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Applying Virtual Reality to Developing Customer Services in Hospitality Industry

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Abstract

The internet is playing an increasingly important role in the way consumers' search and reserve travel and lodging. Hotels of various class levels differ with respect to their property features and target markets. Given this, one may reasonably expect a hotel's website to reflect its market position and the interests of its target market. Hotel industry is dynamic and accompanied by rapid changes. The new Virtual Reality frontier marks another point of competition for hospitality firms. Embracing the new opportunities presented by the internet can give a hotel a significant advantage over those choosing not to emphasize this increasingly vital marketing tool. Virtual Reality is a technology that enables the design and implementation of new paradigms for human computer interaction applicable in various application domains. A new and mostly unexplored field for Virtual Reality enhanced applications is tourism. The main advantage in the application of Virtual Reality environments is in the marketing and promotion of tourism destinations and services. Particularly, the special and exploratory nature of both Virtual Reality and tourism is an ideal factor to bring these two areas together. By the use of brochures, magazines, films, and/or videos people are already applying their power of imagination to experience new holiday destinations.

Keywords: Virtual Reality, Local Customer Service, Tourism Industry, Websites, 3D and Visualization, Mobiles

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Introduction

To reduce the perceived risks and difficulties, travelers use various information sources, such as TV, brochures, newspapers, word-of-mouth, and previous vacation experiences. Among such traditional information channels, the word-of-mouth and previous vacation experiences are widely accepted as the most reliable and influential information for describing a destination because they are acquired from the direct experience. This implies that travelers seek information that vividly describes a destination and are highly inter-active to virtually experience the destination. This sub-optimal reality is at least close to a direct experience before the trip actually takes place (Hyunet et al., 2009). The significance of crossing the new information threshold of universal, ubiquitous communications access, and interactivity will best be judged with the hindsight of future generations; however, there can be little doubt that the next 20 years will see ICT bring about a metamorphosis in the industry. It is fitting therefore that a major research field is emerging from this interface, as greater numbers of researchers seek to understand and communicate the significance of the new technologies, seek to record and interpret contemporary activity, and attempt to forecast the way ahead (Frew, 2000).

Lee and Oh (2007), stated that people who plan to travel to an unknown location tend to have at least some degree of anxiety about the travel. The main reason can be the fear for personal safety. Nowadays, people travel all around the world, and there are many places where caution is highly recommended to protect personal safety. The Internet offers good tools to alleviate this kind of anxiety by providing specific information so that travelers get to know the unknown place they plan to visit. The Internet provides rich information about the city, climate, crime rate, and other factors that are generally useful for relieving the fear of the unknown.

Formica and Kothari (2008), indicated that most destination organizations have amended their traditional business models to keep pace with the evolution of new technologies, the emerging innovative advertising strategies, the changes in the consumer market, and the growing global competition. Recent studies have demonstrated that tourism organizations have not fully embraced and incorporated technology in their operations and strategies. Most tourism organizations have developed Web sites with varying levels of interactivity/sophistication but have yet to successfully tackle the challenge of developing cooperation in a way that is meaningful for electronic commerce. Also, the increasing number of disasters, crises, and other events and trends that affect the tourism industry are becoming more complex and fast-paced. In response to this increasing need for change, new visions of destination marketing, and the need to explore innovative forms of partnering, tourism organizations are striving for new approaches to establish competitive advantage.

Review of Literature

Virtual reality (VR) has become a popular metaphor for a variety of aspects in contemporary media culture, including technological, scientific, philosophical, economic, and even religious aspects. The technological aspect, however, is genuine because an attempt to create virtual reality is usually seen as the outcome of some directed engineering process. Considerable progress has been made in this field , mainly driven by recent innovations in computer technology; computer hardware, software, and human–computer interfaces have become the leading advances behind this phenomenon, and within a relatively short time they have reached high enough standards to make virtual reality a popular technology. For example in the entertainment virtual reality technology has found applications in military technology, in medicine, or in architectural design and engineering (Lisewski, 2006).

Meanwhile, Guttentag (2010), clarified that advances in technology, in all of its many forms, frequently have direct and lasting impacts on tourism. Recently, developments in information and communication technologies (ICTs) have been transforming tourism in myriad ways, with impacts on areas ranging from consumer demand to site management. For example, many tourists have adopted the Internet as a tool for seeking travel information and countless tourism businesses and organizations have established themselves online Research into ICTs and tourism– the union of which can be referred to as ‘e Tourism’– has yielded many important insights into how ICTs are changing the tourism sector and how the sector can best adapt to these new technologies. Nevertheless, e Tourism is evolving so quickly that the tourism sector is ‘‘constantly redefining itself and requires continual reorientation in marketing and management along the way’’. Moreover, many relevant ICT developments are not made directly for the sake of tourism, so tourism researchers and professionals may not be fully aware of the developments and, therefore, are unprepared to adopt and adapt to the new technologies.

