

## The Effect of the Theory of Acceptance and Use of Augmented Reality on the Intention to Use Mobile Tourism Augmented Reality Apps: the Mediating Role of Hedonic Motivation

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### Abstract

**Purpose:** In contemporary times, augmented reality is a cornerstone technology within the tourism sector. Nonetheless, the inclination towards embracing and utilizing augmented reality applications in tourism hinges upon multifaceted determinants, meriting examination through the integrated lens of technology acceptance and use theory. Concurrently, these determinants sway individuals' hedonistic motivations to engage with such apps. This juncture holds significance for managerial considerations, delineating pivotal factors influencing the adoption of this technology. Hence, this present inquiry explores the nexus between the technology acceptance and use theory and the hedonistic motivations for tourism augmented reality apps on mobile platforms within the Iranian context.

**Method:** The current research's statistical population consists of users of tourism augmented reality apps. The sample size is 201 users. The data collection tool is a questionnaire. A structural equation test was used to analyze the data.

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**Findings:** The research findings indicate that four factors, namely performance expectancy, effort expectancy, social influence, and facilitating conditions, have a positive and significant impact on the hedonic motivation to use tourism augmented reality apps. Moreover, all four factors of the Unified Theory of Acceptance and Use of Technology (UTAUT) positively influenced the intention to use augmented reality applications on mobile phones. Additionally, hedonic motivation was shown to positively and significantly affect the intention to use tourism augmented reality apps on mobile phones. Notably, hedonic motivation is a crucial mediator between the Unified Theory of Acceptance and Use of Technology (UTAUT) dimensions and the intention to use augmented reality applications. However, the mediating role of hedonic motivation was not supported for performance expectancy and behavioral intention.

**Conclusion:** This research investigates the factors influencing the motivation to use augmented reality (AR) apps in tourism. It finds that performance expectancy, effort expectancy, social influence, and facilitating conditions positively impact hedonic motivation for AR app usage. The study validates the Unified Theory of Acceptance and Use of Technology (UTAUT) for predicting AR app adoption. Notably, hedonic motivation mediates between UTAUT dimensions and intention to use AR technology, suggesting implications for enhancing AR app design in the tourism sector.

**Keywords:** Augmented reality, Hedonic motivation, MART, UTAUT.

## **Introduction**

Due to technological advances in artificial intelligence, the Internet of Things, and augmented reality, people's lives have undergone various changes and transformations (Zhao et al., 2023). The acceptance and use of technologies, such as augmented reality (AR), can transform people's lifestyles (Althewaynee et al., 2022). Augmented reality has become an essential technology in the tourism industry due to its information. Augmented reality in tourism aims to transmit information to people using the Internet and mobile phone applications. Therefore, accepting and using these apps could be crucial for tourism managers (Pinto et al., 2022) because the willingness to use these technologies increases the desire to visit tourist attractions (EL-said & Aziz, 2021).

The intention to use augmented reality is a behavioral characteristic that people try to adopt a new technology into their lifestyle (Gharaibeh et al., 2021). Hedonic motivations can influence this tendency. Hedonic motivation is a behavioral characteristic of people and states that the amount of use of a new technology causes entertainment, pleasure, and happiness (Siyal et al., 2020). Hedonic motivation and other factors such as performance expectancy, social influence, effort expectancy, and facilitating conditions are crucial in accepting and using new technologies such as augmented reality (Fajardo et al., 2022). Performance expectancy refers to the ease of use and understanding of the relative advantages of technology. Social influence deals with people's intention to accept technology. Effort expectancy refers to the usage of technology, and finally, facilitating conditions refer to the existing solutions to solve the problems surrounding the technology (Pinto et al., 2022).

In Iran, due to a lack of maturity in the production and use of mobile phone augmented reality apps in tourism, this field is faced with some challenges, such as the need for more information transmission to encourage people to visit tourist attractions (Shirmohammadi & Mohammadi, 2021). Additionally, more research is needed about the acceptance of augmented reality applications for mobile phones in Iran. Moreover, due to the lack of widespread use of such applications in introducing and raising awareness about tourist attractions and destinations, their enjoyable and entertaining aspect must be addressed. However, this hedonic aspect can positively affect the willingness to use augmented reality applications and contribute to tourism development by creating awareness among potential tourists. Pinto et al. (2022) investigated the impact of factors affecting the acceptance and use of

augmented reality applications for mobile phones.

