

An Empirical Study of Factors Affecting Adoption of M-Commerce in India

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ABSTRACT

The meteoric development of communication technologies has developed a substantially effective M-Commerce market in India. Therefore, the determination of factors affecting the acquisition of M-commerce in India will have a considerable value. The conceptual model was prepared on the basis of previous research. Through survey method, 300 data were collected from New Delhi and the concerning factors were confirmed by using confirmatory factor analysis. SPSS and AMOS software are used for analyzing the data. The findings advocated that trust, perceived privacy, perceived usefulness, subjective norms, perceived value added, perceived security and perceived ease of use are the important factors which affect the adoption of M-commerce. All seven factors were statistically significant. Trust is considered to be the basis for influencing the adoption behaviour of mobile users. The findings of this study are beneficial to the telecom sector and online players. The managerial implication and future research directions is talked through.

Keywords: Mobile commerce; m-commerce; Adoption; India; TAM

INTRODUCTION

M-commerce has changed the mode of conducting businesses/services and, continuously growing in number (Lee & Wong, 2016). Higher accessibility and a stable supplement of M-commerce attracted researchers (Akter & Wamba, 2016; Assocham, 2017). India has the largest mobile market that comes in second place compared to other countries and is expected to have 1.4 billion mobile connections till 2020 (Gupta et al., 2018). Cheap smartphones, cheap mobile data and network availability escalate the M-commerce market in India. Greater availability and affordability of mobile services has occurred by the launch of Reliance Jio. M-commerce is considered as an augmentation of E-commerce (Abdennebi & Debabi, 2017; Lee & Wong, 2016) and wireless in nature (Zhang et al., 2012). M-commerce is an efficient technology that will progressively develop in coming years (Hofacker et al., 2016). Mobile has become a close friend of the people to contact consumers through it directly (Shankar et al., 2010). The browsing trend of internet users is turning towards mobile from the desktop. People are turning towards mobile for conducting online activities; that's why Indian e-commerce leaders are more mobile-centric. Accessing the internet through mobile is more convenient and processing online activities through mobile is more suitable for busy people. Mobile phones are smaller in size as compared to desktop & computer. People are carrying mobiles all the time, and they can access the mobile internet whenever

they want. Mobile phones have become cheaper and, due to the launch of Reliance Jio, 4G internet has become cheap, even rural people can afford it. With the increment of internet usages through mobile devices, companies can manage the brand digitally, but government policies should be supported (Deshmukh et al., 2013). Rapid increment in mobile internet users and cheap smartphones formulated a strong base for the rapid growth of M-commerce market in India.

Although M-commerce is a strong and effective technology that can make various businesses more profitable, the actual use of such technology is low globally (Liebana-Cabanillas et al., 2017). India's mobile commerce market is lesser researched than other countries (Williams et al., 2015). Many companies made efforts to motivate users for adopting M-commerce or to keep utilizing mobile for transactions or other purposes, has failed to yield positive outcome (A. Anwar et al., 2020). A possible explanation for such a low use of M-commerce is the absence of comprehensive detail of M-commerce drivers, which hinders the formulation of strategies. The number of research was conducted on M-commerce adoption, but more research is required to understand M-commerce's adoption behavior (Zhang et al., 2012). Since there is a decent amount of qualitative research exist on M-commerce adoption (Min & Ji, 2008; Roy & Moorthi, 2017; Tarhini et al., 2019) and some studies are available which conducted as per the Indian context (Anwar et al, 2020) but still, the amount of literature identifying influential factors are less in number (Hubert et al, 2017). This issue is more severe in developing countries (Thongpapanl et al., 2018).

This study included perceived value added factor and exploring the impact of the same on the adoption of M-commerce. The variables for this study were taken from different established models. This study aims to determine the factors affecting the adoption of M-commerce as per the Indian context. The outcome of this paper will provide efficient information regarding the impact of perceived value added on the adoption behavior which gives direction to the managers for making effective strategies and productive use of various value added service for enhancing the usage of mobile for multiple online activities.

LITERATURE REVIEW

M-commerce has provided power to people for executing multiple online activities with a single click on the mobile. There are different information systems available, and researchers explored different factors affecting the adoption of new technology. One of the famous models proposed by Davis, 1989, "Technology acceptance model" explained how perceived ease of use and perceived usefulness factor played an important role in forming the attitude towards using new technology. Originally TAM was based on two established social psychological theories: Theory of Reasoned Action (TRA) (Ajzen & Fishbien, 1980; Fishbien & Ajzen, 1975) and Theory of planned Behavior. "Theory of reasoned action" is an important model which explains human behaviour in different domain. It explained how subjective norms played a prominent role in forming the behavior for using new technology (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The TAM determines the impact of four internal variables such as Perceived ease of use (PEOU), Perceived usefulness (PU), Attitude to use (ATU) and Behavioral intention to use (BI) upon the actual use of the new technology. PEOU and PU are considered key variables for explaining new technology's adoption (Marangunic & Granic, 2015; Sonia Bhatt et al., 2020). There is an extended form of TAM available. TAM2 includes subjective norms factor that affect the adoption of new technology (Venkatesh & Davis, 2000). These models have played a significant role in this paper. The

earlier people are used to online shopping through their desktop & laptop, but now a day's scenario is changed. Attitude towards behavior and subjective norms about engaging in a behavior are supposed to influence the intention of using new technology. Following are the details of the variables which are considered for this study:

Perceived ease of use (PEOU) is described as "the degree to which a person believes that using a particular technology would be free of effort" (Davis, 1989, p. 320) and users pay attention towards interaction with the system only (Heijden, 2004). It is an essential factor influencing people to adopt mobile commerce (Davis, 1989; Wei et al., 2009; Khalifa & Shen, 2008). PEOU has a significant strengthening effect on attitude to use (ATU) and Behavioral Intention (BI) (Cham et al., 2018; Kaplan et al., 2017; Park et al., 2015). There is a difference of opinion in the case of PEOU. There are many previous researches which pointed out that perceived ease of use has a positive impact on adoption of M-commerce (Wei et al., 2009, Bhatti, 2007; Kaplan et al., 2017; Park et al., 2015; Lee et al., 2011) and others found no significant impact of PEOU on M-commerce adoption (Chong, 2013; Yadav et al., 2016). Depends on the above discussion, the hypothesis is formulated:

