Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

Sameh G. Saad, Girgis E. Fahmy, and Shrook F. Wafy
Faculty of Tourism and Hotel Management, Helwan University

Abstract

One of the most promising technologies for experiential marketing is Virtual Reality "VR". VR usage at home is surging amid the pandemic, putting technology on the path to spread widely. By giving customers the chance to try before they buy, VR may play an increasingly important and prevalent role which stimulates the desire to travel and helps customers to make their decisions about where to visit. For example, in the hotel industry, most guests tend to make their purchase decisions based on the visuals and reviews available on hotels' websites which have been one of the essential tools that assist prospective guests in their decision making. The significance of this study emerges from the hotels' need to overcome the intangibility of hotel services, and realistically representing hotel service which may be used as a marketing tool to convey the quality of the hotel's offerings before the purchase. The aim of the study is to investigate the effectiveness of VR as a marketing tool in a sample of five-star hotels. A questionnaire will be designed to fulfill the research objective. The questionnaire will be distributed to a sample of customers in Cairo five-star hotels. The expected results and findings of the study will show that VR technology as a marketing tool has significant impacts on customers' decision-making process to visit specific hotels which are very effective in forming the hotels' image, reputation and competitive advantages.

Keywords: Hospitality Virtual Reality, Hotels Digital Marketing, Hotels' Display technologies, Customer decision making.

Introduction

Virtual reality (VR) is Known as one of the most important modern technological developments that have a major impact on the tourism industry. VR has existed since the late 1960s, but recent developments in VR platforms, devices, and tools for creating hypermedia content have allowed technology to emerge from the shadows into the realm of everyday experience.

In the hotel industry, reducing the inherent knowledge asymmetry about the offered products is very critical. This asymmetry can be minimized by using smartphone-based virtual reality apps "SBVRs", which allows for more effective information retrieval by simulating real-world experiences virtually.

Guttentag (2010) defined virtual reality as "the use of a navigable and interactive computer-generated three-dimensional environment that results in a real-time simulation of one or more of the user's five senses and observes user control as a core feature of virtual reality. As well as, Guttentag (2010) pointed out that not only observing user control is the key feature of VR, but also there are another VR key features such as navigation, immersion, and interaction.

According to Slevitch *et al.* (2022), the major advantage of VR technology in the hotel and tourism industry is its ability to integrate sensory experiences with marketing communication strategies, in particular, in improving and enhancing the process of information-gathering and decision-making for potential guests. Additionally, Slevitch *et al.* (2022) stated that the image of a hospitality or tourism product (i.e., a hotel stay, a destination, etc.) that is formed by previous experiences, word of mouth, various advertising, media materials, and common beliefs influences prepurchase decision making.

The aim of this research is to investigate the usage of virtual reality technologies in five-star hotels in Egypt. The objectives of the study are:

- to investigate the usage of VR in five-star hotels.
- to highlight the importance of VR technologies in the hotel industry.

Literature Review

Israel *et al.* (2019) highlighted that the function of virtual product presentation is boosting the perceived enjoyment and utility of advertisements in the hotel industry. According to Li *et al.* (2019), virtual reality can engage customers efficiently with potential destinations which they may not have explored before. Customers can get more confident about what they will receive by experiencing even a small part of the real experience (Tom Dieck, *et al.,* 2018). In addition, virtual reality can increase hotel brand awareness, brand attitude, and purchasing intentions (Leung, *et al.,* 2019).

Virtual reality is the use of a computer-generated 3D environment that is called a 'virtual environment' (VE) which one can try and possibly interact with, resulting in real-time simulation of one or more of the user's five senses (Guttentag, 2010).

Besides, VR system was defined as a smartphone-based VR system which provides real-time viewer-centered head-tracking perspective with a large angle of view, interactive control, and binocular display (Israel, *et al.,* 2019).

Importance of VR in Hospitality& tourism:

As virtual reality (VR) technology becomes more widespread, both the industry and customers start recognizing the possibilities this technology holds for their hospitality and tourist interests. Early-adopters are rapidly exploring new application areas as the technology matures (Witell, *et al.,* 2016).

In addition, Nayyar *et al.* (2018) stated that as VR technology grows, applications of VR technologies continue to impress consumers and investors, and as a result, these increasingly sophisticated technologies are being planned, designed and implemented for end-user benefits in the tourism and hotel industries.

Furthermore, Kim *et al.* (2016) highlighted that the importance of VR technology in the hospitality and tourism industry regarding the current application areas include the following:

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

- *Effective Planning and Suitable Management:* The possibility for implementing efficient tourist strategy and planning has increased with the use of VR technology in tourism. Tourists can organize their vacations using virtual reality gadgets that provide a near-realistic, easy, and detailed navigation of tourist attractions. Travelers can get a bird's-eye view of their destinations while using VR technology, giving them a more detailed look and feel of the region they're visiting. Tourists can communicate with one another via social media apps to get feedback on their previous experiences, since it is considered as a crucial and effective tool for tourist activity planning (Jung, *et al.,* 2015; Nayyar, *et al.,* 2018).

- *Virtual Attractions at Effective Cost*: Lyu *et al.* (2021) stated that modeling and animating new VR travel tourism experiences can be added to current applications. These experiences provide an ideal digital environment in which digital content can be added or uploaded on demand based on the needs of visitors and even used for location marketing.

- *Interactive Dining Experience*: Amazing food and entertainment is the main consideration for the travelers planning a trip from home. They can take a virtual tour of the restaurant and even make decisions using the virtual menus available. Other appealing elements, such as mobile access options, may make it easier for guests (Nayyar, *et al.,* 2018).

- *Booking Rooms*: Potential guests can use VR technology to evaluate rooms before booking them. By using VR technology, they can upgrade their room to a suite based on more facilities or a magnificent view that will surround them (Lyu, *et al.,* 2021).

- *Exploring the property*: Instead of using online photographs and paper brochures to imagine the hotel, Guests may virtually visit the hotel, restaurant, and health club. Users may be able to take a virtual tour of the eco-friendly hotel's roof top, herb garden, or green building materials, which will increase customer loyalty (Leung, *et al.,* 2019).

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

Dimensions of VR experience:

VR can provide a variety of different types of experiences, including cognitive, affective, sensory, attitudinal, and behavioral ones (De Gauquier, *et al.,* 2018). Vyvey et al. (2018) added that users are cognitively stimulated as the VR experience provides them with new information and satisfies their curiosity. Besides, Riva *et al.* (2007) stated that because of VR users' engagement to this experience, which is related to boosted emotions, they have an affective response. Additionally, users expect profound sensory responses as a result of VR's "bodily sensations," which derive from the sense of movement and immersion (De Gauquier, *et al.,* 2018). Moreover, Gibson *et al.* (2017) found that VR highly immersive nature generate positive emotional and behavioral responses.

The advantages of using VR technologies:

Sanchez-Vives *et al.* (2005) pointed out that VR allows for multisensory stimulations such as vision, sound, and proprioceptor-based sensations, like the sensation of falling or the ability to look and move round the place.

Also, it was found that customers using virtual reality technology are no longer attracted to basic "mouse clicks" to interact with photos of products, service-escapes, destinations, and so on; instead, VR users can engage in a greater variety of sensory stimulations (Brakus, *et al.,* 2009).

Similarly, Guttentag (2010) reported that of virtual reality is very efficient in customer decision-making process, notably the beneficial role it plays in the process of information-gathering and its advantages in terms of providing realistic and experiential imagery and information. Likewise, customers' service-scape experiences are getting better as a benefit from virtual reality (Han, *et al.,* 2014; Hwang, *et al.,* 2012).

Additionally, virtual reality visualizations provide a better level of immersion and control over visual aspects such as presence, illumination, and object location in space; hence, users can use a VR headset to "travel" or be immersed in diverse settings while enjoying the scenery, which is

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

sometimes accompanied by audio or other stimulations (Soranzo, *et al.,* 2014).

In addition, several studies found that using virtual reality visualizations as a promotional tool improves branding (Van Kerrebroeck, *et al.,* 2017), advertising effectiveness (Lau, *et al.,* 2016), destination attractiveness, and desire to visit (Berger. *et al.,* 2007; Gibson, *et al.,* 2017; Giordimaina, 2008).