Nevertheless, in this study, the effect of the four main factors of the theory of acceptance and use of technology (performance expectancy, social influence, effort expectancy, and facilitating conditions) on the hedonic motivation of users of these programs has yet to be mentioned. Furthermore, this study examines the mediating role of hedonic motivation between the theory of acceptance and use of technology dimensions and the intention to use mobile augmented reality applications. In today's world of information technology, Augmented Reality applications have become quite popular in the tourism industry. These applications offer various capabilities to enhance the tourist experience (EL-said & Aziz, 2021). It has been observed that users are more inclined to use these applications due to hedonic motivation. AR applications are considered powerful tools in the tourism industry that can provide travelers with a highly engaging and immersive experience (Siyal et al., 2021). However, the widespread use of these applications is still challenging as there is limited understanding of the factors influencing users' intention to use them. Despite these challenges, it is essential to better understand the impact of the Technology Acceptance Model on users' inclination to use mobile AR tourism applications. Therefore, the present study aims to investigate the effect of UTAUT theory variables on hedonic motivation and the intention of people who use tourism augmented reality apps on their mobile phones in Iran.

### **Literature Review**

#### **The Unified Theory of Acceptance and Use of Technology (UTAUT)**

Venkatesh, et al. (2012) developed the unified theory of acceptance and use of technology (UTAUT). In their initial model, they used four main factors, namely social influence (SI), facilitating conditions (FC), performance expectancy (PE), and effort expectancy (EE) on behavioral intention (BI) to accept and use mentioned new technology (Venkatesh et al., 2012). Researchers in various fields of artificial intelligence, e-government, and the Internet of Things, who have examined the UTAUT theory state that this model and theory have sufficient stability (Siyal et al., 2021).

They have defined social influence as the influence of reference groups such as family, friends, and colleagues in understanding and using technology (Venkatesh et al., 2003). Reference groups or the social

environment can encourage people to accept a new technology (Siyal et al., 2021). Social networks have also accelerated this process. They have created a kind of online interaction to influence reference groups so that friends, family, and even strangers can easily influence people (Garcia & Pino, 2022).

Lack of access to facilities needed to use new technologies is a significant challenge affecting the intention to accept and use technology. Venkatesh et al. (2003) have defined facilitating conditions (FC) as the provision of infrastructure and support necessary to solve technical problems (Siyal et al., 2021). Lack of necessary and timely support, limited resources, and incomplete information can prevent people from adopting technology (Ambarwati et al., 2020). Facilitating conditions are essential because understanding this factor makes users of new technology easily understand its features and use its advantages (Sadreddin & Chan, 2023).

The effort expectancy (EE), equivalent to ease of use in the technology acceptance model, refers to the degree of ease associated with the operation of a technology (Venkatesh et al., 2003). A new technology's easy understanding and use can influence its acceptance and eventual use. When consumers realize that technology is easy to use and operate, they are more willing to accept and use it (Siyal et al., 2021). So, the more the complexity of a system or a technology decreases, the user will have more intention to use it (Winata & Tjokroputro, 2021).

Venkatesh has defined performance expectancy as a measure of ease of use and understanding the relative benefits of new technology (Venkatesh et al., 2013). Performance expectancy is equivalent to perceived usefulness in the technology acceptance model (TAM). In this theory, perceived usefulness means how much people consider using a system or a new technology to increase their performance (EL-said & Aziz, 2021). This factor is among the most essential factors in predicting users' performance and goals. Therefore, this factor can inform managers about people's future actions in technology adoption (Liao et al., 2008).

Most research and behavioral theories consider people's intentions as the best predictor of a person's behavior. In all these theories, the intention is to use an introduction to reach the action itself, and even in some of these theories, the action itself is the meaning (Huang et al., 2015; Ajzen, 1991). The behavioral intention to use (BI) in accepting augmented reality apps is the intention of people in using augmented reality (Pinto et al., 2022), which can lead to action or repeating the action (Winata & Tjokroputro, 2021).

### **Hedonic motivation**

In any act, a person can have various motives, such as emotions, entertainment, and Etc. (Tambuwan, 2016). Hedonic motivation means using entertainment, recreation, and play in performing activities, which is evident in augmented reality apps (Pinto et al., 2022). In the model and theory of acceptance and use of early technology, the hedonic motivation of people was not considered (Siyal et al., 2021). However, over time and with the completion and improvement of this theory, hedonic motivation was expressed as an influential factor in acceptance and the use of technology (Pinto et al., 2022).