H1: *Perceived ease of use (PEOU) will have a positive effect on consumer's adoption of M-commerce*

Subjective Norms (SN) is a prominent factor which explains the influence of other's opinion on a person's perceptions (Venkatesh et al., 2012). SN is a factor that influences users' intention of using new technology either directly/indirectly (Fishbein & Ajzen, 1975; Lim et al., 2019; Taylor & Todd, 1995; Venkatesh & Davis, 2000; Moorthy et al., 2017). Social influence positively affected internet usage (Osama Isaac et al., 2019). Most of the previous research indicated that SN is an essential predictor of M-commerce adoption (Chong et al., 2012; Omonedo & Bocij, 2017; Moorthy et al., 2017). With regards to this paper, it is expected that SN will play a significant part in the adoption of m-commerce in India, as Indian people depend more on opinions of their relatives, companions. So forth also, consumers are bound to embrace m-commerce if famous public person motivates them to do so and when they have a sense of safety (Omonedo & Bocij, 2017). Based on above previous literature, the further hypothesis is generated:

H2: *Subjective Norms (SN) will have a significant effect on consumer's adoption of M-commerce*

Perceived Usefulness (PU) is played an essential role in forming the attitude for using new technology (Davis, 1989). Previous research suggested that perceived usefulness factor integrated in various models of M-commerce adoption (Ha et al., 2012; Lie'bana-Cabanillas et al., 2014; Lu, 2014; Nassuora, 2013). Users believe that accessing mobile internet or conducting online activities is convenient and more utility (Diwedi et al., 2014; Chong, 2013). Some studies considered PU as a primary predictor of M-commerce adoption (Agarwal & Karahanna, 2000; Chong, 2013; Hanafizadeh et al., 2014; Yadav et al., 2016). PU is a significant predictor of M-commerce adoption (Davis, 1989; Khalifa & Shen, 2008; Wei et al., 2009; Nassuora, 2013; Zarpou et al., 2012; Kalinic et al., 2016). As per the above discussion, the hypothesis is formulated:

H3: *Perceived Usefulness (PU) will have a significant effect on consumer's adoption of M-commerce*

Trust (T) is a strong influential factor which influences the new technology adoption behavior (Singh et al., 2018; Pandey & Chawla, 2019; Liu & Li, 2019) and some studies indicated a significant effect of trust on the adoption of M-commerce (Chong, 2013; Lee & Wu, 2011). Consumers are purchasing products and services depend upon the level of trust, they have upon it either in the physical store or online shops (Cheung & Lee, 2006; Lim et al., 2020). People are ready to buy products from known retailers or seller who they trust a most (Chen & He, 2003; Whysall, 2000). Online trust is an important issue that affects online retailer's fate (Prasad & Aryasri, 2009) Trust is a significant factor in explaining the adoption of M-commerce (Wei et al., 2009; Chong et al., 2012). Easy and more usable characteristics of website will increase the level of trust of users (Li & Yeh, 2010). High level of trust motivates the mobile users to process online activities through it (Vasileiadis, 2014). As per discussion, the hypothesis is as follows:

H4: *Trust (T) will have a significant effect on consumer's adoption of M-commerce*

People are concerned about the security of their personal information. Perceived Security is a key concern in developing countries for adopting new technology (Garg & Choeu, 2015). It can be determined in terms of transaction security, information security and facility security (Xu et al., 2010). Consumers are more attentive to the security of their private debit/credit card information. Consumers are most likely to pay through their credit cards in online shopping, and users are very attentive for seller's information for the security purpose (Lim & Dubinsky, 2004). Transaction security and data safety has become a significant concern when consumer purchases online (Laudon & Traver, 2009; Constantinides, 2004). Perceived security (PS) factor acts as an inhibitor for M-commerce adoption (Ngoc et al., 2020). Web security is an essential construct which influences the adoption of web retailing (O'cass & Fenech, 2003). Above literature suggested further hypothesis:

H5: *Perceived Security (PS) will have a significant effect on consumer's adoption of M-commerce*

Privacy is turning a critical factor in moulding the user's behavior towards M-commerce. The concern for information privacy gets significant in the electronic space in developing countries, (Sultan et al., 2009) which also impacts the users' attitude towards M-commerce adoption (Shankar & Balasubramanian, 2009). Online marketers can gather personal data of the users at the time of internet shopping or processing online transactions. Social media sites have lots of personal information of the users (Wessels, 2012). This personal information could be misused or leaked which is the matter of privacy (Dai et al., 2008; Wessels, 2012). The information privacy concern in the mobile users is more severe (Xu et al., 2012). Perceived privacy (PP) impacts the users' behavior in adoption of M-commerce (Nassuora, 2013). People are afraid of giving personal information over the mobile internet because that information can be used by other organisation for other purposes (Eastin et al., 2016). Above arguments suggested hypothesis as follows:

H6: *Perceived Privacy (PP) will have a significant effect on consumer's adoption of M-commerce*

Perceived value added (PVA) explains that M-commerce provides value to consumers in a different manner from conventional business. Customers can have different benefits from M-commerce (Mobilocity, 2000; Tsalgatidou & Pitoura, 2001) where some studies found empirically significant impact of PVA on mobile adoption behavior (Chong, 2013; Yadav et

al., 2015) and some studies found the same theoretically (Constantinou & Mahnke, 2010). The perceived value indicates the gain of the consumers against the purchase cost, therefore, it impacts the usage intension, post purchase intention (Kuo et al., 2009) and customer loyalty in the M-commerce (Lin & Wang, 2006). The decision of adoption/ rejection of M-commerce depends more on perceived benefits than perceived barrier (Ancker et al., 2003) which is exactly contradictory of the study of (Venkatesh & Brown, 2001). Perceived value plays a significant role in influencing the M-commerce adoption (Anwar et al., 2020). The hypothesis is:

