

The importance of virtual tours of archaeological sites in stimulating
heritage tourism in Algeria - case study of Tlemcen state –

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Abstract: Many countries are taking advantage of modern stimulating means to promote their tourism potential, but Algeria still relies on traditional means to promote its tourism programs and destinations, Which led to the inability of tourists to view the available tourism services and thus the low level of demand for them, and one of the most important applications The technology that has emerged recently is virtual reality technology, which is a computer technology that includes simulating a real environment with three-dimensional models that transfer human consciousness to it so that he feels as if he lives in it and interacts with it. Through the field study, by submitting a questionnaire and processing it using the **SPSS 23** program, it was found that there is a statistically significant relationship between the Virtual tours of the archaeological site of Al-Mashwar and Al-Mansoura - the reality of heritage tourism in the state of Tlemcen

Keywords: virtual reality, virtual tourism, tourism destination, tourism in Algeria

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1. Introduction:

Promoting heritage tourism programs and destinations is considered one of the most important pillars of the marketing mix. It contributes to enhancing the knowledge of tourists and establish a positive interaction between them and the information they may have received through promotional efforts. Tourism promotion relies on using some traditional means such as advertising, public relations, and personal selling, in addition to some other unconventional means like exhibitions and festivals. With the advent of the information revolution and technological advancements in all fields, promotional tools in the tourism sector have evolved to the point where a new method has recently emerged: virtual reality technology, which allows individuals to interact and live within a three-dimensional simulated environment.

Recently, there has been an increased reliance on virtual reality as one of the latest applications of information and communication technology across various fields, similar to the tourism sector, due to its advantages that appeal to tourists in an attractive and enjoyable manner, enabling them to experience travel virtually, which influences their decisions regarding their chosen tourist destination. Algeria is considered one of the weakest tourist destinations in the world, both internationally and Arab-wise, despite its vastness, geographical and natural diversity, and enormous tourism potential that could have made it an exceptional tourist destination. This reality leads us to raise the following main issue:

What role do virtual reality technologies play in promoting heritage tourist destinations in Algeria?

To cover the aspects of this topic, we decided to divide it into three main axes:

- **The conceptual framework of heritage tourism**
- **Requirements for exploiting virtual reality technologies in the tourism sector**
- **The importance of virtual tourism in revitalizing the heritage tourist destination in Tlemcen State**

2. The Conceptual Framework of Heritage Tourism

Heritage tourism is an activity undertaken by an individual or a group of individuals, involving travel from one place to another or from one country to another, with the aim of performing a specific task or visiting a particular place or several places. This results in gaining insight into other civilizations and cultures, adding new information and observations, and meeting people of various nationalities. It enhances the performance level of peoples and their cultures, disseminates their history, civilizations, customs, and traditions. This type of tourism aims to satisfy the desire for knowledge and expand the scope of cultural, heritage, civilizational, and historical information.

2.1. The concept of cultural heritage:

Defined as: "one of the means that gives a distinctive character to every civilization, manifesting its personality through accumulated artifacts, written history, or transmitted knowledge that has reached the present generations." It also refers to those forms and elements of cultural, material, intellectual, and social heritage that were prevalent in society at some point in time, then underwent changes leading the society to a more modern state, yet they continue to exist within that society, circulating among its members. This continuity of cultural heritage elements between generations carries with it a civilizational communication of ideas from successive generations. (saffer, 2016, p 68)

2.2. Types of Cultural Heritage:

Cultural heritage is diverse and multifaceted as it encompasses all aspects of the ancestors' lives. Experts agree on classifying cultural heritage into two main categories: (Miltiadis Lytras, 2011, p 67)

- The tangible cultural heritage: It is everything that a person can touch from elements and objects that are always subject to continuous change, which humans have sought to acquire or invent in order to satisfy their basic needs, such as architecture in general, archaeological sites, ancient cities, museums, open-air museums, buildings and facilities, various means

of transportation, clothing, jewelery, manuscripts, traditional industries, and others.

The tangible cultural heritage: It consists of what ancestors leave behind in the form of enduring relics such as religious and funerary structures like temples, graves, and shrines, mosques and congregational prayers, as well as military and civil buildings like forts, palaces, castles, baths, dams, and walls.

- The intangible cultural heritage: It represents coins and artistic artifacts resulting from explorations and archaeological research on land and underwater, including ceramic and pottery pieces, archaeological writings, coins, seals, jewelery, traditional clothing, weapons, remains of graves, manuscripts, and archival documents.

