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## VIRTUAL REALITY TECHNOLOGY AS A TOOL FOR PROMOTING LUXOR AS A CULTURAL TOURISM DESTINATION

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### ABSTRACT

*Nowadays, the tourism industry requires continuous investment into new technologies to keep attracting visitors, highlighting the need for destinations to be innovative. The use of modern technology is becoming a necessity for various destinations to stay competitive, attractive and financially viable. The technology can help increase visitors' information about the destination's history and culture and make them aware of services and attractions available during the trip. VR applications are one of the promising technologies that enhance the users' cultural heritage visit experience with the digital content developed for the cultural heritage. This research explores the perceived benefits of using virtual reality technology to promote Luxor as a cultural tourism destination. Moreover, the research focused on a quantitative approach by distributing questionnaires among managers and tourism experts as the researcher distributed (330) questionnaires. SPSS (25) was used to analyze the collected data. The results show that Virtual reality offers potential travelers the opportunity to experience adventures, attractions and special events from their homes before visiting. Furthermore, VR is the best tool for providing rich data to potential tourist's seeking Luxor and its attractions. Furthermore, Travel agencies face many challenges in applying VR, such as the high cost of the tools for creating virtual reality and equipment maintenance. The study recommends that The Ministry of Tourism cooperate with other ministries and authorities, e.g., Ministries of Communication, environment, and investment, because of the human and technical facilities to apply virtual reality technology.*

**KEYWORDS:** Virtual Reality, Egyptian Travel Agencies, Modern Technology.

## **LITERATURE REVIEW**

Innovations in technology transform the business world, humanity, and modern society. Virtual reality (VR) is one of those emerging innovations in information and communication technologies that have the potential to change people's habits, business practices and strategies (Gabisch & Gwebu, 2011). Hobson and Williams described VR as "potentially one of the most important technological breakthroughs of the late 20th century". VR is a computer-generated 3D environment called a virtual environment that one can navigate and possibly interact with, resulting in a real-time simulation of one or more of the user's five senses" (Guttentag 2010). The main characteristic of VR is that the users enter a completely immersive world invented by the computer system without seeing the real world around them. This may display inside an empty room, headset, or other devices that allow users to experience the virtual environment. Increasingly, VR applications now also offer features like feedback in the form of sound or touch to allow the users to interact with objects and spaces (Ab. Aziz and Gek Siang, 2014).

Virtual reality is a fast-developing technology with a broad range of use. The tourism industry, more specific destinations, may benefit from its potential shortly (Ayush et al., 2018). By using VR in its marketing strategy, destinations substantially influence the information search process and the decision-making process of potential tourists. Tourists can previously experience the destination, its atmosphere and possible emotions (Burdea, 2003). Thus, they can create a more detailed destination image and realistic expectations of their visit. This transfers them into a better position to decide whether or not to visit a destination (Wang, & Jia, 2017).

In marketing, emerging applications of VR technology are transforming how tourism products and services are promoted on the market (Bruce, 2016). According to Guttentag (2010), VR may be especially dear for the tourism industry within the following six areas: planning and management, marketing, entertainment, accessibility, education, and heritage preservation. At the same time, VR is changing how travelers search for stimulation and purchase travel experiences. VR creates opportunities to experience and interact with distant realities by providing tourists a free preview of the vacation experience before purchasing expensive products or services (Bruce, 2016).

By using VR in their marketing strategies, destinations significantly influence the information search process of potential or repeating tourists. Argues that by using VR, destinations offer tourists accurate and

reliable information in a part of cost, time and effort compared to traditional promotional material (Smallman & Moore, 2010). Although VR adoption is still emerging, it thrives as many companies and organizations integrate VR elements into their marketing. Many travel promoters have already adopted VR technologies to provide a preview experience of hotel properties, cruise ships and travel experiences (Bardi, 2019). However, there is a significant lack of empirical research on the use of this technology for businesses and destinations more broadly (Samuely, 2016; Vitaliev, 2016).

