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Investigating the effective factors on mobile bank acceptance according to the theory of integration of acceptance and use of technology (UTAUT)

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Abstract

Banks are one of the largest businesses interested in systems of increasing the efficiency and effectiveness of customer service. Despite the will of banks in the full implementation of Mobile Banking, its realization largely depends on the level of motivation and customer acceptance. The purpose of this study is to investigate the factors affecting behavioral intention and mobile bank acceptance. This research is applied in terms of purpose and in terms of data collection method is a descriptive survey. The statistical population of this study was the customers of bank branches in Qazvin province. To achieve the objectives of the research, using Morgan table, 387 questionnaires were distributed among customers as a statistical sample. Structural equation modeling and partial least squares method were used to test the hypotheses and model fit. In this study the three hypotheses were not accepted the price value, hope for effort and habit of behavioral intention towards mobile bank acceptance and ten other hypotheses were confirmed, including the effect of pleasure motivation, social influence, trust, functional expectations and satisfaction on behavioral intention and the effect of trust and hope of effort on functional expectations and the effect of trust on satisfaction and the effect of behavioral intention and facilitation on acceptance mobile bank.

Keywords: Mobile Banking, Acceptance, Behavioral Intention, Technology.

1. Introduction

Increasing competition in the market has forced companies to think about using strategies with aim to attract and retain customers. Among the various strategies used by companies, focus on improving the quality of services is of particular importance (Mozaffari, 2018, 82; quoted by Mr. Kasiri et al., 2017). Today, organizations and companies to show the importance of time advantage as one of the main dimensions of agility are trying to improve speed and productivity in the service supply chain in dynamic business environments (Mozaffari, 2018, 83; quoted by Shin et al., 2015). One of the areas that has affected the banking industry is information technology (Hassanzadeh et al., 2012: 57). E-commerce and various dimensions of this technology are derived from this technology that has had a great impact on commercial and non-commercial organizations. E-commerce means using electronic tools to accelerate business transactions and improve efficiency in business processes throughout the organization (Ismailpour et al., 2018, 40, citing Theo and Ranganathan, 2004).

Iran is a young country in the field of e-commerce and electronic banking and has a long way to go to reach a level that can be reached (Bakhshi and Samizadeh, 2018: 58). Increasingly, banks seem to be more motivated to integrate mobile banking channels into logistics systems and the many financial and technical resources devoted to this field (Lane, 2011). More than $ 115 billion has been invested by banks around the world to implement technology mobile banking in their systems by the end of 2013 (Compulse Pulse, 2013). In addition, with the increase in the number of mobile subscribers around the world, the market has expanded the capabilities of mobile banking services and attracted more customers and the demands of both parties (customers and banks) in this regard have been met (Lee et al., 2015). However, the acceptance of mobile banking services, especially in developing countries, has not reached the expected level and customers are less interested in such services (Alwan and Williams, 2017). Accordingly, it can be argued that the biggest challenge to the success of this technology is convincing consumers to use mobile banking as a complete alternative to traditional channels (Laukanen & Sinconnen, 2007). Iran is one of the countries in which the process of using and accepting mobile banking is expanding rapidly, so identifying and ranking the factors affecting the intention to accept mobile banking in Iran requires study and research. Therefore, in the present research have been investigated the most important factors that can form the intention of customers in Qazvin banks and cause mobile bank acceptance in them.

2- A review of the foundations and background of the research

The term e-commerce came into being when businesses realized the role of the Internet as a powerful intermediary for doing business, especially in the service sector. E-commerce is a process that includes purchasing, marketing, sales and customer support and is associated with business relationships and interactions through the Internet (Ismailpour et al., 2018, 43). Today, a lot of research has been done on advances and technological changes in service delivery. Common to many of these studies is the challenge of how to understand the behavior of traditional consumers in an environment with the presence of information technology (Turkestani et al., 2018, 2; quoting Parbutia and Wells, 2009). According to the evidence, the main problem is the gap between the use of e-commerce in

Iran compared to the world, which threatens not only the competitiveness of small and medium-sized businesses, but also their lives and survival. To succeed in the world of e-commerce and e-commerce, the first and most important step of planning is to identify barriers to the use of e-commerce. Organizations need to be aware of these obstacles in order to design and properly implement strategies for using e-commerce (Esmailpour et al., 2018, 42).