- The intangible cultural heritage: It refers to everything created by humans and used to explain their behavior and actions, comprising a collection of intangible cultural traits represented in artistic skills, beliefs, attitudes, language, and more, transmitted by members of society from ancestors to descendants. It is divided into two sections. **(khalki.s, 2021, p602)**

- The verbal: It is represented in proverbs, sayings, songs, stories, jokes, riddles, invitations, calls, and others.

- The practical: It is represented in celebrations, holidays, occasions such as weddings and funerals, dances, games, visits, clothing styles, home furnishings, and others.

The cultural heritage, in its tangible and intangible aspects, inevitably expresses national identity and includes all that ancestors have left in terms of knowledge, literature, traditions, and values that reflect their intellectual activity and way of thinking, Cultural heritage is passed down through generations.

2.3. Cultural Heritage Tourism:

It is considered a type of tourism that focuses on creating an experience based on tangible cultural attractions represented in sites and buildings, in addition to intangible attractions represented in the living heritage of an area such as social structure, values, and customs. Heritage tourism aims to explore ancient civilizations and visit archaeological sites with significant

pasts and histories, thus attracting certain types of tourists who wish to satisfy their desire for knowledge and enhance their cultural information while enjoying what is available from humanity's ancient heritage through museums, temples, and more. It also involves experiencing different peoples with their customs, traditions, arts, and values **(Ibrahim, 2017, p 134)**

Moreover, the content of heritage tourism evolves in the same way that culture evolves, and the challenge it faces today is controversial due to the challenge of exploration. In short, heritage tourism can be described as that type of tourism related to travel aimed at discovering and experiencing historical, natural, archaeological, and living cultural sites in a region in an exciting and unconventional way. UNESCO has used the term cultural heritage tourism, which it defined as travel concerned with experiencing cultural environments, including natural and built sites, visual arts, lifestyles, values, customs, and special events **(Cirulis, 2015, p 12)**

2.4. Importance and Characteristics of Heritage Tourism:

The importance of heritage tourism emerges as it is a witness to the creativity of nations throughout time, a memorial to their memory, and a symbol of their genius, but also because it helps to introduce the cultural and civilizational characteristics of human societies across historical eras. This leads to an increase in tourist influx to these heritage areas to explore this natural, architectural, and folkloric heritage, to experience the local communities, and to learn about their distinctive customs, traditions, and handicrafts, as well as to participate in their various celebrations. **(Muhammad, 2019, p 78)**

The importance of cultural heritage tourism also lies in the fact that when tourism activities are given attention and planned scientifically, and managed according to scientific principles, it will serve as an incentive for the influx of tourists to these areas, leading to increased income, the creation of new job opportunities, and an increase in exports of artifacts and handicrafts. Additionally, it contributes to greater social integration, cultural diversity, and human development that interacts with technology, intellectual property, and tourism goals. Furthermore, the growth and

prosperity of cultural heritage tourism areas encourage local investment in these regions, which helps increase tourist movement to them.

Among the characteristics that distinguish cultural heritage tourism, we mention: **(Maqlati, 2022, p 114)**

- Attracting a large number of tourists
- Contributing to achieving sustainable development
- Sustaining and preserving cultural heritage

3. Requirements for Utilizing Virtual Reality Technologies in the Field of Tourism

The circulating tourism information is characterized by variability and lack of homogeneity; therefore, the use of virtual visits is considered a tool that can reduce the severity of this variability and enables the visitor to easily learn about landmarks and tourist areas through interactive visual images of the sites and access detailed data and information about the tourist areas intended for field visits to plan and establish a travel program, select the target area, arrange visit schedules, as well as estimate the approximate budget for expenses.

3.1. The Conceptual Framework of Virtual Reality:

It is a computational technology that involves simulating a real environment with three-dimensional models that transfer human consciousness to it, allowing individuals to feel as though they are living in and interacting with it.

3.1.1. The Concept of Virtual Reality:

- Virtual reality is concerned with creating 3D environments using computer graphics and simulation devices, enabling individuals to perceive them through their various senses, interact with them, and alter their parameters, thus stimulating the feeling of immersion in that environment. **(Barkano, 2020, p 25)**

- Virtual reality works by transferring human consciousness to a virtual environment that is electronically formed, allowing the mind to dive into executing imagination away from the physical body. It is a fictional world, not a real one, as evidenced by the occurrence and experience of its

environment. In it, events are executed in the assumed reality but not in actuality.