Virtual Reality Roots and Definitions

Since the term Virtual Reality (VR) was introduced to the public by VR pioneer Jaron Lanier in June 1989, a lot of definitions for this term have been proposed. There are probably as many definitions for VR as there are papers discussing it. Jaron Lanier himself uses the following definition A computer-generated, interactive, three-dimensional environment in which a person is immersed." Virtual: being in fact, acting as, what is described, but not accepted openly or in name as such, Reality: the quality of being real; real existence; that which underlies appearance (Szabo, 1997). Guttentag (2010), defined VR as the use of a computer-generated 3D environment – called a ‘virtual environment’ (VE) – that one can navigate and possibly interact with, resulting in real-time simulation of one or more of the user’s five senses. ‘Navigate’ refers to the ability to move around and explore the VE, and ‘interact’ refers to the ability to select and move objects within the VE actually posed inter- activity as a component necessary of VR.

Furthermore Fisher and Unwin (2003)defined virtual reality as the ability of the user of a constructed view of a limited digitally-encoded information domain to change their view in three dimensions causing update of the view presented to any viewer, especially the user. A set of techniques for creating synthetic, computer-generated environments in which human operators can become immersed. Human operators are connected to computers that can simulate a wide variety of worlds, both real and imaginary, and can interact with those worlds through a variety of sensory channels and manipulators.

The Added Value of Virtual Tourism

Hyunet al (2009), stated that virtual experience can be used to approximate such vividness and interactivity through a real-time contact with a destination by technological applications such as three-dimensional (3D) technology, thereby immersing travelers in the destination. Also, virtual experience can be used to encourage travelers to reminisce memories after a trip, for example, by providing richly informed videos recorded at the destination. While both the traditional web presence and mobile technologies can be utilized to achieve rich and vivid experience for travelers through virtual experience, mobile technologies (e.g., using mobile phones) are superior to the wired technologies (e.g., using laptop computers) because of the better mobility. With the launch of 3G standard such as HSDPA (High-Speed Downlink Packet Access), travelers are now able to download sizable video streaming to their mobile devices as fast as do laptop computers. Furthermore, video telephony service makes it possible for individual tourists to conduct face-to-face communications and share visiting experiences instantaneously at a destination.

Technology will play a critical role in delivering immediate responses to clients’ requests and in offering high-quality services. However, technology will increase the pressure on tourism organizations as they will be required to invest most of their resources in technological goods and services. The appropriate allocation of limited resources and new management actions depends on systematic and objective information from the environment. In particular, tourism businesses, organizations, and investors should carefully appraise all the environmental changes and the impact that these changes will have on the strategies and projects they intend to capitalize on (Formica and Kothari, 2008).

Guttentag (2010), indicated that VR already has various uses within the tourism sector. As VR technology continues to evolve, there is little reason to doubt that it will become more prevalent throughout society, in general, and the tourism

sector in particular. VR's applications for the tourism sector are numerous and its implications for the sector are significant, so tourism researchers and professionals should gain a greater understanding of VR to best prepare themselves to face the challenges and take advantage of the opportunities that VR presents.

The Role of Mobiles in Virtual Tourism

According to, Hyunet al (2009), to take advantage of mobile technologies for enhanced travel experiences, it is required to understand and conceptualize mobile-supported virtual experience in a tourism context; in this paper it is referred to as 'V-Tourism.' Hence, this paper focuses on developing the concept of V-Tourism along with its supportive mobile applications to provide a foundation for expanding the knowledge in this newly recognized area. This effort also facilitates important discussions about how destination marketing organizations (DMOs) can strategize tourism-related services to market mobile travelers. In this paper, the authors attempt to answer vital re- search questions as follows:

1. What is virtual experience and what types of virtual experience exist?
2. How can current mobile technologies support the virtual tourism experience by suggesting research propositions?
3. How can DMOs use this new form of tourism medium to meet the modern mobile travelers' needs for marketing the destination?

Table (1): Examples of Mobile Application in a Virtual Tourism

	V-tourism tour		
Category of virtual experiences	*Pre-trip phase*	*En-route phase*	*Post-trip phase*
Verbal-based	• SMS pushing advertising alert	• Mobile chatting	• Voice telephony • Receiving SMS
Still pictorial-based	• Downloading photos from mobile communities	• Downloading photos from mobile communities	• Receiving multimedia message service
Non-interactive 3D-based	• Downloading photos from mobile communities	• Downloading photos from mobile communities	• Downloading video streaming
Interactive 2D/3D-based	• Downloading photos from mobile communities	• LBS-based navigation • Video telephony	• Mobile created content (create post-trip narratives as a reflection)
Animated 3D-based	• Virtual tour	• Mobile 3D games	• Animated second life

Source: Hyunet et al., (2009)

Guttentag (2010), summarized the advantages of VR in Tourism field as follows:

1. Benefits of VR in hospitality
2. Customer entertainment
3. Customer Education
4. Heritage preservation
5. Hotel accessibility
6. Marketing of tourism destination