### **Mobile Augmented Reality in Tourism (MART)**

Nowadays, it is essential to use digital technologies in various industries (Hassanzadeh, 2021). Augmented reality, as one of these technologies, combines virtual and computer visual aspects with the natural world and provides users with much information (Yung & Khoo, 2019). In tourism, augmented reality synchronizes real and virtual objects with each other and makes them available to users in three dimensions (Loureiro et al., 2020). Augmented reality became widely used when it was used in mobile phone applications (Buhalis et al., 2011). Augmented reality has many applications in the tourism industry and can reduce the limitations of this field. For example, tourists can get information about tourist attractions using mobile phone applications (Pinto et al., 2022).

Pinto et al. (2022), in their study investigated the influential factors of mobile augmented reality in tourism. they found that the two dimensions of performance expectancy and effort expectancy have a positive effect, and the two dimensions of social influence and facilitating conditions have a negative effect on the behavioral intention of people to use mobile augmented reality in tourism.

Pinto et al. (2022b), in another study, investigated the factors influencing mobile augmented reality in tourism. They investigated the augmented reality of mobile phones. They found that performance expectancy, effort expectancy, social influence, and facilitating conditions do not positively and significantly affect the intention to use augmented reality in the tourism industry.

Siyal et al. (2021) conducted research about Structural Equation Modeling and Artificial Neural Networks Approach to Predict Continued Use of Mobile Taxi Booking Apps. The aim was to waste the effect of factors that make people pleasurable toward frequent use of online taxi

apps they probed. They studied the augmented the reality of mobile phones. They found that the main factors of UTAUT significantly affect hedonic motivation. Hedonic motivation also affects the behavioral intention of mobile phone users.

Ghraibeh et al. (2020), in an article entitled studied the main variables of the integrated theory of acceptance and use of technology, the intention to use augmented reality apps in the tourism sector in Jordan. The results showed that the main factors of the integrated theory of technology acceptance and use, have a positive effect on the intention to use mobile augmented reality in tourism.

The above studies examined augmented reality in mobile phones from a different perspective. However, the impact of the UTAUT theory on the hedonic motivation of people in the tourism industry has yet to be studied. In fact, in the current research, in addition to investigating the impact of UTAUT theory on the use of MART, the hedonic motivation of people to use MART has also been investigated.

### **Conceptual framework**

Venkatesh and colleagues first expressed the theory of UTAUT in 2003 for adopting and using new technology (Venkatesh et al.,2012). This theory has been used in various fields and technologies and has been approved by many researchers. Augmented reality is a technology that has attracted people's attention in recent years (Siyal et al., 2021). In the tourism industry, augmented reality has increased the intention to use augmented reality in tourism by using 3D images and written information it provides users. Mobile phones have also facilitated this issue (Gharaibeh et al., 2021).

On the other hand, smartphones have increased hedonic motives due to the environment they have created (Yadav et al., 2020). Several apps have been provided in the tourism industry to improve and promote this industry; MART is one of them (Gharaibeh et al., 2020). Over time, the factors that influence the acceptance and use of technology have changed and evolved. Today, hedonic motivation has been added to the influencing factors for using MART (Sitar Tăut et al., 2021). So, the effect of UTAUT theory variables on the hedonic motivation of people is significant because the hedonic motivation can influence the acceptance and use of MART (Siyal et al., 2021).

### **Social influence**

One of the main factors in technology acceptance is social influence, which refers to the influence of reference groups for technology acceptance and use (Venkatesh et al., 2012). Oncioiu and Priescu (2022) pointed out the positive effect of social influence on the intention to use virtual reality (VR). On the other hand, Pinto et al. (2022), in their two studies, pointed out the negative effect of social influence and the intention to use MART. Finally, Gharaibeh et al. (2021) pointed out social influence's positive and significant impact on the intention to use MART. On the other hand, Sitar Tăut et al. (2021) stated that social influence positively affects hedonic motivation. Also, Siyal et al. (2021) pointed out the positive and significant impact of the social effect on the use of intelligent apps. Therefore, we argue that social influence can influence the hedonic motivation and use of MART.

-H1a: Social influence positively affects the intention to use MART.

-H1b: Social influence positively influences HM for using MART.

### **Effort expectancy**

Another factor mentioned by Venkatesh et al. in 2003 for technology acceptance and usage is effort expectancy. The effort expectancy to accept technology is also used in tourism (Venkatesh et al., 2003). The effort expectancy positively affects users' intention to use MART, considering the ease of use of new technology (Priescu & Oncioiu, 2021). Pinto et al. (2022a) addressed this hypothesis in two studies. The effect was minimal in one of these studies, and the other had the opposite effect. The research of Gharaibeh et al. (2021) also pointed out the positive and significant impact of this research on the intention to use MART. Also, about hedonic motivation, Salimon et al. (2017) pointed out the positive relationship between effort expectancy and hedonic motivation in e-banking. In addition to this research, Weng et al. (2017) also pointed out the effect of this factor on the expectation of effort. Finally, Siyal et al. (2021) pointed out effort expectancy's positive and significant impact on hedonic motivation about smartphone apps. Therefore, this research proposes the following hypotheses:

-H2a: Effort expectancy positively affects the intention to use MART.

