Journal of Engineering and Applied Sciences 13 (8): 2023-2033, 2018
ISSN: 1816-949X

Determinants of Intention to Use Mobile Banking in the North of Jordan: Extending UTAUT2 with Mass Media and Trust

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Abstract: The aim of this study was to examine the determinants likely to affect the intention of using mobile banking services among suburbans in the North of Jordan. The proposed research model was based on the Unified Theory of Acceptance and Use of Technolgy 2 (UTAUT2) with additional determinants of the mass media and trust in the original UTAUT2 Model. SPSS Version 22 was selected to analyse the data collected by surveying 579 respondents from the three main cities in the Northern part of Jordan (Irbid, Jerash and Ajloun) using the convenience sampling technique. This study empirically presents the fact that the intention to use mobile banking was positively and significantly influenced by the mass media, trust, effort expectancy, performance expectancy, facilitating conditions, social influence and hedonic motivation. There are several factors that efficiently affect the intention to use mobile banking. Previous studies investigated the relationship between these determinants and the adoption of mobile banking services. However, none has focused on the mass media impact of the intention to use mobile banking services. In the current study, the factor of mass media influences on the usage of mobile banking in Jordan where it is found to be the vital contribution of the study.

Key words: Mobile banking, UTAUT, UTAUT2, performance expectancy, effort expectancy, Jordan

INTRODUCTION

Mobile phones have become the personal information processing option. The last statistics showed that there are around 4.77 billion mobile phone users already all over the world. The statistics also showed that 38% of mobile phone users were Smartphone users (Anonymous, 2017). For this reason, several businesses have employed mobile phone technologies in the marketing strategies such as presenting information of services and products, promoting and advertising. In this regard, mobile banking is considered a new innovation created by banks (Oliveira *et al*., 2014). This service allows consumers to perform banking transactions such as fund transfers, balance enquiries and payment of bills via. mobile phones, smartphones, tablet or personal digital assistants at all times (Zhou *et al*., 2010).

Although, mobile banking is a good channel for both partiesnamely the banks and consumers, it is required to consider about user acceptance and technology adoption. User acceptance or the intention to use technology is the most important matter when new technology is utilized for the business and organizations (Rondan-Cataluna *et al*., 2015). Consequently, any spending in technology is not productive if the majority of users do not accept it (Mallat *et al*., 2004). Therefore, there is an urgent need to study factors that affect intention and would entice consumers to use technology.

In the context of Jordan, the adoption of mobile banking has received considerable interestsince the statistics showed that 15 from 26 Jordanian banks had launched mobile banking services in 2012 (Migdadi, 2012). In spite of previous mobile banking adoption by Jordanian banks, the usage of mobile banking services among customers is still low. According to Gharaibeh and Arshad (2016) in the last statistics, only about 8% of the Jordanian banking consumers have performed their banking transactions via. mobile banking, they also stated that 26% of banking consumers were not aware about the presence of mobile banking services provided by Jordanian banks. This asserts that banking consumers in Jordan are still unconvinced about performing the banking services through smartphones or mobile devices.

Hence, this study aims to propose an extended UTAUT2 Model to investigate the factors influencing customer's intention to usemobile banking. In addition, the research model was evaluated empirically to test its effect on mobile banking adoption in Jordan. This study is divided as follows, the first is the overview of the literature about the newest acceptance and use of

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technology models, the second is the discussion about the research model and associated hypotheses, thirdly, the explanation of the research instrument and sample applied in this research, the fourth one is the analysis ofthe results of hypotheses testing, finally, the key conclusions, research recommendations, research contributions and future research directions.

Literature review: The Unified Theory of Acceptance and Use of Technology (UTAUT) is a technology acceptance model proposed by Venkatesh *et al.* (2003) which provided the factors as presented in Fig. 1. This model contains four factors, performance expectancy, social influence, effort expectancy and facilitating conditions. Performance expectancy is defined as "the extent to which using a technology will offer benefits to a customer in performing certain activities". Social influence is defined as "the extent to which consumers perceive the important others (e.g., family and friends) whom they believe should use a particular technology" Effort expectancy is defined as "the degree of ease related to customer's use of technology". Facilitating conditions defined as the "degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh *et al.*, 2003).

Despite the broad acceptance of UTAUT (Venkatesh *et al.*, 2012) extended UTAUT to pay particular attention to the customer use context instead of its original reason which was technology acceptance and use of employees. UTAUT was extended by including three constructs, hedonic motivation, habit and price value and dropped voluntariness which were one of the moderators in UTAUT. Also, Venkatesh *et al.* (2012) added a link between facilitating conditions and behavioural intention and this was moderated by age, gender and experience (Fig. 2). Price value is defined as "customers cognitive trade off between the perceived benefits of the applications and the monetary" (Dodds *et al.*, 1991). Hedonic motivation is defined as the "fun or pleasure derived from using a technology" and it has been shown to play an important role in determining technology acceptance and use (Brown and Venkatesh, 2005). Habit has been defined as the "extent to which people tend to perform behaviours automatically because of learning" (Limayem *et al.*, 2007).

