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THE ROLE OF ARTIFICIAL INTELLIGENCE IN IMPROVING SERVICE AND STRENGTHENING TOURIST EXPERIENCE IN EGYPT

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Abstract:

الذكاء الاصطناعي هو أحدث اتجاه في التكنولوجيا فى الاونة الاخير وقد حظي باهتمام كبير ، لا سيما في صناعة السياحة والضيافة. يعزز الذكاء الاصطناعي الخدمات السياحية ويعمل كبعد مكمل فعال لمستقبل السياحة. ظهور الذكاء الاصطناعي جعل ترتيبات السفر أسهل من ذي قبل ، حيث يساعد السائحين على اتخاذ سلسلة من القرارات بشأن رحلاتهم المستقبلية ، على سبيل المثال ، اختيار المقصد السياحى ، وسائل النقل ، والإقامة ، وغيرها من الانشطة الاخرى ، سيكون لهذه القرارات تأثير كبير على التجربة السياحية. علاوة على ذلك ، يتيح الذكاء الاصطناعي للمسافرين التعرف على سلوكياتهم واهتماماتهم وميولهم فقد ولت ايام مقابلة وكيل السفر واستشارته بشكل شخصى، والاستماع الى سلسلة لا نهاية لها من المكالمات الهاتفية المزعجة للاستعلام عن ترتيبات السفر . وبناءً على ذلك ، الذكاء الاصطناعي هو مكمل رئيسي لوكيل السفر وليس عائقًا.

يلعب الذكاء الاصطناعي أيضًا دورًا متزايد الأهمية في صناعة الضيافة نظرًا لقدرته على أداء الوظائف البشرية التقليدية بدقة شديدة في أي وقت على مداراليوم ، مما يؤدي إلى توفير الوقت والمال ، والقضاء على الخطأ البشري ، وتقديم خدمة متفوقة. وعليه تعتمد هذه الدراسة على المنهج الكمي من خلال توزيع الاستبيانات للحصول على معلومات ثرية ومفصلة حول تصورات المسافرين ومواقفهم تجاه الذكاء الاصطناعي ، هذا الى جانب التعرف على دور الذكاء الاصطناعي في تحسين الخدمة وتعزيز التجربة السياحية خلال ثلاث مراحل هي: ماقبل الزيارة ، واثناء الزيارة ، وبعد الزيارة.

Abstract

Artificial intelligence is the most recent trend in technology and has received considerable attention, especially in the tourism and hospitality industry. AI enhances tourism services and acts as an effective complementary dimension to the future of tourism. The emergence of artificial intelligence makes travel arrangements easier than before, as helps tourists to make a series of decisions about their future trips, for example, choosing a destination, transport, accommodation, and other activities. These decisions will have a significant impact on the tourist experience. Moreover, AI allows travelers to learn about their behaviors, interests to inclinations. Gone are the days to consult a travel agent, meet him physically, and indulge in an endless chain of troubling phone calls to inquire about travel arrangements. Hence, Artificial intelligence is a major complement to a travel agent and not a hindrance.

Artificial intelligence also plays an increasingly important role in the hospitality industry because of its ability to carry out traditionally human functions very precisely at any time of the day, which leads to saving significant money, saving time, eliminating human error, and delivering superior service. Accordingly, this study depends on the quantitative approach through distributing questionnaires to obtain rich and detailed information about the respondents' perceptions and attitudes toward Artificial intelligence, as well as identifying the role of artificial intelligence in

improving service and strengthening the tourist experience during three phases are pre-visit, visit, and post-visit.

Key words: Artificial intelligence, Service improvement, Tourist experience

1- Introduction

Artificial Intelligence technology is one of the most innovative inventions that has revolutionized various sectors all around the globe (Samala et al, 2020). The most important characteristics that differentiate intelligent systems are their ability to understand the situation, acquire and retain knowledge and conclude based on previous experiences, thus the ability to respond quickly and successfully to any situation (Rudas and Fodor, 2008). Hence, Artificial Intelligence (AI) can be referred to as "the development of computer systems that can perform tasks and activities which require human intelligence" (Russell and Norvig, 2016, p. 4).

Artificial intelligence has received considerable attention, especially in the tourism and hospitality industry. AI enhances tourism services and acts as an effective complementary dimension to the future of tourism. The emergence of artificial intelligence makes travel arrangements easier than before, as helps tourists to make a series of decisions about their future trips, for example, choosing a destination, transport, accommodation, and other activities (Samala et al, 2020).