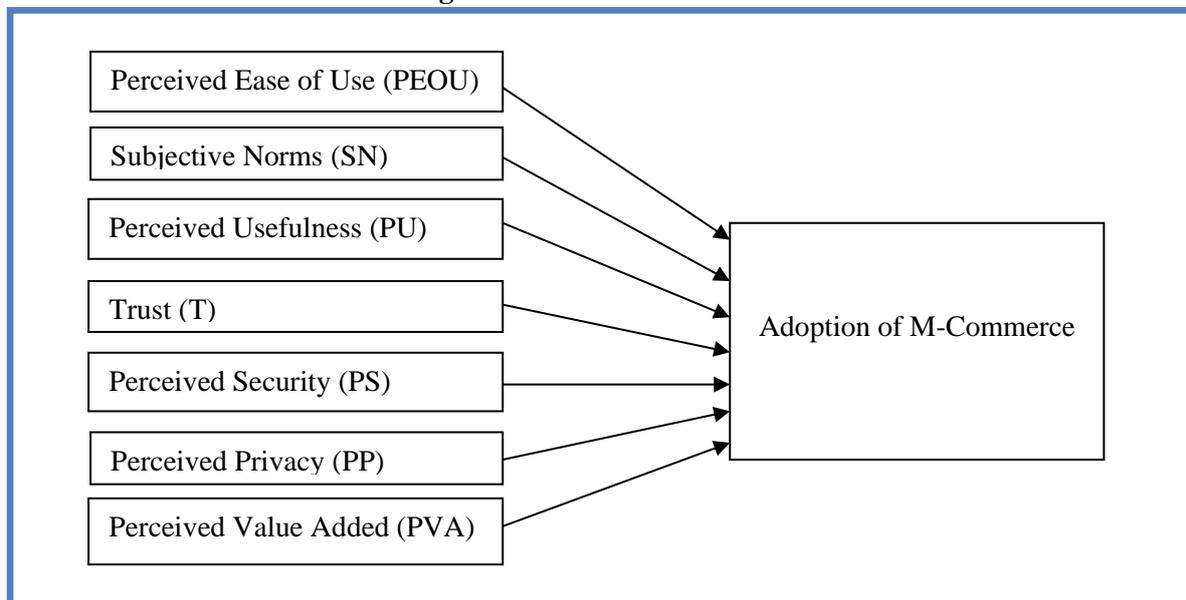
H7: *Perceived Value Added (PVA) will have a significant effect on consumer's adoption of M-commerce*

Previous research indicated various variables affecting the adoption of M-commerce, but these variables were determined from different countries. It is necessary to analyse the application of these variables in Indian context. India is a different country compared to other countries in terms of perception, religion, language, life style, economic growth, and many other things. It is essential to determine factors affecting the adoption of M-commerce as per Indian context.

Conceptual Framework

Based on the above literature, an integrated research framework was built to analyses various variables extracted from the previous research. This conceptual model incorporates variables which influences the users' adoption behavior (see Figure 1).

Figure 1: Research Framework



RESEARCH METHOD

The present research was conducted on the mobile users using mobile internet for different online activities located in India majorly from New Delhi. Adoption of M-commerce (online

shopping through mobile) has used for study object. This study aims to determine and develop a model of factors that affect the adoption of M-commerce in India. The data were collected through a survey method during June to October 2020. Special concern was paid for maintaining social distancing in this pandemic period so data was collected through Google forms. Data represents the adoption behavior of mobile users for adopting the M-commerce for online activities. The non-probability purposive sampling method is utilized for gathering the data through online study. A complete number of 450 surveys were mailed, and 300 usable reactions were gathered. The constructs included in this paper are used to operationalize from existing relevant previous studies with wording changes (Annexure 1). Five points Likert scale is used for measuring construct from the series of statements (5-strongly agree, 4-agree, 3-neither agree nor disagree, 2-disagree, 1-strongly disagree) (Li et al., 2007). Collected data were then analyzed using SPSS version 21.0 and AMOS version 19.0.

Table 1 represents the respondent's demographic profile. Male is 54% and female is 46%. Majority of the respondents are within the age range of 30-45 years.

Table 1: Distribution of Respondents on the basis of demographic variables

Demographic Variables	Frequency	Percentage
<i>Gender</i>		
Female	139	46%
Male	161	54%
<i>Age</i>		
Below 18	16	5%
18-30	101	34%
30-45	130	43%
Above 45	53	18%
<i>Qualification</i>		
Higher Secondary	22	7%
Graduation	109	36%
Post Graduation	122	41%
Others	47	16%
<i>Income</i>		
Less than 20,000	182	33.6%
20,000 – 50,000	292	53.9%
50,000 – 80,000	59	10.9%
Above 80,000	9	1.7%
<i>Marital status</i>		
Single	99	33%
Married	201	67%
<i>Occupation</i>		
Service	140	47%
Business	68	23%
Students	54	18%
Housewife	38	12%

Source: Author's calculation

For the adequacy of the sample size, both the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity were performed. The KMO value of this sample is surpassing the suggested level of .60 (Tabachnick & Fidell, 2001).

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.734
Approx. Chi-Square		3140.727
Bartlett’s Test of Sphericity	Df	276
	Sig.	0.00

Confirmatory Sample

A confirmatory factor analysis (CFA) was applied to conform to the factors and check the validity of factors. CFA provided seven latent variables named: perceived ease of use, perceived usefulness, trust, security, perceived privacy, subjective norms and perceived value added (Table 5). Two items were deleted for removing the cross-loading. The initial CFA, with all latent factors modelled simultaneously as correlated first-order factors, indicated a reasonable fit (Table 3).