Szabo (1997), determined that virtual Reality (VR) enabling technology aims to overcome disadvantages of conventional audio-visual media spaces, such as limited presentation of information, limited exploration and limited interactive operations by immersing the user into a virtual, multi-sensory computing environment. At present, the acquisition and modeling of virtual objects and their behavior is considered as one of the most time consuming and expensive parts during a VR application development cycle. There are no widely accepted virtual environment database representation standards yet. Standards are needed to guarantee the ease of integration and reuse of existing objects for new VR applications. Wang (2002), detailed that companies can use it to create new types of services and to enhance their existing products and to create new divisions and capabilities. This new business model has substantial implications within the travel industry in terms of their

marketing strategies and the development and design of virtual tourist communities. For tourism organizations, virtual communities have broadened their marketing horizon and are having a great impact on marketing, sales, product and service development, supplier network, information quality, and distribution channels. Specifically, the following implications can be drawn:

1. Brand building: virtual community provides tourism organizations a more effective method for communicating what their products and service are all about. This brand-building process can bring brand awareness, brand loyalty, perceived quality, and brand associations. In the travel industry, the presence of the Web has already created quite a number of strong new brands such as Travelocity and Expedia.
2. Relationship building: a virtual community is regarded as the most effective way of relationship marketing, since it blurs the line between customers, allies, and partners. Tourism organizations can create virtual community environments which may contain valuable options to make the product and service better, to provide more specialized and personalized services and thus build strong customer loyalty.
3. Cost reduction: virtual communities can be the cheapest form for information dissemination and customer interaction. This is especially true for tourism organizations considering the large amount of information consumption and the information-intense nature of tourism products and services
4. Revenue provision: since tourism virtual communities can attract a variety of companies specialized in core and periphery tourism products, it is possible for the organizers of the community to adopt provider-based revenue models in which fees are paid to the community by other companies wanting to reach the community members.
5. Community design: understanding the marketing potential of a virtual community is only halfway to capitalizing on the benefits it can generate; the other half mainly depends on the design and maintenance of the community. The appropriate design of the virtual tourism community is based on a comprehensive understanding of the consumers' functional, social, and psychological needs as well as how these needs interact with each other.

Formica and Kothari (2008), indicated that the more technologically advanced destinations and businesses will set the standards for every other destination and business. Travelers' expectations, therefore, will continue to grow rapidly, at least as fast as the speed of technological innovations. The quantity and the speed of information will continue to increase; customers will demand it, and businesses will struggle to deliver it. Participants were concerned that the increased use of communication technology generates justifiable concerns about violation of privacy as well as personal and financial security The biometric measures to protect travelers and hotel guests, such as fingerprints and retinal scans, will greatly improve travelers' security but at the expense of personal privacy.

Meanwhile, Lisewski (2006), stated that using adapted technology, virtual reality devices are designed to establish a certain kind of interaction with the human body, focusing especially on its external sensory and motoric apparatus. To systematically describe this interaction, three essential quality indicators of virtual reality have been proposed: (a) Presence. Presence is the sense of physically being in an environment. (b) Immersion (or, vividness). Immersion means the representational richness of a mediated environment as defined by formal features, (c) Interactivity. This quality refers to the degree to which users of virtual reality medium can influence the form or the content of the mediated environment.

Reality of Virtual Museum

Nowadays almost every museum has created its own official web site. Museums contain rich sources of material in their collections and there is particular interest in making this material available to wide audience .This information must be accessible and usable by the public. Digitalization of museums reflects library developments of shifting traditional library card catalogues to online catalogues, digital libraries and finally transferring to digital collections. Museum collection information which are originally stored in paper format is now stored in electronic museum catalogues, digital collections and in the World Wide Web. A wide number of users, from pre-schoolers to art historians and researchers, may visit digital museums. Thus, the museums' sites face the desires and expectations for culture and knowledge of a large variety of people. The designers of these web sites should take into serious consideration the wide variety of the people who visit the sites in order to satisfy their expectations (Pallas and Economides, 2008).

Kim et al., (2006), determined that Virtual museums are venues for the presentation of archaeological documentation in a digital format. The flexibility of digital media leads archaeologists and engineers to develop new and innovative, human-friendly presentation methods using the relatively cheap computational power available today. Thus the preservation activity for physical and nonphysical cultural heritage can be considered as a digitization process ranging from data acquisition to information dissemination. Moreover,(Joliveau, 2009) reported that Traditional audio tours have moved beyond the museum and are now available outdoors through CDs which offer better flexibility to tourists to enjoy their tours at their own convenience (e.g. Sound walk). But the future will surely be based on geo-services. This new practice provides rapid and

precise information to users pertaining to location and the services within the area. The current versions remain mainly utilitarian: Where am I? How can I get there? Where are the nearest restaurants? Nevertheless, they are moving toward a spatial representation of social networks. But tourists and visitors practicing set- jetting are an interesting target that could benefit from information about films related to places where they are where they have been and where they are going. They could access shooting locations as well as visualize the landscapes as they appear in the fiction. A simple car radio synchronized with a GIS (Geographical Information Systems) can be used to provide relevant commentaries, and appropriate quotes from novels, based on the places and landscapes visited. Images and movies will soon appear on the screens of embedded GPS units.

