

A Conceptual Framework for Intention to Use Travel Apps: A Study From Emerging Markets

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ABSTRACT

This exploratory study aims to investigate the intention to use mobile travel applications in Jordan. Seven predictors in this study have been carefully selected from previous studies conducted to date in the tourism context and more specifically in the context of mobile travel applications. The SmartPLS version 3.0 was used to assess 14 hypotheses using 500 surveys. Results show a positive relationship of intention to use mobile travel applications from six constructs including aesthetics, trust, facilitating conditions, financial benefits, perceived usefulness, and perceived enjoyment. In contrast, word of mouth has no effect on the intention to use. This research provides some valuable implications for both apps developers and travel-related companies. Government agencies can benefit from the results of this study when providing mobile application services and distributing information to customers. The results also contribute to understanding the emerging market of mobile travel applications. Further, the proposed framework can be utilized in future studies as a baseline model.

KEYWORDS

Behavioral Intention, Financial Benefits, Perceived Enjoyment, Travel Applications, Trust, Word of Mouth

INTRODUCTION

Due to advances in the development of communications technology, the rate of individuals that are using smartphones and mobile, as well as using such applications for shopping have been accelerated (Galli, 2018; Smith, 2018; Young, 2018). The smartphone is considered a disruptive innovation that changed the way of communication and makes it easier. As a technological innovation, smartphones are considered as a tipping point in e-commerce (Katta, Patro, & Prasad, 2018; Kenneth, 2019). In general, it provides new and improved ways of sending and receiving text messages, taking photographs, and internet access. Several advantages make them popular rather than other information and communication technologies, such as their affordable prices, powerful computing capabilities, and portability (Bringula, Moraga, Catacutan, Jamis, & Mangao, 2018). The request on smartphones consistently expanded as revealed that around 5.1 billion users already had smartphones by 2018 end

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and is predictable that the number of users by 2025 will be 5.9 billion (GSMA, 2019). For example, the vast majority of people in the USA own such devices (Pew Research Center, 2018).

Based on the last statistics, 90 percent of Jordanian families own a smartphone, statistics also showed that 89 percent have an Internet subscription (The Jordan Times, 2018). In fact, Jordan has enhanced its 4G coverage and its improvement is directed towards mobile terminals. It also has got high in both mobile broadband and smartphone penetration rate (GCI, 2018). These previous statistics confirm the availability of the environment and resources in Jordan for shopping via smartphones. It means that the growing acceptance of smartphones is an opportunity for more possibilities for online shopping (N. K. Gharaibeh, Gharaibeh, Gharaibeh, & Bdour, 2020; Musa et al., 2016). This research is concerned with this new way of how consumers can shop and buy through mobile devices, in other words, Smartphones are the most popular device for mobile shopping (Halaweh, 2018).

It is observed that the emergence of mobile shopping applications in electronic commerce as a good option for customers, retailers can boost their experiences in shopping by supporting omnichannel integration besides more targeted offerings (Chopdar & Sivakumar, 2019; Gunawardana, 2020). This leads to mobile commerce as “an extension of e-commerce where business activities are performed in a wireless environment using mobile devices” (Zhang, Zhu, & Liu, 2012). Noticeably using smartphones among youth is vastly affected by their desire to interact and the effect of the modern community (Arif, Aslam, & Ali, 2016).

This paper is organized as follows, the next section describes the problem statement, after that theory and research model development is shown, which is the largest part of this study, it introduces the five characteristics of Innovation Diffusion Theory, the incorporated two new factors proposed by the authors, which is appeared in the research model, after that data collection and results from the discussion is explained, and finally come to the contribution, conclusion, limitations and future research.