Research framework and hypotheses: From the previous studies, UTAUT2 was repeatedly applied by researchers to examine the intention to use several technologies. Moreover, several studies found that all of the UTAUT2 determinants were significant in the intention to use

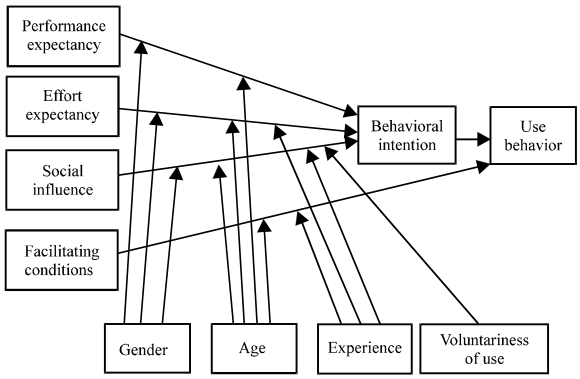

Fig. 1: Unified theory of acceptance and use of technology (Venkatesh *et al.*, 2003)

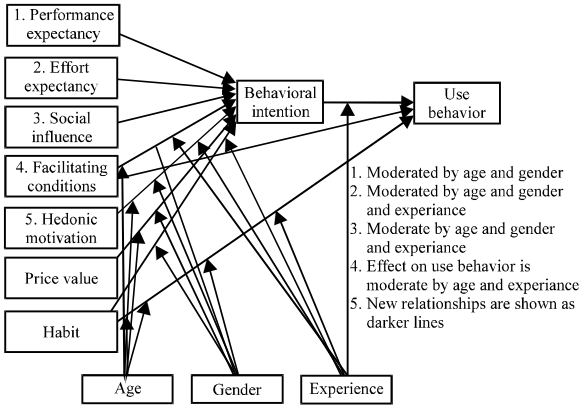

Fig. 2: Unified theory of acceptance and use of technology 2 (Venkatesh *et al.*, 2012)

(Nair *et al.*, 2015; Oechslein *et al.*, 2014; Venkatesh *et al.*, 2012; Wong *et al.*, 2014). Therefore, this research considered UTAUT2 as asuitable theoretical foundation for constructing the conceptual model. UTAUT2 was extended by including two factors, MassMedia (MM) and Trust (TR) along with original factors already existing in UTAUT2 namely Performance Expectancy (PE), effort expectancy, social influence, Facilitating Conditions (FC) and Hedonic Motivation (HM) (Fig. 3). The proposed conceptual model supposes that the mass media, trust, performance expectancy, effort expectancy, social influence, facilitating conditions and hedonic motivation will significantly affect customer's intention to use mobile banking. The research model was tested using 7 hypotheses as shown in Fig. 3. These hypotheses are as follows.

Mass media: Mass media is defined as "channels of communication-whether written, broadcast or spoken-that

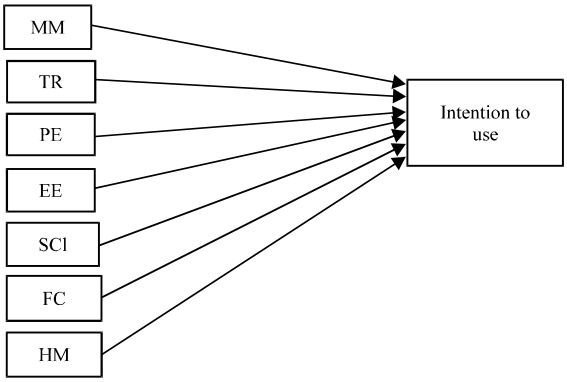

Fig. 3: Research model note: Mass Media (MM), Trust (TR), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SCI), Facilitating Conditions (FC), Hedonic Motivation (HM)

reach a large number of audience. This include the television, radio, advertising, the internet, newspapers, magazines, so on and so forth" (Jose and Estoque, 2010). The main characteristics of these media are making awareness and knowledge about new services, also, it has the ability to reach a large number of customers rapidly (Rogers, 2003). In addition, the recommendations from previous studies indicated the importance of promotion to raise customer's awareness about mobile banking service (Asfour and Haddad, 2014). The promotion for services can be done quickly by using these media. However, based on the above discussions, this study assumes that using different mass media channels (i.e., television, radio, magazine and internet) by banks will encourage their customers to use mobile banking services. Thus, we establish a new relationship between the mass media and the intention to use mobile banking services as in the following:

- H_1: mass media positively affects the behavioural intention to use mobile banking services