Besides, De Gauquier *et al.* (2018) reported that VR, in contrast to 2D and 3D technologies, provides deeper and more thoughtful experiences, while Choi *et al.* (2014) mentioned that 2D and 3D visuals only allow you to point and click on certain features, or interact with them by enlarging or rotating them.

Furthermore, virtual reality (VR) can filter off the real-world surroundings, resulting in a higher level of immersion and accessibility (Israel, *et al.,* 2019). Moreover, there are some examples of effective VR use in the hotel and tourism industries as follows:

- Gibson *et al.* (2017) found that Fáilte Ireland used virtual reality to market Ireland as a destination during events.
- Similarly, Visit Scotland incorporated virtual reality into its app, allowing potential visitors to explore 26 destinations without having to leave their homes. This experience included 360-degree films, animated maps, menus, and images to allow potential visitors to "try before they buy" and learn more about Scotland in an interactive manner (Glenday, 2017).
- Thailand's Tourism Authority and Tourism Australia used virtual reality to promote natural destinations (Levere, 2017).
- Marriott International effectively incorporated virtual reality (VR) in its marketing plan, including product development, brand promotions, and guest experience (Adamson, 2015).
- A virtual reality film was made by Holiday Inn Express to promote its "power shower" experience (Alister, 2017).
- Hotel virtual tours are used by Shangri-La Hotels and Resorts and Atlantis Dubai as a part of their online communication strategy (slevitch, *et al.,* 2022).

VR and tourism & Hotel Marketing:

Visual imagery has been employed extensively in the tourism marketing and promotion divisions (Aziz, *et al.,* 2011). Also, the intangible features of tourism as a service remind marketers that new types of visual imagery must be developed on a regular basis in order to establish a favorable destination image (Griffin, *et al.,* 2017).

Also, Huang *et al.* (2013) found that the benefits of VR for destination marketing organizations include how marketing messages are targeted to specific markets, while capturing the attention of potential visitors and assisting in the identification of relevant factors that essentially create motivations for those who engage in any VR and awareness development form which is related to any future travel decision-making processes.

Additionally, as part of a marketing plan, VR technologies are already being utilized to provide travelers with experience previews of locations, destinations, and attractions, such as hotels, cruise ships, and similar (Samuely, 2016). Web-mediated virtual information produces a virtual conative image that most commonly results in possible purchase intention (Hyun, *et al.,* 2012).

In addition, VR in tourism destinations marketing strategies can be associated with attachment (Wu, *et al.,* 2016), stimulation (Neuburger, *et al.,* 2018), evaluation, decision-making and experience (Jung, *et al.,* 2017).

Besides, Pestek *et al.* (2021) reported that virtual tourists can easily meet their travel needs within the following circumstances: Virtual tourist destinations can help visitors to improve their perspectives by integrating hedonistic experiences with emotional ones, and the virtual environment is displayed as a source of important information.

In addition, Mclean *et al.* (2021) stated that because VR can familiarize the unfamiliar places to customers, as it can be used to show an unknown hotel with its facilities to a tourism consumer prior to their visit.

Furthermore, Pestek *et al.* (2021) pointed out that customer behavior in VR experiences identifies that brands and tourism organizations can

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

directly and effectively influence users' opinions and decisions through interactivity, experience, and immersion; thus, VR is considered a very valuable tool in tourism policy creation and planning processes. The capacity of VR to build realistic and navigable virtual environments aids the tourism planner's analysis of possible improvements in the sector.

In addition, most individuals do not have the option of flying thousands of miles to check out a resort before making a reservation in the hospitality industry. Prior study showed that advanced multimedia technologies, video integration, and virtual reality (VR) applications can impact and motivate customer behavior in the hospitality and tourism industries when it comes to booking decisions (Yoon *et al.,* 2021).

Moreover, Mclean *et al.* (2021) stated that VR technology can help in tourist planning and management since it has unique testing capabilities and it is a key component in building management strategies that involve moving the burden from heavy-use areas to limited-use areas and the 3D visuals are very good tools for this."

Also, because of its potential to induce the highlighted sensory and emotional experience, VR is frequently utilized by marketers in establishing the communication of emotions and experiences influencing consumers and visitors (Pestek, *et al.,* 2021)

Besides, animated content, high-quality pictures and videos, or even 3-D content, according to Yoon *et al.* (2021), are efficient marketing tools because they are related to an individual's intention to use VR as well as their willingness to pay for a hotel when VR capabilities are available during the reservation process.

Furthermore, during the post-purchase phase of a travel consumer's decision-making journey, the authentic experience provided by VR and the mental imagery elicited by VR positively influences tourism consumers' actual satisfaction with the hotel and then, hotel providers can better manage their customers' expectations of the hotel's appearance by using VR previews (both immersive headset VR previews and 360° VR tour previews) to provide a more realistic representation of the hotel and its facilities (Mclean, *et al.,* 2021).

As a result of the match between client expectations and the final product

(the hotel), the probability of revisiting the hotel increases. Consequently, VR provides hoteliers with a tool to manage client expectations, meet those goals, and boost the probability of repeat business.

Customer Motivation	→	Customer VR Experience	→	Customer Response

Methodology

The method has been used is Descriptive with two kinds (analytical and relational), in order to suit it to achieve the objectives of the study and the nature of its procedures, by describing what is an object, analyzing it and extracting facts from it, as the descriptive approach is not limited to data collection and classification, but rather aims at analysis and interpretation of the results.

- **Research community:**

It is the target community to study, and the results are generalized to all its vocabulary, but it is difficult to reach this target community due to its enormity, so focus is placed on a sample of it that represents it and which can be accessed, in order to collect data, which is considered a representative part of the target community, and meets the needs and objectives of the study, and the community is represented The study is a case study of tourists coming to Egypt and guests in five-star hotels.

- **Research sample:**

The research sample was selected in a stratified random method from tourists coming to Egypt and guests in five-star hotels, and the total size of the sample was (200) tourists of different nationalities.

- **Study limitations:**
- **Human limitations:** a case study of tourists coming to Egypt and guests in five-star hotels.

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

- **Place limitations:** This study was applied in the Arab Republic of Egypt.
- **Time limitations:** the period of time in which the reliability and validity of the resolution was confirmed on a survey sample from outside the sample of the basic study and the practical aspect of the study was conducted on the basic research sample by distributing the questionnaire from Saturday 5/2/2022 until Wednesday 9/3/2022, in order to obtain the answers to the questionnaire statements to collect the necessary information.
- **Objectivity limitations:**
- **The independent variable: Motivation**: which expresses the hotel's desire to act or move towards achieving a specific aims through the use of virtual reality technology.
- **mediating variable: Experience:** which expresses the experiences owned by the hotel (the marketer) to achieve distinction and creativity from other hotels through the use of virtual reality technology.
- **The dependent variable: Response:** which expresses the behavior of the tourist in response to the use of virtual reality technology by the five-star hotels in Egypt.
  ▪ **Data collection tools:**

To achieve the aims of the research, a questionnaire was prepared to be applied to the basic research sample, and the following are the steps that were followed in preparing, designing and codifying the questionnaire until it reached the stage of validity for application:

1- Determining the aim of the questionnaire:
The questionnaire aims to investigate the use of virtual reality technology as a marketing tool in five-star hotels.

2- A preliminary Image of the questionnaire
The following steps were followed in preparing the questionnaire in its initial form:
Conducting a reference survey for previous studies, Arab and recent foreign, that focused on shedding light on the variables of the study in order to extract some phrases related to the subject of the study and to

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

select simple, easy and linguistically sound phrases, and to ensure that the number of phrases in each axis is appropriate to the axis to which it belongs, and in light of the previous steps, Extracting some questionnaire phrases, and a list has been prepared in its initial form, including (3) main axes (motivation, experience, response) and below them (15) sub-phrases in its initial form.

The questionnaire was distributed to the respondents, including a three-level scale: (largely appropriate, moderately appropriate, not appropriate), and in light of the arbitrators' suggestions and their agreed observations, the majority of arbitrators agreed to delete (1) phrase because it is not suitable for the objectives The research, as well as modifying the linguistic formulation of some phrases for similarity and closeness of meaning, and some paragraphs of the questionnaire were modified in terms of wording to increase clarity and accuracy of measurement of what was set for it.