The study of customer intent and mobile bank acceptance has recently been considered by researchers around the world, and this issue has grown significantly in the literature on online banking networks (Go et al., 2009 and Lin, 2011). In fact, using different approaches and theoretical foundations, researchers are gradually trying to explain how to formulate perception, attitude, intention and behavior towards mobile bank acceptance (Lee et al., 2015). Pushl et al. (2010) claim that the attitude of Brazilian customers towards mobile banking is significantly influenced by the comparative advantage and, consequently, the compatibility and ultimately the enrichment of customers' intention to accept mobile banking. Lin (2011) showed that perceived comparative advantage, ease of use, adaptability, ability and correctness have a significant impact on attitudes that lead to behavioral intention to accept mobile banking.

Moreover, ease of use for current users and perceived ability are also more important for potential users. Recently, Purwangara et al. (2014) asserted that perceived benefits and government regulation play an important role in customer attitudes toward mobile banking in Indonesia. Rios and Riquelme (2010) by examining the factors affecting mobile bank acceptance in Singapore and the role of gender as a moderating variable showed that usefulness, mental norms and risk have a significant impact on the intention to accept mobile banking services and also ease of use in women. While comparative advantage is more effective in men. Social norms also have a greater impact on women than men. Tobin (2012) showed that ease of use, usefulness, economic factors and trust affect the intention of the rural community to use and accept mobile banking services. Salehi and Sarvarnejad (2011) showed that the risk factor of customers has a significant effect on the acceptance of mobile banking service. Behboodi et al. (2013) introduced lifestyle adjustment and trust as two main factors in accepting mobile banking. Perceived usefulness, credibility, ease of use, need for face-to-face interaction, perceived risk and perceived cost to customers were other factors influencing mobile banking acceptance, respectively. Ghaffari Ashtiani et al. (2013) showed that perceived ease of use is one of the presuppositions of people's attitude in using mobile banking and the intention to use these new banking services. Siadat and Torshgoo (2016) analyzed seven useful and efficient hypotheses: ease of use, cost of use, validity of services, trust, satisfaction and motivation. The results showed that what is most important for customers is the ease of use of the service and also its reliability.

3- Theoretical framework and conceptual model

Researchers have used various models and theories such as: Innovation Dissemination Theory (IDT) (Rogers, 2003) by Lane (2011) and Kim and Sheen and Lee (2009) and Technology Acceptance Model (TAM) (Davis, Bugzey, Warsaw (1989)) Goo et al. (2009) and Theory of Planned Behavior (TPB) (Ajzan, 1991) by Lauren and Lane (2005) and Theory of Integrity and Acceptance of Technology (UTAUT) (Brown, Strobe, & Davis, 2003) by Zhou, Lu, & Wang (2010) in similar subjects of the present study. With further reflection, however, it became apparent that most of these theories and models, such as TAM and UTAUT, were initially proposed in an organizational context. Therefore, in the search for a suitable model that covers almost all structures was determined the UTAUT model.

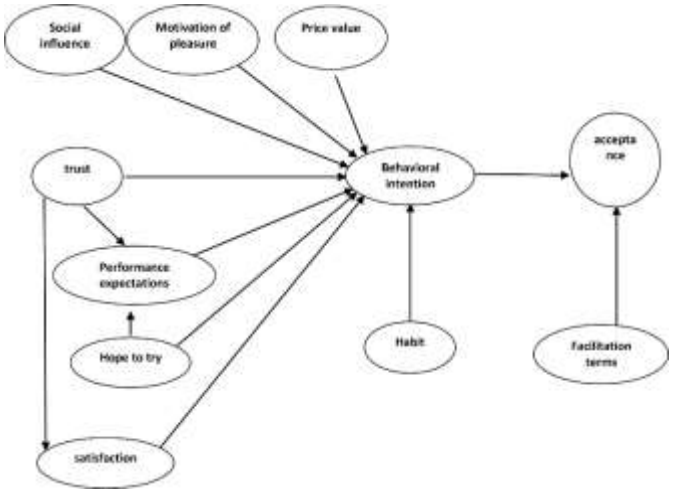

Figure 1: Conceptual model of research (Source: Vankatesh et al., 2012, theory of integration of acceptance and use of technology)