3.1.2. Characteristics of Virtual Reality:

Virtual reality is characterized by the following features: **(Ghassan Qassem Dawood Al-Lami, 2018, p 161)**

- It relies on imagination.
- It depends on computers and information and communication technology.
- It takes place in a three-dimensional environment.
- Flexibility: in terms of use, time, and place.
- Illusory: it creates an illusory feeling for the user as if they are in the real world.
- Simulation: simulates the intended physical reality.
- Interaction: virtual reality allows interaction through the following sensory channels: visual, auditory, tactile, olfactory, and gustatory.
- Immersion.
- Artificial.

3.2. The conceptual framework for virtual tourism:

If traditional tourism is physical tourism, meaning it requires the physical presence of the tourist at a specific tourist destination, then virtual tourism is moral tourism, as it does not require the physical presence of the tourist as much as it requires a mental and moral presence.

3.2.1. The nature of virtual tourism:

Virtual tourism gives tourists the opportunity to explore the tourist destination using a computer or other technologies. These technologies offer travelers the chance to view the tourist destination before their visit, with the best example being the multi-layered datasets provided by Google Earth, which offers street-level navigation and images. It is also referred to as 3D virtual tourism, where viewers can interact with the tourist destination without actually traveling to it.

The differences between traditional tourism and virtual tourism lie in the following points:

Table 01: The difference between traditional tourism and virtual tourism

Traditional Tourism	Virtual tourism
Real environment	Three-dimensional environment
Geographically limited (linked to a place)	Geographically unlimited (anywhere)
Time-bound	At any time
High costs (travel, accommodation, transportation...)	Limited costs
Does not require high-precision technology	Requires high-precision technology such as virtual reality tools
Restricted to the affluent class	Enables anyone to experience it
Does not allow experience before purchase	Allows experience before purchase
Human interaction is present	Human interaction is absent
Contributes to job creation	Does not contribute to job creation

Source: Al-Mousawi, Ala, International Forum on Cultural Creativity in the Light of Information Technology, first edition, Al-Farqad Printing Publishing House, Jordan, p. 36.

3.2.2. Importance of Virtual Tourism Tours:

- Virtual tourism routes can be considered an alternative to visiting tourist sites that are subject to deterioration and destruction, contributing to the preservation and sustainability of these sites due to the superior capabilities of virtual reality in embodying and simulating tourist locations as if they were real.
- Marketing virtual tourism routes benefits in increasing the global market share and helps place tourist sites on the global tourism map by innovating technological means and adding a high relative and competitive advantage using these means. **(Shahab, 2015, p 19)**
- Reducing costs compared to traditional marketing methods.
- Interactive virtual reality technologies contribute to enhancing learning and familiarization with tourist sites.
- The widespread availability of technological means based on virtual reality techniques, which facilitates easy browsing via the internet **(Shahab, 2015, p 67)**

3.2.3. Components of Virtual Tourism Experiences:

There are three essential components that create a virtual tourism experience that makes the tourist feel as if it is real. These components are: **(Muhammad, 2019, p 151)**

- Creativity:

Competition drives creativity and innovation in providing tourism services. There are four types:

- The tourism product, Creativity is concerned with giving everything new to the product.
- Technology, Creativity is concerned with exploiting modern techniques of information and communication technology.
- Management, where creativity can be found in the type of management that shapes the work by developing the organized performance process in a new way.
- The logistical creativity process, which highlights the external links with the customer and other members of the value chain. **(Al-Razaaq, 2019, p 121)**

- The fictional reality:

The technology is based on a cave system, which consists of a room shaped in two ways:

- A room containing cameras where the tourist can see everything around them within this virtual space, or find someone far away in another country present with them inside this cave as if they were sitting in front of them.
- The use of 3D glasses inside the cave to enable entry into a more precise imaginary world, where an environment similar to the real one is applied, which the person transitions to virtually through the computer. **(Hakim, 2020 , p 58)**

- Aesthetic taste:

This refers to the feeling that arises within the user of virtual tourism at the moment of immersion in the virtual space when visual scenes and the artistic environment are It provides the tourist with the environment and artistic image of the desired tourist destination to visit. The user of virtual tourism feels pleasure and joy associated with the feeling of discovery,

contemplation, cognitive change, amazement, interest, expectation, imagination, a sense of mystery, and curiosity. (Sarmad, 2017, p 58)

4. The Contribution of Virtual Tourism to Revitalizing the Heritage Tourist Destination in Tlemcen

Virtual tourism on the internet has opened doors to explore many areas of the world through sound and image, allowing one to enjoy seeing natural, archaeological, and religious tourist sites and spiritually transition to physical places without traditional travel. You can be transported from your place of residence to tourist destinations while at home in front of your computer, using the latest technologies developed by modern science, known as virtual reality.