3- Reaching the questionnaire in its final form:
This questionnaire in its final form included two parts as follows:
- **The first section:** includes basic (demographic) data for tourists and includes four variables: (gender, age, marital status, educational level).
- **Section Two:** It includes a survey of the opinions of tourists regarding the investigation of the use of virtual reality technology as a marketing tool in five-star hotels. The questionnaire consists of (3) main axes, below which fall (14) sub-phrases in its final form, and they are as follows:
- The first axis: motivation. This axis consists of (5) phrases.
- The second axis: experience. This axis consists of (5) phrases.
- The third axis: the response. This axis consists of (4) statements.

The questionnaire was designed according to the quality and quantity of the required data and according to the hypotheses and objectives of the research. The question used within the questionnaire, namely (closed statements), include mentioning some alternative answers, and the respondents must choose only one of them, which is represented in the (Likart Five-Scale).

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

4- Correction of the resolution:

The questionnaire in its final form consists of (14) sub-statements including three main axes, and five response alternatives (strongly agree - agree - neutral - disagree - strongly disagree) according to the Likert Scale, which gives (strongly agree) five degrees, (somewhat agree) four degrees, (neutral) three degrees, (somewhat disagree) two degrees, and (strongly disagree) one degree, for the respondents' responses, and of the above is the lowest degree that can happen. The questioned score is (14) degrees, and the highest score is (70) degrees.

5- The exploratory experience:

- Calculating the validity of the internal consistency or internal homogeneity of the "vocabulary validity" of the questionnaire statements:

The questionnaire was applied electronically to an exploratory sample from outside the main study sample, which consisted of (20) tourists coming to Egypt and a guest in five-star hotels, with the aim of calculating the internal consistency of the "veracity of vocabulary". With its own axis, as well as the correlation of each item of the questionnaire with each other as a whole, so the Pearson Correlation Coefficient was used to test the validity of the questionnaire for the exploratory research sample, as shown in Table (1)

Table (1)
The value of the internal correlation coefficient between the degree of

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

the statement and the total sum of its axle bikes
N=20

The first axis (Motivation) phrases (5)	Correlation value	second axis (Experience) phrases (5)	Correlation value	The third axis (response) phrases (4)	Correlation value
1-	0.709*	1-	0.871*	1-	0.863*
2-	0.831*	2-	0.876*	2-	0.659*
3-	0.723*	3-	0.792*	3-	0.846*
4-	0.702*	4-	0.817*	4-	0.740*
5-	0.712*	5-	0.772*		
Total correlation value of the first axis	0.735*	Total correlation value of the second axis	0.825*	Total correlation value of the third axis	0.777*

Table (1) shows that there is a significant positive correlation at the level of significance (0.05) and the degree of freedom (18), between all the scores of each individual and the total sum of the questionnaire scores separately, where the Pearson correlation coefficient ranged in the first axis of motivation (from 0.702 to 0.831), The total correlation coefficient for the first axis was (0.735), and the Pearson correlation coefficient ranged in the second axis, experience (from 0.772 to 0.876), and the total correlation coefficient for the second axis reached (0.825), and the Pearson correlation coefficient ranged in the third axis, response (from 0.659 to 0.863) and the total correlation coefficient for the third axis was (0.777), which indicates the internal consistency between each item with its own axis, and thus the validity of the vocabulary in expressing and measuring this axis. These findings are supported Yoon *et al.,* 2021 who stated that advanced multimedia technologies, video integration, and virtual reality (VR) applications can impact and motivate customer

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

behavior in the hospitality and tourism industries when it comes to booking decisions.

- **Calculation of the stability coefficient using the alpha-Cronbach coefficient method:**

There are a lot of methods statistical for measuring stability, the most common of which is the Alpha Crunbach coefficient method, which depends on internal consistency and gives an idea of the consistency of vocabulary or phrases with each other and with each vocabulary or phrase in general, Cronbach's alpha is to fragment more than one part and frequently and measure the correlations between those parts rather than just measuring the correlation between two halves as in the case of Pearson or Spearman's correlation, In general, the judgment on stability depends on the amount of the correlation coefficient resulting from the statistical analysis, and many researchers consider that the correlation coefficient that exceeds 0.70 is sufficient to tend towards the stability of the tool used, where the values of Cronbach's alpha coefficient range between zero and the correct one and the higher the values of the stability coefficient and approaching The correct one indicates an increase in the stability of the data, and in order to ensure the stability of the tool and to verify its accuracy and consistency of its statements, the questionnaire was applied to an exploratory sample from outside the original sample, consisting of (20) tourists coming to Egypt and a guest in five-star hotels, as shown in Table No.(2).

Table (2)

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

The value of Cronbach's alpha coefficient to indicate the stability
A questionnaire

N = 20

Axis	number of phrases	Values Alpha Cronbach
The first axis: motivation.	5	0.734*
The second axis: experience	5	0.915*
The third axis: response	4	0.753*
Total questionnaire	**14 phrases**	**0.842***

Table (2) shows that all the reliability coefficients by (Cronbach's alpha coefficient) are high for the resolution axes, where the value of the alpha Cronbach's coefficient ranged between (0.734 to 0.915), and the total value of the Cronbach's alpha coefficient ranged (0.842), which indicates the stability of the resolution and its readiness for application

7- Application of the questionnaire:
The questionnaire was applied electronically from Saturday 5/2/2022 until Wednesday 9/3/2022, on the basic study sample, which numbered (215) forms, and (15) forms were excluded in which the vast majority of their statements were not answered. Thus, the number of the forms that were collected and actually analyzed becomes (200) forms, at a rate of (93.02%) of the total forms, in order to obtain the answers to the questionnaire statements to collect the information necessary to conduct the statistical analysis.
   ▪ **Requirements for statistical analysis:**
Data for study variables were processed by IBM SPSS Statistics ver.21; The level of significance at 0.05 was chosen to ensure the significance of

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

the statistical results, The statistical treatment plan included the following methods:

- **Average**
- **Standard Deviation**
- **Pearson coefficient**
- **Alfa Cronbach**
- **Chi Square**
- **Percentage**
- **Regression**
- **Likert Scale**

The Likert Scale considered as one of the measures of the general trend of the respondents' behavior and is used in questionnaires about a specific phenomenon. The scale depends on responses indicating the degree of approval or objection to a formula. The directions of the answer are determined by means of the arithmetic average with the following weights:

Table (3)

Response	strongly agree	somewhat agree	Neutral	somewhat disagree	strongly disagree
Degree	5	4	3	2	1

Estimating the degrees of importance of the phrases according to the respondents' response to the items of the questionnaire

To calculate the weighted average of the five-point Likert scale, the following equation was used:

The length of the category = the largest value - the minimum value of the answer alternatives divided by the number of levels, i.e.:

Category length = 5-1 = 4

Then we divide 4 / 5 = 0.80

- If the first direction (strongly disagree): (from 1 to 1.79)

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

- If the second direction (I do not agree to some extent): (from 1.80 to 2.59)
- If the third direction (neutral): (from 2.60 to 3.39)
- If the fourth direction (I agree to some extent): (from 3.40 to 4.19)
- Fifth direction (I strongly agree): (from 4.20 to 5).

▪ **Analysis and discussion of the results of the applied study:**

The analysis and discussion of the results of the applied study aims to address the outputs of the statistical program by explaining to show the results of the applied study by analyzing the answers of the respondents to the questionnaire phrases. The results of the analysis are extracted and commented on using inferential statistics through which the research hypotheses are answered:

- **First: Description of the study sample (the characteristics and characteristics of the sample):**
-

The study sample was determined by four demographic data that give the sample more comprehensiveness, represented by (gender, age, marital status, educational qualification), which are shown as follows:

Table (4)
The percentage of repeats of the research sample according to

Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

(Gender, age, marital status, educational qualification)

Description of the research sample		Frequency	Percent	Ranking
Gender	**Male**	128	64.00%	1
	Female	72	36.00%	2
Total		200	100%	
Age	From 18 to 30 years old	44	22.00%	2
	From 31 to 40 years old	60	30.00%	1 Duplicate
	From 41 to 50 years old	60	30.00%	1 Duplicate
	More than 50 years old	36	18.00%	3
Total		200	100%	
Marital Status	**Single**	64	32.00%	2
	Married	136	68.00%	1
Total		200	100%	
Education	**High school**	38	19.00%	2 Duplicate
	Bachelor's Degree	96	48.00%	1
	Master's Degree	38	19.00%	2 Duplicate
	PHD Degree	14	7.00%	3 Duplicate
	Other	14	7.00%	3 Duplicate
Total		200	100%	

Table No. (4) shows that:
- the largest percentage according to gender was in favor of the (male) category, with a percentage of (64.00%), followed by the (female) category with a percentage of (36.00%).

