

# Understanding The Moderating Role Of Generation On The Factors Affecting The Adoption Of M-Shopping

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**Abstract:**-Purpose –The aim of the study is to empirically examine adoptive concerns of shoppers who use mobile phone as a mode of shopping and to understand this Technology Acceptance Model (TAM) and Theory of Diffusion of Innovations (DOI) were used. The research also tries to moderating effect of generation on antecedents and dependent variable. Research Methodology–A sample of around 315 respondents were drawn and self-administered survey data was collected. To determine the relationship among the antecedents and to validate our research model statistical tools like CFA, SEM was used and to check the moderating effect PROCESS version 3.3 by Andrew .F Hayes was used. Findings – Current study reveal that perceived usefulness, perceived ease of use and personal innovativeness creates a positive impact on the adoption of mobile shopping whereas price is negatively impacted and it is found that perceived risk does not create any impact on mobile shopping adoption. Study also showed the existence of the moderating effect of generation on personal innovativeness. Practical implications /limitations–Findings of the study enlighten mobile shopping service providers and mobile retailers who are involved in this digital business. The authors also try to compare the adoption of mobile shopping Generation X and Generation Y to see the effect on adoption, which provides understanding to develop marketing strategy accordingly. Limitations of the study are restricted to sample size in Indian context only. In future scope can be improved by testing the same model at the global level. Originality/value – The study provides a theoretical and practical understanding of adoptive concerns of the mobile shoppers considering “Price” as one of the important variables which is less used in the field of mobile shopping and also finds the moderating effect of generation

**Keywords:-** Technology Acceptance Model, Diffusion of innovation, mobile shopping.

## 1.INTRODUCTION:

People nowadays follow a common practice of accepting and utilizing modern technologies. Lifestyle is changing for common people in a way that they are adopting the latest technology in everyday life. Not only that, more focus is being given on making new technology and with this rapid evolution, technology is part of our daily activities (Zahidul, 2013). Over the last few decades, technology has introduced mobile devices which have brought a huge impact on every individual's life. Potential of mobile technology is broadly accepted nowadays by the retail industry. Mobile technology has brought its customers to interact more with mobile shopping (G. Michael,2015). There were two reasons as to why mobile commerce started and promised rapid development. Firstly,a lot of awareness was provided to consumers about cell phone services. Secondly, mobile phone services could be used anytime and anywhere helping people to get rid of old school ways of shopping where they had to be physically present at the place of shopping with no other option. Mobile commerce can be defined as “any transaction, involving the transfer of ownership or the rights to use goods and services, which is initiated and completed by using mobile access to computer-mediated networks with the help of mobile devices”(Chong, 2013).

Websites have disadvantages because of their limited functionalities and hence companies are providing customers with mobile shopping applications (Victoria,2013). Companies are gradually investing more in mobile shopping applications to take advantages of mobile shopping. Mobile applications enhance the shopping experience by describing products to customers at par; push notifications for special offers; enabling customers to recommend products to friends and family using social networking sites; consumers get personal recommendations based on their behavior of product search (Victoria,2013). Customers prefer mobile applications over mobile websites because of speed, convenience and easy browsing capability of mobile applications (Dynatrace,2016). The usage of mobile shopping applications is growing faster than that of other categories of mobile applications nowadays (Simon, 2015). According to the study M-commerce includes both mobile shopping applications and mobile websites. The intention to use and the perception of the customers towards these two is very different. Mobile shopping applications facilitates purchasing products, reward points and loyalty points, order tracking, accessing saved coupons, comparison of products, browsing and researching of products and reading reviews provided by other customers through a dedicated application which is installed on a mobile smartphone (Natarajan, 2017). As compared to traditional website experience, customers now spend less effort to search for information regarding products and they can easily do transactions with convenience using the interface. Retailers are also facilitated using mobile shopping applications as it provides a wide range of business possibilities like reaching out to specific customers by providing customized recommendations and identifying seasonal purchases, introduction and promotion of products and initiating new purchases. So, it can be concluded that for customers as well as retailers mobile shopping applications have changed the overall experience and perception of shopping compared to the traditional way of using mobile commerce. Every Generation people have