-H2b: Effort expectancy positively influences HM for using MART.

### **Facilitating conditions**

The next factor influencing the acceptance and use of new technologies is



facilitating conditions (Venkatesh et al., 2013). Facilitating conditions indicate the ease of use of technical infrastructure in MART (Paulo & Rita, 2018). Facilitating conditions in augmented reality apps in the tourism industry positively affects users' intention to use MART (Priescu & Oncioiu, 2021). Pinto et al. (2022) also achieved different results in their two studies, one of which had a positive effect, and the other had a negative effect on the intention to use MART. Regarding hedonic motivation, Sailmon et al. (2017) pointed out the positive effect of facilitating conditions on hedonic motivation. Maldonado et al. (2011) also pointed out the effect of facilitating conditions in motivating technology adoption. Sitar Tăut et al. (2021) also pointed out the positive effect of facilitating conditions on hedonic motivation. Finally, Siyal et al. (2021) pointed out that facilitating conditions positively and significantly affect hedonic motives about smartphone apps. Therefore, this research proposes the following hypotheses:

- H3a: Facilitating conditions positively affects the intention to use MART.
- H3b: Facilitating conditions positively influences HM for using MART.

### **Performance expectancy**

Another factor Venkatesh et al. pointed out in 2003 for the acceptance and use of technology is the performance expectancy, which is defined as a measure of ease of use and understanding of the relative benefits of new technology. If users find it easy to use technology daily, their intention to use it increases (Al-Okaily et al., 2019). Jung et al. (2018) pointed out the positive effect of performance expectancy on the intention to use MART. Also, performance expectancy positively affects the use of virtual reality apps (Priescu & Oncioiu, 2021). Pinto et al. (2022b) pointed out the positive effect of performance expectancy on MART in their two studies. In the context of hedonic motivation, Seth et al. (2020) studied the benefits of technology, such as its ease of use, create motivation among people (Seth et al., 2020). Performance expectancy positively affects hedonic motivation (Salimon et al., 2017; Taut, 2021). Furthermore, it has been noted in the research conducted by Siyal et al. (2021) that hedonic motivation also positively impacts the Intention to use online reservation technology. Therefore, this research proposes the following hypotheses:

- H4a: Performance expectancy positively affects the intention to use MART.
- H4b: Performance expectancy positively influences HM to using MART.

### **Hedonic motivation**

Over time, the UTAUT theory has changed and transformed. In this regard, factors like hedonic motivation have been added to it. Hedonic motivation means the motivation to use entertainment in daily activities. This factor is more evident in innovative technologies like MART (Siyal et al., 2021). Previous researches point out the role of hedonic motivation on customers' intentions (Ali et al., 2016; Palau-Saumell et al., 2019). Pinto et al. (2022a) pointed out the effect of hedonic motivation on the intention to use MART in their two studies. Gharaibeh et al. (2021) also found that hedonic motivation positively and significantly affects the intention to use MART. Therefore, the fifth hypothesis of the research is as follows.

-H5: Hedonic motivation positively affects the intention to use MART.

### **The Role of Hedonic Motivation as a Mediator**

As mobile phone technology grows, more people use augmented reality applications. People are naturally motivated by enjoyable experiences, which is why using augmented reality can be so appealing. Individuals with positive experiences with this technology are more likely to use it consistently. However, factors like the unified theory of Acceptance and Use of Technology can influence people's motivation to use technology. Hedonic motivations may mediate between these factors and people's intention to use the technology. The study of Siyal et al. (2021) explored this idea and found evidence to support it. They looked specifically at online booking and found that hedonic motivation was important in determining people's acceptance and intention to use online booking taxi services.