The main variables of UTAUT2 include: performance expectations, hope for try, social influence, pleasure motivation, price value and habit were suggested as determining factors of customers in order to accept mobile banking. In the following, each of the factors affecting mobile bank acceptance is described in the proposed model and is discussed about its impact.

3-1- Price value

Using technology for customers can be more financial expenses. Therefore, customers will be more eager to adopt a new technology if they receive more services than they pay for (Vankatesh et al., 2012). The cost of an innovation consists of three components: the cost of purchase, the cost of transfer, and the cost of use. Most importantly, the facilities and resources required (eg 4G services, smartphones, wi-fi) to connect to a mobile bank can be have more financial expenses for the customer (Alwan and Williams, 2014). Also, studies on online banking networks have been discussed. For example, Hu and Ko (2008) acknowledged the role of perceived value in customers' intentions toward Internet banking. Therefore, price value is recognized as an influential factor in the acceptance of Internet banking. So we will have:

Hypothesis 1: Price value has a positive effect on customers' intention to accept mobile banking.

3-2- Motivation for pleasure

Vankatesh et al. (2012) have proposed a direct relationship between pleasure motivation (including intrinsic features such

as: happiness, fun, being interesting and enjoyable) and customer behavioral intention to use technology (including external features such as: productivity, usefulness and expectation of performance). Van der Hayden (2004) also argued that innate possibilities play a highly exploratory role in accelerating individuals' intentions to embrace emerging systems. Therefore:

Hypothesis 2: Pleasure motivation has a positive effect on customers' intention to accept mobile banking.

3-3- Social influence

Social influence means a person's perception that most people who are important to him or her think that he or she should or should not use the new system. In fact, this variable expresses being influenced by family, friends, colleagues and relatives (Vankatesh et al., 2003). Information and encouragement provided by those around customers can play a dynamic role in customer engagement awareness as well as the individual's intention towards technology (Alwan & Williams, 2016). If the social context is aligned with the use of a technology, it plays a very important role in the decision-making process. The role of social influence in mobile bank acceptance has been confirmed in research by Zhou et al. (2011) and Yu (2012). Therefore:

Hypothesis 3: Social influence has a positive effect on customers' intention to accept mobile banking.

3-4- Trust

Geffen, Karahana and Straub (2003) argue that customer trust in mobile banking can be interpreted as a set of customer beliefs of integrity, benevolence and practical ability that can increase the customer's desire for mobile banking to achieve financial transactions. Trust in the technology system plays an important role in the acceptance of that technology (Chou, 2007 and Zhou, 2011). User distrust of a technology can even lead to underdevelopment of a technology and market loss (Liu et al., 2004). In the present study, as suggested by Geffen et al. (2003), it is assumed that trust has a direct effect on customers' intentions or an indirect effect on performance expectations in mobile bank acceptance. Therefore:

Hypothesis 4: Trust has a positive effect on customers' intention to accept mobile banking

Hypothesis 5: Trust has a positive effect on performance expectations on the intention to use mobile banking.

Hypothesis 6: Trust has a positive effect on satisfaction with the intention to use mobile banking.

3-5- Performance expectations

Vankatesh et al. defined performance expectations as the degree to which a person believes that the use of technology can help him or her achieve career performance. It also seems that if customers realize that this technology is more useful and useful in their daily lives, they are more motivated to use and adopt new technology (Alwan and Williams, 2016). Therefore:

Hypothesis 7: Performance expectations have a positive effect on customers' intention to accept mobile banking.

3-6- Hope to try

Hope to try means how easily the customer can use a product when using the system. Mobile banking requires a certain level of knowledge and skills, so Hope to try can play an important role in setting customer goals for using such technology. This feature of Hope to try has been confirmed by various mobile banking studies in predicting customers' intentions to use mobile banking (Alwan et al., 2017). Therefore:

Hypothesis 8: Hope to try has a positive effect on customers' intention to accept mobile banking.