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different taste and preferences and even marketers are not treating them in the same way. (Williams & Page, 2011). It is proven that age is one of the vital factors that determine the online shopping adoption and user's purchase intention. (Dholakia and Uusitalo, 2002; Khare et al., 2012). The current research considers mobile shopping adoption of Generation X and Generation Y because as compared to older generation both of this generation have maximum internet usage rate (Lissitsa, 2016). The aim of the study is to identify the factors affecting mobile shopping adoption. For this, studies which reviewed the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI) was taken into account and constructs have been identified. For testing the relationship between these constructs and mobile shopping adoption, Structural Equation Modeling was used. After that moderation effect of age was checked and analyzed on all the relationship of antecedents and dependent variable, with the help of SPSS PROCESS v3.3. *Mobile commerce provides consumers the facility to explore products and buy them anywhere and anytime (Kim, 2015; Hung, 2012). Mobile commerce with the help of the mobile platform has revolutionized the traditional consumer experiences and has become very popular for products to be searched and their payments as well (Hung, 2012). It has been shown that more than 600 million mobile applications related to shopping are downloaded in India only. M-commerce sees India as the prominent markets in the world as over 65% of web traffic is coming from Smartphone, as per the study conducted by Beaconstac (2016) Mobile applications are nothing but third party applications which can be easily downloaded on mobile devices (Endre, 2009). Mobile applications such as banking applications, gaming, music, shopping, and many others are available from third-party providers (R. Islam, 2010). When these applications are installed, the functionality of mobile devices increases. The range of consumers need is increasing to serve the numbers of mobile applications are also increasing. (Kim, 2016).*

## 2. REVIEW OF LITERATURE AND HYPOTHESES

Since the smartphone users are increasing in India there is an escalation of adoption to mobile shopping which is all because of the integration of technology. For many e-retailers consumer adoption of mobile shopping is an important goal. Previous research in the field of mobile shopping has taken various theories as their theoretical framework which reviews the notion, approaches and development of various concepts such as Technology Acceptance Model (Davis 1989), Theory of Reasonable Action (Fishbein and Ajzen, 1975), Theory of Planned Behaviour (Ajzen 1991), Diffusion of Innovation Theory (Rogers 1995), the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003), the Initial Trust Model (ITM) (McKnight et al. 1998) and the Theory of Innovation Resistance (TIR) (Ram and Sheth 1989) (Gupta and Manrai 2018). Among the above-mentioned models, current research considered the Technology Acceptance Model and Innovation Diffusion Theory in order to predict the nature of consumers towards adoption to mobile shopping.

### 2.1 Technology Adoption Model (TAM)

This model reviews various concepts of technology adoption and these concepts can be applied in the field of adoption of mobile shopping. In 1989, Davis has given TAM (Technology Adoption Model) which is widely accepted and used in various research that is related to the technology of various information system tools and techniques like e-retailing, internet banking, mobile shopping, etc. The objective of TAM is to determine the various factors that led to the adoption of distinct technology and to predict user acceptance behavior towards it. (Lai, P.C., 2017.) TAM considered two importance variables "perceived usefulness" and "perceived ease-of-use". These two factors play a vital role in determining the attitude of the end users towards the adoption of new technology. (Y. Malhotra, D.F. Galletta, 1999). It is a ubiquitous model that apprehends the intention of consumers to use electronic tools and techniques. The study of (Barry and Jan 2018) reveals that Perceived usefulness directly creates a positive influence on the behavioral intention of consumers using m-commerce. Faqih and Jaradat (2015) found that perceived usefulness and perceived ease of use were the two most notable factors that significantly examined the consumer's intention towards m-commerce adoption. Notwithstanding the fact that initially TAM was used to examine technology acceptance within an organization and further the model is applied to daily usage technology of the consumers like mobile shopping applications, internet retailing, etc. TAM is universally accepted by the general population. (Natarajan, T., Balasubramanian, S.A, and Kasilingam, D.L., 2018) The Current study is using this model to predict the intention of consumers who use mobile as their shopping medium.

### 2.2 Innovation Diffusion Theory

Another theory that posits the acceptance and adoption of innovation and technology is IDT (Innovation and Diffusion Theory). In 1995 Rogers has developed this theory. The theory says that "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995, p. 5). IDT theory categorized people on the basis of how early they adopt and accept new technology and on this basis five following groups are formed; innovators, early adopters, early majority, late majority, and lag gards. (E.M. Rogers, 1983). It has been believed that people who are innovative and spirited are generally early adopters of new technology. (Natarajan, T., Balasubramanian, S.A, and Kasilingam, D.L., 2018). A study of Singh et al. (2017) revealed that the theory of Innovation diffusion is all about how innovation through unambiguous channels is bringing in the knowledge to members in the society. Faulds, (2018) investigate the adoption of mobile shopping by using Innovation Diffusion theory and finds that innovation and intention to shop through mobile are positively related.