### **THE IMPORTANCE OF VIRTUAL REALITY**

Virtual reality is a huge concern that has been highlighted since it creates a proper environment to experience reality. It is a significant competitive advantage of the tourist attraction, including services that reduce its intangibility and encourage tourists to travel (Epple, 2018). According to Liu et al. (2015), the excellent and compelling competitive advantage is to supply the visitor with all parts of the service. It is more successful in the service and its elements and building trust between the service and the user through real-life instances prior to actual consumption to evaluate service quality, creativity, and originality. It also provides an actual mental image, even if it involves money and work (El-Said, & Aziz, 2021). This notion is no longer confined to computer technology; it has spread to various elements of life, allowing for distant connections while removing the constraints of place, time, and people (Barrett, 2012). Whatever the circumstances, it is possible to have an experience of reality. Furthermore, its purpose is embedded in its life and is founded on the transfer of feelings and perceptions (Akhmeto et al., 2015).

### **VIRTUAL REALITY IN TOURISM INDUSTRY**

Virtual reality is described as an interactive digital-generated standard in the tourism industry that allows applicants to construct simulated experiences of realistic settings utilizing a VR device's head-mounted display (HMD) (Chong et al., 2021). As technology advances, VR tourism will give more detailed images of hotels and locations and lower customers' perceived fear or risk by exposing them to new places (Lee and Oh 2007). Virtual reality has been applied in six major tourism-related fields: planning and management, heritage preservation, marketing, accessibility, education, and entertainment (Guttentag, 2010). Furthermore, VR has been used as a commercial tool in the tourist business to engage with visitors by offering information about locations and online shopping merchants (Rick 2017). In recent years, the 3D virtual world has allowed destination marketing organizations to engage

with potential visitors by delivering a rich experience that allows prospective tourists to discover tourism locations (Huang et al. 2016).

Virtual reality tourism allows potential visitors to experience venues, experiences, attractions, and special events from the comfort of their own homes before deciding to attend. The efficient usage of virtual reality tourism in cultural heritage areas adds creative value to tourists' pre-and post-visit experiences (Stanley 2017). Because of the employment of these digital technologies, the border between the real and virtual is scarcely discernible, and its users have the option of increasing their degree of immersion while engaging in virtual tourist experiences (Jung et al., 2016). Some VR technologies enable users to enhance their experiences at tourist places by using their senses. Furthermore, it gives travelers a positive picture of tourism sites, which might influence ultimate tourist consumer behavior through feedback from other tourists about the quality of their experiences (Little et al. 2018). In the VR stage of cultural heritage tourism, many cultural heritage agencies are looking for novel methods to increase visitor involvement using the latest technology advancements connected to VR (Tscheu & Buhalis, 2016).

### **RESEARCH PROBLEM**

There are raising concerns among tourism destinations to be competitive with the other destinations; therefore, they rely on their marketing strategies to enhance their competitiveness and boost their image, establishing a prominent brand in the tourism and hospitality industry. To do so, destinations' policymakers are attempting to use enormous tools that could help them gain a higher competitive advantage in their businesses and operations. Virtual reality (VR) is a key one of these tools, on which the study focuses to help Egyptian tourism destinations (Luxor) foster their identity and brand compared with their competitors.

### **RESEARCH AIM AND OBJECTIVES**

This research aims to explore the perceived benefits of applying virtual reality technology as a tool for promoting Luxor as a cultural tourism destination; several objectives must be addressed to achieve this aim as follows:

1. Investigating the major benefits of applying virtual reality technology.
2. Analyzing the barriers of implementing virtual reality technology.
3. Identifying the influence of ease of using virtual reality in tourism marketing of Luxor.

## RESEARCH QUESTION

1. Is there are differences among ages and challenges in applying virtual reality techniques?
2. What is the key challenge of applying virtual reality techniques?
3. Are Virtual reality would be a good alternative in crises or dangerous situations?
4. Is a virtual reality technique more attractive than traditional methods of marketing?