Hypothesis 9: Hope to try has a positive effect on performance expectations in mobile banking.

3-7- Satisfaction

Customer satisfaction or dissatisfaction is the result of people's general feelings or attitudes about products (after purchase). Understanding what affects consumer satisfaction can provide business owners and design managers with appropriate suggestions to help identify market demand (Ebrahimi et al., 1398, 166, quoted from Hanzai et al., 2012). By definition, satisfaction is the feeling that comes from the process of evaluating what is received compared to what was expected in the purchase decision according to the needs and wants (Fasikova, 2004). Therefore:

Hypothesis 10: Satisfaction has a positive effect on customers' intention to accept mobile banking.

3-8- Habit

The rate of use of a technology is largely influenced by previous experiences of using similar technologies (Parka et al., 2009). It is a stable habit that can ensure the long-term use of technology and also move and facilitate the technology acceptance process. Habit plays a moderating role in the intention to use and continue to use technology (Evano, 2008). As a result, there is a two-way, interactive relationship between habit and behavior (Triandis, 1980). Therefore:

Hypothesis 11: Habit has a positive effect on customers' intention to accept mobile banking.

3-9- behavioral intention

Behavioral tendencies have a broad meaning and include various dimensions, and include all three parts of the buying process, ie before buying, during buying and after buying. According to Sidders et al. (2007), behavioral tendencies are dimensions that are only related to post-purchase activities and examine repurchase, re-referral, and word-of-mouth advertising (Ebrahimi et al., 2019). Therefore, in this study, it is assumed that mobile bank acceptance can be predicted to a large extent through customers' desire for such a system. This

relationship has also been confirmed by Martin et al. (2014) in online banking studies. Therefore:

Hypothesis 12: Behavioral intention has a positive effect on customers' intention to accept mobile banking.

3-10- Facilitation conditions

If customers have used previously a certain level of service and resource support as well as mobile banking compatible with other technologies, they are more motivated to use mobile banking (Alwan and Williams, 2016). Facilitation conditions have an influential role in using mobile banking, which is supported by various online banking studies. Therefore:

Hypothesis 13: Facilitation conditions have a positive effect on customers' intention to accept mobile banking.

4- Research methodology

This research is applied in terms of purpose and in terms of data collection method, it is a descriptive survey. The statistical population of this study was the customers of bank branches in Qazvin province. According to the initial sampling through pre-test to assess the reliability and validity of the instrument and determine the variance deviation, the statistical sample size of this study included 387 customers of Qazvin bank branches who answered the questions randomly. Structural equation technique was used to answer the research questions and test the hypotheses.

The data collection tool is a standard questionnaire that has been validated, but due to localization in this research, its validity and reliability have been re-examined and confirmed. To evaluate the convergent validity in PLS model, the mean of extracted variance (AVE) is analyzed. This index indicates the amount of variance that a structure derives from its markers. As shown in Table 1, all AVEs within the structures work with a score of 0.4, which is acceptable for questionnaire routines.

Table 1. Convergent validity of the constructs of research variables

Facilitating conditions	Habit	**trust**	Social influence	Motivation of pleasure	**Price value**	Variable / Convergent validity
0.643	0.690	0.610	0.663	0.715	0.728	average variance extracted (AVE)
0.724	0.694	0.485	0.656	0.764	0.780	Standard deviation
	Acceptance	**behavioral intention**	Satisfaction	Hope to try	**Performance expectations**	variable / Convergent validity
	0.412	0.771	0.758	0.467	0.711	average variance extracted (AVE)
	0.678	0.841	0.764	.678	0.836	Standard deviation

Cronbach's alpha reliability coefficient of all variables in this study was 0.956 which was much higher than the minimum standard value (0.7) and showed that the measures have high reliability. Table 2 shows the number of metrics designed to measure each latent variable and the combined reliability coefficient. Bagazi and Yi have stated a standard above 0.6 for composite reliability (CR). As can be seen in this table, all CR values are greater than 0.6, so the measurement model has good combined reliability.