- the largest percentage according to age was in favor of the participation of the two categories (From 31 to 40 years old) and (From 41 to 50 years old), where one percentage amounted to (30.00%), followed by a group (From 18 to 30 years old) with

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

percentages of (22.00%), and the last place in the category (More than 50 years old) with percentages of (18.00%).

- the largest percentage according to social status was in favor of the (married) category (68.00%), followed by the (freshest) category (32.00%).

- the largest percentage according to the educational level was in favor of the (Bachelor's Degree) category (48.00%), followed by the participation of the (High school) and (Master's Degree) categories with the same percentage of (19.00%), and the (PHD Degree) and (Other) categories took the last place with the same percentage of (7.00%).

- **<u>Second: Descriptive analysis of the axes and phrases of the research variables:</u>**

To perform the descriptive analysis of the axes and phrases of the research variables, the estimated sum of the respondents' scores and percentage, as well as the averages, standard deviations, and Chi Square Test values of the respondents' scores were extracted from their point of view, as shown below:

1- Discussing the results of the first question (motivation):
The first question states: "What is the level of motivating tourists towards the use of virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate the incoming tourism movement?

Table (5)
The significance of the differences, frequencies and percentages

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

of the first axis phrases (motivation)

First Axis Phrases (motivating)		strongly agree	somewhat agree	Neutral	somewhat disagree	strongly disagree	Estimated total	percentage	Mean	Std. Deviation	Chi Square Test	Ranking
Experiencing VR seems consistent with real-world experiences	Frc	90	66	28	12	4	826	82.60%	4.13	0.999	135.00*	4
	%	45%	33%	14%	6%	2%						
The hotel commercial using VR makes me feel "being there"	Frc	80	92	18	6	4	838	83.80%	4.19	0.870	181.00*	3
	%	40%	46%	9%	3%	2%						
I feel that I am acting in the hotel, rather than watching something from outside	Frc	74	86	34	0	6	822	82.20%	4.11	0.895	81.28*	5
	%	37%	43%	17%	0%	3%						
I find the virtual reality application useful to watch a hotel Overall and to get an impression about the hotel	Frc	94	86	12	4	4	862	86.20%	4.31	0.835	210.20*	1
	%	47%	43%	6%	2%	2%						
Virtual reality applications are in my opinion very suitable, if you need information about a hotel	Frc	90	88	16	0	6	856	85.60%	4.28	0.895	122.72*	2
	%	45%	44%	8%	0%	3%						
Total results The first axis	Sum Frc	428	418	108	22	24			4.20	0.898	146.04*	
	%	42.8%	41.8%	10.8%	2.2%	2.4%						

N=200

Total score = (n) x (highest estimate scale) = (200) x (5) = 1000

Table No. (5) shows that there are statistically significant differences at the level of significance (0.05), as the calculated Chi Square Test value

ranged between (81.28 to 210.20), which is greater than its tabular value, as shown in front of the phrases motivation, The results also show that there is a discrepancy in the vision of the axis phrases, which were arranged in descending order according to the degree of respondents as follows:

Where the phrase (I find the virtual reality application useful to watch a hotel overall and to get an impression about the hotel) occupied the first place with a percentage of (86.20%) with a mean (4.31), and a standard deviation (0.835), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in second place by the phrase (Virtual reality applications are in my opinion very suitable, if you need information about a hotel) with a percentage of (85.60%) with a mean (4.28), and a standard deviation (0.895), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in third place by the phrase (The hotel commercial using VR makes me feel "being there") with a percentage of (83.80%), with a mean (4.19), and a standard deviation (0.870), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

It is followed in fourth place by the phrase (Experiencing VR seems consistent with real-world experiences) with a percentage of (82.60%), with a mean (4.13), and a standard deviation (0.999), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

Followed by the phrase, in fifth and final place (I feel that I am acting in the hotel, rather than watching something from outside) with a percentage of (82.20%), with a mean (4.11), and a standard deviation (0.895), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

It is also shown from Table No. (5) that the overall result of the first axis

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

of motivation reached the percentage of frequencies Strongly agree (42.80%), the percentage of somewhat agree (41.80%), the percentage of somewhat agree (10.80%), and the percentage of somewhat disagree (2.20%), and the percentage of strongly disagree (2.40%) for the total phrases of the first axi, and that the averages of the total statements of the first axis amounted to (4.20) with a standard deviation (0.898), and that the general trend as a whole for the total phrases of the first axis motivation tends towards Strongly agree from the point of view of Respondents, Because it is between a weighted average (4.20: 5.00).

These findings agree with Mclean *et al.* (2021) who mentioned that because VR can familiarize the unfamiliar places to customers, as it can be used to show an unknown hotel with its facilities to a tourism consumer prior to their visit and also with Pestek *et al.* (2021) who found that because of its potential to induce the highlighted sensory and emotional experience, VR is frequently utilized by marketers in establishing the communication of emotions and experiences influencing consumers and visitors.

2- Discussing the results of the second question (experience):

The second question states: " What is the level of experience using virtual reality technology as a marketing tool within the five-star hotels in Egypt to achieve distinction and creativity to stimulate the incoming tourism movement?"

Table (6)
The significance of the differences, frequencies and percentages

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

of the second axis phrases (experience)

N=200

Second Axis Phrases (experience)		strongly agree	somewhat agree	neutral	somewhat disagree	strongly disagree	Estimated total	percentage	Mean	Std. Deviation	Chi Square Test	Ranking
As for me, I find the experience of using VR is very pleasant and important.	Frc	102	72	20	2	4	866	86.60%	4.33	0.851	200.00*	2
	%	51%	36%	10%	1%	2%						
I am completely captivated by the VR technology.	Frc	124	52	18	0	6	888	88.80%	4.44	0.889	168.80*	1
	%	62%	26%	9%	0%	3%						
The handling of the virtual reality application is easy for me.	Frc	88	70	36	0	6	834	83.40%	4.17	0.930	79.52*	4
	%	44%	35%	18%	0%	3%						
The experience seems more realistic than the hotel I imagined before.	Frc	92	74	26	4	4	846	84.60%	4.23	0.895	166.20*	3
	%	46%	37%	13%	2%	2%						
During the VR experience, the sense of being inVR environment was stronger than being physically elsewhere.	Frc	64	80	32	14	10	774	77.40%	3.87	1.095	95.40*	5
	%	32%	40%	16%	7%	5%						
Total results The Second axis	Sum Frc	470	348	132	20	30			4.21	0.932	141.98*	
	%	47%	34.8%	13.2%	2%	3%						

Total score = (n) x (highest estimate scale) = (200) x (5) = 1000   * significant at (0.05)

Table No. (6) shows that there are statistically significant differences at the level of significance (0.05), as the calculated Chi Square Test value

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

ranged between (79.52 to 200.00), which is greater than its tabular value, as shown in front of the phrases experience, The results also show that there is a discrepancy in the vision of the axis phrases, which were arranged in descending order according to the degree of respondents as follows:

Where the phrase (I am completely captivated by the VR technology) occupied the first place with a percentage of (88.80%) with a mean (4.44), and a standard deviation (0.889), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in second place by the phrase (As for me, I find the experience of using VR is very pleasant and important) with a percentage of (86.60%) with a mean (4.33), and a standard deviation (0.851), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in third place by the phrase (The experience seems more realistic than the hotel I imagined before) with a percentage of (84.60%), with a mean (4.23), and a standard deviation (0.895), and that the general trend within the research sample from their point of view tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in fourth place by the phrase (The handling of the virtual reality application is easy for me) with a percentage of (83.40%), with a mean (4.17), and a standard deviation (0.930), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

Followed by the phrase, in fifth and final place (During the VR experience, the sense of being in VR environment was stronger than being physically elsewhere) with a percentage of (77.40%), with a mean (3.87), and a standard deviation (1.095), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

It is also shown from Table No. (6) that the overall result of the Second axis of experience reached the percentage of frequencies Strongly agree

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

(47%), the percentage of somewhat agree (34.80%), the percentage of somewhat agree (13.20%), and the percentage of somewhat disagree (2.00%), and the percentage of strongly disagree (3.00%) for the total phrases of the Second axis, and that the averages of the total statements of the Second axis amounted to (4.21) with a standard deviation (0.932), and that the general trend as a whole for the total phrases of the Second axis experience tends towards Strongly agree from the point of view of Respondents, Because it is between a weighted average (4.20: 5.00).