Virtualization and Its Reality in Tourism

Szabo (1997, b), illustrated that the evolution of information and communication technologies (IaCT) and electronic market offer new ways and opportunities for doing business in the field of tourism. IaCT hereby acts as a supporting tool to enable efficient and effective interaction and transactions between elementary service suppliers, agencies, and end-consumers. The Task and Application Space 105 optimal application of IaCT to tourism makes it necessary to consider the trends in the field itself. According to, the trends in tourism can be seen as follows:

- Increasing level of individualization and autonomy of tourist,
- Tourist more selective and critical to offerings,
- Increased experience and education of traveler,
- Increased time and money to spend,
- Customization of services,
- Shorter and combined trips,
- Hybrid profile of tourist and more uncertainty in the market,
- Direct distribution channels between supplier and customer, and
- Globalization of markets.

Furthermore, Cheong (1995), discussed that virtualization in tourism is often lead by virtual reality, defined as a "computer-mediated, multisensory experience that serves to facilitate access into dimensions that differ from our own. Virtual reality attempts to replace much or all of the user's experience of the physical world with synthesized 3D material, such as graphics and sound. It is considered by many that virtual reality is the key which will unlock the door to a revolutionary way to acquire access to, conceptualize and manipulate computer information. According to (Illuma ,2010) an online virtual community (VC) is defined as a group of people trying to achieve certain purposes, with a similar interest, interested in relationship building, transaction, and fantasy under certain rules by using new information technology as their means. It is ‘‘an aggregation of individuals or business partners who interact around a shared interest, where the interaction is at least partially supported and/or mediated by technology and guided by some protocols or norms’’ . VCs can be used by businesses including tourist firms to create new types of services, enhance existing products and create new divisions and capabilities, strengthen their positive image, establish relationships with their customers and contribute to customer loyalty and sales. Business potential is mainly used to create increased trust among a VC’s members combined with quality services that may improve customer loyalty. A member’s off-site communication, experience, perceived value of site management, content, and collectively-held knowledge are positively associated with a member’s e-based economic transactions within a specific virtual community. On the other hand (Wang ,2002) described a virtual community as groups living together and/or united by shared interests, common goals, activities, and groups and individuals who cooperate to share resources and satisfy each other’s needs. Some definitions include enjoyment and pleasure, while others strongly associate community with a physical locale, such as a village or town. The need to respect the feelings and property of others is also mentioned, along with the importance of governance systems to ensure that this happens. All these attributes appear to describe online communities, but their relative importance is debated.

From the 2D to VR Website

Ozok and Komlodi (2008), indicated that the 2D representations remain the most common product representation type in B2C e-commerce, the current study explores whether 3D interactive representations improve user/customer satisfaction in e-commerce and offer more useful information to the customer regarding the product. There are varieties of 3D product representations on e-commerce Web pages. Based on the common distinctions used in previous literature among object representations, the researchers distinguished between two categories of 3D representations: those that allow some basic manipulation where the users can rotate the objects to see them from different angles and those that contain one or more

additional features, including zooming capabilities, text-based information regarding the product, and animated demonstrations, embedded into the 3D image. Having identified these features, the current study aims at empirically determining whether the different representations significantly improve the overall opinion of the users regarding how well the products are represented.

Yoon (2008), stated that interactive 3D graphics provide real-time interactive experiences via computer simulations by utilizing 3D visualization techniques. Web 3D techniques made their debut in 1994 with Virtual Reality (VR) Modeling Language. Today's advanced 3D graphics on the Web have become a popular medium for conveying product information and enabling exploration, especially on many electronic commerce Web sites.

Ozok and Komlodi (2008), added that with the developments of animation and virtual reality technologies in the last decade such as Adobe Flash™, online vendors of consumer products were able to integrate more interactive product representations into their company sites, specifically on their product pages. Virtual three-dimensional (3D) images (similar to 3D movies where the projected 2D image is perceived by the brain as 3D) can also be seen as impractical and costly for use in e-commerce (requiring special glasses, special photography, etc.). How- ever, representations that to some extent simulate 3D products have become more common in some e-commerce pages selling consumer products. Moreover (Rothbaum and Hodges 1999) reported that VE (Virtual Environment) applications require an assortment of devices designed to bridge the gap between the user's movements and perception and the computer's stored model of the VE. Current techniques include the use of special gloves that track hand and finger positions so that the user can grasp virtual objects, six-degrees-of-freedom mouse and navigation devices, haptic (force and tactile) feedback devices, and locomotive devices such as treadmills, bicycles, or flying chairs that allow users to move about in the environments. Each individual VR application may requires a different configuration of input devices, display devices, rendering options, and machine configurations. Szabo (1997), illustrated the changes that have adopted during using virtualization. Table 2 shows that