### 2.3 Perceived Usefulness (PU) and the adoption of mobile shopping.

It is an individual perception that using a mobile or internet as a shopping medium will improve their shopping performance (Juniwati, R., 2014). According to L. Ya-Ching (2006), perceived usefulness is defined as "the extent to which individuals believe that using the new technology will enhance their task performance". Previous studies have proven that perceived usefulness an important factor that

affects the utilization of any specific application system. (J.-H. Wu, 2005; S. Agrebi, 2014; S. Yuan, 2014). While adopting smartphone it is quite possible that use of mobile phone application will increase if the user believes that adopting this technology will help him to complete his task more effectively. (Kim, 2015). According to Natarajan (2018), Perceived usefulness significantly influenced the behavior of the consumer towards using a particular tool of technology as it impacts the goal of the consumer to adopt that particular technology. Previous studies identified that perceived usefulness has a more significant impact on adoption to use mobile technology as compare to perceived ease of use and perceived risk as it influences the behavior of the users. (Gu et al. 2009; Teo et al. 2012; Hanafizadeh et al. 2014) We ,therefore posit the following hypothesis: H1: Perceived Usefulness has a positive influence on the adoption of mobile shopping.

#### **2.4 Perceived Ease of Use (PEOU) and mobile shopping adoption.**

Another important variable taken by Davis in TAM is PEOU (Perceived Ease of Use). It is defined as "the degree to which an individual believes that using a particular technology will be free of mental effort"(Davis,1989). Findings of previous studies says that Perceived ease of use is one of the crucial determinants that has a notable impact on the adoption of any latest technology. (R. Agarwal, E. Karahanna,2000). When consumers find that doing shopping through mobile is easy to use as it is free of efforts that they may be willing to adopt this technology. (Zhou, T. (2018). It is a relevant variable that primarily contributes to the development of Technology acceptance model. The earlier researcher said that if the technology is complicated than users acceptance rate will automatically decrease as they find it difficult to use. (Mortimer et al. 2015; Chitungo and Munongo 2013; Koksai 2016). According to Natarajan, 2017 "Mobile shopping applications are acknowledged for their simplicity in displaying content and information quality". Therefore we assume that: H2: Perceived Ease of use has a positive influence on the adoption of mobile shopping.

#### **2.5 Perceived Risk (PR) and the adoption of mobile shopping**

According to M.S. Featherman,(2003) definition of perceived risk is - "the uncertainty with the possibility of facing the negative consequences of a product or service.". Researchers proved that consumer's buying behavior is dependent on the perceived risk (G.R. Dowling,1986 and 1994). According to (L. Michelle Bobbitt, 2001) Magnitude of risk varies for online and offline purchases as consumer purchasing products or services online feels risky as compared to physical buying. While shopping on mobile, consumers become more conscious due to the risk factor in it. (Hubert et al.2017). In 2009 Lee discovered various types of risk involved in internet banking which is closely related to internet shopping these are time risk, financial risk, social risk, performance risk, and privacy or security risk. (Lee, 2009). Another study identified that for evaluating the purchase decision of the consumer's perceived risk considered as a relevant factor as it varies differently for a traditional and nontraditional method of shopping. (Gillett, 1976). The study of Natarajan (2018),

revealed that perceived risk does not create any significant impact on mobile shopping applications. Perceived risk has an insignificant impact on mobile banking adoption and user's behavior. (Chen 2013). In the current study theoretical framework of perceived risk in internet banking, internet shopping, mobile banking, mobile shopping has been focused which proved that risk is one of the crucial factors which must be analyzed in order to determine adoption behavior of users. Therefore we assume that: H3: Perceived risk has a negative influence on the adoption of mobile shopping.