PROBLEM STATEMENT

In shopping websites, there is no face-to-face or direct interaction, as the buyer depends only on the information available regarding a particular product on the seller's website. This justifies why maybe they choose to use traditional channels because of unconvinced concerns about on-line information (Järveläinen, 2007). Besides, the characteristics of products displayed on the website may have different. Therefore, the determinants that affect the intention to buy via smartphone may be different from service to another (Brown, Pope, & Voges, 2003; Walia, Srite, & Huddleston, 2016). To put it differently, it remains ambiguous which determinants effectively affect the intentions of purchasing via a mobile device when the transaction is performed in an online shopping environment. Furthermore, this service still on the infancy stage in Jordan, which explains why consumers' concerns about mobile shopping e.g., privacy product quality, delivery service and payment security (Aldmour, Alshurideh, & Shishan, 2014; Nabot, 2014). Therefore, this study focuses on exploring the determinants affecting consumers' adoption intention of mobile shopping and to increase the motivation of people and make them interested to engage in the process of shopping via smartphone. To do that, this study extends the IDT with both risk and enjoyment.

LITERATURE REVIEW

The topic of acceptance of mobile shopping applications has begun to grow increasingly in the literature of Information Systems (IS) as several kinds of researches have investigated customers' adoption intention of mobile shopping. These studies aim to identify and explore the main determinants affecting the users' attitudes to using this service (Chopdar, Korfiatis, Sivakumar, & Lytras, 2018; Faulds, Mangold, Raju, & Valsalan, 2018; C. R. Lee et al., 2017). Several models were used in these studies e.g. TAM, UTAUT and UTAUT2 and several variables were included in these models to

study this specific area. However, there is still a need to explain more about which factors affect the adoption process of mobile shopping applications. For example, a study conducted by Natarajan, Balasubramanian, & Kasilingam, (2017), using TAM model and both enjoyment and risk as an external variable, perceived usefulness, perceived ease of use, perceived enjoyment, Personal Innovativeness, and satisfaction play an important role in affecting attitude and intention of customer to use mobile, while their study found that perceived risk has a negative impact on the intention to use. Likewise, based on IDT, Zendehdel & Paim, (2013) concluded that Malaysia user's intentions towards using electronic shopping were positively impacted by relative advantage, privacy, compatibility, security. In turn, an unexpected result showed that there is no significance in consumers' attitudes towards online shopping based on complexity. Chopdar & Sivakumar, (2019) relied on the UTAUT2 model, and Hofstede's cultural values (Hofstede, 2001) to explore and comprehend shopper's continuance intention through the mobile application. The findings revealed that except effort expectancy, all other UTAUT2 predictors (e.g., performance expectancy, social influence, facilitating conditions, hedonic motivation, price value and habit) were noted to exert a significant impact on continuance intention to use mobile shopping applications. The results also showed that perceived risk was reported to be insignificant. Chopdar & Sivakumar, (2019) justified this finding as users who are already using mobile shopping applications become over some time more experienced and confident in using such application, thus no risk problems.

In conclusion, most previous studies were interested in examining the continuance usage of mobile shopping. This is because these studies have been conducted in countries with a high rate of users who have already used mobile shopping applications. In contrast, this study interested in the intention to use mobile shopping applications in the context of users with no experience in using such applications. Furthermore, since using mobile shopping applications in Jordan are still in the infancy stage, this study used IDT as a baseline model, in general, IDT has been rarely examined in this specific area. Hence, this study assumes that IDT constructs are significant in terms of user's intention to use mobile shopping applications in the Jordan context, especially that IDT is a very suitable model in the case of before using or prevalence technology or innovation among users.