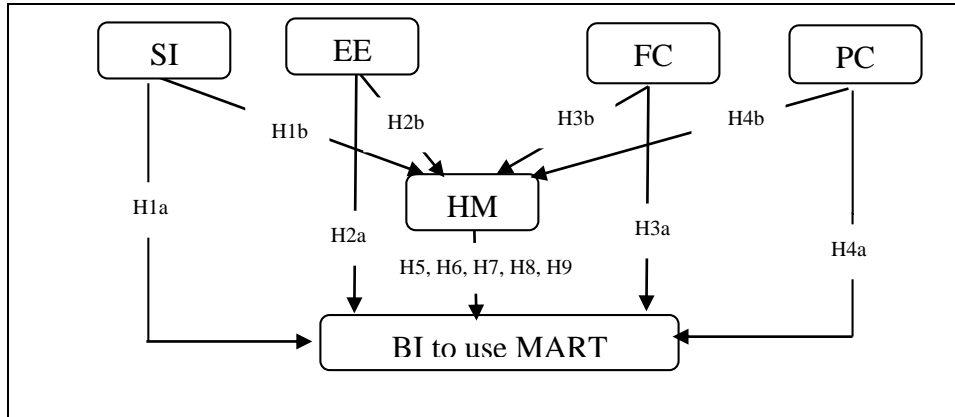
-H6: Hedonic motivation plays a mediating role between Social influence and intention to use MART.

-H7: Hedonic motivation plays a mediating role between Effort expectancy and intention to use MART.

-H8: Hedonic motivation plays a mediating role between facilitating conditions and intention to use MART.

-H9: Hedonic motivation plays a mediating role between Performance expectancy and intention to use MART.

According to the research assumptions, the conceptual model is shown in Figure 1.



**Figure 1. Research model**

## Method

### Sampling, Data Collection & Methodology

The current research is practical in terms of purpose and is a descriptive survey in nature and collecting method. The statistical population of the study includes individuals who have used mobile augmented reality programs in Iranian tourism, such as Iran Tour and the Takht Jamshid app, at least once. Approximately one thousand questionnaires were distributed online through messaging services and the LinkedIn platform in the current study. The researchers collected and analyzed 201 completed questionnaires.

A significant number of participants who completed the questionnaire were unaware of the program's existence and were requested to install the Apps and use them to fill out the questionnaire. Additionally, a 5-point Likert scale was used to measure the responses. All 21 questions in the questionnaire were extracted from two studies by Pinto et al. (2022).

### Normality and Analysis Methods

The normality of the data was assessed in this study using the Kolmogorov-Smirnov test. The results showed a significance value of 0.0 for the variables, indicating that the data distribution was not normal. Additionally, given the use of the structural equation modeling statistical technique, the Smart-PLS program was utilized for data analysis due to the non-normal distribution of the variables (Hair et al., 2019).

## Data analysis

### Convergent and Divergent Validity

First, convergent validity has been investigated to measure the degree of correlation between the research items. According to the results, the obtained numbers show that the amount of extracted variance (AVE) in each variable is good (greater than 0.5). Also, the composite reliability (CR) values indicate a good value (greater than 0.70). The composite reliability value is also higher than the extracted variance value. These results show that convergent validity is confirmed. Table 1 shows the amount of extracted variance and Cronbach's alpha. Then, using the Fornell and Larcker test, the divergent validity of the constructs was examined. In this research, the diagonal value for each variable is larger than the other variables in the same row and column. Table 2. shows the results of the Fornell and Larcker test. As a result, the divergent validity of the present study is also confirmed.

**Table 1. Summary of measurement scales**

Constructs	Items	Factor Loading	Cronbach's $\alpha$	Composite reliability	AVE
PE	PE1	0/87	0/87	0/92	0/80
	PE2	0/92			
	PE3	0/88			
EE	EE1	0/9	0/89	0/92	0/75
	EE2	0/87			
	EE3	0/84			
	EE4	0/86			
SI	SI1	0/89	0/88	0/92	0/74
	SI2	0/87			
	SI3	0/89			
	SI4	0/78			
FC	FC1	0/82	0/86	0/91	0/78
	FC2	0/88			
	FC3	0/88			
	FC4	0/86			
HM	HM1	0/88	0/87	0/92	0/8
	HM2	0/89			
	HM3	0/88			
BI	BI1	0/9	0/88	0/92	0/74
	BI2	0/91			
	BI3	0/87			