#### **2.6 Personal Innovativeness (PI) and the adoption of mobile shopping.**

In 1998, Agarwal and Prasad derived a variable called personal innovativeness which is defined as "the willingness of an individual to try out any new information technology." Innovativeness has a significant role in the decision making of the users to adopt particular technology. (Leung and Wei,1998). It has been observed that creative people are generally early adopters of new technology (Rogers, 1995). The Previous study proved that personal innovativeness creates a positive impact on mobile shopping adoption. (Natarajan, 2018). A lot of people who are smartphone users find it difficult to believe in mobile shopping applications as they may not have sufficient information on various mobile shopping applications. Previous studies also tested and identified the relationship between mobile shopping adoption and personal innovativeness. (Zhang et al., 2012 Hung et al., 2007; Dai and Palvi, 2009; Lu, 2014). As compared to internet banking and e-commerce, personal innovativeness shares a more significant positive bond with mobile commerce. (Natarajan,2017). For the current study, it will become important to test the association of personal innovativeness with the adoption of mobile shopping hence we assume that: H4: Personal innovativeness has a positive influence on the adoption of mobile shopping.

#### **2.7 Price (P) and mobile shopping adoption.**

One of the important variables on which the purchasing decision of a consumer depends is Price of the particular product. Particularly, in developing countries the price of the product decides whether the consumer will buy that product or not. (Roy et al., 2016). Study of Low et al. (2013) revealed that people who purchase goods online are satisfied with their purchase decision in terms of price. Mobile shopping application users generally get discount offers on various products and services which motivates consumers to purchase a product through their smartphones.( Natarajan, 2017). There are two types of price - sensitive consumers High price-sensitive customers and low price-sensitive consumers. Former will consider low price products as compared to the latter. By Natarajan, (2017) it has been proved that the relationship between price sensitivity and intention to use mobile shopping application is insignificant. With respect to technology acceptance price is among those variables which have been less studied and earlier studies proved that buying decision of consumers is directly affected by its price. (Armstrong, 2009). Hence in this study researcher wants to test the effect of price on mobile shopping adoption and

assume that: H5: Price of the product has a negative influence on the adoption of mobile shopping.

**2.8 Moderating variables: Generation**

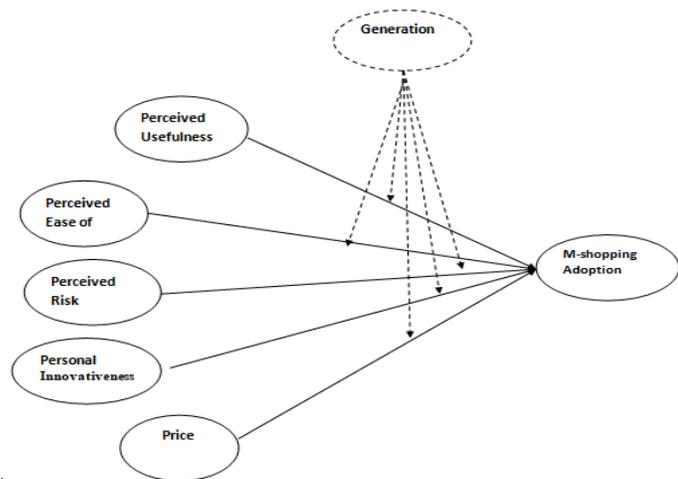
In order to examine the moderation effect, two demographic variable age has been considered. In Past literature , various researchers had used age as their moderating variables in Technology Acceptance Model. In this study, researcher wants to study how generation moderates the relationship between adoption of mobile shopping and antecedents (PU, PEOU, PR, PI , and P) There is the difference in the rate of adoption of new technology and intention to use it between generation Xers and generation Yers, particularly in the services like online shopping, mobile commerce, internet usage etc. (K.A. Passyn,2011; S.I. Wu,2004; T.F. Stafford,2003; J.-W. Lian, 2014). According to B. Skog (2002) Millennials include smartphones as a part of their daily life routine whereas Gen Xers considered mobile phone as their status symbol and use mobile phones only for basic functions. Another study revealed that the frequency of use of the mobile phone is different for different age groups. (D.K. Forgays, 2014). It has been observed that most of the studies consider the difference in young generation and adolescent population, however, the speed of perforation of mobile shopping application is increasing therefore it is mandatory to study a wider range of age groups.(Natarajan, 2018) Therefore in the current study to investigate the moderating effect two generations are considered: Gen X, those who born between 1961 to 1979 and Gen Y are also known as Millennials, it includes people who born between 1980 to1999.( Gurau, C., 2012.) H6: Generation effect will moderate the relationship from H1 to H5.