## METHODOLOGY

The research focused on a quantitative approach by distributing questionnaire forms among managers and tourism experts. The population of this study consists of tourist experts and managers of Egyptian travel agencies, as (330) questionnaires were distributed among them by the researcher. SPSS (25) was used to analyze the collected data. The questionnaire consists of six parts; perceived benefits of virtual reality, challenges of applying virtual reality techniques, virtual reality in tourism marketing, ease of using virtual reality, virtual tours and visiting the actual site, and virtual tours and coronavirus (covid-19). It aims to explore the perceived benefits of applying virtual reality technology as a tool for promoting Luxor as a cultural tourism destination.

## RESULTS AND DISCUSSION

**Table (1) Descriptive Statistics of Perceived Benefits of Virtual Reality**

Statements	Mean	Std.D	Rank
Transferring an actual and objectifying image of reality.	4.06	.65	7
Virtual reality is a strong competitive advantage for Luxor's attractions.	4.21	.57	4
The ability to test the product before purchasing leads to the confirmation of customer satisfaction.	4.24	.69	3
Virtual reality encourages visitors to share their experiences among them, which enriches Luxor's experiences on social media platforms and enhances its image.	4.21	.71	5
Virtual reality is an optimal tool for providing rich data to potential tourists seeking Luxor and its attractions.	4.25	.61	2

Virtual reality potentially could function to preserve heritage by providing an alternative form of access to threatened sites.	4.21	.79	6
Virtual reality offers potential travelers the opportunity to experience adventures, attractions and special events from their homes before visiting.	4.29	.65	1
<b>Overall</b>	<b>Mean=4.21</b>		

As shown in table (1):

- Based on the data analysis, it can be observed that respondents notice the key benefits of virtual reality, as “Virtual reality offers potential travelers the opportunity to experience adventures, attractions and special events from their homes before visiting” is the top Benefit with a mean of (4.29) and a standard deviation of (.65). In this concern, objective number (1) is achieved.
- The second rank is “ Virtual reality is an optimal tool for providing rich data to potential tourists seeking Luxor and its attractions” with a mean of (4.25) and a standard deviation of (.61).
- The third rank is “The ability to test the product before purchasing leads to the confirmation of customer satisfaction” with a mean of (4.24) and a standard deviation of (.69).
- The fourth rank is “ Virtual reality is a strong competitive advantage for Luxor’s attractions” with a mean of (4.06) and a standard deviation of (.65).
- The fifth rank is “Virtual reality encourages visitors to share their experiences among them, which enriches Luxor’s experiences on social media platforms and enhances its image” with a mean of (4.21) and a standard deviation of (.71).
- The sixth rank is “Virtual reality potentially could function to preserve heritage by providing an alternative form of access to threatened sites” with a mean of (4.21) and a standard deviation of (.79).
- The last rank is “Transferring an actual and objectifying image of reality” with a mean of (4.21) and a standard deviation of (.79).
- ❖ The mean score of responses is (4.21) for the Perceived Benefits of Virtual Reality, which suggests that these respondents are Strongly Agree.

**Table (2) Descriptive Statistics of Challenges of Applying Virtual Reality Techniques**

Statement	Mean	Std.D	Rank
The high cost of the tools for creating virtual reality and equipment maintenance.	4.12	1.02	2
Guests and customers are hesitant to use virtual reality.	3.23	.820	6
Applying virtual reality requires more time.	3.17	1.00	7
Virtual reality may cause health problems.	2.31	1.04	8
Some users need an assistant to guide them as they are unfamiliar with system controls.	3.50	.913	5
Lack of awareness people among about virtual reality.	3.67	.865	4
Virtual tours cannot create a unique feeling of importance.	3.95	.909	3
Virtual tours are exciting, but they cannot replace the experience of visiting a site.	4.22	.817	1
<b>Overall mean =3.52</b>			

As shown in table (2):

- The first rank of Challenges of Applying Virtual Reality Techniques is “ Virtual tours are exciting, but they cannot replace the experience of visiting a site” with a mean of (4.22) and a standard deviation of (.817). In this concern, question number (2) is achieved.
- The second rank is “The high cost of the tools for creating virtual reality and equipment maintenance” with a mean of (4.12) and a standard deviation of (1.02).
- The third rank is “ Virtual tours cannot create a unique feeling of importance” with a mean of (3.95) and a standard deviation of (.909).
- The fourth rank is “lack of awareness people among about virtual reality” with a mean of (3.67) and a standard deviation of (.86).
- The fifth rank is “ some users need an assistant to guide them as they are unfamiliar with system controls” with a mean of (3.50) and a standard deviation of (.913).