The above findings agreed with Israel *et al.* (2019) who highlighted that the function of virtual product presentation is boosting the perceived enjoyment and utility of advertisements in the hotel industry, Li *et al.* (2019) who found that virtual reality can engage customers efficiently with potential destinations which they may not have explored before, Tom Dieck *et al.* (2018) who mentioned that customers can get more confident about what they will receive by experiencing even a small part of the real experience. These findings also agreed with Slevitch, *et al.* (2022) who stated that the major advantage of VR technology in the hotel and tourism industry is its ability to integrate sensory experiences with marketing communication strategies, in particular, in improving and enhancing the process of information-gathering and decision-making for potential guests.

3- Discussing the results of the third question (Response):
The third question states: "What is the level of tourists' response speed towards virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate the incoming tourism movement?".

Table (7)
The significance of the differences, frequencies and percentages

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

of the third axis phrases (Response)

N=200

Third Axis Phrases (Response)		strongly agree	somewhat agree	Neutral	somewhat disagree	strongly disagree	Estimated total	percentage	Mean	Std. Deviation	Chi Square Test	Ranking
If I had virtual reality glasses or headsets, I would recommend them to others who want to get an impression of the hotel	Frc	86	94	16	2	2	860	86.00%	4.30	0.743	212.40*	1
	%	43%	47%	8%	1%	1%						
I will recommend the hotel to my friends and family using its VR technology	Frc	82	96	18	2	2	854	85.40%	4.27	0.748	206.80*	2
	%	41%	48%	9%	1%	1%						
VR experience is a reason why I will revisit this hotel again	Frc	64	106	16	12	2	818	81.80%	4.09	0.851	193.40*	3
	%	32%	53%	8%	6%	1%						
I am willing to pay more for VR experience	Frc	36	51	55	26	32	633	63.30%	3.16	1.313	35.55*	4
	%	18%	25.5%	27.5%	13%	16%						
Total results The Third axis	Sum Frc	268	347	105	42	38			3.96	0.913	162.03*	
	%	33.5%	43.38%	13.12%	5.25%	4.75%						

Total score = (n) x (highest estimate scale) = (200) x (5) = 1000   * significant at (0.05)

Table No. (7) shows that there are statistically significant differences at the level of significance (0.05), as the calculated Chi Square Test value

26

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

ranged between (35.55 to 212.40), which is greater than its tabular value, as shown in front of the phrases Response, the results also show that there is a discrepancy in the vision of the axis phrases, which were arranged in descending order according to the degree of respondents as follows:

Where the phrase (If I had virtual reality glasses or headsets, I would recommend them to others who want to get an impression of the hotel) occupied the first place with a percentage of (86.00%) with a mean (4.30), and a standard deviation (0.743), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in second place by the phrase (I will recommend the hotel to my friends and family using its VR technology) with a percentage of (85.40%) with a mean (4.27), and a standard deviation (0.748), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree) Because it is between a weighted average (4.20: 5.00).

It is followed in third place by the phrase (VR experience is a reason why I will revisit this hotel again) with a percentage of (81.80%), with a mean (4.09), and a standard deviation (0.851), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

Followed by the phrase, in fourth and final place (I am willing to pay more for VR experience) with a percentage of (63.30%), with a mean (3.16), and a standard deviation (1.313), and that the general trend within the research sample from their point of view tends towards (somewhat agree) Because it is between a weighted average (3.40: 4.19).

It is also shown from Table No. (7) that the overall result of the Third axis of Response reached the percentage of frequencies Strongly agree (33.50%), the percentage of somewhat agree (43.38%), the percentage of somewhat agree (13.12%), and the percentage of somewhat disagree (5.25%), and the percentage of strongly disagree (4.75%) for the total phrases of the Third axis, and that the averages of the total statements of the Third axis amounted to (3.96) with a standard deviation (0.913), and that the general trend as a whole for the total phrases of the Third axis

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

Response tends towards Strongly agree from the point of view of Respondents, Because it is between a weighted average (3.40: 4.19).

These findings agreed with Yoon *et al.* (2021) who pointed out that animated content, high-quality pictures and videos, or even 3-D content are efficient marketing tools because they are related to an individual's intention to use VR as well as their willingness to pay for a hotel when VR capabilities are available during the reservation process and also agreed with Mclean *et al.* (2021) who emphasized that during the post-purchase phase of a travel consumer's decision-making journey, the authentic experience provided by VR and the mental imagery elicited by VR positively influences tourism consumers' actual satisfaction with the hotel and then, hotel providers can better manage their customers' expectations of the hotel's appearance by using VR previews (both immersive headset VR previews and 360° VR tour previews) to provide a more realistic representation of the hotel and its facilities.

- **Checking the research hypotheses:**

The first hypothesis states that: "There is a relationship statistically significant at (0.05) between the level of motivation and the level of tourists' response speed towards virtual reality technology within the five-star hotels in Egypt as a marketing tool to activate the incoming tourism movement from the point of view of tourists".

To test the validity of this hypothesis, a simple linear regression method was used, as follows:

Table (8)
The results of simple linear regression analysis of the relationship

───

between the level of motivation and the level of speed of response of tourists towards virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate tourism movement Arrivals from the point of view of tourists

Independent Vriable	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	T Test	P. Value
motivation (X)	1.491	0.953	10.369*	0.000
Regression constant (α)	0.587	--	6.184*	0.000

- R2 = 0.859
- Adjusted R2 = 0.867
- (F) Values = 107.519
- P. Value = 0.000
- Confidence (0.99%)
- Error percentage of the model = 14.10%
- Dependent variable (Y) : response

Table (8) shows the following:
- The value of F was (107.519) in terms of P. value to (0.000), which indicates the significance of the simple linear regression model for the relationship between the two study variables, which indicates the significance of the simple linear regression model for the relationship between the study variables.
- The positive value of the regression coefficient of the independent variable indicates the positive relationship between it and the dependent variable, which indicates that the higher the level of tourists' motivation, the faster their response to using virtual reality technology inside the five-star hotels in Egypt as a

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

marketing tool and thus stimulating the incoming tourism movement.

- The result show that the independent variable explains (85.90%) of the change in the dependent variable, according to what the value of the coefficient of determination R2 indicates.
- The error rate in the model shows that (14.10%) of the variance resulting from measuring the effect of the independent variable on the dependent variable under study is due to other random factors that were not mentioned in the model.

The Second hypothesis states that: "There is a relationship statistically significant at (0.05) between the level of experience and the level of tourists' response speed towards virtual reality technology within the five-star hotels in Egypt as a marketing tool to activate the incoming tourism movement from the point of view of tourists".

To test the validity of this hypothesis, a simple linear regression method was used, as follows:

Table (9)
The results of simple linear regression analysis of the relationship between the level of experience and the level of speed of response of

G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

tourists towards virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate tourism movement Arrivals from the point of view of tourists

Independent Variable	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	T Test	P. Value
experience (X)	1.839	0.868	9.187*	0.000
Regression constant (α)	0.503	--	7.858*	0.000

- R2 = 0.754
- Adjusted R2 = 0.759
- (F) Values = 84.399
- P. Value = 0.000
- Confidence (0.99%)
- Error percentage of the model = 24.60%
- Dependent variable (Y): response

Table (9) shows the following:
- The value of F was (84.399) in terms of P. value to (0.000), which indicates the significance of the simple linear regression model for the relationship between the two study variables, which indicates the significance of the simple linear regression model for the relationship between the study variables.
- The positive value of the regression coefficient of the independent variable indicates the positive relationship between it and the dependent variable, which indicates that the higher the level of experience using virtual reality technology as a marketing tool within the five-star hotels in Egypt, the faster the response of the tourists towards the use of virtual reality technology within the

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

five-star hotels. In Egypt as a marketing tool and thus stimulate the incoming tourism movement

- The result show that the independent variable explains (75.40%) of the change in the dependent variable, according to what the value of the coefficient of determination R2 indicates.
- The error rate in the model shows that (24.60%) of the variance resulting from measuring the effect of the independent variable on the dependent variable under study is due to other random factors that were not mentioned in the model.

