

An Empirical Study on the Effect of Perceived Usefulness and Ease of Use on Purchase Intention Through Mobile Devices in Pakistan: A Mediating Role of Online Trust

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Abstract

In Pakistan, electronic commerce market is in developing phase, and people are not much familiar with technology. Customers feel fear for providing debit/credit card information to online retailers. This research proposes a theoretical model in which online trust is used as a mediator among perceived ease of use, perceived usefulness and intention to purchase through mobile devices. In this study Smartphone, cellular phones and tablets with internet connection conceived as mobile devices. Data were collected through questionnaire from the students and employees of different universities in Pakistan and analyzed by partial least squares structural equation modeling (PLS-SEM) method. Results suggest that PEOU have an insignificant effect while PU has a positive effect on online trust and purchase intention through mobile devices. Also, online trust does not mediate between PEOU and purchase Intention through mobile devices while it partially mediates between PU and purchase intention through mobile devices.

Keywords: Electronic Commerce, Online trust, Intention to purchase through mobile devices, Perceived ease of use, perceived usefulness.

1. Introduction

The Internet is a significant invention of the last few decades because it permits for interaction as well as transactions to happen with no space & time limitation. Online Purchasing with additional computer associated transaction characterize by anonymous and insubstantial components is to a great extent involved fear and anxiety. In these circumstances, deficiency of trust may conceive as the most significant obstacle to prevent the online purchasing (Beldad, De Jong et al. 2010).

Recently, technology developments have changed entity to demonstrate pervasive e-commerce existence anywhere through a mobile device. While the amount of such contraptions builds, an enormous amount of adopters purchase and consequently turn into a rising business division for mobile communication, promotions & transaction (Shankar, Venkatesh et al. 2010). Online purchasing device represents a personal device through which businesses can build a relationship with the customers. A Set of distinctive characteristics for instance personalization, localization, ubiquity and continuous reachability (Camponovo, Pigneur et al. 2005) takes into account for recognition of every customer and their geographic location by chasing the particular identification of the mobile. The development in customer environment has made mobile research as a captivating view. At the same time, these distinctive benefits of the mobile services are becoming the main barrier to the adoption because of trust deficit as many customers feel reluctant to share their personal information.

In the mobile market environment, Trust is very difficult to build up because there are higher risks and uncertainties in the mobile commerce, the transfer of trust from presented channel to mobile commerce is the possible approach to build online trust (Siau, Sheng et al. 2004).

Regardless of the value of the online trust for electronic commerce, effort has been made to study the relationship among two important constructs of TAM (technology acceptance model), PEOU and PU on the new construct intention to purchase through mobile devices. Moreover, the trust will be used as a mediator among PEOU, PU and intention to purchase through mobile devices. Specifically in Pakistan, where people are very reluctant to purchase through mobile devices due to a trust deficit. The research objective is to fill that gap.

2. Literature Review and Hypotheses Development:

2.1 PEOU and Intention to Purchase through Mobile Devices:

“Ease of use is defined as the degree to which an individual perceives that to performing the specific program is probably to be effortless”(Davis 1989). Applications that are easy to use than the others have more chances of being widely accepted. A study examined the influence of experience, enjoyment and computer anxiousness on student’s perceived ease of use of e-portfolio method and their aim to use the system and found that experience is the best mediator of perceived ease of use (Abdullah, Ward et al. 2016). Students PEOU is the best mediator of PU and resulted in that PEOU and PU mediate the student's behavioral intention. Perceived ease of use and usefulness are the main variables in the TAM (Ahmed, Qin et al. 2018). Perceived ease of use and usefulness influenced the user rejection or acceptance of the technology (Chen and Chang 2013). Perceived ease of

electronic commerce use has insignificant effect on attitude for usage intention of online customers (Hernández, Jiménez et al. 2011). Other studies (Porter and Donthu 2006, Kim 2012) analyzed that PU is essential element of purchase intention. The previous study also used TAM and resulted in that PU and PEOU have a significant effect on customers online purchase intention (Zhu, O'Neal et al. 2009). Therefore, this study defines the following hypothesis:

H1: Perceived ease of use is positively related to intention to purchase via mobile devices.

2.2 Perceived Ease of Use and Online Trust

The evidence from the previous studies analyzed consequences & determinants of online trust and determined that online trust can be anticipated through PEOU & tendency to online trust (Zhang and Mao 2008). Past studies examined that PU and PEOU are the determinants of trust (Giovannini, Ferreira et al. 2015). Therefore, this study proposes the following hypothesis:

H2: Perceived ease of use is positively related to online trust.