Table 3: Model Fit Indices of the Measurement Model

CMIN	364.773	CFI	0.955
Df	231	TLI	0.946
CMIN/df	1.579	RMSEA	0.044
CMIN	0.911	SRMR	0.051

Note: GFI=goodness-of-fit index; CFI= comparative fit index; TLI= Tucker–Lewis index, RMSEA=root mean square error of approximation, SRMR=standardized root mean square residual, df = degree of freedom

Construct Validity & Reliability

Average variances extracted (AVEs) of all factors were more noteworthy than 0.50. Discriminant validity was also likewise conformed as the square root of the AVE for each factor is more prominent than its connections with different factors and average variances extracted of each factor should be greater than maximum shared variance ($AVE > MSV$) (Fornell & Larcker, 1981; see Table 4). For finding construct validity and discriminant validity, stats tools package of Prof. Gaskin is used in this paper (Table 4). The suggested level of construct reliability is 0.70 or value more than 0.70 (Hair et al., 2006). All seven factors accomplished the suggested level of construct reliability (Table 4). All seven factors have AVE greater than AVE’s recommended value (Fornell & Larcker, 1981). Overall, the statistical tests suggest that the scales were valid and reliable measures of the latent constructs.

Table 4: Construct Validity of Measures

	CR	AVE	MSV	ASV	PEOU	PP	Trust	PU	SN	PS	PVA
Perceived ease of use	0.749	.507	0.056	0.056	0.712						

Perceived Privacy	0.845	.576	0.080	0.080	-.163	.759					
Trust	0.926	.757	0.019	.019	0.138	.090	0.87				
Perceived Usefulness	0.799	.508	0.058	.058	-.031	.148	-.026	.71			
Subjective Norms	0.784	.548	0.080	0.080	-0.237	.282	.042	.113	.74		
Perceived Security	0.791	.575	0.020	0.020	-0.110	.140	.058	.037	-.075	.76	
Perceived value added	0.784	.554	0.058	0.058	-0.056	.015	.044	.241	.205	.08	.75

(CR= Construct reliability, AVE= Average variance explained, MSV = Maximum shared variance, ASV= Average shared variance; PEOU= Perceived ease of use; PP = Perceived Privacy; PU= Perceived Usefulness; SN= Subjective norms; S= Security; PVA= Perceived value added)

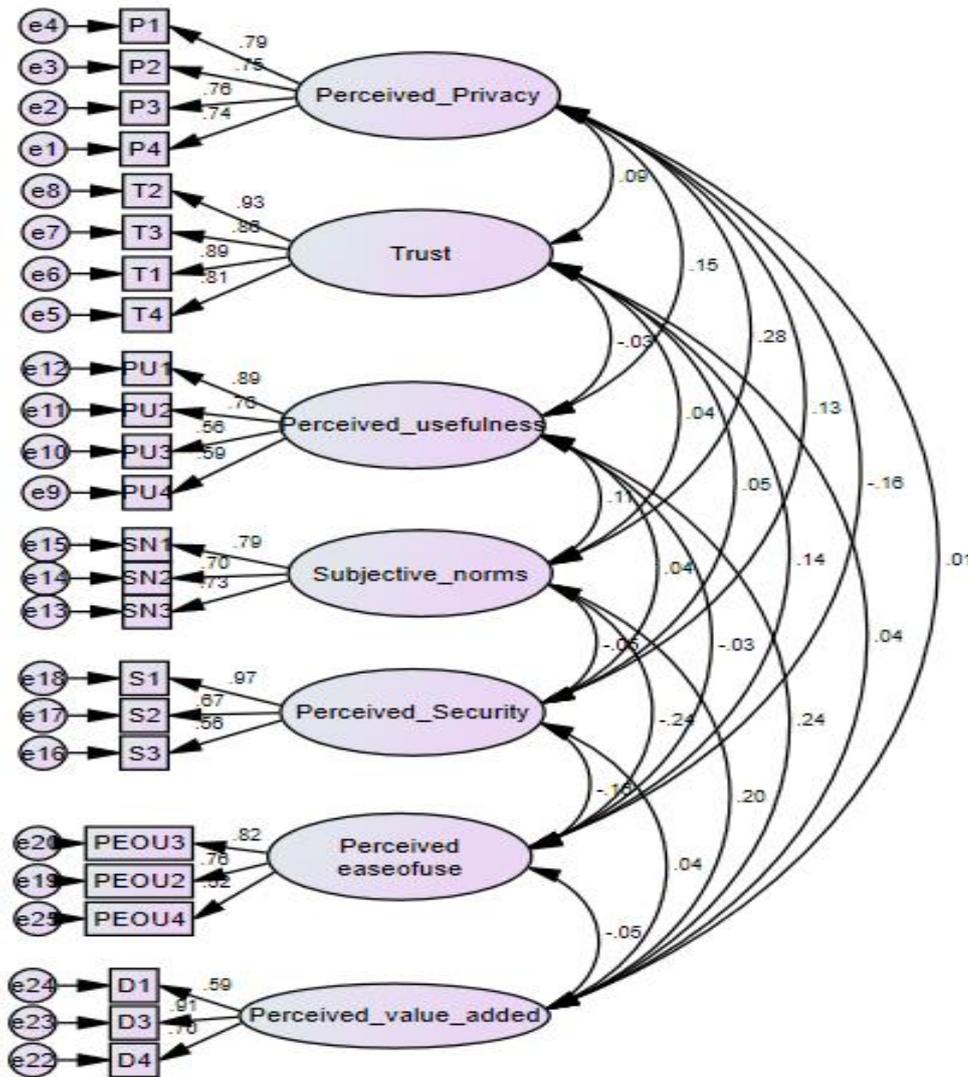
Table 5: Result of the Study

Hypotheses	Factors	Estimate (SRW)	CR	Result
H₁	Perceived Ease of Use			
	PEOU2	0.759***	0.749	Supported
	PEOU3	0.822***		
	PEOU4	0.518***		
H₂	Subjective Norms			
	SN1	0.792***	0.784	Supported
	SN2	0.698***		
	SN3	0.728***		
H₃	Perceived Usefulness			
	PU1	0.891***	0.799	Supported
	PU2	0.758***		
	PU3	0.558***		
	PU4	0.592***		
H₄	Trust			
	T1	0.885***	0.926	Supported
	T2	0.926***		
	T3	0.856***		
	T4	0.810***		
H₅	Perceived Security			
	PS1	0.974***	0.791	Supported
	PS2	0.670***		
	PS3	0.562***		
H₆	Perceived Privacy			
	P1	0.790***	0.845	Supported
	P2	0.745***		
	P3	0.763***		
	P4	0.736***		