Trust: In the context of mobile banking services, the researchers were interested to include trust in their studies as an independent variable as described in the literature review where trust can be defined as the "subjective expectation with which consumers believe that a specific transaction occurs in a way consistent with their confident expectations" (Koksal, 2016). In this study, these expectations comprise of the following the trust in bank and mobile operator to provide secure mobile banking (Hanafizadeh *et al*., 2014) and trust in the technology that mobile banking services are using (Mazhar *et al*., 2014). Previous studies found different results concerning the relationship between trust and intention to use. However, some studies confirmed that there is a significant relationship between trust and intention to use mobile banking services (Chemingui and Lallouna, 2013; Hanafizadeh *et al*., 2014; Thakur, 2014). Meanwhile, other studies such as Mazhar *et al*. (2014) found that trust has a negative relationship with attitude toward the internet and mobile banking. In addition, Koksal (2016) found that trust did not affect mobile banking adoption. However, based on prior studies and extending these prior results to this study, trust will stimulate customer's intention to use mobile banking services. In other words when customer's level of trust is high, this will lead to higher level of intention to use mobile banking services. Accordingly, given, the well-established rationale and empirical support for an effect of trust on behavioural intention, this study assumes that trust has a positive impact on the intention to use mobile banking services, so, the hypothesis was formulated as the following:

- H_2: trust positively affects the behavioural intention to use mobile banking services

Performance expectancy: Performance expectancy was defined similarly in three famous acceptance theories. Firstly, perceived usefulness of TAM which proposed by Davis (1989) defined as the "degree to which person believes that using a particular system would enhance his/her performance". Secondly, relative advantage of IDT for Rogers (2003) defined this as the "degree to which an innovation is perceived as better than the idea it supersedes that often expressed in economic profitability, in status giving or in other ways". Thirdly, performance expectancy of UTAUT (Venkatesh *et al*., 2003) is defined as the "extent to which using a technology will offer benefits to a customer in performing certain activities". Over the previous literature, performance expectancy is noticed as the important factors for the intention to use. For example, Venkatesh *et al*. (2012) found that performance expectancy positively affects the intention to use mobile internet technology. Yang (2013) found that intention to adopt mobile learning was significantly impacted by performance expectancy. Raman and Don (2013) found that performance expectancy positively affects the intention to use learning management system. Oechslein *et al*. (2014) found that performance expectancy has a significant positive effect on the behavioural intention to adopt social recommender systems. Nair *et al*. (2015) found that performance expectancy influence the intentions to use the lecture capture system significantly. Baptista and Oliveira (2015)

found that performance expectancy has a positive impact on the intention to use mobile banking services. However, Wong *et al*. (2014) found that performance expectancy did not play a significant role in affecting mobile TV adoption intentions. As noted, the intention to use was found to be positively impacted by performance expectancy. Extending the above results to this study, it is expected that performance expectancy will play a key roleon the intention to use mobile banking services and the accompanying hypothesis is as follows:

- H_3: performance expectancy positively affects the behavioural intention to use mobile banking services

Effort expectancy: Effort expectancy is also found in three famous acceptance theories. Firstly, perceived ease of use of TAM Model introduced by Davis (1989) defined as the "degree to which person believes that using a particular system would be free of effort". Secondly, effort expectancy of UTAUT by Venkatesh *et al.* (2003) is defined as the "degree of ease related to customer's use of technology". Thirdly, based on the complexity of IDT (Rogers, 2003) defined it as the "degree to which an innovation is perceived as relatively difficult to understand and use". Most previous studies found that this relationship between effort expectancy and intention to use had been a positive relationship. Venkatesh *et al.* (2012) found that effort expectancy positively affects the intention to use mobile internet technology. Raman and Don (2013) found that effort expectancy positively affects the intention to use the learning management system. Oechslein *et al.* (2014) found that effort expectancy ha a significant and positive effect on the behavioural intention to adopt social recommender systems. Nair *et al.* (2015) found that effort expectancy influences the intentions to use thelecture capture system is significantly. In contrast, several previous studies found that there was no relationship between effort expectancy and intention to use. For example, Yang (2013) found that the intention to adopt mobile learning insignificantly impacted by effort expectancy. Baptista and Oliveira (2015) found that effort expectancy did not have a positive impact on the intention to use mobile banking services. Based on these previous studies and extending these prior results to this study, it is expected that effort expectancy will stimulate customer's intention to use mobile banking services. In other words when customer's level of ease of use is high, this will lead to higher level of intention to use mobile banking services. Accordingly, given, the well-established rationale and empirical support for an impact of effort expectancy on behavioural intention we establish the following hypothesis:

- H_4: effort expectancy positively affects the behavioural intention to use mobile banking services