2.3 Perceived Usefulness and Intention to Purchase through Mobile Device:

According to Lai, Wang et al. (2012) perceived usefulness is the point to which customers think that online sites could contribute value to them when they purchase through online. Perceived usefulness can be determined as an individual's opinion that through using the system would be better to perform the tasks (Lim, Osman et al. 2016). Perceived usefulness has a substantial consequence for online purchase intention in Spain (Hernández, Jiménez et al. 2011). While perceived usefulness have an insignificant result of online purchase intention in Iran (Aghdaie, Piraman et al. 2011). According to (Teh and Ahmed 2012) it is due to different point of view of customers from developed & developing countries about the perceived usefulness that determine the online purchase intention. In developed countries product quality, price, strength and other views are main factors of purchasing decision, but the conditions could be changed in the developing countries (Al-Adwan, Al-Adwan et al. 2013). It is empirically proven that PU has a significant impact on online purchase intention (Kim and Song 2010) and customers anticipated to get valuable information and look through merchandise easily to purchase. Other than, online customers will move to the competitors because other online stores have many similar products. On the bases of above discussion, this study posits the following hypothesis:

H3: Perceived usefulness is positively related to intention to purchase via mobile devices.

2.4 Perceived Usefulness and Online Trust:

PU can be determined as an individual's opinion that through using the system would be better to perform the tasks (Lim, Osman et al. 2016). Past studies examined that PEOU and PU are the determining factor of online trust (Giovannini, Ferreira et al. 2015). Hence, this study defines the following hypothesis:

H4: Perceived usefulness is positively related to online trust.

2.5 Online Trust and Intention to Purchase through Mobile Devices:

In electronic commerce context, trust gets much significant concern as interchange relations are grounded with impersonal type of internet infrastructure. Security and privacy concerns are the main obstacles for internet shopping, with lack of trust customer cannot provide their personal information to the retailers (Hoffman, Novak et al. 1999). Essential for electronic commerce retailers to accomplish success against their competitors and to achieve competitive benefit is to establish customer trust (Suh and Han 2003). Customers trust, the element of the electronic marketplace not only affect their trust in others retailers but also influence the customer's online purchase intention (Hong and Cho 2011).

When customers sending sensitive transaction information on the internet is worried that their information may disclose due to the absence of security, then the trust of the customer may decrease (Olivero and Lunt 2004). Others researchers (McKnight, Choudhury et al. 2002) also analyzed that lack of trust results the hesitation of several customers in expressing their behaviors towards purchase intention. Thus, lack of trust is a crucial barrier to the development of electronic commerce. The online trust had a substantial influence on purchase intention and proven an undeviating relationship with online trust & purchase intention (Shankar, Urban et al. 2002). An empirical study found a significant & positive relationship among online trust & online purchase intention (Chang, Cheung et al. 2005). Literature also examined the antecedents & effects of trust on online purchase intention and determinations proved that online purchase intention is positively determined by the online trust (Mansour, Kooli et al. 2014). Various studies have been conveyed to analyze the effect of trust on online purchase intention and resulted that online trust is an influential mediator of online purchase intention. The previous study also used TAM and resulted that trust, perceived risk, PEOU, and PU have a significant impact on customers online purchase intention (Zhu, O'Neal et al. 2009). The above discussion led us to formulate the following hypotheses:

H5: Online trust has a positive effect on the intention to purchase via mobile devices.

H5a: Trust mediates the relationship among Perceived ease of use and intention to purchase through mobile devices.

H5b: Trust mediates the relationship among Perceived usefulness and intention to purchase through mobile devices.

3. Theoretical Model:

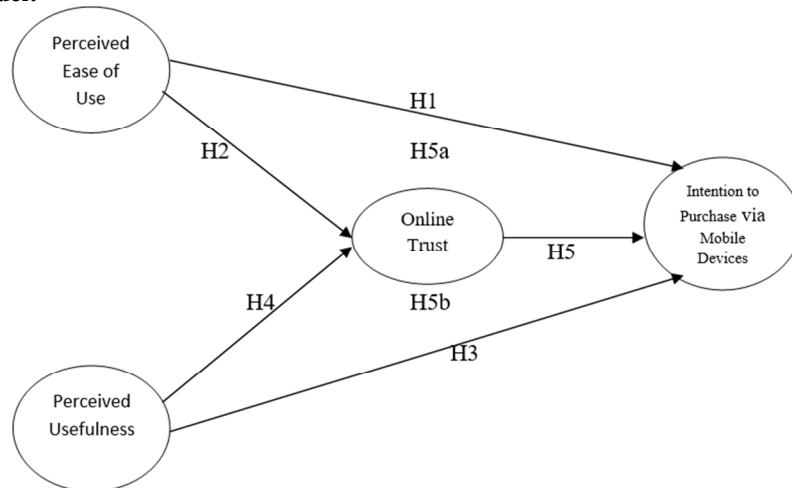


Figure 1: Proposed Research Model

4. Methods

4.1 Data Collection

For this study, data is collected from the students & employees of the universities in Pakistan by using the questionnaire in which constructs of the theoretical model are evaluated by multi-item scale to ensure their validity and reliability. Seven points Likert scale is used to get responses from respondents. PEOU with four items, PU with seven items and purchase intention through mobile device with three items were adopted from Chiu et al. (2005). Trust construct was adopted from Pavlou (2003), and it consists of three items. This research used cross-sectional survey. Most of the online trust and consumer behavior related studies employed the similar technique (Zhang, Zhu et al. 2012).