- The sixth rank is “Guests and customers are hesitant to use virtual reality” with a mean of (3.23) and a standard deviation of (.820).
- The seventh rank is “Applying virtual reality requires more time” with a mean of (3.17) and a standard deviation of (1.00).
- The last rank is “Virtual reality may cause health problems” with a mean of (2.31) and a standard deviation of (1.04).
- ❖ The mean score of responses is (4.21) for the Challenges of Applying Virtual Reality Techniques, which suggests that these respondents are Agree. In this concern, objective number (2) is achieved.

**Table (3) Descriptive Statistics of Virtual Reality in Tourism Marketing**

Statement	Mean	Std.D	Rank
Virtual reality is reducing the cost of promoting Luxor's tourist attractions.	4.10	.798	5
Virtual reality represents more attractive elements than traditional methods, as they enable the participant to remember the experience more than other traditional methods.	4.11	.698	4
Virtual reality helps in making a quick travel decision to Luxor.	3.72	.863	7
The use of virtual reality matches the nature of the market, which relies on modern technology.	4.15	.691	2
By using VR, destinations offer tourists access to accurate and reliable information in a portion of the cost, time, and effort compared to traditional promotional material.	4.20	.658	1
Virtual tours would be a good alternative in crisis or dangerous situations.	4.04	.780	6
Virtual tours are an excellent solution to keep our country and tourist sites in mind all the time with our visitors.	4.12	.876	3
<b>Overall</b>	<b>4.06</b>		



As shown in table (3):

- The first rank of Virtual Reality in Tourism Marketing is “By using VR, destinations offer tourists access to accurate and reliable information in a portion of the cost, time, and effort compared to traditional promotional material” with a mean of (4.20) and a standard deviation of (.65).
- The second rank is “The use of virtual reality matches the nature of the market, which relies on modern technology” with a mean of (4.15) and a standard deviation of (.691).
- The third rank is “Virtual tours are an excellent solution to keep our country and tourist sites in mind all the time with our visitors” with a mean of (4.12) and a standard deviation of (.876).
- The fourth rank is “Virtual reality represents more attractive elements than traditional methods, as they enable the participant to remember the experience more than other traditional methods” with a mean of (4.11) and a standard deviation of (.698). In this concern, question number (4) is achieved.
- The fifth rank is “Virtual reality is reducing the cost of promoting Luxor's tourist attractions” with a mean of (4.10) and a standard deviation of (.798).
- The sixth rank is “Virtual tours would be a good alternative in crisis or dangerous situations” with a mean of (4.04) and a standard deviation of (.780). In this concern, question number (3) is achieved.
- The last rank is “Virtual reality helps in making a quick travel decision to Luxor” with a mean of (3.72) and a standard deviation of (.863).
- ❖ The mean score of responses is (4.06) for the Virtual Reality in Tourism Marketing, which suggests that these respondents are Agree.

**Table (4) Descriptive Statistics of Ease of Using Virtual Reality**

Statement	Mean	Std.D	Rank
I think that interacting with this technology does not require much mental effort.	3.79	.634	7
I think that the information displayed on the screen is easy to read.	3.93	.622	4
Virtual tours should support different languages.	4.41	.666	1

The virtual tour enables one to visit the site more conveniently.	4.01	.775	3
Virtual tour experience is flexible to interact with.	3.88	.657	6
I think that the information displayed on the screen is not confusing.	3.89	.706	5
I know and understand how to access virtual tourism via mobile phones, computers, or other devices.	4.04	.756	2
<b>Overall 3.99</b>			

As shown in table (4):