Social influence: Social influence is defined as the "degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh *et al*., 2003). Social influence was defined similarly in two famous acceptance theories and a lot of previous studies. Firstly, subjective norms of TRA (Ajzen and Fishbein, 1980)" are seen as the individual's perceptions that most people how are important to him believe he should or should not do the behaviour". Secondly, subjective norms of TPB (Ajzen, 1991) refer to the "belief about whether most people approve or disapprove of the behaviour. It relates to a person's beliefs about whether peers and people of importance to the person think he or she should engage in the behaviour". There are many scholars who agree that the significance of the relationship between social influence and intention to use had been a positive relationship. For example, Venkatesh *et al.* (2012) found that social influence positively affects the intention to use mobile internet technology. Raman and Don (2013) found that social influence positively affects the intention to use the learning management system. Oechslein *et al.* (2014) found that social influence has a significant positive effect on the behavioural intention to adopt social recommender systems. Nair *et al.* (2015) found that social influence has a significant positive effect on the intentions to use the lecture capture system significantly. In contrast, Baptista and Oliveira (2015) found that social influence did not have a positive impact on the intention to use mobile banking services. Based on the previous studies and extending these previous results to this study, it is expected that social influence has a positive and significant impact on the intention to use mobile banking services and that a higher level of social influence will lead to higher level of intention to use mobile banking services. Accordingly, following the above rationale and empirical support for an effect of social influence on behavioural intention, the following hypothesis thus is suggested.

- H_5: social influence positively affects the behavioural intention to use mobile banking services

Facilitating conditions: Facilitating conditions is defined similarly in three famous acceptance theories and a wide range of previous studies. Firstly, facilitating conditions of UTAUT Venkatesh *et al.* (2003) defined as the "degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system". Secondly, the compatibility of IDT, Rogers (2003) refers to the "degree to which an innovation is perceived as being consistent with the existing values, past experiences and needs of potential adopters". Thirdly, perceived behavioural control in TPB (Ajzen, 1991) can be described as "person's perceptions of his/her capability to act out a particular behaviour easily". The previous researchers studied facilitating conditions as an independent variable and they found the relationship between facilitating conditions and intention to use in their studies. For example, Venkatesh *et al.* (2012) found that facilitating conditions positively affect the intention to use mobile internet technology. Raman and Don (2013) found that facilitating conditions positively affect the intention to use the learning management system. Nair *et al.* (2015) found that facilitating conditions influence the intentions to use lecture capture systemsignificantly. Baptista and Oliveira (2015) found that facilitating conditions have a positive impact on the intention to use mobile banking services. Deb and Lomo (2014) also found that facilitating conditions have a positive impact on the intention to use mobile banking services. However, Oechslein *et al.* (2014) found that facilitating conditions did not have a significant positive effect on the behavioural intention to adopt social recommender systems. Mazhar *et al.* (2014) found that compatibility (which is similar to facilitating conditions) did not have a positive impact on the attitude toward mobile banking services. Based on the above arguments and extending these previous findings to this study, facilitating conditions will affect customer's intention to use mobile banking services significantly and positively. In other words when a higher level of facilitating conditions is high, this will lead to higher level of intention to use mobile banking services. Accordingly, following the above rationale and empirical support to see an effect of facilitating conditions on behavioural intention we propose the following hypothesis:

- H_6: facilitating conditions positively affects the behavioural intention to use mobile banking services

Hedonic motivation: Venkatesh *et al.* (2012) defined hedonic motivation as the "degree of enjoyment/fun that is derived from using a technology". In IS research, the hedonic motivation is conceptualized as perceived enjoyment (Heijden, 2004). All previous studies found that the relationship is positive between hedonic motivation and intention to use in their studies. For example, Venkatesh *et al.* (2012) found that hedonic motivation positively affects the intention to use mobile internet technology. Yang (2013) found that the intention to adopt mobile learning is significantly impacted by hedonic motivation. Raman and Don (2013) found that hedonic motivation positively affects the intention to use the learning management system. In addition, Oechslein *et al.* (2014) found that hedonic motivation has a significant positive effect on the behavioural intention to adopt social recommender systems. Nair *et al.* (2015) found that hedonic motivation influence the intentions to use thelecture capture system significantly. Baptista and Oliveira (2015) found that hedonic motivation has a positive impact on the intention to use mobile banking services. As evident from the previous findings and based on UTAUT2, this study postulates that hedonic motivation is an influential driver of intention to use mobile banking services. Therefore, the higher level of hedonic motivation will increase the probability to use mobile banking services. Thus, this leads to our seven hypotheses.

- H_7: hedonic motivation positively affects the behavioural intention to use mobile banking services

MATERIALS AND METHODS

A questionnaire was applied to collect data using a convenience sample of 579 Jordanian banking customers from three main cities: Irbid, Jerash and Ajloun. This study chooses suburban areas as the sample of the study for the following reasons, previous studies were conducted in urban areas, especially, Amman which is the capital of Jordan (Alalwan *et al.*, 2015; Alsamydai *et al.*, 2014; Asfour and Haddad, 2014; Khraim *et al.*, 2011) secondly the adoption rate of mobile banking services in these areas is very low, finally to inform and raise the awareness for users about mobile banking services and encourage them to use it.