4.1. A field study to test the degree of response of heritage tourism to virtual tours of archaeological sites in Tlemcen Province:

The researchers distributed 50 questionnaires to tourists visiting the archaeological sites of "Mansourah" and "El Mechouar" in Tlemcen Province randomly. These questionnaires were collected directly, This was done to test the role of recorded virtual tours of the targeted archaeological sites on the movement of heritage tourism activity by presenting 23 statements divided between the first axis related to the independent variable, which consists of 11 items all aimed at testing the level of recorded virtual tours of certain archaeological tourism sites in Tlemcen, and the second axis related to the dependent variable, which consists of the first dimension formed by 6 items and the second dimension formed by 6 statements.

Descriptive statistical characteristics of the variables: Distribution of study sample individuals according to personal data.

The variable	Level	The number	Percentage
Gender	Males	26	% 52
	Females	24	% 48
	Total	50	%100
Age	18 - 25 years	8	%16
	26 - 35 years	26	%52

	36 - 50 years	13	%26
	50 years and above	3	%6
	Total	50	%100
Marital status	Single	17	%34
	Married without children	22	%44
	Married with children	11	%22
Monthly income	Less than 50,000 DZD	12	%24
	50,001 – 80,000 DZD	19	38%
	80,001 DZD and above	19	%38
Residence	From one of the states of Algeria	28	%56
	Algerian community abroad	12	%24
	Foreigner	10	%20

4.2. Validity and Reliability of Study Variables:

Testing the validity and reliability using Cronbach's alpha coefficient for the model variables.

Study Axes	Fackeronbach Factory	Number of phrases
Axis One: The level of virtual tours recorded for some archaeological tourism sites in Tlemcen	0,778	11
Axis Two: The level of heritage tourism activity in Tlemcen Province	0,703	12
Dimension One: Virtual tours contributed to planning the tourist trip	0,736	6
Dimension Two: Virtual tours contributed to choosing the heritage tourist destination	0,706	6

From this table, we notice that the value of Cronbach's alpha for the study axes ranges between (0.703 – 0.778). This indicates that there is an acceptable connection between the paragraphs and their axes, which suggests that all the statements in the questionnaire are important, It enables us to study the contribution of virtual tours available to some archaeological sites in the state of Tlemcen in stimulating heritage tourism in the state of Tlemcen.

4.3. Statistical analysis of the items of the study axes:

The response of the study sample to the level of recorded virtual tours of the targeted archaeological tourist sites in Tlemcen

The arrangement	Degree of adoption	Standard deviation	The arithmetic mean	Strongly agree	Agree	Strongly agree	Frequencies and percentages
The phrase1	High	0,628	4,18	3	32	14	0
				6%	64%	28%	0%
The phrase2	High	0,710	4,16	0	33	14	0
				0%	66%	28%	0%
The phrase3	High	0,747	4,18	1	32	15	1
				2%	64%	30%	2%
The phrase4	Very high	0,777	4,26	1	28	19	1
				2%	56%	38%	2%
The phrase5	Very high	0,696	4,38	3	22	24	0
				6%	44%	48%	0%
The phrase6	Very high	0,728	4,20	6	25	18	0
				12%	50%	36%	0%
The phrase7	High	0,695	4,08	7	29	13	0
				4%	58%	26%	0%
The phrase8	High	0,711	3,94	14	25	11	0
				28%	50%	22%	0%
The phrase9	High	0,853	4,08	10	20	18	0
				20%	40%	36%	0%
The phrase 10	Very high	0,676	4,46	6	25	19	0
				12%	50%	38%	0%
The phrase	Very high	0,530	4,62	1	17	32	0
				2%	34%	64%	0%

11									
Weighted average						4,23	Very high		

This table shows the mean and standard deviation for each term belonging to the axis, which focused on testing the significance of the available virtual tours for various archaeological sites in Tlemcen. It is noted that statement 11 ranked first with a mean of 4.62 and a standard deviation of 0.530, it shows that the targeted sample agrees that the targeted virtual tours are keen to show the site in its original form through semi-accurate architectural representations and imaginations of the changes it has undergone.