Artificial intelligence also plays an increasingly important role in the hospitality industry because of its ability to carry out traditionally human functions very precisely at any time of the day, which leads to saving significant money, saving time, eliminating human error, and delivering superior service (Samala et al., 2020).

It must be noted that there has been an increase in the number of scientific research published on the subject in the last two years. This research aims to continue the discussion on the topic and offers some of the current applications of artificial intelligence in the tourism sector. This research also seeks to examine the role of artificial intelligence in improving service and strengthening the tourist experience during three phases pre-visit, visit, and post-visit.

2- Literature review

This research focuses on the role of artificial intelligence during three phases of the travel cycle (Pre-visit, visit, and Post-visit). **Firstly**, **Pre-visit phase**, there are two main operations are carried out by the potential tourist - gathering information, comparing services, amenities, price, and booking. **Secondly, Visit phase**, in this stage, innovative technologies such as robots, digital kiosks, and augmented reality open up big opportunities to improve services, ensure a consistent level of quality and enhance the tourist experience. **Thirdly, Post-visit phase,** Artificial intelligence offers also a great opportunity to analyze all data and reviews from different channels - bookings,

transactions, satisfaction surveys, and so on. Hence, could use this information to enhance the tourist experience during the three stages of travel. In addition, this research mainly focuses on five types of artificial intelligence (Chatbots, Robots, Digital Kiosks, Virtual Reality and Augmented Reality) and their role during the three travel phases. Consequently, the following part will present the role of the five types of AI during the three travel stages.

2.1. Pre-visit Stage

In the pre-visit stage, there are two main processes are performed by the potential tourist - gathering information and reservation (Lukanova, 2017). Firstly, the potential tourist searches for information about the tourist destination, and accommodation options in this destination. Potential tourist also checks out different types of hotel and compares prices and services. Hence, the potential tourist decides on a particular destination and, chooses a particular hotel and makes a reservation (Adukaite et al., 2013; Wang and Fesenmaier, 2013; Dickinson et al., 2014; Martínez and Montenegro, 2015). The most important examples of modern technologies that a tourist uses at this stage are Chatbot and Virtual Reality.

- **Chatbot**

Chatbots are a type of artificial intelligence that plays a very significant role in the tourism industry. The term "chatbot" is derived from the words "chat" and "robot". Chatbots are basically computer programs that imitate a human conversation through the use of voice methods or

natural language text (Wang and Petrina, 2013; Oh et al., 2017).

Chatbots are used in travel agencies for travel planning, customer support, and providing recommendations and suggestions to the customer regarding travel issues (Ukpabi et al., 2019). Chatbots provide support 24/7 to customers regarding transportation, hotel reservations, and other travel packages according to customers' preferences in real-time (Bowen and Morosan, 2018; Sheehan, 2018; Boiano et al., 2019).

The main advantage of chatbots is that they can handle thousands of reservations and inquiries simultaneously. Through chatbots, travel agents and hoteliers can communicate with the customer at a very early stage in the process - in the dreaming stage (Lukanova, and Ilieva, 2019).

With regard to Chatbots in the Airline Industry, a customer service bot helps customers to find suitable flight options by gathering information such as date, time, tourist destination, and other preferences. It can help in flight booking, saving customers the trouble of visiting the airline's website and entering page after page of information. It can also provide status updates about flights, such as information about cancellations or delays (Agostinho, 2016).

In hotels, Chatbots can be particularly useful in enriching the pre-visit experience, allowing users to book rooms and other amenities, like airport transfers, spa treatments, and

dinner reservations (Ukpabi et al., 2018; Gajdosık and Marcisˇ, 2019).

- **Virtual reality**

Virtual reality (VR) is a modern technology that creates a non-physical reality through information and communication systems (Gutiérrez et al., 2008, Guttentag, 2010; McNeal and Newyear, 2013). This technology is used by travel agencies to display tourist sights and hotel locations by using 3D videos (Barnes, 2016; Yung and Khoo-Lattimore, 2019). Virtual reality technologies are perfect gateways to travel & explore the unseen locations beforehand (Jung et al., 2016; Jung et al., 2017). Moreover, potential customers can see every room in the selected hotel, the lobby, and all amenities long before they arrive at the hotel through VR technology. VR enhances the tourist experience by providing the opportunity not only to "look before you book" but to experience hotels, attractions and, tourist destinations before making a reservation (Kim and Hardin, 2010; Lukanova, and Ilieva, 2019).