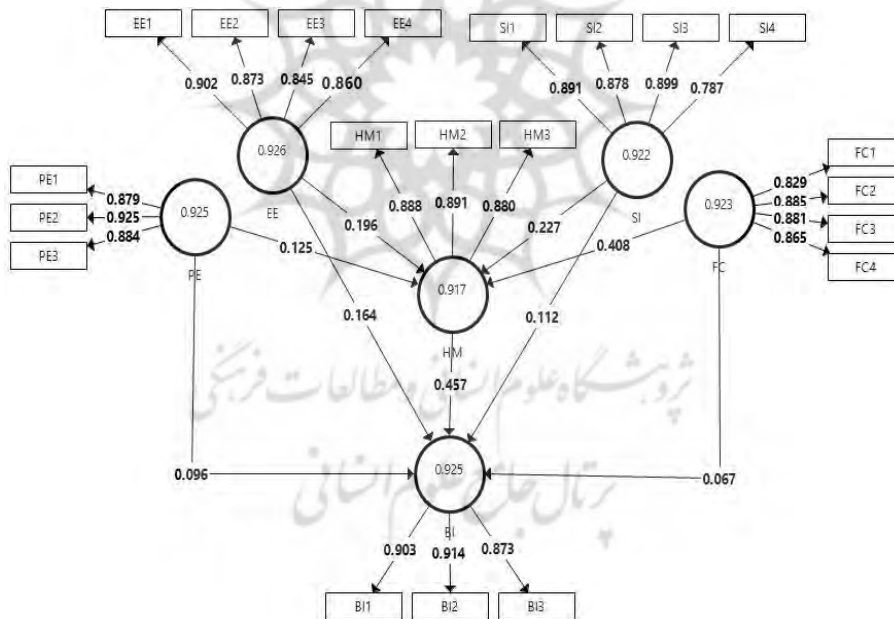
**Table 2. Fornell and Larcker test**

	BI	EE	FC	HM	PE	SI
BI	<b>0/89</b>					
EE	0/76	<b>0/87</b>				
FC	0/74	0/80	<b>0/86</b>			
HM	0/81	0/81	0/84	<b>0/88</b>		
PE	0/71	0/83	0/76	0/76	<b>0/89</b>	
SI	0/73	0/81	0/8	0/80	0/72	<b>0/86</b>

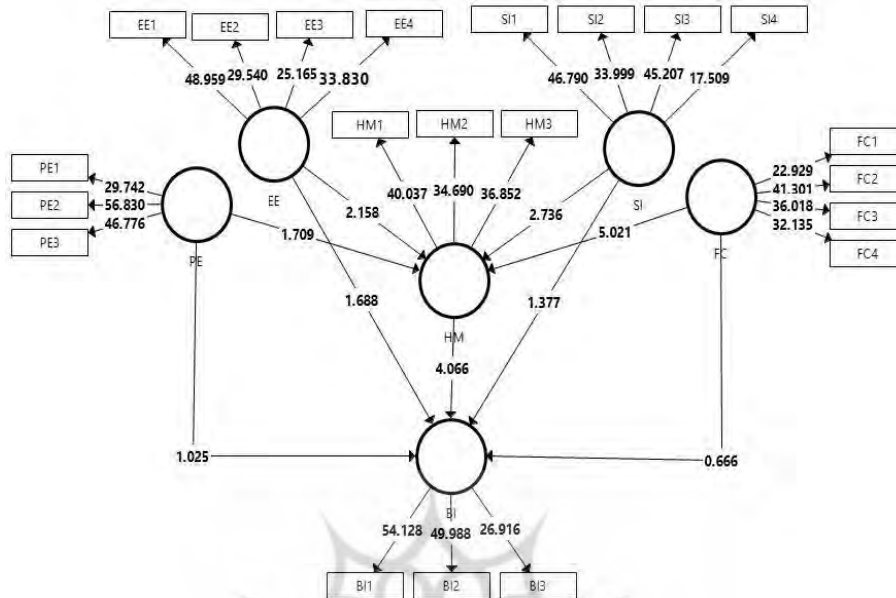
**Findings**

**Structural equation analysis**

In this study, we utilized structural equation modelling (SEM) as a statistical technique to analyze the data. In this method, all relationships between structures are analyzed simultaneously. In Figure 2, standardized path values and Figure 3, significance values (T) are shown.



**Figure 2. standardized path coefficients**



**Figure 3. significance value (T)**

The market analysis conducted using data analysis confirms hypotheses H1a and H1b. The path coefficient for H1a is 0.112, with a significance value of 1.377, while the path coefficient for H1b is 0.227, with a significance value of 2.736. These results indicate that both hypotheses are confirmed. Based on the path coefficients and significance values, both hypotheses H2a and H2b have been confirmed. The path coefficient for H2a is 0.164 with a significance value of 1.688, while the path coefficient for H2b is 0.196 with a significance value of 2.158. Based on our analysis, hypothesis H3a has been confirmed with a path coefficient of 0.067 and a significance value of 0.666. Similarly, hypothesis H3b has been confirmed with a path coefficient of 0.408 and a significance value 5.021. Based on the analysis, it can be concluded that hypothesis H4a is confirmed with a path coefficient of 0.096 and a significance value of 1.025. Similarly, hypothesis H4b is confirmed with a path coefficient of 0.125 and a significance value of 1.709. Additionally, hypothesis H5 was confirmed with a path coefficient of 0.457 and a significance value of 4.066. These results indicate that the data support the proposed direct hypotheses. In this study, we examined the mediating role of hedonic motivation in hypotheses 6 to 9. To test these hypotheses, we used the Sobel test, which allowed us to determine whether hedonic motivation