THEORY AND RESEARCH MODEL DEVELOPMENT

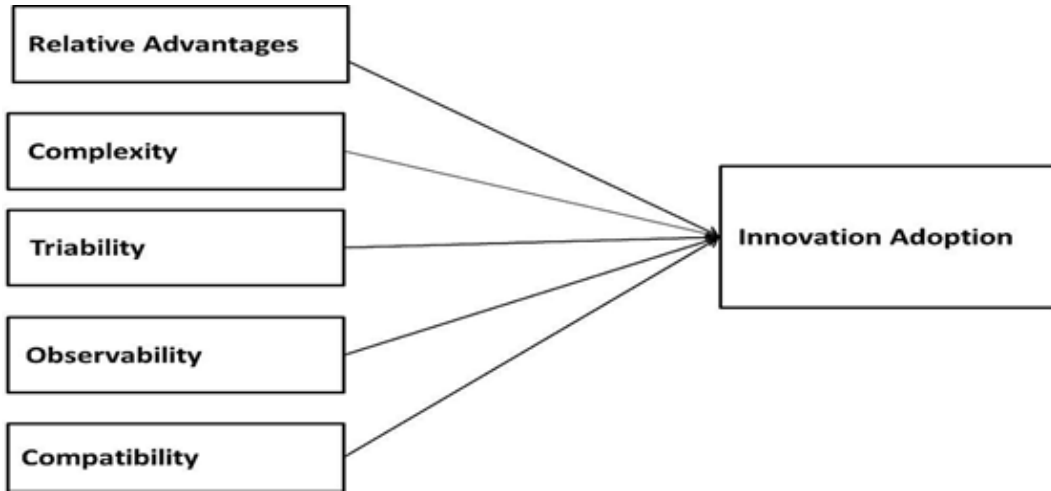
INNOVATION DIFFUSION THEORY (IDT)

Innovation has been defined as "an idea, practice, or object perceived as new by an individual or another unit of adoption." (Everett M Rogers, 2010). The attributes of innovation include five characteristics (see figure 1), more specifically, "relative advantage, compatibility, complexity, trialability, and observability". The decision-making process and user adoption can be described by these characteristics. Another usage for them to predict the implementation process for any latest technology or innovations and explain how these factors interact. The main idea from IDT is "the process in which an innovation is communicated through certain channels, over time, among the members of a social system". (Wu & Wang, 2005). This theory classifies adopters into five categories, specifically "innovators, early adopters, early majority, late majority and laggards" regarding the required time for the people to adapt to new technology or innovation (Everett M Rogers, 2010). In recent decades, much research has included IDT as a framework for investigating the intention to use technology or innovation (Agag & El-Masry, 2016; Aggarwal & Chanda, 2017; Chang, Fu, & Jain, 2016; Cheng, 2017). Mobile shopping application is generally classified as one of the latest innovation in technology (Natarajan et al., 2017).

Relative Advantage

Everett M Rogers, (2010) defined relative advantage as "the degree to which an innovation is perceived as being better than the idea it supersedes". Consumers tend to use new technology if they find that it

Figure 1. Innovation Diffusion Theory (Source: (E M Rogers, 1983))



will offer more benefits (Venkatesh, Thong, & Xu, 2012). Relative advantage is widely investigated in previous studies and seen as “perceived usefulness” in “TAM” and “performance expectancy” in “UTAUT” (Venkatesh, Morris, Davis, & Davis, 2003). In the context of mobile shopping, potential buyers will assess mobile shopping based on such expectation as to whether the online purchase process will achieve more benefits (Wong et al., 2012). In prior studies, the relative advantage was found to be significant with the intention to use new technology or innovation (Makanyeza, 2017). Wong et al., (2012) found that relative advantage the most important factor affecting online shopping adoption. In this study, it is expected the more customers consider innovation as being better than its ancestor, the more opportunity to use or accept this technology. Therefore, the following relationship is created:

H1: Relative advantage has a significant positive impact on the intention to use mobile shopping applications.

Compatibility

“Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters” (Everett M Rogers, 2010). Previous studies have frequently used compatibility as an independent variable affecting intention to use technology. For example, Kanchanatane, Suwanno, & Jarernvonggrayab, (2014) concluded that compatibility is a vital factor in explaining intention to use electronic marketing. Users believe positively in looking at the technology they use based on previous experiences or some other type of technology they used previously. Hence, a higher level in compatibility leads to a higher level of the intention to use or accept technology (Y.-H. Lee, Hsieh, & Hsu, 2011). The important role of compatibility in the context of mobile shopping applications has been proved by Lu & Su, (2009) which they find the significance relationship on the intention to use. Based on the given literature, the following hypothesis was proposed:

H2: Compatibility has a significant positive impact on the intention to use mobile shopping applications.