The questionnaire has two sections: the first section is about demographics and mode of payment and second section of the questionnaire obtained responses on intention to purchase through mobile devices and was measured by (1= Strongly Disagree; 2= Disagree; 3= Somewhat Disagree; 4= Neutral; 5= Somewhat Agree; 6= Agree and 7= Strongly Agree). Collection of the data took place in the period between 05 February and 15 March 2018. Total 175 respondents gave their responses, from which 143 responses were determined appropriate for the analysis. SmartPLS 3.2.7 was used to examine the data with SEM using the partial least square technique.

4.2 Non-Response Bias:

Finding the nonresponse bias is an important step in the quantitative analysis, which is about to determine the variation in the view of different people those who respond to the survey and also those who did not answer. Many authors proposed that researcher should compare responses of early & late respondents, late respondents theoretically present the opinion of non-respondents (Esfahbodi, Zhang et al. 2016). To compare the means of constructs the independent sample t-test was carried among the groups in which the first group comprises of 105 in the early hour's respondents and 38 as of late respondents. The result showed that there is no substantial difference in the means of two groups, which proposed that there is no existence of nonresponse bias.

4.3. Reliability and Validity:

In this analysis, the proportion of variability (R) of the dependent variable intention to purchase through mobile devices is evaluated. A two stages approach recommended by (Henseler, Ringle et al. 2009) is used where review of measurement model is performed first. Reliability of variables is confirmed by composite reliability (CR) which values should be greater than 0.7 (Chin 1998). To confirm the convergent validity AVE values for the constructs should be higher than 0.5 (Fornell and Larcker 1981). Finally, discriminant validity (DV) evaluated by the technique proposed by (Fornell and Larcker 1981) to affirm that AVE's square root is greater than correlation among variables. Table number 1 demonstrates all the measures fulfill the least standards with

CR values of 0.862 to 0.913, AVE of 0.516 to 0.778. Also, the square root of AVE in table number 1 affirms the measures for DV. In the same way, all item loadings are greater than 0.6.

Table1. Statistical Quality Indicator

	AVE	CR	R ²		OPI	PEOU	PU	TRUST
OPI	0.778	0.913	0.576	OPI	0.882			
PEOU	0.732	0.891		PEOU	0.460	0.856		
PU	0.516	0.862		PU	0.619	0.635	0.718	
TRUST	0.730	0.890	0.110	TRUST	0.464	0.254	0.326	0.855

5. Results

Once the lack of nonresponse bias, reliability & validity confirmed by outer model, next process is to examine the hypotheses by inner model evaluation. Figure 2 depicts standard coefficient (β) and related t-values (in parantheses) in the research model. The value of path coefficient 0.20 and greater is presumed significant (Hair, Ringle et al. 2011). The next phase is about the assessment of inner model where bootstrapping method is advocated on a minimal sample size of 5000. For two-tailed test, the values of 1.65, 1.96 & 2.58 at the significance point of 0.10,0.05 & 0.01 in that order are required (Hair Jr, Hult et al. 2016). The two-tailed test was performed with a sample distribution of 5000 bootstraps at a significance point of 0.05. Results showed that standard coefficient value for direct relation of PEOU and intention to purchase through mobile devices is 0.015 (t-value (0.211); p >0.01) and it is insignificant while (β) value for direct relation to perceived usefulness and intention to purchase through mobile devices is 0. 644 (t-value (9.362); p <0.01) is significant and online trust -> intention to purchase through mobile devices 0.258 (t-value 4.575; p < 0.05) are significant.