Table (2): Paradigm Shift Enabled by VR Technology

from	To
symbol processing	application reality generation
viewing a monitor	wearing a virtual environment
symbolic	Experimental
observer	Participant
explicit interface	inclusion and immersion
physical	Programmable
only visual	multi-modal and multi-sensory
interface metaphor	virtuality

Source: Szabo (1997)

Hotels in Virtual Reality

Since travelers usually stay at a hotel- style accommodation, it is critical for high-anxiety people to know about the hotel itself. Most large hotels provide a website that explains the features of their services, describes their buildings, and provides information about the surrounding area, and so on. Although people with low anxiety find the information available from a hotel website useful enough to minimize their potential anxiety about traveling to an unknown place, people with high anxiety might not find it so because still photos of several rooms of the hotel do not fully represent the entire hotel. Web technology has enabled many hotels to offer virtual reality (VR) tours that provide a complete picture of the hotel. VR tours give anxious travelers some relief by familiarizing them with the unknown—the unknown becomes the known.

Users of this VR website can move a mouse to see 360- degree-angle views of the various parts of the hotel, including its entire exterior, which is an important aspect for any anxious traveler who might suffer from agoraphobia (i.e., the traveler with agoraphobia might want to gauge the physical landscape of the building more thoroughly). It is hypothesized that these revealing images should reduce travelers' anxiety about the travel (Lee and Oh, 2007).

Magnini and Parker (2009), added that music emitted from the website can increase the individual's telepresence because such music draws attention to the virtual environment. Heightened telepresence is typically associated with increased arousal and interest in a website since the individual is paying less attention to his/her physical environment. Atmospheric music played on the hotel's proprietary website can increase the viewer's satisfaction and learning while viewing the site. Lastly, it is prudent to mention that there is little negative consequence to airing music on the hotel company's proprietary website because a viewer always has the option of muting it.

Virtual for Disorder Persons

To provide goods and services to individuals with disabilities on an equal basis with those who are not disabled. We are concerned here with the extent to which hotel firms meet the standards of Title III in their websites. If a website is considered to be a public accommodation, that places a duty on the hotel as a business organization to meet the needs of an unlimited number of potential consumers, including those with visual impairment. Many advocates for the disabled believe the ADA (The Americans with Disabilities Act) does apply to websites; however, the courts have not yet been definitive on this point in their rulings. Not surprisingly, we find few hospitality and travel industry websites that are geared for the vision impaired .User disabilities are not the first consideration when businesses select and develop multimedia and web- based materials. To be fair, the task of making an existing website friendly to the visually impaired is considerable, given the need to acquire and sift through relevant information on constructing a website (Mills et al., 2008).

Rothbaum and Hodges (1999), added that the broad concept for discussion is a VR system for providing exposure therapy to persons with various phobias and other psychological disorders. The system requires an integration of existing computer hardware and software, VR input/output devices, and VR software with virtual environments that have been designed to support a graded exposure approach to therapy. Different phobias such as fear of heights, fear of flying, fear of driving, or post-traumatic stress disorder (PTSD) require different virtual environments for support of therapy. Characteristics of each VE may vary depending on the goals of the therapy session, so each VE must be responsive to both the therapist and the patient.

Materials and Methods

There are two methods that will be used in this research in order to gain the desired information. The two methods are:

a) Questionnaires for the top management and staff

b) Questionnaires for hotel guests

Data Analysis

There are two types of data the **qualitative** and **quantitative**. The way we typically define them, we call data 'quantitative' if it is in numerical form and 'qualitative' if it is not. After the process of collection the data (managers, staff and guests' questionnaires) the date will be analyzed by cross tab and Mean

Analyzing of Guests Questionnaires

Response Rate:

Table 3 shows the distributed numbers of managers, staff and guests' questionnaires. For the guests questionnaires the collected questionnaires are 295 and the valid questionnaires are 315.For the manager and staff the collected one are 68 for both manager and staff then the valid questionnaires are 55.

Table (3): Numbers and Percentage of Managers', staffs' and Guests' Questionnaire and Interviews

Questionnaires Participants	No.	Response rate		Valid		Methods			
						Interview		questionnaire	
		No.	%	No.	%	No.	%	No.	%
Managers	34	25	74	25	100	18	72	7	28
Staff	34	30	88	30	100	22	73	8	27
Guests	340	315	93	295	94	-	-	315	100

Question No. 1 Age Categories

From table 4 the data shows that 55% of guests are from 15 to 30 years and that indicates that they category interested in travelling. Also 19% are from 31 to 41 years and nearly 26%are from 42 to 55 years. Over 56 years presented 11%.

Table (4): Guests' Age

Age	No.	%
From 15 to 30 years	132	55
From 31-41 years	45	19
From 42-55 years	37	15
Over 56 years	26	11
Total	**240**	**100**

Question No. 2 Nationalities Differentiated

Table 5 illustrated the different nationalities of guests. European is the highest percentage that scored 39%, followed by the Arab nationalities 26%.Egyptian scored 14% as a local or internal tourism .Other nationalities were 14%.