Figure 1

**3 DATA COLLECTION AND ANALYSIS**

**3.1 Data collection**

On the basis of extensive literature review research model was developed which is represented in fig1. In this model, only the aspect of mobile shopping application and mobile websites was considered whereas on-call shopping was not taken into consideration. Through Google form, an online questionnaire was framed and circulated among the respondents on their emails. With the help of an Indian e-retailer website, emails of e-commerce users were collected and around 400 emails were sent and 354 emails were received, after applying data cleaning tools active data set remained 315. Among these respondents, 181were Gen Yers and 133 were Gen Z ers. Reference was given to online questionnaire because it has an upper hand in terms of instant response, wide coverage and was less expensive. (Ilieva et al., 2002; Green et al., 2003). In this research respondents were the people who already have experience in shopping through mobile applications.



**TABLE 1**  
**CTS AND SOURCES**

Sources	Constructs
ian et al., (2017)	
, (2003); Lin(2005). 4)	
irajan et al(2017 38)	
?014)	
); Natarajan et al.,(2017)	
00); Luna(2018)	
Phonthanakitithaworn(2016)	

**3.2 Measures**

For the current study scaled Questionnaire was taken which include 30 questions among which 25 questions were framed to estimate the 6 variables and remaining 5 questions include the detail of respondents demographic. To measure the constructs five points Likert scale was used with values 1-Strongly Disagree, 2- Disagree, 3- Neither Agree nor Disagree, 4-Agree And 5-Strongly Agree. With the help of expert, content validity was checked and

was done with a data of 80 respondents for checking the reliability and validity concerns of the questionnaire and the result was good which showed Cronbach alpha =.893(>.7) of all the measurement items loaded. Item of all the constructs are taken from the pre- existing defined scale and the details are shown in Table1. The questionnaire which was used for the current study for collecting data is given in Appendix A.

**TABLE 2**

	Scale Items	Factor Loading	Construct
	<i>Use of Mobile-shopping make my life more better</i>	.805	Perceived Usefulness
	<i>Online purchases is becoming easier with the use of Mobile- shopping</i>	.824	
	<i>Mobile- shopping would enhance my effectiveness in online transactions</i>	.822	
	<i>Mobile- shopping would improve my performance in online transaction.</i>	.822	
	<i>Mobile- shopping is a waste of resources</i>	.835	
	<i>I often get confused while doing Mobile – shopping</i>	.811	Perceived ease of use
	<i>Mobile-shopping is more convenient than any other mode of shopping.</i>	.840	
	<i>I think it is easy to know how to shop on mobile.</i>	.887	
	<i>Becoming skillful at using M-shopping is easy</i>	.832	
	<i>We can find anything that we want without any efforts by using mobile shopping.</i>	.822	
	<i>Purchasing through mobile is less risky.</i>	.917	Perceived risk
	<i>While shopping on mobile I confidently provide information to the mobile internet retailer as I am assure it will not used for any other purpose.</i>	.875	
	<i>I feel secure about providing my bank card details to a payment platform</i>	.887	
	<i>Shopping on mobile is as reliable as shopping through bricks and mortar store.</i>	.888	
Personal Innovativeness	<i>I like to try different ways of doing things</i>	.920	.969
	<i>I like to take chance of new products</i>	.931	
	<i>I admire eccentric people who dare to experimenting new things.</i>	.939	
	<i>I frequently search out information about latest goods and services.</i>	.929	
Price	<i>I think that if I shop through mobile, internet retailers charges less price as compared to traditional bricks and mortar stores.</i>	.793	.896
	<i>By Mobile shopping we can purchase the homogeneous or similar products, at affordable prices than the bricks and mortar stores.</i>	.865	
	<i>I can save transportation cost by shopping through mobile.</i>	.874	
	<i>Mobile shopping improves utility of my money.</i>	.813	
M-shopping Adoption	<i>Whenever I got a chance I intend to shop through mobile.</i>	.772	.896
	<i>I will frequently shop through mobile as I adopt it</i>	.779	

	It is good idea to use mobile shopping services rather than any other available mode of shopping in the future	.760	
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### 3.3 Data Analysis

In order to carry out analysis of data two research tools, SPSS 23.0 and AMOS 24.0 were used. According to Hair et al., (1995) SEM is generally used to estimate the multiple interrelated dependent relationships. Preliminary to using SEM for analysis, reliability, as well as validity concern of the data was tested. For testing the reliability of data

Cronbach's alphas was used, and for checking the validity of the construct exploratory factor analysis and confirmatory factor analysis (EFA and CFA) were administered. Other metrics like composite reliability (CR) and average variance extracted (AVE) were examined for testing the validity and reliability of the items.