2.2. Visit Stage

The application of new technologies like artificial intelligence leads to unprecedented changes in the way customer needs are met, which opens up big opportunities to improve services, increase productivity and ensure a consistent level of quality (Ivanov et al., 2017). In this stage, innovative technologies such as Robots, Digital Kiosks, Chatbots and Augmented Reality have been applied

to improve services and enhance the tourist experience
(Kasavana, 2008; Beatson, 2010.)

■ **Robots**

Nowadays, there are many applications of robots in hotels,
travel agencies, and airports. Firstly, robots in the hotel
assist the guest by directing them to their rooms, carrying
their luggage, serving food and snacks, and maintaining
housekeeping services (Ivanov and Webster, 2019).
Secondly, Robotic Assistance Devices (RADs) are
currently being trialed in travel agencies (e.g. AMADEUS'
Pepper) to assist customers to select tourist destinations and
respond to all inquiries regarding their trips. Moreover,
robots at Airports (such as KLM's Spencer and SITA's
Leo), these robots interact with and entertain travelers by
physically assisting them (such as transporting and
checking-in luggage, guiding them to departure gates)
(Alexis, 2017). Robots are mostly used to answer inquiries
by using voice, gestures, and an interactive touch screen
(Sharma, 2016). They also play games, dance, and pose for
selfies (Lukanova, and Ilieva, 2019). Consequently, Robots
enhance the tourist experience and improve the services.

■ **Digital kiosks**

Digital kiosks are a new approach that could be a successful
addition to every hotel (Makarem, et al., 2009; Lui and
Piccoli, 2010). Through the application of digital kiosks,
hotels give guests the opportunity to register themselves,
eliminating waiting time at the front office. For the check-
in process, guests can choose from several languages,
review check-in policies, fill in the required information,

and fingerprint confirmation. Once the check-in procedures have been completed, the digital kiosk issues a guest keycard immediately (Lukanova and Ilieva, 2019). Furthermore, there are digital kiosks at the airport where travelers can also check-in in the airport, long before they reach the hotel (Lukanova and Ilieva, 2019). Eventually, Digital kiosks used in the tourism and hospitality industry improve service and enhance the tourist experience by increasing guests' control over the arrival and departure process and decreasing waiting times at the reception, thus increasing choice opportunities and convenience for guests (Lukanova and Ilieva, 2019).

- **Chatbots**

Every hotel wants to provide a great experience to its guests. therefore, chatbots play a pivotal role in providing information about the hotel facilities to guests such as ordering food services, scheduling the tasks and appointments, setting up alarms, room services, housekeeping services, etc. (Gajdosık and Marcis, 2019). Another type of Chatbot is Chatbot concierge, this technology works with messaging systems. Chatbots are multilingual apps available 24/7 (Boiano et al., 2019). At the same time, these contribute to reducing the workload of staff. One of the main advantages of the chatbot is that it helps to improve the guest experience through quick access to information without wasting time by calling employees and waiting for their answers (Nagaraj and Singh, 2018).

- **Augmented reality**

Augmented reality is a mixture of real-life and virtual reality. AR technology is characterized by a real simulation of computer-generated visuals in which the user can experience reality in a virtually created environment (Kounavis et al., 2012). Augmented reality has the potential to improve the tourist experience and help tourists to access relevant information, thus improving their knowledge regarding their tourist destination, while increasing the level of user entertainment (Fritz et al., 2005). Moreover, tourists can see information about the tourist attractions and local places which will make their stay more enjoyable. Also, guests can use AR games to improve the experience of staying children and guests at the hotel (Ozkul and Kumlu, 2019).

2.3. Post-Visit Stage

Today, new technologies give customers the opportunity to share their opinion and feedback about their tourist experience (Neuhofer, and Buhalis, 2012). Moreover, Artificial intelligence also provides a great opportunity to analyze all data and reviews from different channels - bookings, transactions, satisfaction surveys, and so on (Lukanova and Ilieva, 2019). Hence, could use this information to enhance the tourist experience during the three stages of travel. Additionally, by collecting and gathering data, AI can help tourism organizations anticipate customer needs, pricing strategies, preferred destination packages, etc (Neuhofer, 2015; Buonincontri and Micera, 2016; Yachin, 2018; Lukanova and Ilieva, 2019).