Table (5): Guest' Nationalities

Nationalities	No.	%
Egyptians	65	21
Arabs	78	26
Europeans	120	39
Others	41	14
Total	**304**	**100**

Question No. 3 Interesting in Using the Normal and Advanced IT in Travelling

Table 6 shows the percentage of different nationalities according to their interesting in using advanced IT in travelling. European scored 80% and that is mean that Europeans still have a better running and fast progress in the IT communications than the other nationalities. Arabs scored 26% then Egyptian 21% and other nationalities scored 14%.

Table (6): Guests Interested in Using the Normal and Advanced IT in Travelling

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Highly Interested	38	59	45	57	96	80	26	63	20	68
Interested	13	20	20	26	19	16	6	15	58	19
Somewhat Interested	10	15	13	17	5	4	1	2	29	9
Not Interested at all	4	6	-	-	-	-	8	20	12	4
Total	**65**	**100**	**78**	**100**	**120**	**100**	**41**	**100**	**304**	**100**

Question No. 4 The Preference of Advertisement Types

Table 7states the types of advertisement that is preferred to the guests. Websites is the most preferred type for Europeans and Arab nationalities by scoring 78% and 54%.Website now is a better and east tool for most of people. Easy access, Time saving and huge information and valuable searching are an effective characters of using internet. Brochures and flyers are still an important for some nationalities such as Egyptians. TV channels and movies scored a good percentage for advertising 18%.

Table (7): Travelling Decisions According to the Advertisement Types

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Brouchores and flyers	23	40	17	24	9	8	7	20	56	20
T.V Channels	15	26	12	17	13	12	9	26	49	18
Website	15	26	38	54	87	78	12	34	152	55
Movies	5	8	3	5	3	2	7	20	18	7
Total	**58**	**100**	**70**	**100**	**112**	**100**	**35**	**100**	**275**	**100**

Question No. 5 Types of Presentations in Travelling Websites

Presentation of travelling websites is a very important for customers' and normal internet users' attraction. Table 8 shows some types of presentations. The virtual reality presentation scored 87% for the European, 62% for Egyptians then 59% for Arabs nationalities. In the second stage comes the 3D presentation to score 56%.Normal wedsites animationa and 2D presentations came at the end of the presentations types 6%.

Table (8): Types of Presentation Attract Customer to Website

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal wedsites animationa	2	2	5	7	7	6	4	13	18	6
2 D presentations	8	14	6	8	5	3	5	17	24	9
3 D presentations	12	12	18	26	21	18	5	17	56	20
VR presentations with music	36	62	41	59	87	73	16	53	180	65
Total	**58**	**100**	**70**	**100**	**120**	**100**	**30**	**100**	**278**	**100**

Question No. 6 The Preference of Seeing and Trying Tourism Destination before Travel.

Trying tourism product or service is one of the difficulties of the whole industry. When there is a chance to try the product or service before travelling it will be a nice thing to guest or the new customer. Most nationalities 65% decided that they want to try or see the tourism destination before the actual visit, that mean that they encourage using V.R as a new concept. There are 17% are not sure about its useful and the rest didn't know about visualization.

Table (9): The Preference of Choosing to Try and see Tourism Destination before Travel

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Yes I will choose it	34	61	48	66	86	75	15	42	183	65
May be if it useful	15	27	11	16	12	10	9	25	47	17
I don't knowe	7	12	13	18	17	15	12	33	49	18
Total	**56**	**100**	**72**	**100**	**115**	**100**	**36**	**100**	**279**	**100**

Question No. 7 Places Like to see in V.R World

Virtual reality has the ability to make full 3D presentations or any place or product (hotels, museums, entertainment, and sightseeing). Table 10 shows that 55% of the guests choose hotels and their facilities to see them in visualization. Accommodation is still important for most tourists. Then come the museums to score 18% especially for the Europeans who are interested in cultural tourism. Finally come the sightseeing places by scoring 15% and the entertainment one 12%.

Table (10): Choosing Places that Nice to see them in Visualization World

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Hotel and its facilities	36	60	35	48	70	58	18	47	159	55
Entertainment places	10	17	15	21	5	4	6	17	36	12
Famous sight seeing	4	6	17	24	15	13	7	18	43	15
Museums	10	17	5	7	30	25	7	18	52	18
Total	**60**	**100**	**72**	**100**	**120**	**100**	**38**	**100**	**290**	**100**

Question No. 8 The Importance of Increasing Anxiety as an Advantage of VR

Anxiety is related to travel. Many customers may be have an anxiety and interesting before visiting new destination. Virtual reality has a role to increase this anxiety. Europeans is the most nationality see that virtuality world is very important for anxiety 67%.