Statement number 10 comes in second place with a mean of 4.46 and a standard deviation of 0.676, which indicates that the respondents agreed that providing information in virtual tours covering all archaeological tourist sites in the state is important. In general, we find that all the statements related to this axis exhibited a significant level of agreement, ranging between high and very high levels of agreement. This is due to the recorded mean of the statements related to the first axis, which ranged from 3.94 to 4.62, This is an indicator that proves the importance and accuracy of formulating the statements related to the first axis.

The response of the study sample regarding the first dimension of the second axis "Virtual tours contributed to planning the tourist trip."

The arrangement	Degree of adoption	Standard deviation	The arithmetic mean	Strongly agree	Agree	Strongly agree	The arithmetic mean	Standard deviation	Degree of adoption	The arrangement
The phrase 12	High	0,67	4,2	16	29	4	1	0	0%	5
				32%	58%	8%	2%	0%		
The phrase 13	Very high	0,53605	4,28	16	32	2	0	0	0%	3
				32%	64%	4%	0%	0%		
The phrase 14	Very high	0,597	4,36	20	29	0	1	0	0%	1
				40%	58%	0%	2%	0%		
The phrase 15	High	0,638	4,2	16	28	6	0	0	0%	4
				32%	56%	12%	0%	0%		
The phrase 16	High	0,66	4,18	14	33	1	2	0	0%	6
				28%	66%	2%	4%	0%		
The	Very	0,631	4,36	21	27	1	1	0		2

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phrase 17	0%	2%	2%	54%	42%			high	
Weighted average						4,26	0,40976	Very high	

The results obtained confirm the relative importance of the paragraphs of the first dimension of the second axis, which states the importance of the available virtual tours in planning the tourist trip for the sample individuals. It is noted that statement 14 ranked first with a mean of 4.36 and a standard deviation of 0.597, which explains that the targeted sample agreed on giving significant importance to relying on the available virtual tour, enabling tourists to know the time spent visiting the archaeological site. Following this, statement number 17 ranked second with a mean of 4.36 and a standard deviation of 0.631, Which confirms that the respondents learned about various morals and ethics through the virtual registration of the tourist destination. In general, we find that all the statements related to this axis exhibited a considerable level of agreement, ranging from a high to very high level of agreement, as the mean for the statements related to the first dimension of the second axis ranged between 4.2 and 4.36.

The response of the study sample regarding the second dimension of the second axis "Virtual tours contributed to the selection of the heritage tourist destination."

The arrangement	Degree of adoption	Standard deviation	The arithmetic mean	Strongly agree	Agree	Strongly agree	The arithmetic mean	Standard deviation	Frequencies and percentages
1	Very high	0,418	4,78	0	11	39			The phrase 18
				0%	22%	78%			
2	Very high	0,484	4,64	0	18	32			The phrase 19
				0%	36%	64%			
3	Very high	0,418	4,22	0	39	11			The phrase 20
				0%	78%	22%			
4	High	0,239	4,06	0	47	3			The phrase 21
				0%	94%	6%			
5	High	0,416	3,9	7	41	2			The

phrase 22	0%	0%	14%	82%	4%				
The phrase 23	0	1	10	38	1	3,78	0,506	High	6
	0%	2%	20%	76%	2%				
Weighted average						4,23	0,26914	Very high	

The results obtained show the importance of the paragraphs belonging to the second dimension of the second axis, which focused on testing the importance of virtual tours in choosing the heritage tourist destination by the sample individuals. It is noted that statement 18 ranked first with an arithmetic mean of 4.78 and a standard deviation of 0.418, which explains that the target sample agreed on giving significant importance to the virtual tour that allows tourists to understand the components of the local social fabric (customs, traditions, crafts, dishes, traditional industries, etc.).

Following that, statement number 19 ranked second with an arithmetic mean of 4.64 and a standard deviation of 0.484, Emphasizing that the carrying capacity of a tourist destination is proportional to the number of tourists visiting it. In general, we find that all statements related to this axis exhibited a considerable level of agreement, ranging from a high to very high level of agreement. The result of recording an arithmetic average for all paragraphs ranged between 3.78 - 4.78, which confirms the accuracy of the paragraphs presented.

4.4. Testing differential hypotheses and impact hypotheses:

- Testing differential hypotheses:

Personal data with two groups: Differences are tested using Levene's test and the t-test.

			Test levene		Test t		The interpretation
			F	sig	t	Sig	
Gender	Axis One	Homogeneous	0,268	0,607>0,05	0,100	0,921>0,05	There are no statistically significant differences attributed to gender.
		Heterogeneous					
	Axis two	Homogeneous	0,067	0,797>0,05	0,597	0,565>0,05	There are no statistically
		Heterogeneous					

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							significant differences attributed to gender.
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Personal data with more than two groups: differences are tested using ANOVA test.