- **Digital kiosks**

The Digital kiosks allow guests to checkout instantly. These kiosks are located in the hotel lobby and are available at any time. Guests can check out by entering their room number and credit card on the digital screen. Thus, guests can access and review their papers, and settle their accounts (Lukanova and Ilieva, 2019). At the end of the trip, Digital kiosks, located in a hotel lobby or other tourist attraction, provide a platform where visitors can respond to surveys and leave feedback before they leave to ensure that their visitors are having positive experiences (Lukanova and Ilieva, 2019).
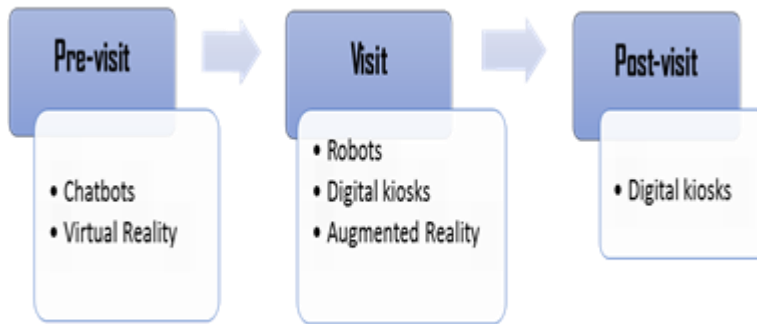
Figure (1): Role artificial intelligence during three phases of travel cycle
Source: Prepared by the researchers

Figure (1) illustrates the role of artificial intelligence during the three travel phases. There are two types of artificial intelligence mainly used in the pre-visit phase. Firstly, chatbots are used in gathering information and comparing services, amenities, prices, and bookings. Secondly, VR enhances the tourist experience by giving the opportunity not just to "look before they book" but to experience a room, suite, or destination before making a decision for booking. In the second stage, innovative technologies such as robots, digital kiosks, chatbots, and augmented reality have been applied to improve services and enhance the tourist experience. Finally, Post-visit stage, the self-service kiosks allow guests to checkout promptly. Artificial intelligence offers also a great opportunity to analyze all data and reviews from different channels - bookings, transactions, satisfaction surveys, and so on.

3- Methodology

The study adopted a quantitative approach by distributing questionnaires to guests in hotels and customers who deal with travel agencies to obtain rich and detailed information about the respondents' perceptions and attitudes toward Artificial intelligence. In addition, explore the role of artificial intelligence in improving service and strengthening the tourist experience during three phases.
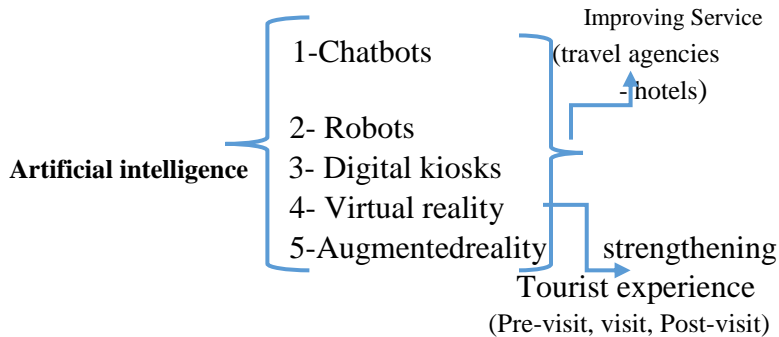
3.1. Data collection and Sample

The first questionnaire to customers who deal with travel agencies includes 23 questions divided into five sections: Chatbots, Robots, Digital Kiosks, Virtual Reality, and Augmented Reality to explore their role in improving service and strengthening the tourist experience.

The second questionnaire to guests in hotels includes 24 questions divided into five sections: Chatbots, Robots, Digital Kiosks, Virtual Reality, and Augmented Reality to explore their role in improving service and strengthening the tourist experience.

An online survey was conducted using Google Forms. Questions were presented in a Likert-scale format with five response options (1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree). The sample consists of (380) questionnaires, the number of valid questionnaires is (327) with a response rate of 86%.