TABLE 3

	C R	A VE	M SV	A SV	PU	PE OU	P	PR	IN NO	AD OP
PU	.875	0.674	0.277	0.139	0.821					
PE OU	.722	0.727	0.328	0.156	0.448	0.853				
P	.925	0.684	0.343	0.126	0.297	0.398	0.827			
PR	.956	0.733	0.009	0.006	-0.035	-0.067	-0.082	0.856		
PI	.867	0.889	0.168	0.085	0.356	0.298	0.186	-0.095	0.943	
AD OP	.893	0.746	0.343	0.225	0.526	0.573	0.586	-0.094	0.410	0.864

## 4. RESULT AND DISCUSSION

### 4.1 Measurement of reliability and validity

At first convergent validity was examined by conducting exploratory factor analysis (EFA) with the help of SPSS version 23.0 to. According to Sharma, (1996) EFA is used to prevent multicollinearity which leads to an ambiguous result. EFA Outcome showed cross loading of item PI1 which was removed after that. Next step was to conduct Confirmatory factor analysis for which AMOS 24.0 was used. The result of CFA was noted and it showed all the factor loading were above 0.7. In table 2 we can see the output of EFA and CFA. After checking the factor loading, estimation of model fit is done for measurement model of the current study which showed the outstanding result as per the statistics ( $\chi^2/df = 1.787$ ; goodness of fit index (GFI) = .902; adjusted goodness of fit index (AGFI) = .877; normed fit index (NFI) = .935; incremental fit index (IFI) = .970; comparative fit index (CFI) = .970; and root mean square error of approximation (RMSEA) = .050. This measurement model was good to go for further analysis. All items were significantly related to their hypothesized factors as their p-value is less than 0.5. Table 2 represents the standardized regression weights which is more than 0.5 (Kline, 2015) and for every construct, the value of Cronbach's alpha is < .70 which justified the reliability concern of the data (Nunnally et al., 1967). As we can see from table 3 that Average Variance Extracted (AVE) was estimated and for all factors, it was above .50 (Fornell 1981). After this Composite

reliability (CR) was calculated and found that value was more than .60 for all the factors, which is desirable (Bagozzi and Yi, 1988). Therefore we can say that our measurement model is reliable and convergent validity is exist. As far as discriminant validity of the model is concern Table 3 can be seen for that. In co- relation matrix we can see that none of the pair of antecedents have a value of correlation is above .60 (Anderson, 1988). Value of Average shared Variance (ASV) and Maximum shared variance (MSV) is lower than AVE which shows there is discriminant validity established in our measurement model (Hair et al., 2010). Apart from these, before moving to path analysis configural invariance test, common method biasness, linearity, and multicollinearity tests were performed and our measurement model successfully cleared all the tests.

### 4.2 Structural equation modeling (SEM)

After checking validity and reliability concerns, constructs were taken for hypothesis testing by using structural equation modeling (SEM). AMOS24.0 was the software tool which was used for analysis. All the hypotheses were accepted except one. We found that p-value of all the constructs are below .05 except for Perceived risk its beta coefficient is -.026 and its p value is .519 which is above 0.05 therefore hypothesis is rejected which proves that perceived risk does not create any impact on mobile shopping adoption. Considering the minimum confidence interval of 95% we found that there is a significant positive relation between  $PU \rightarrow ADOP$  (p value < .05;  $\beta = 0.284$ ) and  $PEOU \rightarrow ADOP$  (p value < .05;  $\beta = 0.320$ ), PI and ADOP are also found positively related (p value < 0.05;  $\beta = 0.219$ ), price (P) has negative influence on ADOP (p value < .05;

$\beta=0.493$ ). Therefore according to results hypothesis H1, H2, H4 and H5 are accepted, whereas H3 is rejected.

