas atividades a fazer na Madeira, poderia ser uma iniciativa interessante para promoverem a Madeira?

Respondent: When you talk about incorporating VR into our strategies, do you mean exactly what?

Interviewer: It is, for example, in the fairs and events that you told me you are present at, you have VR glasses that the person puts on and can perceive their surroundings. In other words, you can experience Madeira before actually going there.

Respondent: Our tourism attraction here in Madeira has already done that with the basket car rides. In one of the tourism fairs, at BTL, in Lisbon, they had some glasses, and people sat there in the basket and did the virtual ride.

Interviewer: And what impact do you think it had on people? Did they like it? What do you think the experience might have awakened in them?

Respondent: Frankly, my perception was that everyone loved the experience, they were really excited. I suppose that once you've done that, you want to come here and do a real one.

Interviewer: Do you think it could influence consumer choice?

Respondent: Yes, it could. To be honest, I am sure it would influence the customers' choices.

Interviewer: Do you think it could also increase their desire to go to that place because of what they saw in the VR experience?

Respondent: I suppose so, that it would always be an asset.

Interviewer: And do you think it could be a good tool to incorporate into destination marketing?

Respondent: I really think so. I even think that Turismo de Portugal already does some of these things. I don't know exactly what, but for example, here in Madeira we have already done the "toboggan", I don't know if there are any others... We have a film, for example,

in a theme park that is an arrival at the airport, hang gliding... those films that are shown in theme parks.

Interviewer: So, it is a kind of virtual brochure?

Respondent: Yes, something like that.

Interviewer: And do you think that instead of this brochure being done on video, if it was done in VR, where the person was actually inside the video, do you think would have a more positive impact?

Respondent: Yes, it would be amazing. I suppose it could arouse a lot of interest in people.

If most of the time they are convinced just by looking at the physical brochures, I can imagine how it would be if they could "be inside" those brochures, it would be almost as if they were traveling to Madeira. I only see positive points attached to this.

Interviewer: That's all, thank you so much for your opinion and time.