SPSS program was used to calculate both the reliability of the questionnaire by Cronbach Alpha, Mean and standard deviation, and the Pearson correlation coefficient test.

3.2. Validity and reliability of the study

In order to ensure the reliability and stability of the constituent elements of each variable in the study, the reliability coefficient (Cronbach Alpha) was calculated, which is one of the most commonly used measures to test the reliability. The value of Cronbach's alpha coefficient ranges between zero and one, values more than 0.70 express a high stability coefficient, and the lowest acceptable value is 0.60 (Straub et al., 2004).

The Cronbach's alpha for all the constructs in the first study sample ranged from 0.761 to 0.952. In addition, The Cronbach's alpha for all the constructs in the second study sample ranged from 0.767 to 0.946 which in turn establishes the reliability of the study instrument as it meets the reliability threshold limit of above 0.6.

Table (1): Cronbach Alpha for the first study sample
Table (2): Cronbach Alpha for the second study sample
(Travel agencies customers)
(Hotels guests)

Constructs	No of items	Cronbach's α
Chatbots	8	0.952
Robot	5	0.860
Digital kioks	2	0.938
Virtual reality	3	0.841

Augmented reality	4	0.761
All items	23	0.953

Constructs	No of items	Cronbach's α
Chatbots	6	0.927
Robot	6	0.841
Digital kioks	4	0.946
Virtual reality	4	0.866
Augmented reality	4	0.767
All items	24	0.951

4- Results

4.1. Mean and Std. Deviation

Regarding the results of the first study sample, travel agencies customers. It has been calculated the mean, standard deviation, coefficient of variance, and relative importance of the study variables were calculated as shown in Table (3)

Table (3): Mean and standard deviation scores of artificial intelligence in the first study sample
(Travel agencies customers)

Statement	Mean	Std. Deviation	Variation coefficient	Relative importance
Chatbots	4.35	.68	16%	84%
Robot	3.98	.96	24%	76%
Digital kiosks	4.33	.73	17%	83%
Virtual	4.29	.79	19%	81%

Reality				
Augmented Reality	4.13	.95	22%	78%
All study axes	4.20	.98	23%	77%

The results in **Table (3)** show that Chatbots display the highest value (mean = 4.35) with a relative importance of 84% followed by Digital Kiosks (mean= 4.33) with a relative importance of 83%, and Virtual Reality (mean = 4.29) with a relative importance of 81% then Augmented Reality (mean = 4.13) with a relative importance of 78% finally, the lowest value was Robot (mean = 3.98) with a relative importance of 76%. Hence, the results of all study axes tend to "agree" with a mean (4.20), which indicates that the sample agrees on the important role of artificial intelligence in improving service and strengthening tourist experience, by 77%.

Table (4): Mean and standard deviation scores of artificial intelligence in the second study sample (Hotels guests)

Statement	Mean	Std. Deviation	Variation coefficient	Relative importance
Chatbots	4.21	0.80	19 %	81%
Robot	3.99	1.02	26%	74%
Digital kiosks	4.34	0.73	17%	83%
Virtual reality	4.30	0.77	18%	82%
Augmented reality	4.14	0.89	22%	78%
All study axes	4.19	0.85	20%	80%

The results in **Table (4)** show that Digital Kiosks display the highest value (mean = 4.34) with a relative importance of 83% followed by Virtual reality (mean= 4.30) with a relative importance of 82% and Chatbots (mean = 4.21) with a relative importance of 81% then Augmented Reality (mean = 4.14) with a relative importance of 78% finally, the lowest value was Robot (mean = 3.99) with a relative importance of 74%. Hence, the results of all study axes tend to "agree" with a mean (4.19), which indicates that the sample agrees on the important role of artificial intelligence in improving service and strengthening tourist experience, by 80%

4.2. Pearson correlation coefficient test

The Pearson correlation coefficient was used to measure the relationship between artificial intelligence and improving service as well as the relationship between artificial intelligence and strengthening the tourist experience in Egypt.