played a mediating role. The results of the Sobel test showed that hypotheses 6, 7, and 8 were confirmed, indicating that hedonic motivation did indeed mediate in these cases. However, hypothesis 9, which examined the mediating role of hedonic motivation between PE and BI, was rejected due to a Sobel test statistic of less than 1.96. These findings suggest that hedonic motivation can play an important role in mediating the relationship between certain variables, but not in all cases.

The summary of the results of the current research hypotheses is shown in Table 3.

**Table 3. Summary of hypotheses**

Direct Hypotheses		B	T	P	Result		
SI	→ Intention to use MART.	0/11	1/37	0/08	Confirmed		
SI	→ HM for using MART.	0/22	2/7	0/0	Confirmed		
EE	→ Intention to use MART.	0/16	1/6	0/46	Confirmed		
EE	→ HM for using MART.	0/19	2/1	0/0	Confirmed		
FC	→ Intention to use MART.	0/06	0/6	0/25	Confirmed		
FC	→ HM for using MART.	0/4	5/02	0/0	Confirmed		
PE	→ Intention to use MART.	0/09	1/02	0/15	Confirmed		
PE	→ HM for using MART.	0/12	1/7	0/04	Confirmed		
HM	→ Intention to use MART.	0/45	4/06	0/0	Confirmed		
Indirect Hypotheses		A	B	SE <sub>A</sub>	SE <sub>B</sub>	Z	Result
SI	→ HM → Intention to use MART.	0/22	0/45	0/08	0/10	2/21	Mediated
EE	→ HM → Intention to use MART.	0/19	0/45	0/08	0/10	1/97	Mediated
FC	→ HM → Intention to use MART.	0/40	0/45	0/08	0/10	3/34	Mediated
PE	→ HM → Intention to use MART.	0/12	0/45	0/07	0/10	1/56	Not mediated

### Evaluating Model Fit

In this study, the Goodness of Fit (GOF) index was used to assess the fit of the research model. Moreover, the coefficient of determination (R<sup>2</sup>) was utilized to evaluate the explanatory power of the structural model, and the index (Q<sup>2</sup>) was employed to assess the model's predictive ability. The values of each of these indicators are presented in Table 5. Also, Table 4 mentions Construct Cross Validated Communality to obtain GOF.

**Table 4. Indices Used for Model Fit Assessment**

Variable	Cross-Com	R <sup>2</sup>	Q <sup>2</sup>	GOF
BI	0/54	0/78	0/52	0/39
HM	0/51	0/69	0/57	
SI	0/54	-	-	
EE	0/55	-	-	
FC	0/54	-	-	
PE	0/54	-	-	

### Conclusion

Today, due to technological advancements such as augmented reality in tourism, some tourist attractions utilize augmented reality technology to encourage visits. In Iran, there is a consistent need for sufficient information among people, managers, and researchers, prompting the question of which factors facilitate the acceptance and usage of this technology. By using the UTAUT theory, which has demonstrated stability according to numerous researchers, it becomes feasible to assess the factors influencing the acceptance and utilization of augmented reality in the tourism sector. Hedonic motivation is identified as a crucial factor that can drive the adoption of these technologies.

Research indicates that social influence positively influences the intention to use mobile augmented reality tourism applications in Iran, as reinforced by prior studies conducted by Priescu & Oncioiu (2022) and Gharaibeh et al. (2021). Although a study by Pinto et al. (2022) contradicts this finding, the majority of research in this domain does not support it. Additionally, research findings by Taut et al. (2021) and Siyal et al. (2021) provide compelling evidence that social influence positively impacts hedonic motivation for utilizing mobile augmented reality applications. This aligns with the present study's conclusion that social influence positively affects hedonic motivation for using augmented reality tourism applications on mobile devices.

The conducted research reveals that effort expectancy significantly and positively influences the intention to use augmented reality applications on mobile phones, consistent with studies by Priescu & Oncioiu (2021) and Gharaibeh et al. (2021). However, this study contrasts with the findings of two studies by Pinto et al. (2022), which suggest the opposite effect of effort expectancy on the intention to use augmented reality phone applications. Moreover, hypothesis H2b suggests that effort expectancy positively and significantly impacts hedonic motivation to use augmented reality tourism apps on mobile phones, in line with research by



Salimon et al. (2017), Weng et al. (2017), and Siyal et al. (2021).