Table (11): The Importance of Increasing Anxiety as an Advantage of VR

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Very important	40	65	42	58	78	67	13	37	173	59
Important	10	16	17	25	18	16	7	23	53	18
Neutral	4	6	8	10	6	5	8	24	26	9
Unmportant	5	8	5	7	14	12	11	34	35	12

Not Important at all	3	5	-	-	-	-	2	7	5	2
Total	**62**	**100**	**72**	**100**	**116**	**100**	**41**	**100**	**291**	**100**

Question No. 9 Mobiles as a Suitable Tool for Increasing the VR Concept

Nowadays, mobiles are a part of the IT technology. The I Phone now presents an easy access to internet. Also the new options of using the GPS technology in mobiles make tourists easy to go to any place in the tourism destination. There is 82% of guests see that mobile is highly accepted tool to increase using V.R.

Table (12): The Acceptance Degree of Using Mobiles to Increasing the VR

Response	Egyptians		Arabs		Europeans		others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Highly accepted	42	70	35	54	80	72	25	62	182	65
Accepted	11	18	20	30	15	13	9	23	55	20
Not accepted	7	12	11	18	17	15	6	15	41	15
Total	**60**	**100**	**66**	**100**	**112**	**100**	**40**	**100**	**278**	**100**

Analyzing of Manager and Staff Questionnaires

Question No. 10 The Importance of attracting definite market as an advantage of VR

From table 13 there are 56% of managers and staff see that V.R has very important role in attracting the targeted market segments .More than half of hotel managers 58% see that using V.R in hotels' websites is important for all markets (business travelers, recreational). Travel agencies managers and their staff presented 46% that V.R is very important. The museums' managers and staff ensure using virtual reality in both websites and inside the museums.

Table (13): The Importance of Attracting Definite Market as an Advantage of VR

Response	Hotel M.& Staff		Travel Agency M.& Staff		Museum M.& Staff		Total	
	No.	%	No.	%	No.	%	No.	%
Very important	14	58	6	46	11	61	31	56
Important	3	12.5	3	23	4	22	10	18
Neutral	4	17	2	15.5	2	11	8	15
Unimportant	3	12.5	2	15.5	1	6	6	11
Not Important at all	-	-	-	-	-	-	-	-
Total	**24**	**100**	**13**	**100**	**18**	**100**	**55**	**100**

Question No. 11 The Importance of sustain tourism destination as an advantage of VR

Many authors stated that applying V.R support in tourism sustain. There are 57% of managers and staff decided that it is very important for sustainable tourism to use V.R. There are 23% of managers and staffs see that V.ZR is important to preserve tourism destinations. It is obviously that in sustainable tourism tourist can't touch or take photo but in virtual world tourist can do that and more actions.

Table (14): The Importance of Sustaining Tourism Destination as an Advantage of VR

Response	Hotel M.& Staff		Travel Agency M.& Staff		Museum M.& Staff		Total	
	No.	%	No.	%	No.	%	No.	%
Very important	15	63	7	58	8	50	30	57
Important	5	21	3	25	4	25	12	23
Neutral	2	33	1	8.5	2	15	5	10
Unimportant	**2**	**33**	**1**	**8.5**	**2**	**15**	**5**	**10**
Not Important at all	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total	**24**	**100**	**12**	**100**	**16**	**100**	**52**	**100**

Question No. 12The Importance of preserving heritage and historical places as an advantage of VR

When technicians created and designed V.R software they were not aware that they may save many places, specially the historical one. Egypt has a huge numbers of heritage and historical sites all over the country. Many travelers suffer from restrictions of visiting these places, but now they can see all that in their places when access the V.R programs. There are 56% of managers agreed with this highest advantage. Museums managers are the most ones encourage visualization in the industry.

Table (15): The Importance of Preserving Heritage and Historical Places as an Advantage of VR

Response	Hotel M.& Staff		Travel Agency M.& Staff		Museum M.& Staff		Total	
	No.	%	No.	%	No.	%	No.	%
Very important	13	59	10	56	7	50	30	56
Important	5	23	6	33	4	29	15	28
Neutral	4	18	2	11	3	21	9	16
Unimportant	-	-	-	-	-	-	-	-
Not Important at all	-	-	-	-	-	-	-	-
Total	**22**	**100**	**18**	**100**	**14**	**100**	**54**	**100**

Question No. 13 The Importance of Building Good Image as an Advantage of VR

Using V.R in websites of hotels, travel agencies and museums lead to create an image for the tourism products and services. Building image is a targeted function for marketers. Nearly 56% of managers and staff requesting V.R as a very important for that. Also 79% see that it is important.

Table (16): The Importance of Building Good Image as an Advantage of VR

Response	Hotel M.& Staff		Travel Agency M.& Staff		Museum M.& Staff		Total	
	No.	%	No.	%	No.	%	No.	%
Very important	14	56	11	58	6	55	31	56
Important	7	28	5	26	4	36	16	29
Neutral	4	16	3	16	1	9	8	15
Unimportant	-	-	-	-	-	-	-	-
Not Important at all	-	-	-	-	-	-	-	-
Total	**25**	**100**	**19**	**100**	**11**	**100**	**55**	**100**

Question No. 14 The Importance of Achieving Brand Loyalty as an Advantage of VR

Most of managers 60% decided that achieving brand loyalty for their products is very important. Virtual reality by its 3D presentations make customers compare among products. It is important to satisfy the customer to build his loyalty.