Trialability

“Trialability is the degree to which an innovation may be experimented with on a limited basis” (Everett M Rogers, 2010). The rate of adoption is positively correlated with trialability. The faster innovation adoption depends on the more is tried. In the innovation-decision process, during the trial of the innovation reinvention maybe happen. Thus, the potential adopter may change or modify the innovation. It means that reinvention may generate quicker adoption of the innovation (Sahin, 2006). This factor allows the user to understand how new technology or innovation works. More specifically, the potential adopter of innovation can evaluate the degree of change needed when adopting innovation (Arts, Frambach, & Bijmolt, 2011). Trialability is a vital factor in attitudes towards intention to use new technology or innovation. Previous studies confirm this view e.g., Al-Ajam & Nor, (2013) found that customer's intentions to adopt internet banking services are significantly related to trialability. Trialability is expected to encourage the intention of users to use mobile shopping as follows:

H3: Trialability has a significant positive impact on the intention to use mobile shopping applications.

Complexity

According to Everett M Rogers, (2010), “Complexity is the degree to which an innovation is perceived as relatively difficult to understand and use”. The intention of users to adopt mobile applications is not only predicted by to what level the mobile application offer advantages but also by to what level using this application is not difficult (Davis, 1989). Previous studies showed that complexity has a negative significant relationship on the intention to use new technology or innovation. Crutzen, de Kruif, & de Vries, (2012) found that intention to use the website is negatively associated with complexity. Lean, Zailani, Ramayah, & Fernando, (2009) also noted this significant negative relationship between complexity and intention to use electronic government services. In the context of mobile shopping applications, when buyers find using an application to be not much effort, this will speed the process of adopting this application by them (Kim, Park, & Lee, 2017). Therefore, it is assumed that a customer will be not motivated to buy via online channels if using such an application is seeming as complex or unclear, this research established the following:

H4: Complexity significantly negatively impact the intention to use mobile shopping applications.

Observability

“Observability is the degree to which the results of an innovation are visible to others”. As same with other innovation characteristics, observability is significantly associated with the adoption rate of technological innovation (Everett M Rogers, 2010). (Moore & Benbasat, (1991) stated that the term of observability is very complicated. Therefore, this term has been divided into two terms “visibility and result demonstrability”. Result demonstrability has been defined as “the tangibility of the results of using an innovation” while visibility identified as “the extent to which potential adopters see the innovation as being visible in the adoption context.” (Meuter, Bitner, Ostrom, & Brown, (2005) mentioned that observability assists in providing significant results that may motivate the adopter's to receive the innovation's rewards. Previous studies indicate that the intention to use technology was largely influenced by observability in the context of mobile shopping applications (Kim Choy Chung, 2019), the following hypothesis is thus suggested:

H5: the intention to use mobile shopping applications is significantly positively impacted by Observability.

Perceived Risk

While many factors focus on the positive advantages of Mobile shopping adoption. The perceived risk extends the theoretical framework to include the losses related to Mobile shopping adoption. This term specifically is felling as the uncertainty in buying decisions because of the probability of facing the negative results or losses that product or service needs to be repaired (Featherman & Pavlou, 2003). This variable contains many elements e.g., financial risk, security risk, social risk, performance risk and time risk (M.-C. Lee, 2009). Numerous studies in the fields of information systems and technology acceptance have shown a clear influence of perceived risk on the intention to use technology. A study by Nguyen & Nguyen, (2017) examines the intention to use online banking. The results evidenced risk factors “privacy risk, security risk, social risk, time risk, and financial-performance risk”, which has a significant negative impact on intention to use. Another study by Park & Tussyadiah, (2017) uses perceived risk in the context of mobile travel booking. Results from this study strongly confirm the negative relationship between perceived risk and intention to purchase. Thus, this leads to our sex hypothesis:

H6: Perceived risk has a significant negative impact on the intention to use mobile shopping applications.