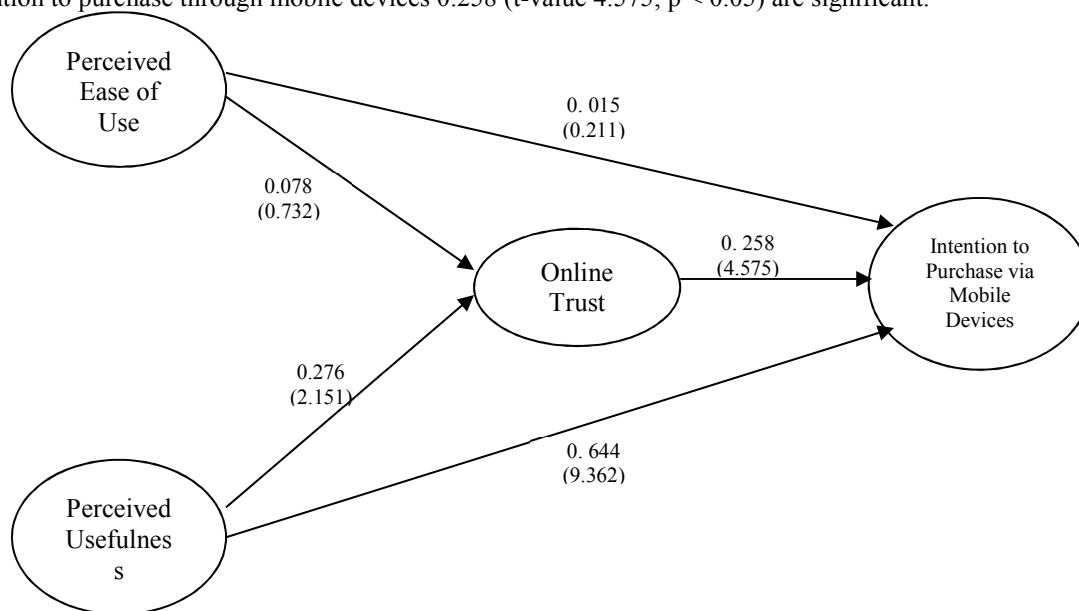


Figure2: Results of Structural Model

Using Subsamples of 5000 bootstrap with 95% CI, collateral effect with CI value was assured for mediation effect. In the table number-2 values affirm the existence of mediator variable. The beta value of both direct and indirect way amongst PEOU and purchase intention is insignificant, so there is no mediation amongst PEOU and Intention to purchase hence hypothesis 5a is rejected. Beta values of direct path between PU -> OPI 0.644 (t-value (9.362); p <0.01) is significant and values between indirect path PU-> OT 0.276 (t-value 2.151; p < 0.05) are also significant, so hypotheses 5b is accepted and confirms partial mediation. Results showed that PEOU did not affect the online trust and purchase intention through mobile devices of Pakistani customers while perceived usefulness effects on online trust and purchase intention through mobile devices. Customers purchase through mobile devices when they feel that online retailer is trustworthy and it will give some benefits to them. Ease of use of purchasing devices does not matter if it is useful then customers will buy through mobile devices.

Table2. Indirect Effect For Mediation Analysis

Hypothesis	Relationship	Indirect Effect	SE	t-value	5 % LL	95% UL	Decision
H5a	PEOU-> TRUST-> OPI	0.020	0.028	0.723	-0.027	0.065	Not Supported
H5b	PU-> TRUST-> OPI	0.071	0.041	1.737	0.016	0.149	Supported

6. Discussion, Limitations and Future Research:

This study aimed to explore the effect of PEOU and PU on intention to purchase through mobile devices and explore if mediating effect of online trust produces an impact on purchase intention through mobile devices of the customers in Pakistan. The insignificant direct effect of PEOU on intention to purchase through mobile devices is similar to the results found in the past literature on online shopping. Hernández, Jiménez et al. (2011) reported that perceived ease of electronic commerce use has an insignificant effect on intention to purchase through online. Similarly, PU has a significant effect on purchase intention through mobile devices which is consistent with Kim and Song (2010) who have examined that PU has a significant effect on online purchase intention. Results confirm the buying behavior of Pakistani customers that they believe on the usefulness and require trustworthy online retailers that they will keep customers sensitive information secure than irrespective of ease of use or not customers will buy through mobile devices. Results also show that trust is an essential antecedent to university students and employees' behavior toward purchasing through mobile devices and indicate that trust is vital in building consumers perception of online shopping. Online retailers should develop their trust in the mind of the customers. Ethical business practices may develop their trust through the presentation of privacy policies, by displaying the quality and security certifications and clear return policies.

Every research has some limitations. An important limitation of this research is about the collection of the data. Researcher only surveyed the students and employees of the universities not from the other citizens of Pakistan. Also, this study considered only smartphones, cellular phones, and tablets with an internet connection as purchasing devices.

This study also proposes specific future research directions. It would be great if the future researchers replicate this research in different countries and use other purchasing devices. Because in this research only Smartphone, cellular phones, and tablets linked with internet would be conceived as mobile devices. The replication of the research with customers of diverse profile and separate ethnic clumps can also apply to authenticate and increase the range of the consequences, as something appears highly relevant for some individual while it can be irrelevant to others individuals. Outcome determined at this point apply to Pakistani customers only; it is likely that different individuals will show different opinion about the trust to purchase through mobile devices.

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