The measurement scale involved items that have been adopted from previous literature (Baptista and Oliveira, 2015; Chemingui and Lallouna, 2013; Deb and Lomo, 2014; Hanafizadeh *et al.*, 2014; Mazhar *et al.*, 2014; Venkatesh *et al.*, 2012) and self-developed items to suit the context of mobile banking services. Using the back translation method, the survey was converted into the Arabic language, since, Arabic is the official language of

the respondents. The instrument was first pre-tested where three associate professors in information systems who are working in Taibah University reviewed the question naire to ensure that the question content, sequence, wording, format and layout, instructions and question difficulty are suitable. Then, according to the responses from the pre-test, the wording on some items was adjusted to fit the research aim. Then, the pilot study was conducted on 105 users who had rich experience and knowledge using mobile applications. Then based on their comments we revised some items to enhance the under stand ability and clarity of the items. The final items and their sources are listed in the appendix. The 5 point Likert scale was used to collect data ranging from strongly disagree (1) to strongly agree (5).

Data analysis

Response rate and demographic information: Out of seven hundred respondents, 579 (82.7%) completed question naires were returned and considered valid for further statistical analyses. The sample composed of male (63.2%) and female (36.8%). In addition, the age distribution presents that about half of respondents (53.4%) were aged from 20-35. Participants were asked about their education level. About (64.2%) have a bachelor degree. Regarding their familiarity with mobile applications, the findings showed that (46.5%) were from the very good group. About (31.8%) were had a good familiarity with mobile applications. Regarding the internet usage frequency, the findings revealed that more than half of respondents (51.5%) browsed the internet for 3 h or more than 3 h daily. Table 1 summarizes the main results.

Table 1: Characteristics of the study sample

Items/Category	Frequency	Percentage
Gender		
Male	366	63.2
Female	213	36.8
Age		
<19	20	3.5
20-35	309	53.4
36-50	206	35.6
51-65	41	7.1
66 or over	3	0.5
Education level		
High school	86	14.9
Diploma degree	39	6.7
Bachelor degree	372	64.2
Master degree	75	13.0
Doctoral degree	7	1.2
Familiarity with mobile applications		
Very poor	5	0.9
Poor	25	4.3
Moderate	96	16.6
Good	184	31.8
Very good	269	46.5
Internet usage frequency (h)		
>1	40	6.9
1-2	101	17.4
2-3	140	24.2
<3	298	51.5

Number of respondents = 579

Exploratory factor analysis: The factor analysis was conducted in this study using a PCA based on both the extraction method and varimax rotation to assess the measurement scale. PCA was used for the extraction of variances because it assists in evaluating the construct validity by testing the factor loadings for variables to assure that items were loaded on the right factor (Pallant, 2013). Also, PCA is considered a suitable method to decrease a large number of items into few underlying dimensions.

Moreover, the varimax rotation method was used, since, it generates multiple factors that were maintained orthogonally (Pallant, 2013). The EFA is a common method which is applied in mobile banking studies (Chemingui and Lallouna, 2013; Dash and Tech, 2014) used the EFA based on PCA and varimax rotation to efficiently analyse the factors in their studies. In addition, the study utilized eigenvalues >1 this is also known as the latent root criterion to determine the number of factors. According by Hair *et al.* (2010) any individual factor would account for the variance of at least a single variable if it is to be retained for interpretation. Therefore, any factor with the eigenvalue >1 will be considered insignificant and will not be selected to determine the number of factors. The results showed that eigen value for all variables was more than 1.

Using the SPSS Version 22, the study also evaluated the sampling adequacy by using the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity to measure the suitability of the factor analysis. According by Netemeyer *et al.* (2003), A KMO correlation above 0.60 is adequate for analysing the EFA. In addition, a KMO measure should be >0.50 (Cretu and Brodie, 2009). The KMO statistic for all variables was 0.888 which exceeded the lowest acceptable level of 0.60, representing the sampling adequacy. In addition, Bartlett's test of sphericity was (Chi-square) for all variables was highly significant which was 8769.262 at ($p<0.001$) indicating adequate relationships between the variables used in the analysis (Anonymous, 2017).

In this stage, the factor loading of the scale items was tested. Hair *et al.* (2010) mentioned that factor loading <0.4 is considered low. This study suggested that the cut-off factor loading of 0.50 was used to assure that all factors had a practical significance. The loading values of all items exceed the cut-off level of 0.50.