Perceived Enjoyment

Perceived enjoyment is considered as a form of intrinsic motivation, it is defined as “the degree to which the use of the computer is perceived as pleasant, regardless of all consequences of execution which may be envisaged” (Davis, Bagozzi, & Warshaw, 1992). The users may be considered using mobile shopping applications as enjoyment and bridging the gap between perception and performance will increase the intention of adopting the new technologies (Natarajan et al., 2017). The study conducted by Oghuma, Libaque-Saenz, Wong, & Chang, (2016) revealed that enjoyment is a vital factor explaining both student satisfaction and continuance intention to use mobile instant messaging in Korea. The important role for perceived enjoyment has been proved by Rouibah, Lowry, & Hwang, (2016) which they discovered that enjoyment has a positive and significant impact on intention to use online payment systems in Kuwait. The study proposes the following:

H7: The intention to use mobile shopping applications is significantly positively impacted by Perceived enjoyment.

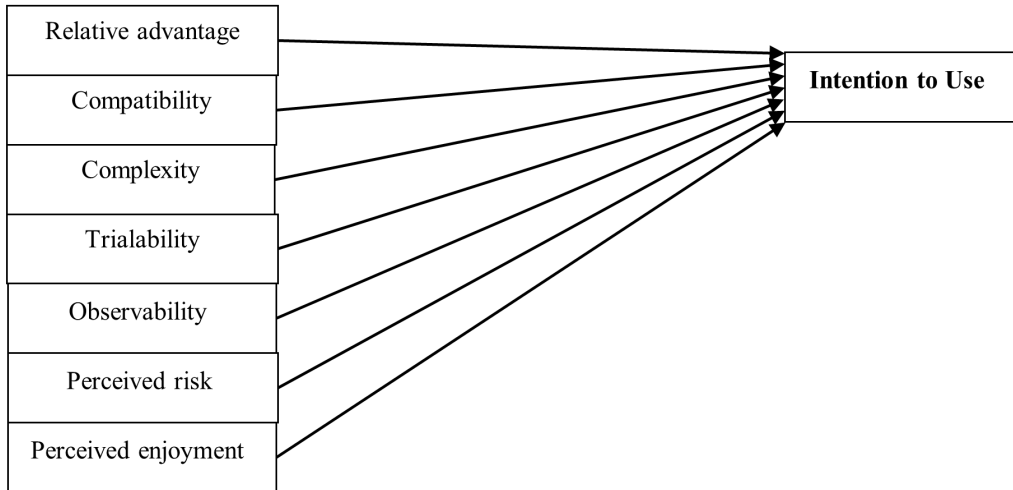
RESEARCH MODEL

This study developed a research model after a precise review of previous studies in the areas of technology acceptance and innovation like mobile shopping, mobile commerce, and mobile banking, etc. Based on the viewpoint of innovation diffusion and intention to use exist in Figure 2, the hypotheses accompanying the model were examined in the mobile shopping context.

DATA COLLECTION

The current study depended on the self-administered questionnaire as a primary data collection method, similar to questionnaire development in previous studies. The questionnaire contains two sections, the first section covering respondents’ demographic profiles and important questions about their usage and experience of online shopping. This is because the current research is given to customers with good experience in shopping via mobile devices. Based on that. any answer from respondents “No” was directly asked to not filling out in the questionnaire. While the rest of the qualified respondents

Figure 2. Research model (based on IDT)



were directed to filling out the survey. The second section comprised 29 statements to measure the eight constructs, respondents were requested to rate their degree of agreement with each statement. Each survey item was scored on a five Likert scale ranging from one (strongly disagree) to five (strongly agree). The items were adopted and validated in prior studies and translated into Arabic as it is the native language of respondents.

There were 450 responses were received. Out of theses, 50 respondents were not users of mobile shopping, therefore, these questionnaires are considered invalid for this study. Fore rest of responses, 16 responses were deleted due to non-seriously in answering the questions and 33 were incomplete. The remaining 413 questionnaires were completed and valid for statistical analysis. There is no need to conduct the pilot study because all the items were adapted from literature which is used many times. A small modification was done to the original measurement items to fit the context of mobile shopping applications. Besides, the survey was reviewed by experts before sending it to the respondents.