- The first rank of Ease of Using Virtual Reality is “Virtual tours should support different languages” with a mean of (4.41) and a standard deviation of (.666).
  - The second rank is “I know and understand how to access virtual tourism via mobile phones, computers, or other devices” with a mean of (4.04) and a standard deviation of (.756).
  - The third rank is “The virtual tour enables one to visit the site more conveniently” with a mean of (4.01) and a standard deviation of (.775).
  - The fourth rank is “I think that the information displayed on the screen is easy to read” with a mean of (3.93) and a standard deviation of (.622).
  - The fifth rank is “I think that the information displayed on the screen is not confusing” with a mean of (3.89) and a standard deviation of (.706).
  - The sixth rank is “Virtual tour experience is flexible to interact with” with a mean of (3.88) and a standard deviation of (.657).
  - The last rank is “ I think that interacting with this technology does not require much mental effort” with a mean of (3.79) and a standard deviation of (.634).
- ❖ The mean score of responses is (3.99) for Ease of Using Virtual Reality, which suggests that these respondents are Agree.

**Table (5) Descriptive Statistics of Virtual Tours and Visiting the actual site**

Statement	Mean	Std.D	Rank
I think virtual tours can save a lot of Information is way more fun than reading about Luxor attractions.	3.91	.80	4

It is better to visit the site and with preventive measures instead of taking virtual tours	4.10	.76	3
Real tours are more attractive because they are more emotional and understand the site visited.	4.11	.73	2
Virtual tours cannot replace the actual site if the actual site still exists in good condition.	4.25	.70	1
<b>Overall</b>	<b>Mean</b>	<b>4.00</b>	

As shown in table (5):

- The first rank of Virtual Tours and Visiting the actual site is “ Virtual tours cannot replace the actual site if the actual site still exists in good condition” with a mean of (4.25) and a standard deviation of (.70).
- The second rank is “ Real tours are more attractive because they are more emotional and understand the site visited” with a mean of (4.11) and a standard deviation of (.73).
- The third rank is “It is better to visit the site and with preventive measures instead of taking virtual tours” with a mean of (4.10) and a standard deviation of (.76).
- The last rank is “I think virtual tours can save a lot of Information is way more fun than reading about Luxor attractions” with a mean of (3.91) and a standard deviation of (.80).
- ❖ The mean score of responses is (4.00) for Virtual Tours and Visiting the actual site, which suggests that these respondents are Agree.

**Table (6) Descriptive Statistics of Virtual Tours and Coronavirus (COVID-19)**

Statement	Mean	Std.D	Rank
Perceived risk due to the spread of COVID-19 positively impacts the intention to adopt Virtual Tours.	3.95	.69	4
During the pandemic, I know that other people around me (e.g., colleagues, family members, or friends) have used virtual tourism.	3.80	.81	5
Virtual Tours are a safe alternative that protects me from catching COVID-19.	4.12	.77	2

Virtual tours are an excellent substitute to avoid the spread of Covid-19.	4.10	.76	3
I am ready to travel to a Tourism destination via Virtual tours during COVID-19.	4.21	.71	1
Overall Mean	4.04		

As shown in table (6):

- The first rank of Virtual Tours and Coronavirus is “I am ready to travel to a Tourism destination via Virtual tours during COVID-19” with a mean of (4.21) and a standard deviation of (.71).
  - The second rank is “Virtual Tours are a safe alternative that protects me from catching COVID-19” with a mean of (4.12) and a standard deviation of (.77).
  - The third rank is “Virtual tours are an excellent substitute to avoid the spread of Covid-19” with a mean of (4.10) and a standard deviation of (.76).
  - The fourth rank is “Perceived risk due to the spread of COVID-19 positively impacts the intention to adopt Virtual Tours” with a mean of (3.95) and a standard deviation of (.69).
  - The last rank is “During the pandemic, I know that other people around me (e.g., colleagues, family members, or friends) have used virtual tourism” with a mean of (3.80) and a standard deviation of (.81).
- ❖ The mean score of responses is (4.04) for Virtual Tours and Coronavirus, which suggests that these respondents are Agree.