Based on the findings of this study, facilitating conditions positively impact the intention to use augmented reality applications on mobile phones. This is consistent with previous research conducted by Pinto et al. (2022a), which also showed a positive effect of facilitating conditions on hedonic motivation. However, it is essential to note that this study contradicts another study by Pinto et al. (2022a). In terms of the positive effect of facilitating conditions on the hedonic motivation to use augmented reality tourism apps on mobile phones, this study is supported by previous research conducted by Sailmon et al. (2016), Maldonada et al. (2011), Taut et al. (2021), and Siyal et al. (2021). These findings suggest that facilitating conditions are crucial in enhancing the user experience and motivation to use augmented reality applications and apps.

Based on the findings of this study, having high-performance expectations is a critical factor that positively influences the intention to use augmented reality applications on mobile phones. This conclusion is supported by previous research conducted by Zhang et al. (2018), Priescu and Oncioiu (2021), and Pinto et al. (2022b). Moreover, the study's results show that high-performance expectations also significantly impact hedonic motivation to use augmented reality tourism apps on mobile phones. This finding is consistent with the research of Salimon et al. (2017), Taut (2021), and Siyal et al. (2021). These results suggest that individuals who have high expectations of the performance of augmented reality apps are more likely to use them and enjoy the experience.

The fifth hypothesis of the study found that hedonic motivation positively and significantly impacts people's intention to use augmented reality apps on mobile phones. Previous research by Siyal et al. (2021), Nair and Hussain (2016), Palau-Saumell et al. (2019), Pinto et al. (2022), and Ghariabeh et al. (2021) also support this finding.

Based on the study, it has been hypothesized that hedonic motivation could potentially act as a mediator between the three dimensions of the unified theory of acceptance and use of technology (Social influence, Effort expectancy, and Facilitating conditions) and the intention to use augmented reality in mobile apps for tourism. This finding is consistent Siyal et al. (2021). However, it is essential to note that this study did not find any evidence that hedonic motivation is mediating between performance expectancy and the intention to use augmented reality in mobile apps for tourism.

### **Practical Suggestions**

The present research findings lead to a better understanding of managers' roles in tourism development. Also, this research helps better understand the factors of acceptance and use of technology for developing mobile apps. Therefore, according to the research's assumptions, practical suggestions for developing and improving tourism augmented reality technology, which ultimately leads to tourism development, have been presented.

The result of the first hypothesis of the research indicates that the people around the person can have a positive but insignificant effect on the intention to use MART with their influence. Therefore, it is suggested that managers in this area use word-of-mouth marketing, one of the most effective advertising methods, to influence people because it positively affects the intention to use MART. However, due to the insignificant effect of this, it is suggested that other advertising methods, such as online advertising, be used. Also, due to the positive and significant effect of social influence on the hedonic motivation of people to use MART, it is suggested that the managers of tourist attractions create hedonic motivation by branding their mobile phone tourism apps. This practice increases the hedonic motivation of people to use MART.

The research suggests that tourist attraction managers should improve the accessibility and accuracy of augmented reality apps to increase people's willingness to use them on their phones. Making the apps more user-friendly also positively affects people's enjoyment. Additionally, increasing user interaction through online chat features can further enhance their motivation to use these apps for tourism purposes.

The third hypothesis suggests that facilitating conditions positively affect the intention to use MART, but the impact is insignificant. Transferring knowledge about these apps through smart devices does not significantly influence the intention to use MART. However, facilitating conditions positively and significantly affect the hedonic motivation to use MART. Therefore, it is recommended that tourism managers improve the hedonic motivation to use augmented reality tourism apps on mobile phones by incorporating supporters in the app and making it compatible with other technologies like web networks and virtual tours.

Based on the fourth hypothesis, the impact of performance expectation on the intention to use MART is positive but insignificant. To encourage the use of MART, managers are advised to enhance the perceived usefulness of the apps and create an environment where users can easily

access the desired information. However, since the effects on performance expectations are insignificant, managers should focus less on this aspect. Instead, they can improve user experience by making the app more user-friendly and ensuring relevant information is easily accessible. This can enhance users' pleasure from using augmented reality tourism apps on their mobile phones.

Finally, according to hypotheses six to eight, hedonic motivation may act as a mediator between Perceived Social Influence (SI), Facilitating Conditions (FC), Effort Expectancy (EE), and the intention to use augmented reality applications on mobile phones. Incorporating engaging factors such as games could positively impact the three dimensions of acceptance and use of technology (SI, FC, EE), increasing the probability of using augmented reality applications on mobile devices.

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