Table 2. Combined reliability of research variables

Variable	**Number of items**	**Combined reliability (CR)**
Price value	3	0.889
Motivation of pleasure	3	0.882
Social influence	3	0.855
trust	6	0.903
Performance expectations	4	0.907
Hope to try	4	0.879
Satisfaction	3	0.904
Facilitating conditions	4	0.877
behavioral intention	4	0.930
Habit	3	0.870
Acceptance	5	0.733

In this research, Structural Equation Modeling (SEM) and Partial Least Squares (PLS) have been used to test the hypotheses and model fit. As can be seen in Table 3, 10 hypotheses were confirmed and the hypothesis 3 were rejected. Thus, according to the path coefficient, if the probability value (t-value) is less than the significance level of 0.05 and the significance number is greater than 1.96, it can be concluded that this path coefficient is significant at the error level of 0.05 otherwise the hypothesis is rejected.

5- Research findings

Based on the results of the study, it was found that in terms of demographic characteristics, 53.5% of employees are men and 59.9% are married. In terms of age, 49.9% of people were in

the age range of 25 to 35 years. In terms of education, 63.8% were academics. In terms of mobile bank usage per week, 3.6% did not use at all, 42.6% used it 1 to 2 times, 28.9% used it 3 to 4 times, 9.8% used it 5 to 6 times and 15% used it 7 times or more per week. In general, it seems that the statistical samples are well selected according to the target population and the results of the research can be cited.