## 5. MODERATION ANALYSIS:

For testing the effect of moderating variable (generation) on the path of dependent and independent variables, hierarchical multiple regression was checked with the help of SPSS PROCESS v3.3 by Andrew Hayes. According to Farooqi and Ansari (2017) "Process is path analysis modeling tool for SPSS and SAS. It is widely used for estimating direct and indirect effects in mediation and moderation models". The result of moderation can be seen from the table 4 as we can see that generation does not moderate the association of antecedents Perceived Usefulness (PU), Perceived ease of use (PEOU), Perceived risk (PR) and Price (P) with dependent variable mobile shopping adoption (ADOP), but current study also found that generation moderates the relationship of personal innovativeness and adoption of mobile shopping. As we can see from the table that for path PU→ADAP, there is a change in r-square from .6542 to .0010 which is caused by interaction effect of generation (moderating variable). It is found that upper limit confidence interval (.2555) and lower limit confidence interval (-.0880) have opposite sign which shows zero is lying between them also p value is  $>0.05$ , which illuminate that effect of generation is insignificant on the relationship of PU and ADOP. Similarly for paths PEOU→ADOP, PR→ADOP and P→ADOP moderation effect is insignificant as zero lies between their lower and upper level confidence interval and after interaction effect r-square is also change from its previous value, p value is  $>.05$  for all three variables (PEOU, PR and PI) where as for PI, change in r-square due to interaction effect of moderating variable is .0087 from .6221, also we can see from the table that p value is  $< 0.05$  and both the confidence interval have same sign, lower level (.0438) and upper level (.2893) means 0 does not lie between them, which shows generation is creating moderating effect on the relationship of antecedent (PI) and dependent variable (ADOP), also after interaction effect result showed that conditional effect of Gen Yers is .2321 which is more than Gen Xers (.0656)

**TABLE 4**  
MODERATION EFFECT OF GENERATION

Path	$R^2$	$R^2$ change	LLCI	ULCI
<i>p-value</i>				
<i>Result</i>				
H6a: PU→ADOP	.654	.0010	-.0880	.2555
.3381				
Insignificant				
H6b: PEOU→ADOP	.6725	.0022	-.0417	.2696
.1540				
Insignificant				
H6c: PR→ADOP	.5924	.0001	-.1796	.1270
.7359				
Insignificant				
H6d: PI→ADOP	.6221	.0087	.0438	.2893
.0080				
Significant				
H6e: P→ADOP	.7278	.0003	-.2559	
.1446				
.5850				
Insignificant				

## 6. DISCUSSION

In India m-commerce is getting popular day by day. Overcoming the barriers of e-commerce, m-commerce is easily accessible at anytime from anyplace. Mobile phones are so convenient that one can search for product information, place order and do transactions with this wireless device only. Mobile shopping applications raise the

level of electronic commerce as they can be customized according to the user's requirements. One can easily attain the smart phones and internet facility as day by day smart phone's and internet's prices are falling in the market. Current study provides an insight on the validation of Technology acceptance model and Diffusion of Innovations theory, on the field of m-shopping particularly in the context of developing country. This is the first study which contributes to the existing literature in which variables-perceived usefulness, perceived ease of use, personal innovativeness and price are all together taken into account and found that they influence the adoption of mobile shopping. Moderation effect of generation is also being checked on the relationship of antecedents and consequences. In the past very less work has been done on the relationship of constructs Price, Personal innovativeness with mobile shopping adoption. In the current study we found that Perceived usefulness, Perceived ease of use, Personal innovativeness has positively influence the adoption of mobile shopping like past research. (Teo, 2015; Zhang, 2012; Khalifa, 2008; Goyal, 2013; Chong, 2012; Tsu Wei, 2009). Price have negative relation with the mobile shopping adoption. Whereas perceived risk have no relation with the adoption of mobile shopping, we expected to discover negative relation between them like previous literature (Goyal, 2013; Wu and Wang, 2005; Natarajan, 2017) but our findings contradict the earlier studies, the reason for this could be debit/ credit card security improvement in Indian financial system due to which people are becoming confident while shopping through mobile and also they are highly aware of innovation of technology, its features and problems related to it. (Wright, 1974; Hwang, 1994). Other reason for this may be the nature of respondents, as in the current study respondents are the people who have already experience of how to shop on mobile and using mobile applications for shopping purpose. So it may be possible that people are becoming tech-savvy now and they are enjoying doing internet based shopping therefore perceived risk for them are likely to be low. Laukkanen in 2007 and Laukkanen and Lauronen in 2005 proved that while doing online banking transactions security risks is not considered as important determinant, which affect decision making of users. According to Akturan, 2012 –"It was thus concluded that because of their experiences, their attitudes to mobile banking are not determined by their perceptions of privacy risk, security risk, or financial risk." The reason for this can be improvement in the services of mobile retailers. As we know mobile banking and mobile shopping are closely related, so we can assume same conditions for both. Current study also reveals that Perceived Usefulness, Perceived ease of use and Personal innovativeness positively influence the adoption of mobile shopping. Means it is correct, consumer perceive that adopting mobile shopping services will improve their performance in the task of shopping as it can be quickly done. Users of mobile also expect that it is easy to shop on mobile as it is free of efforts. Positive relation between personal innovativeness and mobile shopping adoption shows that users are early adopters and they spread word of mouth or share their views with the consumers who are not user friendly with mobile shopping applications. (Midgley and Dowling, 1978). Innovativeness of mobile shopping applications not only