The third hypothesis states that "**There are statistically significant differences at (0.05) between the level of motivation and some demographic variables**".

To test this hypothesis, the One-Way-Anova analysis was used to identify the significance of the differences. Several sub-hypotheses fall from this hypothesis, as follows:

1- According to the Gender:

There are statistically significant differences at the level of significance 0.05 between the level of motivation of tourists according to the Gender from the respondents' point of view, as shown in Table (10).

Table (10)

One-way Anova analysis to identify the differences between the level of tourist motivation according to gender

* sig. at 0.05

Model		Sum of Squares	Mean Square	df	F	Sig.
Gender	Between Groups	.101	0.101	1	0.139	0.710
	Within Groups	144.219	0.728	198		
	Total	144.320		199		

Table (10) shows that there are no statistically significant differences between the level of tourists' motivation according to gender, as the calculated "F" values reached (0.139), which is less than its tabular value at the level of significance (0.05), and this explains the absence of a

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S , E. Fahmy. G , F. Wafy. Sh

difference in the respondents' views in terms of the gender (male-female) among themselves about the level of motivation, and accordingly, the hypothesis is rejected.

2- According to the Age:

There are statistically significant differences at the level of significance 0.05 between the level of motivation of tourists according to the Age from the respondents' point of view, as shown in Table (11).

Table (11)
One-way Anova analysis to identify the differences between the level of tourist motivation according to Age

* sig. at 0.05

Model		Sum of Squares	Mean Square	df	F	Sig.
Age	Between Groups	2.546	0.849	3	5.024*	0.026
	Within Groups	93.930	0.479	196		
	Total	96.476		199		

Table (11) shows that there are statistically significant differences between the level of motivation of tourists according to age, where the calculated "F" values reached to (5.024), which is greater than its tabular value at the level of significance (0.05), and this explains the existence of a difference in the respondents' views in terms of age in terms of age. Among them about the level of motivation, and accordingly accepting the hypothesis, and in order to find out which age group the differences and differences were in its favor, the Scheffe Test was used for dimensional comparisons, as shown in Table (12)

Table (12)
Schiff's test for post-comparison according to the age of the tourists

Age	Frequency	Mean	Std.	Mean	Std.	Sig

Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

			Deviation	Difference	Error	
From 18 to 30 years old	44	4.08	1.025	0.157*	0.122	0.121
From 31 to 40 years old	60	4.12	0.590	0.184*	0.137	0.014
From 41 to 50 years old	60	4.26	0.585	0.268*	0.145	0.237
More than 50 years old	36	4.38	0.475	0.307*	0.155	0.276

Table (12) shows that the reason for causing the dimensional differences with regard to the level of motivation of tourists according to age was in favor of the category (More than 50 years old), where its mean was (4.38), followed by the category (From 41 to 50 years old) where its average was (4.26), followed by the category (From 31 to 40 years old), where its average was (4.12), followed by the category (From 18 to 30 years old) where its average was (4.08), and this indicates that the level of Motivating tourists to use virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate the movement of incoming tourism, which increases as age increases and decreases as age decreases.

3- According to the Marital Status:

There are statistically significant differences at the level of significance 0.05 between the level of motivation of tourists according to the Marital Status from the respondents' point of view, as shown in Table (13).

Table (13)
One-way Anova analysis to identify the differences between the level of tourist motivation according to Marital Status
* sig. at 0.05

Model		Sum of Squares	Mean Square	df	F	Sig.
Marital Status	Between Groups	2.182	2.182	2	4.581*	0.034
	Within Groups	94.295	0.476	197		
	Total	96.477		199		

Table (13) shows that there are statistically significant differences between the level of motivation of tourists according to Marital Status, where the calculated "F" values reached to (4.581), which is greater than its tabular value at the level of significance (0.05), and this explains the existence of a difference in the respondents' views in terms of Marital Status. Among them about the level of motivation, and accordingly accepting the hypothesis, and in order to find out which Marital Status the differences were in its favor, the Scheffe Test was used for dimensional comparisons, as shown in Table (14)

Table (14)
Schiff's test for post-comparison according to the Marital Status of the tourists

Marital Status	Frequency	Mean	Std. Deviation	Mean Difference	Std. Error	Sig.
Single	64	4.35	0.666	2.357*	0.028	0.000
Married	136	4.13	0.701	1.212*	0.054	0.000

Table (14) shows that the reason for creating the dimensional differences with regard to the level of motivation of tourists according to marital status was in favor of the (single) category, where its mean was (4.35), followed by the category (married), where its average was (4.13) and this It indicates that the level of motivating tourists towards the use of virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate the incoming tourism movement increases for singles more than married people

4- According to the Education:

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

There are statistically significant differences at the level of significance 0.05 between the level of motivation of tourists according to the Education from the respondents' point of view, as shown in Table (15).

Table (15)

One-way Anova analysis to identify the differences between the level of tourist motivation according to Education

* sig. at 0.05

	Model	Sum of Squares	Mean Square	df	F	Sig.
Education	**Between Groups**	6.949	1.737	4	3.784*	0.005
	Within Groups	89.528	0.459	195		
	Total	96.477		199		

Table (15) shows that there are statistically significant differences between the level of motivation of tourists according to the educational level, where the calculated "F" values reached to (3.784), which is greater than its tabular value at the level of significance (0.05), and this explains the existence of a difference in the respondents' views in terms of the level The educational level among them about the level of motivation, and accordingly accepting the hypothesis, and to find out which of the educational categories the differences and differences were in their favor, the Scheffe Test was used for dimensional comparisons, as shown in Table (16)

Table (16)

Schiff's test for post-comparison according to the Education of the tourists

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

Education	Frequency	Mean	Std. Deviation	Mean Difference	Std. Error	Sig.
High school	38	4.54	0.376	0.489*	0.129	0.008
Bachelor's Degree	96	4.05	0.717	0.274*	0.024	0.095
Master's Degree	38	4.17	0.859	0.368*	0.155	0.015
PHD Degree	14	4.17	0.669	0.375*	0.211	0.234
Other	14	4.37	0.406	0.421*	0.054	0.210

Table (16) shows that the reason for creating the dimensional differences regarding the level of motivation of tourists according to the educational level was in favor of the (High School) category, where its average reached (4.54), followed by the (Other) category, where its average was (4.37) , followed by the participation of the two categories (Master's Degree) (Ph D Degree) with a single average, which amounted to (4.17), followed by the category (Bachelor's Degree) where its average amounted to (4.05), and this indicates that the level of motivating tourists towards using virtual reality technology inside hotels Five stars in Egypt as a marketing tool to stimulate the incoming tourism movement attracts categories of low educational level, especially those with secondary education from high educational level, those with master's, doctorate and bachelor's degrees.

Conclusions
In light of the objectives and hypotheses of the research, within the limits of the research sample, its characteristics and the method used, and depending on the results of the statistical analysis used, the following conclusions were reached:

▪ **The results of the first axis: motivation:**
Results showed that there are statistically significant differences at the level of significance (0.05), as the calculated Chi Square Test value

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

ranged between (81.28 to 210.20), which is greater than its tabular value, as shown in front of the phrases motivation, The results also show that there is a discrepancy in the vision of the axis phrases, which were arranged in descending order according to the degree of respondents as follows:

1. The phrase Which took first place (I find the virtual reality application useful to watch a hotel overall and to get an impression about the hotel) with a percentage of (86.20%) with a mean (4.31), and a standard deviation (0.835), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree).

2. The phrase Which took second place (Virtual reality applications are in my opinion very suitable, if you need information about a hotel) with a percentage of (85.60%) with a mean (4.28), and a standard deviation (0.895), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree).

3. The phrase Which took third place (The hotel commercial using VR makes me feel "being there") with a percentage of (83.80%), with a mean (4.19), and a standard deviation (0.870), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

4. The phrase Which took fourth place (Experiencing VR seems consistent with real-world experiences) with a percentage of (82.60%), with a mean (4.13), and a standard deviation (0.999), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

5. The phrase Which took fifth and final place (I feel that I am acting in the hotel, rather than watching something from outside) with a percentage of (82.20%), with a mean (4.11), and a standard deviation (0.895), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

6. The overall result of the first axis of motivation reached the percentage of frequencies Strongly agree (42.80%), the percentage

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

of somewhat agree (41.80%), the percentage of somewhat agree (10.80%), and the percentage of somewhat disagree (2.20%), and the percentage of strongly disagree (2.40%).