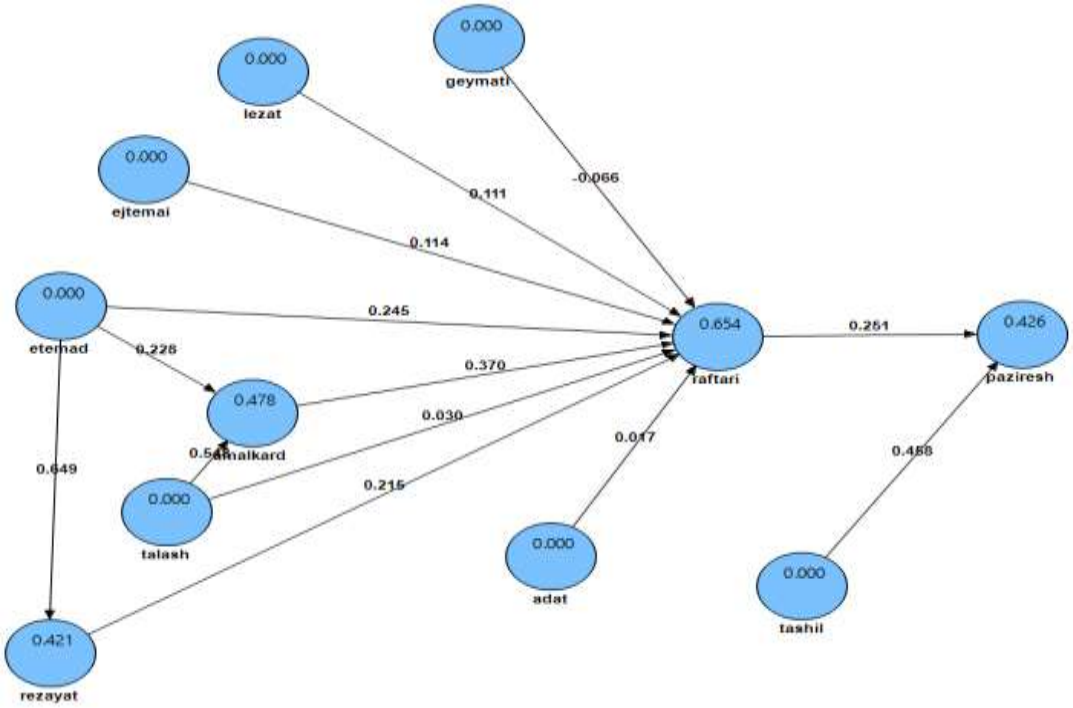

Figure 2. Research model in standard estimation mode

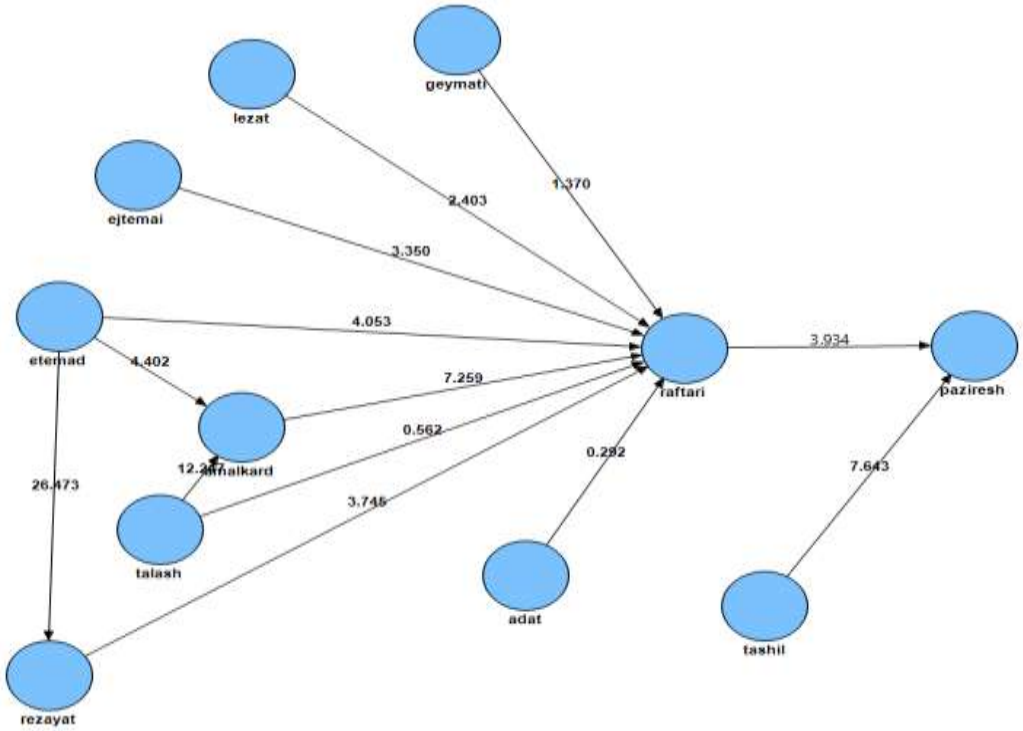

Figure 3. Research model in the meaning of parameters

Table 3. Summary of the results of the relationships between the variables

Hypothesis number	Variable effect	On Variable	Path coefficient	t-value	result of the hypothesis
1	**Price value**	behavioral intention	-0.066	1.370	Rejected
2	Motivation of pleasure	behavioral intention	0.111	2.430	Confirmed
3	Social influence	behavioral intention	0.114	3.350	Confirmed
4	**trust**	behavioral intention	0.245	4.053	Confirmed
5	**Performance expectations**	behavioral intention	0.370	7.259	Confirmed
6	Hope to try	behavioral intention	0.030	0.562	Rejected
7	Satisfaction	behavioral intention	0.215	3.745	Confirmed
8	Habit	behavioral intention	0.017	0.292	Rejected
9	**trust**	**Performance expectations**	0.228	4.402	Confirmed
10	Hope to try	**Performance expectations**	0.548	12.247	Confirmed
11	**trust**	Satisfaction	0.649	26.473	Confirmed
12	behavioral intention	Acceptance	0.251	3.934	Confirmed
13	**Facilitating conditions**	Acceptance	0.458	7.643	Confirmed

Table 4. CV Com Indicators and Red CV Indicators

Variable	CV Com	CV Red
Price value	0.441	0.441
Motivation of pleasure	0.421	0.421
Social influence	0.326	0.326
Trust	0.453	0.453
Performance expectations	0.511	0.334
Hope to try	0.415	0.415
Satisfaction	0.493	0.304
Facilitating conditions	0.404	0.404
behavioral intention	0.611	0.484
Habit	0.374	0.374
Acceptance	0.142	0.151