Table (5): The correlation between artificial intelligence and improving service
(First study sample travel agencies customers)

Relation	Value	level of significance
The correlation between Chatbots and improving service	0 .638	0.000
The correlation between Robot and improving service	0.579	0.000
The correlation between Digital kiosks and improving service	0.631	0.000
The correlation between Virtual Reality and improving service	0.616	0.000
The correlation between Augmented Reality and improving service	0.583	0.000
The correlation between artificial intelligence and improving service	0.609	0.000

The results in **Table (5)** illustrate that there is a significant correlation between chatbots and improving service with the highest the correlation value (R=0.638), followed by Digital kiosks with the correlation value (R=0.631), and

Virtual Reality with the correlation value (R=0.616), then Augmented Reality with the correlation value (R= 0.583), finally, the lowest correlation value is a robot (R= 0.579).

Overall, **Table (5)** show that there is a significant correlation between artificial intelligence and improving service in the first study sample, where the significance level (0.000) and the correlation value (R= 0.609), as the value of the correlation coefficient is more than (0.5) which means that the relationship between artificial intelligence and improving service is accepted

Table (6): The correlation between artificial intelligence and strengthening tourist experience
(First study sample travel agencies customers)

Relation	Value	level of significance
The correlation between Chatbots and strengthening tourist experience	0.593	0.000
The correlation between Robot and strengthening tourist experience	0.529	0.000
The correlation between Digital kiosks and strengthening tourist experience	0.586	0.000
The correlation between Virtual Reality and strengthening tourist experience	0.566	0.000
The correlation between Augmented Reality and strengthening tourist experience	0.550	0.000
The correlation between artificial intelligence and strengthening tourist experience	0.564	0.000

The results in **Table (6)** illustrate that there is a significant correlation between chatbots and strengthening tourist experience with the highest the correlation value (R=0.593), followed by Digital kiosks with the correlation value (R=0.586), and Virtual Reality with the correlation value (R=0.566), then Augmented Reality with the correlation value (R= 0.550), finally, the lowest correlation value is a robot (R= 0.529).

Overall, **Table (6)** show that there is a significant correlation between artificial intelligence and strengthening tourist experience in the first study sample, where the significance level (0.000) and the correlation value (R= 0.564), as the value of the correlation coefficient is more than (0.5) which means that the relationship between artificial intelligence and strengthening tourist experience is accepted

Table (7): The correlation between artificial intelligence and improving service
The second study sample (hotels guests)

Relation	Value	level of significance
The correlation between chatbots and improving service	0 .617	0.000
The correlation between Robot and improving service	0.589	0.000
The correlation between digital kiosks and improving service	0.633	0.000
The correlation between virtual reality and improving service	0.628	0.000
The correlation between augmented reality and improving service	0.593	0.000
The correlation between artificial intelligence and improving service	0.612	0.000

The results in **Table (7)** illustrate that there is a significant correlation between Digital kiosks and improving service with the highest the correlation value (R=0.633), followed by Virtual reality with the correlation value (R=0.628), and Chatbots with the correlation value (R=0.617), then Augmented Reality with the correlation value (R= 0.593), finally, the lowest correlation value is a robot (R= 0.589).

Overall, **Table (7)** show that there is a significant correlation between artificial intelligence and improving service in the second study sample, where the significance

level (0.000) and the correlation value (R= 0.612), as the value of the correlation coefficient is more than (0.5) which means that the relationship between artificial intelligence and improving service is accepted

**Table (8): The correlation between artificial intelligence and
strengthening tourist experience**
The second study sample (hotels guests)

Relation	Value	level of significance
The correlation between chatbots and strengthening tourist experience	0.574	0.000
The correlation between Robot and strengthening tourist experience	0.570	0.000
The correlation between digital kiosks and strengthening tourist experience	0.601	0.000
The correlation between virtual reality and strengthening tourist experience	0.594	0.000
The correlation between augmented reality and strengthening tourist experience	0.572	0.000
The correlation between artificial intelligence and strengthening tourist experience	0.582	0.000

The results in **Table (8)** illustrate that there is a significant correlation between Digital kiosks and strengthening tourist experience with the highest the correlation value (R=0.601), followed by Virtual reality with the correlation value (R=0.594), and Chatbots with the correlation value (R=0.574), then Augmented Reality with the correlation

value (R= 0.572), finally, the lowest correlation value is a robot (R= 0.570).

Overall, **Table (8)** show that there is a significant correlation between artificial intelligence and strengthening tourist experience in the second study sample, where the significance level (0.000) and the correlation value (R= 0.582), as the value of the correlation coefficient is more than (0.5) which means that the relationship between artificial intelligence and strengthening tourist experience is accepted.