H ₇	Perceived Value Added			
	PVA1	0.590***		
	PVA2	0.908***	0.784	Supported
	PVA3	0.701***		

Note: p<0.001 = ***; SRW= Standardized Regression Weights; CR= Construct reliability
 Source: Author’s Calculation

Figure 2: Model of Factors Affecting the Adoption of M-Commerce



RESULTS

This study worked on determining the factors affecting the adoption of M-commerce. Confirmatory factor analysis was used for confirming the factors. Seven factors were determined, and all factors are significant. This study worked on seven hypotheses, and all seven hypotheses were supported by the analysis (Table 5). Total 26 items were extracted from the previous literature and two items deleted for removing cross-loading, rest items sustained in the study. These factors are perceived usefulness, perceived ease of use, trust,

subjective norms, perceived value added, privacy and security. The Trust factor is affecting the adoption of M-commerce more than other factors, consistent with studies of Chantzaras et al. (2017); and Alalwan et al. (2017). All seven constructs are valid and reliable.

DISCUSSIONS

This paper was led to provide a profound knowledge of the important factors that help shape the consumer's behaviour for adopting M-commerce in India. As per the analysis indicators, the mentioned conceptual model showed good values of goodness of fit. This model anticipated total 70% variance. The primary factors (PEOU, PU, PP, PS, T, SN and PAV) are significant in influencing the user's behaviour towards using mobile internet for various operations. Trust was found to statistically impact the user's behaviour more for accepting this technology, as per the Chantzaras et al. (2017). This implies that the Indian customers are bound to adopt more if it seems more trustable and reliable. Without a decent level of trust, clients would not be completely spurred to utilize these systems. Numerous studies have demonstrated the significance of trust, which enhances the level of motivation of the users for using such systems. The analysis revealed that social impact factor is prominent and validates by Yadav et al. (2016). A few analysts express that the impact of social influence dies down by the escalated uses of the system (Venkatesh & Davis, 2000). In this manner, marketers can enhance the adoption of such a system by using social channels like family, companions and friends to accumulate the data through which more insight into the user's requirement can be understood. The result of the current study is consistent with the study of Nassuora, 2013; Wei et al. (2009).

To sum up, to urge individuals to utilize m-commerce, it is essential to extend the handiness of m-commerce. The websites' interface ought to be planned richly to safeguard simplicity and ease of use. Focusing on individuals with ingenuity is helpful because they are the primary adopters of innovation. Moreover, individuals are influenced by friends/family; in this manner, selective advertising in social media might be useful. If consumers can have better internet connectivity, trustable interface, they are more ready to participate in mobile shopping and consequently adopt m-commerce.

THEORETICAL IMPLICATIONS

The conceptual model of this paper included variables from TAM, TAM2 and other previous studies. TAM was utilized by a number of researchers, and practitioners in their studies and this model was considered as a ruling model for clarifying the adoption of an information system at the organization level (King & He, 2006) and great predictive model of IT adoption (Venkatesh & Davis, 2000; Teo, 2009). Various modifications were made of this model, explaining variations in different contexts (Garcia, 2012). Perceived ease of use (PEOU), Perceived use (PU) are taken from TAM and Subjective Norms (SN) from TAM2, which is used in this paper. Perceived ease of use is a significant factor which motivates the users towards the adoption of M-commerce. Consumers show more interest in M-commerce applications that give simple to utilize benefits and require little effort to learn. Therefore, m-commerce retailers should plan their applications that are easy to use. Subjective Norms (SN) plays a vital role in influencing the users towards M-commerce. In this study, Trust comes out a most critical construct for influencing user's behaviour towards the adoption of M-commerce in India. Indian still give preference to the trust construct. If online retailers or app

or mobile service providers are known to the customers, this trust leads the customers towards the final stage of actual use of the M-commerce. Users are now more informed about the online activities and other related ways to check the online process's security and privacy through mobile, which in turn increase the level of trust of the users (Wong et al., 2019).

The main contribution of this paper is the inclusion of the perceived value added in the model. Perceived value plays a significant role in influencing the adoption of M-commerce which is consistent with the study of Anwar et al. (2020). Although such studies have also been conducted by the researchers earlier, the set of constructs included in the conceptual model makes this study different from others. This study identified seven factors which include the privacy concern of the users, security concern, trust concern, impact of others' opinion on the usage, easiness of the execution of the technology, usefulness, and impact of other benefits/value added services/cashback offers on the adoption of M-commerce as per the current scenario in India.

MANAGERIAL IMPLICATIONS

This study indicates the need to generate such strategies for motivating smartphone users to utilize various mobile-based services. This study has given seven factors which impact the M-commerce adoption behaviour of users. Online portals and mobile app developers need to consider these factors while creating strategies for developing of the online portals. Managers should consider factors from the user's point of view instead of zeroing in exclusively on technology-related issues. Technology advancement will not be the alone clear cut advantage over the other companies in India. Managers should emphasise to those factors that provide value addition, easiness and high utility perceptions by adopting M-commerce to the users. Mobile applications and other services should be easy to understand and easy to use for users. Applications developers and managers ought to promote those features of applications and services that encourage users towards mobile online transactions and enhance users' level of knowledge regarding ease of use of M-commerce.

As this study found, PU and PEOU are the significant factors impacting the adoption behaviour of the users. Easy in use and productive usefulness of mobile commerce influences the adoption of this technology. It is accordingly essential to assist consumers in shaping their positive attitude towards adoption of M-commerce by giving various value added services and making them aware about the value in return consumers are getting by availing such services. The mobile service provider should plan introductory training for giving tips for effective utilization of various services available on mobile internet to the consumers in India. This can increase the potential mobile customers and can create an introductory relationship between service providers and consumers.