**Table (7) Correlations among variables**

		Perceived Benefits	Marketing	Ease of Using	Coronavirus
<b>Perceived Benefits of Virtual Reality</b>	Pearson Correlation		.562**	.412**	.312**
	Sig. (2-tailed)		.000	.000	.000
	N		330	330	330
<b>Virtual Reality in Tourism Marketing</b>	Pearson Correlation	.562**		.523**	.514**
	Sig. (2-tailed)	.000		.000	.000
	N	330		330	330
<b>Ease of Using Virtual Reality</b>	Pearson Correlation	.412**	.523**		.529**

	Sig. (2-tailed)	.000	.000		.000
	N	330	330		330
<b>Virtual Tours and Coronavirus (COVID-19).</b>	Pearson Correlation	.312**	.514**	.529**	
	Sig. (2-tailed)	.000	.000	.000	
	N	330	330	330	
**. Correlation is significant at the 0.01 level (2-tailed).					

Table (7) shows that there is a significant and moderate positive correlation between perceived benefits of virtual reality and virtual reality in tourism marketing, which Pearson correlation (.562\*\*). Furthermore, there is a significant and moderate positive correlation between Perceived benefits of virtual reality and ease of using virtual reality, which Pearson correlation (.412\*\*).on the other hand, there is a significant and moderate positive correlation between perceived benefits of virtual reality and virtual tours and coronavirus (COVID-19) which Pearson correlation (.312\*\*). The table also shows that there is a significant and moderate positive correlation between ease of using virtual reality and virtual reality in tourism marketing, which Pearson correlation (.523\*\*). Furthermore, there is a significant and moderate positive correlation between virtual reality in tourism marketing and virtual tours and coronavirus (COVID-19), which Pearson correlation (.514\*\*). The table also shows a significant and moderate positive correlation between ease of using virtual reality and virtual tours and coronavirus (COVID-19), which Pearson Correlation (.529\*\*).

**Table (8) Differences in the challenges of applying virtual reality techniques according to the respondents’ age**

<b>Challenges of Applying Virtual Reality Techniques</b>		<b>N</b>	<b>Mean</b>	<b>Std. D</b>	<b>Sig.</b>
The high cost of the tools of creating virtual reality and equipment maintenance.	Below 40 years old	123	4.09	.881	.598
	40 - 50 years	129	4.09	1.12	
	more than 50 years	78	4.23	1.092	
	Total	330	4.12	1.029	
Guests and customers are hesitant to use virtual reality.	Below 40 years old	123	3.34	.722	.003
	40 - 50 years	129	3.30	.932	
	more than 50 years	78	2.96	.710	
	Total	330	3.23	.820	
Applying virtual reality requires more time.	Below 40 years old	123	3.43	.942	.000
	40 - 50 years	129	2.95	1.144	

	more than 50 years	78	3.11	.702	
	Total	330	3.17	1.00	
Virtual reality may cause health problems.	Below 40 years old	123	2.70	1.25	.000
	40 - 50 years	129	2.18	.845	
	more than 50 years	78	1.92	.734	
	Total	330	2.31	1.045	
Some users need an assistant to guide them as they are unfamiliar with system controls.	Below 40 years old	123	3.65	.982	.041
	40 - 50 years	129	3.37	.866	
	more than 50 years	78	3.46	.848	
	Total	330	3.50	.913	
lack of awareness people among about virtual reality.	Below 40 years old	123	3.73	.800	.309
	40 - 50 years	129	3.58	.949	
	more than 50 years	78	3.73	.816	
	Total	330	3.67	.865	
Virtual tours cannot create a unique feeling of importance.	Below 40 years old	123	3.87	.971	.321
	40 - 50 years	129	3.95	.917	
	more than 50 years	78	4.07	.785	
	Total	330	3.95	.909	
Virtual tours are exciting, but they cannot replace the experience of visiting a site.	Below 40 years old	123	4.09	.823	.022
	40 - 50 years	129	4.23	.914	
	more than 50 years	78	4.42	.570	
	Total	330	4.22	.817	
<b>Total</b>					<b>.079</b>

One-way ANOVA has been used to explore the different results. As shown in table (8), it has been found that there is no statistical evidence for significant differences between age and Challenges of Applying Virtual Reality Techniques where (P-value > 0.05). In this concern, question number (1) is achieved.