5- Conclusion

In conclusion, the primary focus of this research study was to explore the role of artificial intelligence in improving service and strengthening the tourist experience during each of the three travel phases pre-visit, visit, and post-visit in Egypt. For this purpose, a sample of 327 valid responses was collected and analyzed.

Regarding travel agency customers, the results showed that artificial intelligence improves the service and enhances the tourist experience during the three stages of travel. The results also indicated that there are three types of artificial intelligence that got higher relative importance than others, which are: **Firstly,** Chatbots that provide support 24/7 for customers with respect to transport, hotel bookings, and other travel packages as per personalized customer preferences in real-time. **Secondly,** Digital Kiosks as a platform where visitors can respond to surveys and leave feedback to make sure they get a unique tourist experience.

Thirdly, Virtual Reality, this technology is used to display tourist sights, and hotel locations by using 3D videos that enhances the tourist experience, while both augmented reality and robots have become relatively less important.

With regard to hotels guests, the results showed that artificial intelligence improves service and enhances the tourist experience during the three travel phases. The results also indicated that there are three types of artificial intelligence that got higher relative importance than others, which are: **Firstly**, Digital Kiosks, where guests have the opportunity to check-in/out and obtain keycards, eliminate the waiting time at the reception. **Secondly**, Virtual Reality, this technology is used to display the hotel location, and rooms in the selected hotel by using 3D videos. VR gives guests the opportunity to "look before you book". **Thirdly**, Chatbot technology such as Chatbot concierge in hotels. It helps guests access information quickly without wasting time by calling an employee and waiting for his answer. Chatbots are available 24/7 and multilingual, while both augmented reality and robots have become relatively less important.

The results of the study also showed that robots ranked last in terms of relative importance in the two studies, despite their role in improving service and strengthening the tourist experience during the three stages of travel. This is because the use of robots can destroy the human relationships that guests/customers appreciate and seek. Therefore, it is not preferable to use robots in dealing directly with the

guests/customer as they prefer dealing with humans rather than machines.

Finally, Artificial intelligence is a range of technologies that will improve service and strengthen the tourism experience and make it better for all the actors. Tourism organizations will be able to understand their customer's needs better than before, thus designing products, services, and experiences that are better tailored to these needs (Bowen and Morosan, 2018)

These technologies will also replace and complement certain jobs, thus reducing overall operational costs. It also means that Tourism organizations will be able to offer services at an affordable price that might previously have been too expensive (Bowen and Morosan, 2018). Moreover, AI will help the customers to organize their trips easier and faster, with significantly lower transaction costs and packages that suit their needs and interests. Hence, customers will receive the best service.

6- Recommendations

It is important to realize that the applications of AI within the tourism and hospitality industry are not limited to customer service only. In fact, one of its most effective uses is to gather and interpret data in order to draw conclusions about customers/ guests, business practices, and pricing strategies. The main advantage of artificial intelligence in this particular field is its ability to sort through huge amounts of data quickly and accurately, whereas the equivalent for humans could take much longer and

potentially contain more errors. Furthermore, intelligent systems are now capable of learning, thinking, perceiving, solving problems, and making intelligent decisions. Hence, this research seeks to display some of the recommendations are:

- Unleash the potential capabilities of Artificial Intelligence in the tourism industry due to its ability to collect and interpret huge amounts of data which helps tourism organizations to understand their customers in order to design packages, services, and experiences that are better tailored to their needs. Thereby, creating a novel and pleasant experience in their minds.

- It is necessary to use artificial intelligence to enhance certain jobs in the tourism and hospitality sector and free workers from certain tasks, which lead to better service and customer support, significantly reduce transaction costs that suit customer's needs and interests

- It is imperative to prepare a generation specializing in Artificial Intelligence and its applications in order to use effectively and efficiently the various automation technologies that would be available in tourism and hospitality organizations. Employees would also need social skills and emotional intelligence because these skills would provide their competitive advantage along with automation technologies.

- The necessity to include specialized modules of technology for inclusion in the curricula of undergraduate and tourism specialties at colleges and universities to teach students the use of modern technologies in tourism organizations
- Artificial intelligence must be used within limits, where overtaking using artificial intelligence, especially robots can destroy the human relationships that guests appreciate and seek.
- Eventually, the human touch can never be replaced by artificial intelligence, as the tourist prefers dealing with humans rather than machines to keep the hospitality sector hospitable.

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