Trust is a dominated factor which should be maintained by the online E-commerce retailers. Mobile users are performing online transactions without meeting with the receiver person, which can create risk for the users. For removing this risk, a high level of trust is required (Alalwan et al., 2017). Online players/ online e-tailers should formulate such strategies which in turn increase the trust of mobile internet users. Perceived privacy is also a significant factor which influencing M-commerce adoption. Although managers don't have direct control over privacy issues, managers should still utilize efficient precautions against privacy issues. If consumers feel their information is secure on the platform, it will increase the level of trust of the users, which will enhance the adoption of M-commerce. For formulating effective and

productive marketing campaigns, managers ought to consider the impact of social opinion, including social media, word of mouth communication and viral marketing. The campaign should design to integrate the social groups of the users and users can recommend such services to their social networks for earning loyalty points and value-added services.

This study found that perceived value added has a significant impact on the user's M-commerce adoption behaviour. Mobile service provider or marketers should provide other benefits or value addition to the users while using mobile services which encourage them to use it consistently and at the same time companies can collaborate with other online service providers for providing the best service to the final users with some extra benefits or value addition. This can enhance the utilization of M-commerce and convert the users into loyal users of the services. Online players should consider these factors while using the integrated mix of online marketing tools to increasing the awareness and sales of the products.

FUTURE RESEARCH DIRECTIONS

This study explored the factors affecting the adoption of M-commerce as per Indian context. The majority of studies on the adoption of M-commerce services determined factors affecting the adoption of M-commerce. However, it is crucial to determine which factor plays a more crucial role than others. The model suggested in this paper was able to explain 70% variation in the adoption of M-commerce; it means, 30% variation occurred from other factors which are not included in this paper. There is a huge scope for future research to identify the rest of the factors responsible for the adoption of M-commerce. Data were collected from Delhi with the intension to collect responses from a metropolitan city. But, India is a vast country so other parts of the country should also include and researchers should try to collect responses from different cities and states of India, to have a better insight view about the subject. In future, this study can be conducted by taking consideration of rural India. The result might be different for rural India because working condition, life style, occupation, education level, and availability of resources are completely different in rural areas than in urban areas of India. This study can be further explored on the basis of gender as male and female have a different attitude towards online activities (Lim, Cheng, Cham, Ng & Tan, 2019).

REFERENCES

- Abdennebi, H. B. & Debabi, M. (2017). *Intention of adoption of mobile commerce from consumer perspective*. Paper presented at the International Conference on Digital Economy, Emerging Technologies and Business Innovation, Springer, Cham.
- Agarwal, R. & Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS Quarterly*, 24(4), 665-694.
- Ajzen, I. & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs NJ: Prentice-Hall.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In Kuhl, J. and Beckman, J. (Ed.), *Action-Control* (pp.11-39). Heidelberg: Springer
- Akter, S. & Wamba, S. F. (2016). Big data analytics in E-commerce: A systematic review and agenda for future research. *Electronic Markets*, 26(2), 173-194.

- Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), 99-110.
- Alexios Vasileiadis. (2014). Security concerns and trust in the adoption of m-commerce. *Socialinès Technologijos*, 4(1), 179-191.
- Tarhini, A., Alalwan, A. A., Shammout, A. B., & Al-Badi, A. (2019). An analysis of the factors affecting mobile commerce adoption in developing countries: Towards an integrated model. *Review of International Business and Strategy*, 29(3), 157- 179.
- Anwar, A., Thongpapanl & Abdul R. Ashraf (2020). Strategic imperatives of mobile commerce in developing countries: The influence of consumer innovativeness, ubiquity, perceived value, risk, and cost on usage. *Journal of Strategic Marketing*, 29(2), 1-21, DOI: 10.1080/0965254X.2020.1786847.
- Anckar, B., & Walden, P. (2003). Factors affecting consumer adoption decisions and intents in mobile commerce: Empirical insights. *Proceedings of BLED*, 28, 886-902.
- Assocham. (2017). Digital Commerce market expected to cross \$50billion mark in 2018. Retrieved April 29, 2019, from: <http://www.assocham.org/newsdetail.php?id=6654>
- Balasubramanian, S., Peterson, R. A., & Jarvenpaa, S. L. (2002). Exploring the implications of m-commerce for markets and marketing. *Journal of the academy of Marketing Science*, 30 (4), 348-361.
- Bhatt, S., & Shiva, A. (2020). Empirical examination of the adoption of zoom software during covid-19 pandemic: Zoom tam. *Journal of Content, Community & Communication*, 12(6), 70-88.
- Chantzaras, A., Dimitrios, N.K. & Vlachos, D.S. (2017). Mobile commerce and success factors. simulation and modelling of the problem. *Strategic Innovative Marketing* (pp.349-355). Springer, Cham.
- Cham, T. H., Low, S. C., Lim, C. S., Aye, A. K., & Ling, R. L. B. (2018). The Preliminary Study on Consumer Attitude towards FinTech Products and Services in Malaysia. *International Journal of Engineering & Technology*, 7(2.29), 166-169.
- Chen, R., & He, F. (2003) .Examination of brand knowledge, perceived risk and consumers' intention to adopt an online retailer. *Total Quality Management & Business Excellence*, 14(6), 677-693.
- Chong, A. Y. L., Chan, F. T., & Ooi, K. B. (2012). Predicting consumer decisions to adopt mobile commerce: Cross country empirical examination between China and Malaysia. *Decision Support Systems*, 53(1), 34-43.
- Cheung, C. M. K. & Lee. M. K. O. (2006). Understanding consumer trust in internet shopping: A multidisciplinary approach. *Journal of the American society for information science and technology*, 57(4), 479-492.
- Chong, A. Y.-L., Chan, F. T. S., & Ooi, K.-B. (2012). Predicting consumer decisions to adopt mobile commerce: Cross country empirical examination between China and Malaysia. *Decision Support Systems*, 53(1), 34-43.
- Chong, A. Y. L. (2013). Predicting m-commerce adoption determinants: A neural network approach. *Expert Systems with Applications*, 40(2), 523-530.