Table 2: Cronbach's α reliability results

Constructs	Cronbach's α	No. of items
Mass media	0.758	4
Trust	0.850	4
Performance expectancy	0.870	4
Effort expectancy	0.815	4
Social influence	0.828	4
Facilitating conditions	0.824	4
Hedonic motivation	0.860	3
Intention to use	0.865	4

Table 3: Pearson correlation for constructs of the research model

Models	MM	TR	PE	EE	SCI	FC	HM	INT
MM	1							
TR	0.283**	1						
PE	0.231**	0.462**	1					
EE	0.258**	0.413**	0.359**	1				
SCI	0.402**	0.318**	0.292**	0.236**	1			
FC	0.298**	0.287**	0.219**	0.248**	0.474**	1		
HM	0.182**	0.105*	0.078	0.161**	0.224**	0.172**	1	
INT	0.396**	0.442**	0.381**	0.454**	0.426**	0.422**	0.251**	1

**Correlation is significant at the 0.01 level (2-tailed); *Correlation is significant at the 0.05 level (2-tailed)

Reliability analysis: Reliability analysis was performed on the variables of the model. The reliability values should be equal or more than 0.70 to indicate internal consistency or adequate convergence (Pallant, 2013). In this study, there were seven independent variables scales. To confirm that the scales exceed the acceptable level of 0.70, a reliability coefficient was conducted for each set of variables. The findings of the analysis showed that all the items exceeded 0.70 which means that all alpha values are reliable. Table 2 summarizes the findings of the reliability analysis.

Correlation analyses: Correlation analyses is a statistical technique that is used to measure the linear relationship or the association between two continuous variables (Pallant, 2013). In this study, the Pearson correlation coefficient was used to measure the strength and direction of the linear relationship between continuous variables. The correlation between the variables of the model is shown in Table 3. In general, the results presented positive relationships between variables ($p<0.01$). Except for the relationship between trust and hedonic motivation, it showed a positive relationship at the level of ($p<0.05$). In contrast, the results indicated that a weak and not significant correlation between performance expectancy and hedonic motivation 0.078 which represents the less correlation among all relationships. Meanwhile, the correlation between social influence and facilitating conditions 0.474 was found to be the highest relationship.

Model analysis and hypotheses testing: Figure 4 outlines the path analysis results for the linear regression

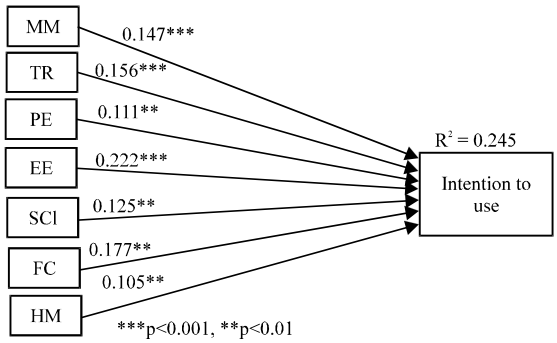

Fig. 4: Results of path analysis

analysis. The results showed that R^2 is 0.425. It indicated that seven independent variables explained 0.425% of the variance in the intention to use mobile banking services. In addition, F change value indicated that the model offered a significant contribution ($F(7.571) = 60.207$, ($p<0.001$). The findings also presented that all independent variables were significant at both levels ***$p<0.001$ and **$p<0.01$. The implications of these results are shown in the discussion study.

RESULTS AND DISCUSSION

The results from the analysis showed that the mass media has a significant impact on the intention to use mobile banking services, indicating that mass media is found to be one of the main variables toward the intention to use ($\beta = 0.147$, $p<0.001$). This means that respondents would take into account this variable when using mobile banking services. To put it differently, it seems that the different mass media channels such as the television, radio, newspaper and internet can affect the customer's decision about the adoption of mobile banking services and their intention to use will be increased.

Regarding trust, the statistics finding shighly proved trust as a key determinant predicting customer's intention to use mobile banking services ($\beta = 0.156$, $p<0.001$). This result discover that customers will be more motivated in adopting mobile banking services if using the system will enhance their trust and assist them to achieve high level of security and reliability in their banking transactions. This finding is parallel with the previous studies which suggest that trust has a crucial role on the intention to use (Chemingui and Lallouna, 2013; Hanafizadeh *et al*., 2014; Thakur, 2014). Meanwhile, it offers a contradiction to other studies (Koksal, 2016; Mazhar *et al*., 2014).

The empirical findings also approved the significance of the relationship between performance expectancy) and

the intention to use mobile banking service (β = 0.111, p<0.01). This in turn, means that adopting mobile banking services by customers depend on the possibility if using the system will enhance customer's job performance and assist them to achieve both tangible and intangible advantages in their banking transactions. This result supported the original UTAUT and UTAUT2 on the salient importance of the relationship between performance expectancy and intention to use (Venkatesh *et al*., 2003, 2012). The importance of performance expectancy is also compatible with most prior studies which found that performance expectancy has a positive and significant impact on the intention to use (Baptista and Oliveira, 2015; Nair *et al*., 2015; Oechslein *et al*., 2014; Raman and Don, 2013; Yang, 2013). Meanwhile, it was in consistent with the study of Wong *et al*. (2014) where they found that performance expectancy did not play a significant role in affecting mobile TV adoption intention.