RESULTS

Demographic profile of respondents

The demographic information of respondents is shown in Table 1. It describes that 59.1 percent of the respondents were male while female represents 40.9 percent. It was found that around half of the respondents (51.6 percent) in the age range 20 to 35. 37.1 percent were in range 36 to 50, 12 percent represents 20 years and below, a small group of respondents in both age groups .1 percent for the age group 51-65 and 0.4 percent in the age range 66 or older. Results showed that the education level of the respondents comprises five groups, with 64.7 percent possess a bachelor's degree, diploma degree represents 6 percent, 14.2 percent for both high school and master degree, and just 0.4 percent own a doctoral degree.

Table 1. Demographic information of respondents

Item	Category	Frequency	Percent
Gender	Male	266	59.1
	Female	184	40.9
Age	Below than 19	17	3.8
	20-35	232	51.6
	36-50	167	37.1
	51-65	32	7.1
	66 older	2	0.4
Education level	High school	64	14.2
	Diploma degree	27	6.0
	Bachelor degree	291	64.7
	Master degree Doctoral degree	64 4	14.2 0.9

Number of respondents = 450

Validity and Reliability

We used SPSS version 23.0 for the data analysis. Exploratory Factor Analysis (EFA) based on varimax rotation was performed to assess the measurement model. The results showed that all factor loadings were above 0.50 exceeding the acceptable level as recommended by Hair et al., (2010). Results of the communality test for all the variables were higher 0.5 hence confirming the variables to be valid in the measurement model (Field, 2005). Cronbach's alpha has been utilized to test the reliability, the results showed that all values have found to be above 0.7, It means that the items of the questionnaire have internal consistency and adequate convergence (Pallant, 2013). This study also applied eigenvalue to check any factor with less than 1 will be considered insignificant and will not be selected for more analysis based on Hair et al., (2010), the results indicated that all eigenvalue values were greater than 1 so all variables were retained.

Correlation

Pearson correlation was employed to test the direction of the linear relationship between research variables (Pallant, 2013). As shown in Table 3, most findings presented positive relationships between variables ($p < 0.01$) and ($p < 0.05$) except six relationships; trialability and compatibility, trialability and complexity, perceived enjoyment and compatibility, perceived enjoyment and complexity, perceived enjoyment and perceived risk perceived enjoyment and observability. The weakest and not significant correlation was found in the relationship between perceived enjoyment and observability 0.008, which represents the less correlation among all relationships. In contrast, the correlation between compatibility and intention to use was 0.448, indicating the highest relationship.

Results of Hypotheses Testing

As documented in Figure 3, four research hypotheses were accepted H1, H2, H3, and H5, whereas three hypotheses were not accepted H4, H6 and H7. As expected in H1, intention toward using mobile shopping applications in Jordan was found to be affected by the relative advantage which provides support for E M Rogers, (1995) results based on IDT. The findings of previous research suggesting relative advantage as an important factor toward using on-line shopping, confirms the study by Zendehdel & Paim, (2013). For the second hypothesis, compatibility was found to have

Table 2. Results of EFA and Reliability

Factor	Item	Loading	Communality	Cronbach's	Eigenvalues
Relative advantage	RA1	0.777	0.641	0.846	7.384
	RA2	0.749	0.616		
	RA3	0.715	0.606		
	RA4	0.815	0.713		
	RA5	0.717	0.640		
Compatibility	CO1	0.818	0.780	0.809	1.253
	CO2	0.811	0.795		
	CO3	0.654	0.632		
Triability	TR1	0.722	0.648	0.896	2.150
	TR2	0.930	0.932		
	TR3	0.930	0.932		
Complexity	COM1	0.916	0.867	0.939	2.302
	COM2	0.946	0.914		
	COM3	0.932	0.894		
Observability	OB1	0.804	0.749	0.791	1.509
	OB2	0.814	0.728		
	OB3	0.761	0.652		
Perceived enjoyment	PE1	0.849	0.729	0.848	1.635
	PE2	0.893	0.809		
	PE3	0.863	0.756		
Perceived risk	PR1	0.735	0.678	0.859	2.881
	PR2	0.796	0.771		
	PR3	0.809	0.702		
	PR4	0.839	0.734		
	PR5	0.733	0.654		
Intention to use	INT1	0.758	0.706	0.903	2.583
	INT2	0.737	0.701		
	INT3	0.849	0.858		
	INT4	0.849	0.858		