**Table (9) linear Regression Coefficients for Influence of Ease of Using Virtual Reality on Virtual Reality in Tourism Marketing**

Model	R	R2	Beta	f	Sig.	t	Sig.
(Constant)						10.020	.000
Ease of Using Virtual Reality	.523	.274	.523	123.561	.000	11.116	.000
(Constant) Ease of Using Virtual Reality a. Predictors: b. Dependent Variable : Virtual Reality in Tourism Marketing							

From table (9), Using regression (R2) to measure the effect of ease of using virtual reality on virtual reality in tourism marketing, the results indicated that R2value =.274 and  $p < .05$ , then it is revealed that there is a significant effect between variables, Suggesting that 27% of the ease of using virtual reality was explained by virtual reality in tourism marketing. In this concern, objective number (3) is achieved.

## CONCLUSION

Among tourism destination resources, cultural heritage sites and attractions, including museums, monuments, art galleries, theatres, archaeological, historical, and religious sites, cultural festivals, and events, can benefit meaningfully from intelligent technologies. Virtual Reality applications are one of the promising technologies that enhance the users' cultural heritage visit experience with the digital content developed for the cultural heritage. The statistical analysis for the research variables illustrates that Virtual reality offers potential travelers the opportunity to experience adventures, attractions and special events from their homes before visiting. Furthermore, VR is the best tool for providing rich data to potential tourists seeking Luxor and its attractions. Moreover, by using VR, destinations offer tourists access to accurate and reliable information at less cost, time, and effort than traditional promotional material. Thus, Virtual tours are an excellent solution to keep our country and tourist sites in mind our visitors. In addition, Travel agencies face many challenges in applying VR, such as the high cost of the tools of creating virtual reality and equipment maintenance; lack of awareness among people about virtual reality, and virtual tours are exciting, but they cannot replace the experience of visiting a site.

The results explain that there is a significant and moderate positive correlation between the perceived benefits of virtual reality and virtual reality in tourism marketing. In addition, there is a significant and moderate positive correlation between perceived benefits of virtual reality and virtual tours and coronavirus (COVID-19). Moreover, the results reveal no statistical evidence for significant differences between gender respondents and ease of using virtual reality. Moreover, it has been found that there is no statistical evidence for significant differences between age and challenges of applying virtual reality techniques. On the other hand, it has been found that there is statistical evidence for significant differences between three groups of work experience and virtual reality in tourism marketing.

## **RECOMMENDATIONS AND FURTHER RESEARCH**

The research proposes recommendations to the Ministry of Tourism and the Egyptian travel agencies to implement virtual reality. As follows:

1. Benefiting from the European companies that implement virtual reality.
2. Managers of travel agents should perceive the importance and the role of technology in the tourism industry as an investment in them is not a waste of time and money. However, it creates a competitive advantage for the Egyptian touristic, especially in the light of the fierce competition among countries.
3. Virtual tourism is an environmentally friendly way of travel. Thus, policymakers should rethink the tourism industry by utilizing virtual reality technology in times of crisis as a solution to keep our country and our tourism sites in mind all the time with our visitors.
4. The Ministry of Tourism should provide financial facilities to help companies implement virtual reality.
5. The Ministry of Tourism should educate and train travel agencies on implementing virtual reality.
6. The Ministry of Tourism should cooperate with other ministries and authorities, e.g., Ministries of Communication, environment, and investment, because of the human and technical facilities to apply virtual reality technology.
7. The Ministry of Tourism should be interested in applying this technique to promote the Egyptian tourism market abroad.
8. Using virtual reality to preserve tourist sites that do not accommodate a high capacity.
9. Establishing a development and innovation department to apply modern technological tools in the tourism industry.

Further studies may consider the following, the possibility of applying virtual reality in the hospitality industry and Examining how virtual tourism influences consumer attitudes toward the brand image of tourism destinations and travel intentions.



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