In respect of the effort expectancy, the findings outlined that the intention to use mobile banking services is significantly affected by effort expectancy (β = 0.222, p<0.001). This finding found to be consistent with most prior studies that used UTAUT and UTAUT2 (Nair *et al*., 2015; Oechslein *et al*., 2014; Raman and Don, 2013; Venkatesh *et al*., 2012). Meanwhile, it offered a contradiction to other studies (Baptista and Oliveira, 2015; Yang, 2013). This finding explains that the majority of respondents had good and prior experience in using internet banking services, therefore, it is easy for potential mobile banking service users to use such service.

Social influenceis also found to be themain key towards the intention to use mobile banking services (β = 0.125, p<0.01). In other words, customers will consider adopting mobile banking services based on opinions provided by those really important to them or those who surround them such as friends, colleagues, family members and relatives. This result is compatible with those from the original UTAUT and UTAUT2 on the salient importance of the relationship between social influence and intention to use (Venkatesh *et al*., 2003, 2012). The importance of social influence is also compatible with most prior studies that suggest that social influence has a positive and significant impact on the intention to use (Nair *et al*., 2015; Oechslein *et al*., 2014; Raman and Don, 2013). In contrast, contradicts the work done by Baptista and Oliveira (2015).

The results from the analysis proved facilitating conditions importance on intention to use mobile banking services, indicating that facilitating conditions found to be one of the main variables toward intention to use (β = 0.177, p<0.001). It means that customersare more likely to have a higher intention to use if they find the necessary resources such as internet connection and skills and helping or trial training from bank staff. Theoretically, this finding agreed with original UTAUT2 model and previous studies (Baptista and Oliveira, 2015; Deb and Lomo, 2014; Nair *et al*., 2015; Raman and Don, 2013; Venkatesh *et al*., 2012). While it is contradicted to other studies (Mazhar *et al*., 2014; Oechslein *et al*., 2014).

Finally, this study predicts that the hedonic motivation would have a significant impact on the intention to use mobile banking services and the findings indicated that there is a significant relationship between hedonic motivation and the intention to use mobile banking services (β = 0.105, p<0.01). This finding is consistent with all prior studies which used UTAUT2 in different contexts (Nair *et al*., 2015; Oechslein *et al*., 2014; Raman and Don, 2013; Venkatesh *et al*., 2012; Yang, 2013). In addition, this finding is also consistent with the study of Baptista and Oliveira (2015) where they find that hedonic motivation has a statistical significant impact on intention to use mobile banking services. They justified that, since, mobile banking offers many advantages such as good security and easy access, this may lead the customers to consider it to be enjoyable, creating both a positive emotion and feeling of personal satisfaction about mobile banking services, thus, contributing positively on the intention to use mobile banking services.

Theoretical contributions: This study has several contributions which support the body of knowledge in IS research. This is the first study which uses and modifies the UTAUT2 Model in the context of suburbans of Jordan to explain and determine the main factors which affect the intention to use mobile banking services. The study depends on a modified UTAUT2 Model as a baseline theory. In addition, the study modifies UTAUT2 Model by including the mass media as a new independent variable instead of both price value and habit in the classic UTAUT2. The study also confirmed the important role of mass media as the potential factor affecting the intention to use mobile banking services. The current study also provides a foundation to further the studies on customer's intention to use mobile banking applications and other mobile applications. Moreover, this research believes that the proposed research model offers a significant contribution to knowledge as most of its variables and relationships had rarely been investigated in previous studies in the mobile banking services domain (Table 4-11).

Table 4: Items of questionnaire mass media

Code	Items	Origin
MM1	I think newspaper advertisements about mobile banking services influence my decision to use mobile banking services	Self-developed
MM2	I think listening to radio advertisements about mobile banking services influence my decision to use mobile banking services	Self-developed
MM3	I think watching to television advertisements about mobile banking services influence my decision to use mobile banking services	Self-developed
MM4	Internet browsing about mobile banking services influences my decision to use mobile banking services	Self-developed

Table 5: Trust

Code	Items	Origin
TR1	I trust my bank that offers secured mobile banking services	(Hanafizadeh *et al*., 2014)
TR2	I trust my telecommunication operator that provide a secure data connection to conduct mobile banking services	(Hanafizadeh *et al*., 2014)
TR3	I think that mobile banking service is totally trustworthy	(Mazhar *et al*., 2014)
TR4	I trust the technology (i.e., Smartphone, tablet, PDA, internet and WIFI) that is used by mobile banking services	(Mazhar *et al*., 2014)