Table (17): The Importance of Achieving Brand Loyalty as an Advantage of VR

Response	Hotel M.& Staff		Travel Agency M.& Staff		Museum M.& Staff		Total	
	No.	%	No.	%	No.	%	No.	%
Very important	15	63	9	56	6	60	30	60
Important	5	20	7	44	2	20	14	28
Neutral	3	13	-	-	2	20	5	10
Unimportant	1	4	-	-	-	-	1	2
Not Important at all	-	-	-	-	-	-	-	-
Total	**24**	**100**	**16**	**100**	**10**	**100**	**50**	**100**

Question No. 15 Responsibility of Spreading the V.R Cultural

Hotel managers and staff see that the spreading of V.R is the responsibility of hotels companies 42%. Destination Market Organizations is also responsible by 28%.For the travel agencies 50% see that is the responsibility of them.

Table (18): Responsibility of Spreading the V.R Cultural

Response	Hotel M.& Staff		Travel Agency M.& Staff		Museum M.& Staff		Total	
	No.	%	No.	%	No.	%	No.	%
Destination Market Organizations	6	25	2	12.5	7	50	15	28
Travel Agencies	4	16.5	8	50	-	-	12	22
Hotel Companies	10	42	2	12.5	-	-	12	22
Advertising and Website Designers Companies	4	16.5	4	25	7	50	15	28
Total	**24**	**100**	**16**	**100**	**14**	**100**	**54**	**100**

Recommendations

All of the following recommendations are resulted from the review of literature, the collected data of the statistical analysis, and the personal interviews

- Encouraging the department of marketing to use V.R as a modern tool in developing customer service.
- Trying to increase the applying 3D website and using V.R software to achieve customer satisfaction and loyalty, quality of service, and targeted market.
- It is essential for all the tourism industry to direct hotels, travel agencies, museums and the entertainment places to develop their websites in visualization.
- The need for suitable interface design for visualization has been an important for disorder persons.
- Developing the Geographic Information System (GIS), and interactive computer tours become a needed truth.
- The general concept and the special applications of the Virtual reality take a lot of time and effort to reach, so all the Destination Market Organizations in Egypt should stsrt to apply it.
- Tourism products and services considering a large amount of information that uses to establish relationships with customers and contribute to customer loyalty and sales.
- Virtual reality should be taken as a part of developing sustainable tourism.
- From V.R we can opening up new ways to comprehend the real world, providing effective ways of structuring immaterial phenomenon and material that has no geographical referent to increase comprehensibility and allowing static representations to be replaced with multiple representations that can be interactive and dynamic,

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تطبيق الواقع الافتراضي لتطوير خدمات العملاء في صناعة الضيافة

يلعب الإنترنت دورا متزايد الأهمية في صناعة السفر والضيافة. فالفنادق بجميع مستوياتها تتمايز فيما بينها بما تقدمه من خدمات وما تستهدفه من أسواق. ولهذا يمكن، إلى حدٍ معقول، توقع موقف الفندق فى السوق المستهدف من خلال مطالعة موقعه الاليكترونى. فصناعة الفنادق صناعة ديناميكية وتصاحبها تغيرات سريعة والواقع الافتراضي يعتبر جبهة جديدة للمنافسة بين مؤسسات الضيافة. إن تبني الفرص الجديدة التي توفرها شبكة الإنترنت قد منح الفنادق التى تستخدم الواقع الافتراضى تفوقا كبيرا على تلك التي ما تزال تتبنى بعض الادوات التسويقية غير الفعالة او التقليدية. ان الواقع الافتراضي هو التكنولوجيا التي تمكن من تصميم وتنفيذ نماذج جديدة لتفاعل الانسان مع الحاسوب في مختلف مجالات التطبيق. فالسياحة تعتبر احد المجالات التى تدخل عالم الواقع الافتراضى حديثا. والميزة الرئيسية في تطبيق بيئات الواقع الافتراضي هو التسويق والترويج للمقاصد والخدمات السياحية، وذلك للطبيعة الخاصة لكلٍ من الواقع الافتراضي والسياحة معا. فعند استخدام الكتيبات والمجلات والأفلام وأشرطة الفيديو، فإن الافراد يبذلون جهدا لتخيل أو توقع كيف ستكون تجربتهم فى هذه المقاصد السياحية الجديدة. هناك نوعان من الاستبيان سوف سيتم استخدامها في هذا البحث من أجل الحصول على المعلومات المطلوبة: استبيان للإدارة العليا والموظفين واستبيان لنزلاء الفندق. هذا وقد خلص البحث الى مجموعة من النتائج والتوصيات التى تؤكد على اهمية تطبيق الواقع الافتراضى فى صناعة الضيافة بشكل موسع.

الكلمات الدالة: الواقع الافتراضي ، خدمة العملاء ، صناعة السياحة والفنادق، المواقع الإلكترونية ، تصورات البعد الثالث ، التليفونات الخلوية