- Constantinides, E. (2004). Influencing the online consumer's behaviour: The web experiences. *Internet Research, 14*(2), 111-126.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 318-340.
- Deshmukh, S. P., Deshmukh, P., & Thampi, G. T. (2013). Transformation from e-commerce to m-commerce in Indian Context. *IJCSI International Journal of Computer Science Issues, 10*(4), 55-60.
- Diney, T., & Hart, P. (2006). Internet privacy concerns and social awareness as determinants of intention to transact. *International Journal of Electronic Commerce, 10*(2), 7-31.
- Diwedi, Y. K., Tamilmani, K., Williams, M. D. & Lal, B. (2014). Adoption of m-commerce: examining factors affecting intention and behaviour of Indian consumers. *International Journal of Indian Culture and Business Management, 8*(3), 345-360.
- Eastin, M. S., Brinson, N. H., Doorey, A., & Wilcox, G. (2016). Living in a big data world: Predicting mobile commerce activity through privacy concerns. *Computers in Human Behavior, 58*, 214-220.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison Wesley.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.
- Garg, A. K., & Choeu, T. (2015). The adoption of electronic commerce by small and medium enterprises in Pretoria East. *The Electronic Journal of Information Systems in Developing Countries, 68*(1), 1-23.
- Gupta, B. M., Dhawan, S. M., & Gupta, R. (2018). Mobile research in India: A scientometric assessment of publications output during 2007-16. *Journal of Library and Information Technology, 38*(1), 41-48.
- Ha, K. H., Canedoli, A., Baur, A.W., & Bick, M. (2012). Mobile banking—insights on its increasing relevance and most common drivers of adoption. *Electron Markets, 22*(4), 217-227.
- Heijden, H. V. D. (2004). User acceptance of hedonic information systems. *MIS quarterly, 28*(4), 695-704.
- Hanafizadeh, A., Behboudi, M., Koshksaray, A. A. & Tabar, M. J. S. (2014). Mobile banking adoption by Iranian bank clients. *Telematics and Informatics, 31*(1), 62-78.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis. Upper Saddle River* (6th ed.), NJ: Pearson/Prentice Hall.
- Hofacker, C. F., De Ruyter, K., Lurie, N. H., Manchanda, P., & Donaldson, J. (2016). Gamification and mobile marketing effectiveness. *Journal of Interactive Marketing, 34*, 25-36.
- Kuo, Y. F., Wu, C. M., & Deng, W. J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in Human Behavior, 25*(4), 887-896.

- Kaplan, S., Moraes Monterio, M., Anderson, M. K. Neilsen, O. K., & Medeiros Dos Santos, E. (2017). The role of information systems in non-routine transit use of university students: Evidence from Brazil and Denmark. *Transportation Research Part A: Policy and Practice*, 95, 34-48.
- Kenneth C. C. Y., (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics*, 22(3), 257-277.
- Keen, P., & Mackintosh, R. (Eds.). (2001). *The freedom economy: gaining the m-commerce edge in the era of the wireless internet*. Berkeley, CA: Osborne/McGraw-Hill.
- Khalifa, M., & Shen K. N. (2008). Drivers for transactional B2C m-commerce adoption: Extended theory of planned behavior. *The Journal of Computer Information Systems*, 48(3), 111-117.
- Laudon, K. C. & Traver, C. G. (Eds.). (2009). *E-Commerce Business*. Technology Society, New Jersey: Prentice Hall.
- Lie´bana-Cabanillas, F., Sa´nchez-Ferna´ndez, J., & Mun˜oz-Leiva, F., (2014). The moderating effect of experience in the adoption of mobile payment tools in virtual social networks: The m-payment acceptance model in virtual social networks (MPAM-VSN). *International Journal of Information Management*, 34(2), 151–166.
- Lim, X. J., Cheah, J. H., Cham, T. H., Ting, H., & Memon, M. A. (2020). Compulsive buying of branded apparel, its antecedents, and the mediating role of brand attachment. *Asia Pacific Journal of Marketing and Logistics*, 32(7), 1539-1563.
- Lim, X. J, Ng, S. I, Chuah, F., Cham, T. H., & Rozali, A. (2019). I see, and I hunt: The link between gastronomy online reviews, involvement and behavioural intention towards ethnic food. *British Food Journal*, 122(6), 1777-1800.
- Lin, H. H., & Wang, Y. S. (2006). An examination of the determinants of customer loyalty in mobile commerce contexts. *Information & Management*, 43(3), 271–282.
- Lee, W. O. & Wong, L. S. (2016). Determinants of mobile commerce customer loyalty in Malaysia. *Procedia-Social and Behavioural Sciences*, 224, 60-67.
- Lim, H. & Dubinsky, A. J. (2004). Consumers’ perceptions of e-shopping characteristics: An expectancy-value approach. *The Journal of Services Marketing*, 18(6), 500-513.
- Lu, J. (2014). Are personal innovativeness and social influence critical to continue with mobile commerce?. *Internet Research*, 24(2), 134–159.
- Lim, Y. M., Cheng, B. L., Cham, T. H., Ng, C. K. Y., & Tan, J. X. (2019). Gender differences in perceptions and attitudes toward online shopping: A study of Malaysian consumers. *Journal of Marketing Advances and Practices*, 1(2), 11-24.
- Li, Y. M., & Yeh, Y.-S. (2010). Increasing trust in mobile commerce through design aesthetics. *Computers in Human Behavior*, 26(4), 673-684.
- Liu, D. & Li, M. (2019). Exploring new factors affecting purchase intention of mobile commerce: Trust and social benefit as mediators. *International Journal of Mobile Communications*, 17(1), 108-125.
- Min, Q., & Ji, S. (2008). A meta-analysis of mobile commerce research in China (2002–2006). *International Journal of Mobile Communications*, 6(3), 390–403.