Table 3. Results of correlation analysis

	RA	CO	TR	COM	OB	PE	PR	INT
RA	1							
CO	0.325**	1						
TR	0.184**	0.338**	1					
COM	0.152**	0.063	0.088	1				
OB	0.214**	0.313**	0.203**	0.115*	1			
PE	0.102*	0.056	0.157**	0.047	0.008	1		
PR	0.175**	0.211**	0.127**	0.148**	0.283**	0.039	1	
INT	0.421**	0.448**	0.380**	0.177**	0.328**	0.093*	0.225**	1
**Correlation is significant at the 0.01 level (2-tailed).								
*Correlation is significant at the 0.05 level (2-tailed).								

a positive and significant relationship with the intention to use mobile shopping applications. This result is consistent with E M Rogers, (2003) and related studies in the context of on-line shopping (Zendehdel & Paim, 2013). Regarding H3, trialability was found to be positively and significantly associated with the intention to use mobile shopping applications. which confirms the viewpoint of E M Rogers, (2003) in the original IDT. A study by Christou & Kassianidis, (2010) highlights the crucial role of trialability on the usage of mobile commerce. The current study found support for H5, observability has a significant effect on the intention to use mobile shopping applications. This result is compatible with E M Rogers, (2003) and most previous studies in the mobile application domain (Kim-Choy Chung & Holdsworth, 2012).

Although this study posits that perceived enjoyment has a positive effect on the intention to use mobile shopping applications, the finding showed an insignificant relationship. The explanation for this result is that Jordanian agreed that using mobile applications for banking transactions or to buy/sell products saves their time and effort, but is not enjoyable or interesting (M. K. Gharaibeh, Arshad, & Gharaibeh, 2018). This result contradicts A study by Natarajan et al., (2017), which they find strong support for the role of perceived enjoyment on three dimensions namely; customer satisfaction, perceived ease of use and intention to use mobile shopping applications.

This study has two unexpected results, based on most previous studies, this study assumes that complexity will play a negative role in customer's intention adoption of mobile shopping application, but the result showed a positive relationship. The Justification for this result can be summarized that most of the respondents are experienced in using mobile applications and specifically mobile shopping applications. In other words, they overcome concerns about complexity in using such applications (Christou & Kassianidis, 2010). This comes on par with the study by Zendehdel & Paim, (2013) which also did not prove the negative relationship between perceived enjoyment and on-line shopping usage.

Another unexpected result in this study showed that perceived risk has a non-significant on the intention to use shopping through mobile devices. It is evident that experienced users in the study sample have a higher attitude to use mobile commerce because the technology used in these applications is fully protected. This result contradicts most previous studies which found a negative relationship between risk and use of mobile shopping/ commerce applications (Goyal, Maity, Thakur, & Srivastava, 2013; Wu & Wang, 2005). Another reasonable conclusion for the results of perceived risk and complexity is that most participants are young, hence more aware of the newest changes in technology (Tan, Chong, Ooi, & Chong, 2010). They are compatible using online channels for transactions, therefore overcoming any complexity or risk associated with mobile shopping.