Table 6: Performance expectancy

Code	Items	Origin
PE1	Mobile banking services may help me in accomplishing my banking transactions more quickly	(Baptista and Oliveira, 2015)
PE2	Mobile banking service allows me to perform my banking transactions anytime and anywhere	Self-developed
PE3	By using the mobile banking services, I can better monitor my banking activities	Self-developed
PE4	I think that mobile banking has more benefits compared to other banking type services such as ATM and internet banking	Self-developed

Table 7: Effort expectancy

Code	Items	Origin
EE1	It is easy for me to learn how to use mobile banking services	(Nair *et al*., 2015)
EE2	My interaction with mobile banking application is clear and understandable	(Nair *et al*., 2015)
EE3	I think it is easy to remember the process of mobile banking services	Self-developed
EE4	The process of conducting mobile banking transactions does not take much time from me	Self-developed

Table 8: Social influence

Code	Items	Origin
SCI1	People who are around me think that I should use mobile banking services	(Baptista and Oliveira, 2015)
SCI2	People who are important to me have an influence on my decision to use mobile banking services	(Baptista and Oliveira, 2015)
SCI3	Mobile banking services use is a status symbol in my community	(Baptista and Oliveira, 2015)
SCI4	Most people assume that I am familiar with mobile banking services	Self-developed

Table 9: Facilitating conditions

Code	Items	Origin
FC1	I have the resources necessary (internet and knowledge) to use mobile banking services	(Nair *et al*., 2015)
FC2	Mobile banking service is compatible with other technologies I use (smartphone, tablet and PDA)	(Nair *et al*., 2015)
FC3	I can get help from the bank staffs when I have difficulties in using mobile banking services	(Venkatesh *et al*., 2012)
FC4	My smartphone can support the use of mobile banking applications	(Deb and Lomo, 2014)

Table 10: Hedonic motivation

Code	Items	Origin
HM1	Using mobile banking services is enjoyable for me	(Baptista and Oliveira, 2015)
HM2	There is a variety of mobile banking services which arouse my curiosity	Self-developed
HM3	When I perform my banking transactions, the hedonic features such as the beautiful design of mobile banking application keeps me happy	Self-developed

Table 11: Intention to use

Code	Items	Origin
INT1	I will most likely use mobile banking services in the future	(Chemingui and Lallouna, 2013)
INT2	I will use mobile banking services in the future	(Mazhar *et al*., 2014)
INT3	I would like to take advantage of mobile banking services for my banking transactions needs	(Mazhar *et al*., 2014)
INT4	I will use mobile banking services because it is a new innovation	Self-developed
INT5	In the future, more services will be provided through mobile banking services which will make me use mobile banking services	Self-developed

CONCLUSION

The importance of exploring main factors influencing the adoption of new innovation in technology such as mobile banking is clear based on many studies. However, none of the prior studies has investigated the mass media as a new affecting factor toward the usage of mobile banking in Jordan. This study formulated the mass media as an effective determinant in the adoption of mobile banking in Jordan. This research attempted to investigate the factors that affect consumer's intention to use mobile banking by applying a modified UTAUT2 Model. The UTAUT2 Model is extended by including two new variables which include mass media and trust. SPSS Version 22 analysis technique was employed to measure the validity and reliability for data collected from 579 banking customers in suburban areas in the northern part of Jordan. The proposed research model adequately fit the data and it was able to account for 42.5% of variance in the intention to use. The results showed that mass media, trust, performance expectancy, effort expectancy, social influence, facilitating conditions and hedonic motivation significantly affect the intention to adopt mobile banking services.

LIMITATIONS

There are several limitations to this study that could provide direction for future research as established below. Firstly, the mobile banking services in Jordan are still relatively new and the inception of this service is still at is infancy.

RECOMMENDATIONS

Therefore, future research is required to identify further relevant factors that enable faster adoption for mobile banking services in Jordan and that increase the applicability of the research model across a wide range of customer technology use contexts. This is because the proposed research model explained about less than half of the variance of the dependent variable.

Secondly, the cross-sectional research approach was used in this study where data is gathered from numerous areas at a single period of time. We propose a longitudinal research approach that will give an analysis of the changes in the respondent's answers over time. This will assist in examining in depth the factors that affect the behavioural intention to use mobile banking services.

Thirdly, it is difficult to generalize the results. As this study was conducted in Jordan which has a very low adoption rate for mobile banking services, the results may not be suitable to countries that have higher adoption rates for such applications.

Fourth as most of the questionnaire items in the present study were self-developed (the previous studies depended on the same items which are not suitable in context of mobile banking services) these new items need to be modified and tested in terms of the validity and reliability. Finally, this study examines a particular type of technology (i.e., mobile banking). Future research can depend on our research by testing the research model in different environments, different age groups, different countries and different technologies.

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