helps to retain users but also attract new customers. Findings reveal that Price has negative influence on mobile shopping adoption means if mobile retailers increase their product price online, than adoption rate of mobile shopping will decrease. As we know consumers expect prices of products to be low on e-market as there is no transportation or intermediary cost involved. Previous literature also proves honesty of the marketers will generate good faith among the consumers as it affect their emotions and will result in repurchase, switching and positive word of mouth.(Lii and Sy, 2009). The same assumption will be made for mobile shopping applications to improve its market share. The result of moderation analysis unveil that when generation taken as a moderating variable the result of PROCESS showed ,it only moderates the relationship of Personal Innovativeness and mobile shopping adoption and after interaction effect we found that Gen Yers are accepting new technology in a more speedy way as compare to Gen Xers. Whereas results show that there is insignificant moderation effect on the relationship of antecedents (PU, PEOU, PR and P) and the mobile shopping adoption. Findings shows that both X and Y generation perceive adoption of mobile shopping effortless and think it will be helpful for them in performing their task in a better way. Our study prove that both Millennials and generation Xers does not find mobile shopping is a risky platform, they are comfortable with it and find it trust worthy, this is first known in the literature. As we know Indian market is highly price sensitive and even in our study we found both young and old consumers are price conscious in case of shopping though mobile.

### 6.1 Implications

In India M-commerce is at growing stage therefore mobile retailers are efficiently working on designing user friendly applications in order to get success in the m-commerce market. They also make sure that mobile applications should have maximum usability for this they required good user interface which is not affected by complex features of the application. With the help of this study mobile retailers would incorporate some changes if required in designing of their shopping applications. Our study proved that both X and Y generation people are early adopters of any new technology as now a day's young people are very innovative they will not only use mobile shopping applications but also spread awareness about this new way of shopping among non-users or light users of shopping applications. So it is recommended that managers should look after the innovators among the users as it will help them not only to retain users but also in attracting new consumers. It is also suggested to improve the innovators data base of the organization as they could help them in the early stage when an application is launched or updated by influencing new or existing customers and providing feedback. It is visible from the result that Gen Xers and Yers found mobile shopping trust worthy and secured but they both are price conscious while shopping through mobile and they consider price is an important while purchasing any product online. So it is desirable that mobile retailers should adopt differential pricing strategies. Definition of differential pricing is "the practice of charging customers different prices for essentially identical goods" (Hoffman, 2002). Differential pricing strategy will not only

increase their market share but also helps in upgrading their profits.

## 7. LIMITATIONS AND CONCLUSION

On the ground of technology acceptance model (TAM) and the theory of diffusion of innovations (DOI), this research has proved that people who shop through mobile applications or mobile websites are positively influenced by Perceived Usefulness, Ease of use and Personal Innovativeness factors where as mobile shopping adopting pattern is negatively affected by Price of products. Something that we found new in this research is that unlike previous literature, people of both X and Y generation find mobile shopping secured and trust worthy as we it is proved that risk factor is not influencing the adoption pattern of mobile shopping. This research will provide a wide scope for existing and new organizations which are planning to enter in the mobile shopping application market as they can develop their marketing strategies accordingly. We believe that findings of this research can be generalized in other areas of information system also in other cultures and demographics. Beyond this, there are some limitations of this study like only five constructs are taken in to account which affect the mobile shopping adoption, there are various other factors also so future researchers can take some other factors also to enhance this research. In future studies various other kinds of risk like social, privacy, financial, security etc can be taken individually in perceived risk construct. For checking moderating effect two generations (X&Y) are considered which is also confined our research. This research is restricted to only one country (India), In order to expand knowledge future researchers can work on the cross culture study by testing this model among different countries. In future studies these issues should be address in order to enhance knowledge on Mobile shopping.

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