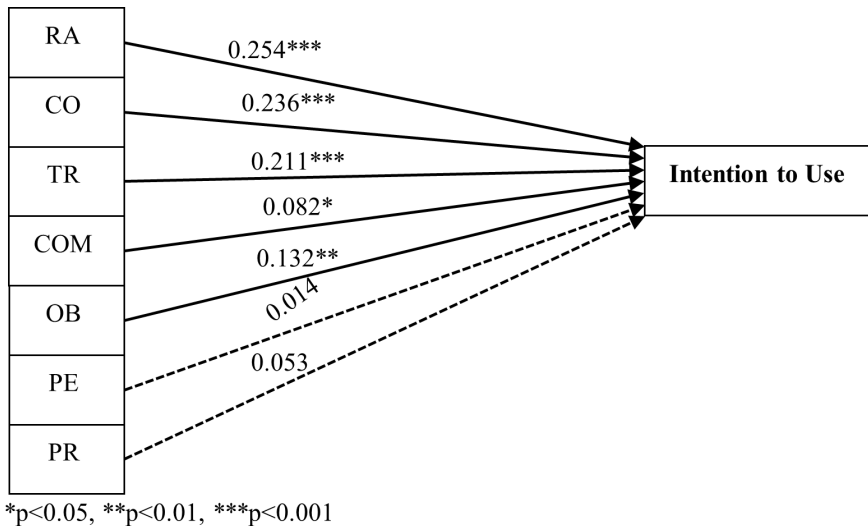
Contribution

From the theoretical perspective, this study has added to the current body of knowledge. The current paper provides perceptions on adoption intention by adding two new variables to the IDT, namely perceived enjoyment and perceived risk. Therefore, this study can better predict users' intention to use mobile shopping. The findings from this study are helpful for retailers, service developers and mobile marketers to raise the acceptance rate of mobile shopping among people.

Due to relative advantage is a most important factor in affecting customers' intention to use mobile shopping, practitioners should emphasis on the development of software related to m-shopping like the price comparison software (Broeckelmann, 2010), online purchasing advisor (Bai, Chou, Yen, & Lin, 2005) and recommendation software (Yuan & Cheng, 2004). Practitioners can also launch marketing campaigns by focusing on the advantages of using mobile shopping. Their promotion should concentrate on both the 'portable' features and the convenience of mobile devices for shopping issues to increase awareness among customers. The impression of advantage can be shaped and the potential customer will begin to thin in the adoption intention for such service (Malik Khlaif Gharaibeh & Muhammad Rafie Mohd Arshad, 2018; Wong et al., 2012).

From a technical perspective, The findings from this study are helpful for software engineers, web developers, and application programmers, as in (Pressman & Lowe, 2008) "it is important to

Figure 3. Results of path analysis



establish a user-centric model for Web Applications quality”. Further, it provides mobile application developers with more useful insights of the factors that affect how users react to mobile applications, Since that mobile screen size is small, the online shopping sector should develop and design user-friendly (e.g., visual aesthetics, screen size, and keyboard interface) application and suitable to the context of a mobile device in terms of ease of interaction and accessibility. In this way, the complexity of using mobile applications can be avoided and reduced. As a result, these strategies can make an appropriate environment for users to shop on-line and increasing their perspective in such service (M. Gharaibeh & Arshad, 2016; Malik Khlaif Gharaibeh & Mohd Rafie Muhammad Arshad, 2018; Wong et al., 2012).

Conclusion

Based on of diffusion innovations theory (IDT), this study discloses several vital unexpected results in two factors: complexity and risk in the domain of mobile shopping applications and innovation or technology acceptance. Consistent with most prior studies, our study also confirms that IDT is still a reliable and robust theory in predicting the intentions in the context of mobile shopping applications. Relative advantage has been found as the strongest factor in the adoption intention of mobile shopping applications. findings of this study could offer advantages for the markets and organizations by providing perceptions in developing their advertising campaigns and marketing strategies efficiently. The research model can be generalized into other technologies such as mobile banking, mobile commerce, and mobile payment.

LIMITATIONS AND FUTURE RESEARCH

Some limitations have to be stated. First, this study investigated only one location. Further studies can examine IDT in different countries and emerging markets. Second, the research model includes some important variables that have an impact on intention to use, thus future researchers are invited to conduct an exploratory study to comprise more variables that maybe have a positive impact on intention to use mobile shopping applications. Third, most of the respondents in this study are well educated and experienced. For that, users with lower experience and education might have a lower

intention to use mobile shopping. Hence, future research is recommended to target users representing different experiences levels, the possibility for generalization of findings will be better. Finally, the data was not gathered from several periods (longitudinal) but at a specific point of time. The intentions of consumers to use mobile shopping might change over time. Therefore, it is suggested for future research to conduct longitudinal research.

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