For the total phrases of the first axis, and that the averages of the total statements of the first axis amounted to (4.20) with a standard deviation (0.898), and that the general trend as a whole for the total phrases of the first axis motivation tends towards Strongly agree from the point of view of Respondents.

- ▪ **The results of the Second axis: experience:**

Results showed that there are statistically significant differences at the level of significance (0.05), as the calculated Chi Square Test value ranged between (79.52 to 200.00), which is greater than its tabular value, as shown in front of the phrases experience, The results also show that there is a discrepancy in the vision of the axis phrases, which were arranged in descending order according to the degree of respondents as follows:

7. The phrase Which took first place (I am completely captivated by the VR technology) with a percentage of (88.80%) with a mean (4.44), and a standard deviation (0.889), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree).

8. The phrase Which took second place (As for me, I find the experience of using VR is very pleasant and important) with a percentage of (86.60%) with a mean (4.33), and a standard deviation (0.851), and that the general trend within the research sample. From their point of view, it tends towards (Strongly agree).

9. The phrase Which took third place (The experience seems more realistic than the hotel I imagined before) with a percentage of (84.60%), with a mean (4.23), and a standard deviation (0.895), and that the general trend within the research sample from their point of view tends towards (Strongly agree).

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

10. The phrase Which took fourth place (The handling of the virtual reality application is easy for me) with a percentage of (83.40%), with a mean (4.17), and a standard deviation (0.930), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

11. The phrase Which took fifth and final place (During the VR experience, the sense of being in VR environment was stronger than being physically elsewhere) with a percentage of (77.40%), with a mean (3.87), and a standard deviation (1.095), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

12. the overall result of the Second axis of experience reached the percentage of frequencies Strongly agree (47%), the percentage of somewhat agree (34.80%), the percentage of somewhat agree (13.20%), and the percentage of somewhat disagree (2.00%), and the percentage of strongly disagree (3.00%) for the total phrases of the Second axis, and that the averages of the total statements of the Second axis amounted to (4.21) with a standard deviation (0.932), and that the general trend as a whole for the total phrases of the Second axis experience tends towards Strongly agree from the point of view of Respondents.

▪ **The results of the third axis: response:**

Results showed that there are statistically significant differences at the level of significance (0.05), as the calculated Chi Square Test value ranged between (35.55 to 212.40), which is greater than its tabular value, as shown in front of the phrases Response, the results also show that there is a discrepancy in the vision of the axis phrases, which were arranged in descending order according to the degree of respondents as follows:

13. The phrase Which took first place (If I had virtual reality glasses or headsets, I would recommend them to others who want to get an impression of the hotel) with a percentage of (86.00%) with a mean (4.30), and a standard deviation (0.743), and that the general trend within the research sample from their point of view it tends towards (Strongly agree).

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

14. The phrase Which took second place (I will recommend the hotel to my friends and family using its VR technology) with a percentage of (85.40%) with a mean (4.27), and a standard deviation (0.748), and that the general trend within the research sample from their point of view it tends towards (Strongly agree).

15. The phrase Which took third place (VR experience is a reason why I will revisit this hotel again) with a percentage of (81.80%), with a mean (4.09), and a standard deviation (0.851), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

16. The phrase Which took fourth and final place (I am willing to pay more for VR experience) with a percentage of (63.30%), with a mean (3.16), and a standard deviation (1.313), and that the general trend within the research sample from their point of view tends towards (somewhat agree).

17. The overall result of the Third axis of Response reached the percentage of frequencies Strongly agree (33.50%), the percentage of somewhat agree (43.38%), the percentage of somewhat agree (13.12%), and the percentage of somewhat disagree (5.25%), and the percentage of strongly disagree (4.75%) for the total phrases of the Third axis, and that the averages of the total statements of the Third axis amounted to (3.96) with a standard deviation (0.913), and that the general trend as a whole for the total phrases of the Third axis Response tends towards Strongly agree from the point of view of Respondents.

▪ **The results of the research hypotheses showed:**

1- There is a direct statistically significant relationship on a significant level (0.05) between the level of motivation and the level of response speed of tourists, which indicates that the higher the level of tourists' motivation, the faster their response to using virtual reality technology inside the five-star hotels in Egypt as a marketing tool and thus stimulating the movement Inbound tourism.

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

2- There is a direct statistically significant relationship on a significant level (0.05) between the level of experience and the speed of response of tourists, which indicates that the higher the level of experience of using virtual reality technology as a marketing tool within the five-star hotels in Egypt, the greater the speed of the response of tourists towards the use of virtual reality technology Virtual reality within the five-star hotels in Egypt as a marketing tool and thus stimulating the incoming tourism movement

3- The results showed that there were no statistically significant differences between the level of motivation according to gender, as the calculated "F" values amounted to (0.139), which is less than its tabular value at the level of significance (0.05), and this explains the absence of a difference in the respondents' views in terms of gender (male - female) among themselves about the level of motivation.

4- The results showed that there were statistically significant differences between the level of tourists' motivation according to age, where the calculated "F" values amounted to (5.024), which is greater than its tabular value at the level of significance (0.05), and this explains the existence of a difference in the respondents' views in terms of age among them about level of motivation, and accordingly accept the hypothesis, and that the reason for causing the dimensional differences with regard to the level of motivation of tourists according to age, It was in favor of the category (More than 50 years old), where its arithmetic average was (4.38), followed by the category (From 41 to 50 years old), where it reached (4.26), followed by the category (From 31 to 40 years old), where its arithmetic average (4.12), followed by the category (From 18 to 30 years old), with an arithmetic average of (4.08), and this indicates that the level of motivating tourists towards using virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate the incoming tourism

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

movement increases as the age increases and decreases The younger the age.

5- The results showed that there were statistically significant differences between the level of motivation of tourists according to the social status, where the calculated "F" values amounted to (4.581), which is greater than its tabular value at the level of significance (0.05), and this explains the difference in the respondents' views in terms of social status regarding Among them about the level of motivation, and accordingly accept the hypothesis, and that the reason for creating the dimensional differences with regard to the level of motivation of tourists according to social status was in favor of the (single) category, where its arithmetic mean was (4.35), followed by the category (married), where its arithmetic average was (4.13) This indicates that the level of motivating tourists towards the use of virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate incoming tourism movement increases for singles more than married people.

The results showed that there were statistically significant differences between the level of motivation of tourists according to the educational level, where the calculated "F" values amounted to (3.784), which is greater than its tabular value at the level of significance (0.05), and this explains the difference in the respondents' views in terms of the educational level regarding the level of education. between them about the level of motivation, and accordingly accept the hypothesis, and that the reason for causing the dimensional differences regarding the level of motivation of tourists according to the educational level, It was in favor of the (High School) category, where its arithmetic average reached (4.54), followed by the (Other) category, where it reached (4.37), followed by the participation of the two categories (Master's Degree) (PHD Degree) with a single arithmetic average of (4.17), followed by Bachelor's Degree, where its mean was (4.05), and this indicates that the level of motivating tourists towards using virtual reality technology within the five-star hotels in Egypt as a marketing tool to stimulate the incoming tourism movement

attracts the categories of low educational level, especially those with secondary education about the high educational level Master's, Doctorate and Bachelor's degree holders.

Recommendations

Based on the results that the researcher reached through conducting this research, the researcher recommends the following:

- Expanding the use of virtual reality technologies in the marketing departments in five-star hotels in Egypt, by providing the necessary devices to implement virtual reality technology.
- Promoting the use of virtual reality technology as an effective marketing tool, which allows guests to navigate through advanced technological tools and experience the atmosphere in places and tourist attractions.
- Establishing many agreements between companies, hotels and the government to apply virtual reality technologies in the correct manner, with a clear strategy and approach to be used in hotels.
- Designing and creating 3D applications for virtual tourist itineraries as well as Egyptian hotels.
- Determining the content that the five-star hotels will display by Tourism Promotion Authority and Ministry of Tourism and Antiquities, in order to attract guests and targeted audience to visit the hotels and motivate them to purchase tourism programs to visit these places.
- updating the content offered by the hotel (enhancing the value of the content) as well as improving the features and options of virtual applications.
- Providing effective training programs for the employees in hotels on this technology.
- Stimulating hotels to adopt virtual tourism as a strategic option for introducing the tourism product.