6- Discussion and conclusion

This research examined the factors affecting the acceptance of mobile banking and combined several factors such as price value, pleasure motivation, social influence, trust, performance expectations, hope to try, satisfaction, behavioral intention, facilitation and acceptance conditions. For many users, the trust and quality and security of services provided by mobile Bank, which leads to ease of doing things, is more important and price value has its real impact when other basic needs are met. The pleasure of using the bank's mobile services, which has led to the speed of doing banking, makes customers want to more use this phenomenon. Also, observing the behavior of people in using this phenomenon leads to the encouragement to use mobile banking to do banking. The impact that these services make on the pervasiveness of society it means the public acceptance. Existence of security in doing business by mobile banking services leads to users' trust in using these services and reduces the risk of cyberspace risks.

Customers' views on how the tool works are very effective in using it and lead to a desire to continue using it. Also, if working with the mobile bank is not easy, using banking instructions to use this phenomenon is preferable to not using this phenomenon. At the same time, the hope of try affects performance expectations rather than behavioral intent. It should be noted that user satisfaction can lead to continuous use and even recommendation to others to use this technology. Despite the fact that with the advent of new technology, behavior change has been easily seen by the user, and therefore habit cannot be a factor in the certainty of using the mobile bank. Therefore, the time periods related to habit are very short and cannot be called habit. Also, if users trust the bank's mobile services, a good image of the high efficiency of these services is created in their minds and leads to higher expectations of this phenomenon. If the bank's mobile services are easy to use and banking is expedited, a positive mentality about the high performance of these services will be created in users. Trust in the bank's mobile services has led to the recommendation of this phenomenon to those around it, and if other users use it and understand the security of this phenomenon, a kind of collective satisfaction will be obtained in using this phenomenon. If users become interested in using the bank's mobile services due to the advice of others or the benefits heard from some media, users will be encouraged to use these services and will accept this phenomenon. It should be noted that the speed, accuracy and convenience of banking is very important for users and leads to the acceptance of using these services, in many banking branches, the proposal of this issue by the relevant expert to the bank's clients is often welcomed by people.

applied suggestions

- According to the results, bank managers in creating a positive mindset about using the bank's mobile services should pay attention to the factors of satisfaction, social influence, trust, performance expectations and facilitation conditions.
- The quality of services provided by Mobile Bank is more important than the price value to customers. Therefore, banks should increase the quality of services by considering the needs of customers and their demands.
- Providing this technology in a simpler way, reducing unnecessary processes and seemingly simple, etc. facilitates the use of mobile banking for customers, which leads to increased use of mobile banking. Therefore, by providing the necessary training and familiarizing customers with how to use this technology, the conditions for facilitating the use of this technology should be paid more attention.
- It is suggested that along with the supply of mobile banking software, a help file and how to use this software should also be provided so that it can be effective in creating more convenience and familiarity to the customer.
- Due to the significant impact of trust in this research, reducing the amount of errors and mistakes in the system, increasing credibility and accuracy, increasing customer confidence leads to building trust in customers and attracting them to use mobile banking.

Suggestions for future researches

To benefit from better results, it is recommended that future studies consider the following:

1- To test the validity of the research findings, it is suggested that future studies repeat the present research in other provinces so that they can compare the results of these studies with each other, taking into account different cultural conditions.

2- It is recommended to use the research model on other electronic banking technologies such as bank card, internet banking and telephone banking.

3- Considering that Mobile Banking is done in cyberspace, it is suggested that such research questionnaires be completed electronically and online.

4- Because one of the main objectives of this study was the price value of behavioral intent and has been rejected in this study, reasons such as different perceptions of questions, inaccuracy of some respondents may have led to the disapproval of the hypothesis. Therefore, it is recommended that this variable be re-evaluated in other studies, despite the omission of this variable in the final model.

5- Considering the role of service quality in the behavior and acceptance of technology by customers, it is suggested to compare the quality of service and customer behavior in different banks, to determine the reasons for accepting or not accepting services and to adopt the necessary strategies.

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