The differential variable	Axis	Value F	Level of significance	The interpretation
The age	Axis One	2,472	0,074>0,05	There are no statistically significant differences in the components of virtual tours of archaeological tourist sites in Tlemcen attributed to the age of the targeted sample.
	Axis two	1,615	0,199>0,05	There are no statistically significant differences in the level of activity of heritage tourism in Tlemcen Province attributed to the age of the targeted sample.
Marital status	Axis One	0,445	0,644>0,05	There are no statistically significant differences in the components of the virtual tours of the archaeological tourist sites in Tlemcen attributed to the social status of the targeted sample
	Axis two	0,141	0,869>0,05	There are no statistically significant differences in the level of activity of heritage tourism in Tlemcen Province attributed to the social status of the targeted sample
Monthly income	Axis One	0,905	0,412>0,05	There are no statistically significant differences in the components of virtual tours of archaeological tourist sites in Tlemcen attributed to the monthly income of the targeted sample.
	Axis two	0,742	0,482>0,05	There are no statistically significant differences in the level of heritage tourism activity in Tlemcen province attributed to the monthly income of the targeted sample.
The residence	Axis One	0,643	0,530>0,05	There are no statistically significant differences in the components of virtual tours of archaeological sites in Tlemcen attributed to the residence of the target sample.
	Axis two	1,988	0,148>0,05	There are no statistically significant differences in the level of activity of heritage tourism in Tlemcen province attributed to the residence of the targeted sample.

- Testing the impact hypothesis:

Results of the simple linear regression estimation to test the effect of the level of virtual tours recorded for some archaeological tourist sites in Tlemcen on the level of heritage tourism activity in the Tlemcen province.

Dependent variable: The level of activity of heritage tourism in Tlemcen Province.									
	The laboratories B	Standard laboratory beta	Value t	Level of significance	Determinant R2	Correlation coefficient R	Value F	Level of significance	VIF
The constant	2,335	/	4,788	0,000	0,259	0,509	16,744	0,000	/
Independent variable factor	0,460	0,509	4,092	0,000					1,000
Source of variation	Sum of squares	Degree of freedom	Mean squares			Value F		Level of significance	
The decline	1,621	1	1,621			16,744		0,00	
The leftovers	4,647	48	0,097						
total	6,269	49	/						

From the previous tables, we observe the following:

- There is an acceptable and positive correlation between virtual tours of archaeological tourist destinations and tourism activity, as indicated by the independent variable coefficient, which reached 0.46, considered statistically significant in interpretation, with a significance level recorded at $0.000 > 0.05$.
- Virtual tours of the archaeological tourist destination have confirmed their impact on the tourism activity of the tourist destination by 25.9%, as shown by the coefficient of determination, which indicated a relatively weak degree of influence, with 74% of the influence attributed to other factors outside the model.
- We also note that the variance inflation factor (VIF) or tolerance for the residuals reached a value of 1.000, which is an acceptable value as it is less than 10, indicating no multicollinearity problem among the independent variables in this model.
- Additionally, we observe that the residuals of the model are homogeneous and follow a normal distribution
- Mahalanobis test reached 0.011 – 7.044, which confirms that the data does not contain outlier values, as all its values are less than 15.

5. CONCLUSION:

Information and communication technology has greatly contributed to serving the tourism sector through the applications and electronic technologies that have emerged from this technology, which the tourism sector has benefited from significantly, especially in marketing and promotion operations. Virtual tourism is considered one of the new forms of tourism that has emerged and developed simultaneously with the technical and digital advancements in information and communication technology, occupying an important place today in modern marketing trends for the development and growth of the tourism sector. that help convey information through images and sound to clients and tourists.

Through the survey we conducted in Tlemcen Province (Mansourah and Mechouar), it was found that the virtual tours recorded for both sites (Mansourah and Mechouar) play a role in the activity of heritage tourism with a positive impact of approximately 26%. The degree of influence is statistically weak but remains encouraging given the novelty of the technology adopted in Algeria by utilizing it as a technique for promoting and marketing tourist destinations. This confirms that the Algerian tourism sector faces the challenge of rapid developments in information technology, which requires it to build a modern marketing strategy that responds to the requirements of contemporary marketing, which is primarily based on information and communication technology techniques in the promotional work of tourist destinations.

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