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
G. Saad. S   ,   E. Fahmy. G   ,   F. Wafy. Sh

- Diversifying the means of tourism marketing programs represented by using hologram technology as a means of promoting tourism and hotel products from the perspective of global tourism.

References

Adamson, A. (2015). Virtual reality: Not right for all marketers, but brilliant for Marriott. *Forbes*. https://www.forbes.com/sites/allenadamson/2015/11/17/virtual-reality-not-right-for-all-marketers-but-brilliant-for-marriott/#588fece7683a.

Alister, E. (2017). *Why the hotel industry is embracing virtual reality*. https://www.hoteliermagazine.com/hotel-industry-embracing-virtual-reality/.

Aziz, A., & Zainol, N.A. (2011). Destination image: an overview and summary of selected research (1974-2008)", *International Journal of Leisure and Tourism Marketing*. 2 (1), pp. 39-55.

Berger, H., Dittenbach, M., Merkl, D., Bogdanovych, A., Simoff, S., & Sierra, C. (2007). Opening new dimensions for e-tourism, *Journal of the Virtual Reality Society*. 11(2), pp. 75-87. https://doi.org/10.1007/s10055-006-0057-z.

Brakus, J., Schmitt, B., & Zarantonello, L. (2009). Brand experience: What is it? How is it measured? Does it affect loyalty? *Journal of Marketing*, 73(3), pp. 52-68. https://doi.org/10.1509/jmkg.73.3.52.

Choi, Y. K., & Taylor, C. R. (2014). How do 3-dimensional images promote products on the internet? *Journal of Business Research*, 67(10), pp. 2164-2170. https://doi.org/10.1016/j.jbusres.2014.04.026.

De Gauquier, L., Brengman, M., Willems, K., & Van Kerrebroeck, H. (2018). Leveraging advertising to a higher dimension: Experimental research on the impact of virtual reality on brand personality impressions. *Virtual Reality*, 23 (2), 235-253.

Gibson, A., & O'Rawe, M. (2017). *Augmented reality and virtual reality: Empowering human, place and business*. In T. Jung & M. C. Tom Dieck (Eds.).

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

Giordimaina, J. G. (2008). Multi-sensory marketing and its application in tourism. *Journal of the Institute of Tourism Studies*, 2(1), pp. 42-45.

Glenday, J. (2017). Scotland transposed to VR in effort to lure tech-savvy visitors. http://www.thedrum.com/news/2017/03/07/scotland-transposed-vr-effort-luretech-savvy-visitors.

Griffin, T., Giberson, J., Lee, S.H., Guttentag, D., Kandaurova, M., Sergueeva, K., & Dimanche, F. (2017), "Virtual reality and implications for destination marketing", *Travel and Tourism Research Association: Advancing Tourism Research Globally*, Vol. 29.

Guttentag, D. (2010). Virtual reality: Applications and implications for tourism. *Tourism Management*, 31(5), pp. 637-651.

Han, H., Baek, H., Lee, K., & Huh, B. (2014). Perceived benefits, attitude, image, desire, and intention in virtual golf leisure. *Journal of Hospitality Marketing & Management*, 23(5), pp. 465-486.

Huang, Y., Backman, K., Backman, S., & Chang, L. (2016). Exploring the implications of virtual reality technology in tourism marketing: An integrated research framework. *International Journal of Tourism Research,* 18 (2), pp. 116-128.

Huang, Y.C., Backman, S.J., Backman, K.F., & Moore, D. (2013), "Exploring user acceptance of 3D virtual worlds in travel and tourism marketing". *Tourism Management,* 36 (3), pp. 490-501.

Hwang, J., Yoon, S. Y., & Bendle, L. J. (2012). Desired privacy and the impact of crowding on customer emotions and approach-avoidance responses: Waiting in a virtual reality restaurant. *International Journal of Contemporary Hospitality Management*, 24(2), pp. 224-250. https://doi.org/10.1108/09596111211206150.

Israel, K., Zerres, C., & Tscheulin, D.K. (2019). Presenting hotels in virtual reality: does it influence the booking intention. *Journal of Hospitality and Tourism Technology,* 10 (3), pp. 443-463.

Jung, T., Chung, N., & Leue, M. (2015). The determinants of recommendations to use

augmented reality technologies: the case of a Korean theme park. *Tourism Management,* 49 (1), pp. 75-86.

Kim, S., Miao, L., & Magnini, V. (2016). Consumers' emotional

responses and emotion regulation strategies during multistage waiting in restaurants. *Journal of Hospitality and Tourism Research,* 40 (3), pp. 291-318.

Lau, K., & Lee, P. (2016). The role of stereoscopic 3D virtual reality in fashion advertising and consumer learning. *Advances of Advertising Research*, *6*(1), pp. 75-83. https://doi.org/10.1007/978-3-658-10558-7_7.

Leung, X.Y., Lyu, J., & Bai, B. (2019). A fad or the future? Examining the effectiveness of virtual reality advertising in the hotel industry. *International Journal of Hospitality Management,* 88 (1), pp. 10-23.

Levere, J. (2017). Before you take the trip: How about a virtual "Test Drive"? *The New York Times*. https://www.nytimes.com/2017/02/12/business/media/travel-virtual-reality.html.

Li, T., & Chen, Y. (2019). Will virtual reality be a double-edged sword? Exploring the moderation effects of the expected enjoyment of a destination on travel intention. *Journal of Destination Marketing and Management,* 12 (1), pp. 15-26.

Lyu, J., Leung, X., Bai, B., & Stafford, M. (2021). Hotel virtual reality advertising: a
presence-mediated model and gender effects. *Journal of Hospitality and Tourism Research,* 12 (3), pp. 409-422.

Mclean, G., & Barhorst, J. (2021). Living the Experience Before You Go ...but Did It Meet Expectations? The Role of Virtual Reality during Hotel Bookings. *Journal of Travel Research*, 1 (1), pp. 1-19.

Nayyar, A., Mahapatra, B., Le, D., & Suseendran, G. (2018). Virtual Reality (VR) & Augmented Reality (AR) technologies for tourism and hospitality industry. I*nternational Journal of Engineering & Technology,* 7 (2), pp. 156-160.

Neuburger, L., Beck, J., & Egger, R. (2018), *Tourism Planning and Destination Marketing,* Emerald Publishing Limited.

Pestek, A., & Sarvan, M. (2021). Virtual reality and modern tourism. *Journal of Tourism Futures.* 7 (2), pp. 245-250.

Sanchez-Vives, M. V., & Slater, M. (2005). From presence to consciousness through virtual reality. *National Review of neuroscience,*

Faculty of Tourism and Hotel Management
IAJFTH

Volume 8, Issue 2, 2022
Investigating the Usage of Virtual Reality Technology as a Marketing Tool in Five Star Hotels

6(4), pp. 323-339. https://doi.org/10.1038/nrn1651.

Slevitch, L., Chandrasekera, T., & Sealy, M. (2022). Comparison of virtual reality visualizations with traditional visualizations in hotel settings. *Journal of Hospitality & Tourism Research,* 46 (1), pp.212–237. DOI:10.1177/1096348020957067.

Soranzo, A., & Wilson, C. J. (2014). *Virtual environments in visual perception: Applications and challenges.* In P. Cipresso& S. Serino (Eds.),

Tom Dieck, D., Tom Dieck, M., Jung, T., & Moorhouse, N. (2018). Tourists' virtual reality adoption: an exploratory study from lake district national park. *Leisure Studies,* 37 (4), pp. 371-383.

Van Kerrebroeck, H., Brengman, M., & Willems, K. (2017). Escaping the crowd: An experimental study on the impact of a virtual reality experience in a shopping mall. *Computers in Human Behavior*, 77 (3), pp. 437-450. https://doi.org/10.1016/j.chb.2017.07.019.

Witell, L., Snyder, H., Gustafsson, A., Fombelle, P., & Kristensson, P. (2016), Defining service innovation: a review and synthesis. *Journal of Business Research,* 69 (8), pp. 2863-2872.

Wu, D., Weng, D., & Xue, S. (2016). Virtual reality system as an affective medium to induce specific emotion: a validation study. *Electronic Imaging,* 1(4), pp. 1-6.