- Mobilocity. (2000). Mobile travel services: strategies for moving forward. White paper published by *Mobilocity, Inc.*
- Moorthy, K., Suet, L. C., Weng, F. Y. & Kok, W. L. (2017). Barriers of mobile commerce adoption intention: Perceptions of generation X in Malaysia. *Journal of Theoretical and Applied Electronic Commerce Research*, 12(2), 37-53.
- Nassuora, A. B. (2013). Understanding factors affecting the adoption of m-commerce by consumers. *Journal of Applied science*. 13(6), 913-918, DOI: 10.3923/jas.2013.913.918.
- Ngoc, T. Ch., Hepu, D., & Richard, T. (2020). Critical determinants for mobile commerce adoption in Vietnamese small and medium sized- enterprise. *Journal of Marketing Management*, 36(5), 456-487.
- Omonedo, P., & Bocij, P. (2017). Potential impact of perceived security, trust, cost and social influence on M-Commerce adoption in a developing economy. *World*, 7(1), 147-160.
- O’Cass, A., & Fenech, T. (2003). Web retailing adoption: Exploring the future of internet users’ web retailing behaviour. *Journal of Retailing and consumer services*, 10(2), 81-94.
- Osama, I., Zaini, A., Adnan, H. A., & Ameen, A. A. (2019). Antecedents and outcomes of internet usage within organizations in Yemen: An extension of the Unified Theory of Acceptance and Use of Technology (UTAUT) model. *Asia Pacific Management Review*, 24(4), 335-354.
- Park, E., kim, H., & Ohm, J.Y. (2015). Understanding of driver adoption of car navigation systems using the extended technology acceptance model. *Behaviour and Information Technology*, 34(7), 741-751.
- Pandey, S. & Chawla, D. (2019). Engaging m-commerce adopters in India: exploring the two ends of the adoption continuum across four m-commerce categories. *Journal of Enterprise Information Management*, 32(1), 191-210.
- Roy, S., & Moorthi, Y. L. R. (2017). Technology readiness, perceived ubiquity and m-commerce adoption. *Journal of Research in Interactive Marketing*, 11(3), 268–295.
- Singh, S., Zolkepli, I. A., & Cheah, W. K. (2018). New wave in mobile commerce adoption via mobile applications in Malaysian market: Investigating the relationship between consumer acceptance, trust, and self-efficacy. *International Journal of Interactive Mobile Technologies (Ijim)*, 12(7), 112-128.
- Sapna, R., & Arpita, Kh. (2012). Impact of promotions and value consciousness in online shopping behaviour in India. *Journal of Database Marketing & Customer Strategy Management*, 19, 311 – 320.
- Sultan, F., Rohm, A. J., & Gao, T. T. (2009). Factors influencing consumer acceptance of mobile marketing: A two-country study of youth markets, *Journal of Interactive Marketing*, 23(4), 308-320.
- Shankar, V., Balasbramanian, S. (2009). Mobile marketing: a synthesis and prognosis, *Journal of Interactive Marketing*, 23(2), 118–129.
- Taylor, Sh., & Todd, P. (1995). Assessing IT usage: The role of prior experiences, *MIS Quarterly*, 19 (4), 561-570.

- Tabachnick, B. G., & Fidell, L. S. (2001). Using multivariate statistics. *Needham Heights, MA: Allyn & Bacon.*
- Tsalgatidou, A., Veijalainen, J., & Pitoura, E. (2000). Challenges in mobile electronic commerce. *Proceedings of IeC2000 3rd International conference on Innovation through E-commerce*, 14-16.
- Thongpapanl, N. T., Ashraf, A. R., Lapa, L., & Venkatesh, V. (2018). Differential effects of customers' regulatory fit on trust, perceived value, and m-commerce use among developing and developed countries. *Journal of International Marketing*, 26(3), 22-44. <https://doi.org/10.1509/jim.17.0129>
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186-204.
- Venkatesh, V. (2000). Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11(4), 342-365.
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178.
- Wei T. T., Marthandan, G., Yee-Loong, Ch., Ooi, K., & Arumugam, S. (2009). What drives Malaysian m-commerce adoption? An empirical analysis. *Industrial Management & Data Systems: Emerald Group Publishing Limited*, 109(3), 370-388.
- Wessels, B. (2012). Identification and the practices of identity and privacy in everyday digital communication. *New Media & Society*, 14(8), 1251-1268.
- Wong, W. P. M., Tan, K. L., Ida, A. K., & Lim, B. C. Y. (2019). The effect of technology trust on customer e-loyalty in online shopping and the mediating effect of trustworthiness. *Journal of Marketing Advances and Practices*, 1(2), 38- 51.
- Whysall, P. (2000). Retailing and the internet: a review of ethical issues. *International Journal of Retail & Distribution Management*, 28(11), 481-489.
- Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. *Journal of Enterprise Information Management*, 28(3), 443-488.
- Xu, H., Gupta, S., Rosson, M. B., & Carroll, J. M. (2012). Measuring mobile users' concerns for information privacy. *Proceedings of 33rd Annual International Conference on Information Systems (ICIS)*, 1-16.
- Xu, H., Liu, D. L., & Lu, Z. J. (2010). *A research model for measuring the level of e-commerce in smes*. Paper presented at the International Conference on Machine Vision and Human - Machine Interface, Kaifeng, China.
- Yadav, R., Sharma, S. K. & Tarhini, A. (2016). A multi-analytical approach to understand and predict the mobile commerce adoption. *Journal of Enterprise Information Management*, 29(2), 222-237.

Kalinic, Z., Marinkovic, V. (2016). Determinants of users' intention to adopt m-commerce: An empirical analysis. *Information System E-Business Management*, 14, 367-387. <https://doi.org/10.1007/s10257-015-0287-2>

Zhang, L., Zhu, J., & Liu, Q. (2012). A meta-analysis of mobile commerce adoption and the moderating effect of culture. *Computers in Human Behavior*, 28(5), 1902-1911.

Zarpou, T., Saprikis, V., Markos, A., Vlachopoulou, M. (2012). Modeling user's acceptance of mobile services. *Electronic Commerce Research*, 12, 225-248.

ANNEXURE1: ADAPTION OF ITEMS

Factor	Items	Adoption From
Perceived Ease of Use (PEOU)	PEOU1: Learning to operate internet through mobile would be easy for me. PEOU2: I would find it easy to get access internet through mobile. PEOU3: My interaction with internet through mobile would be clear and understandable. PEOU4: It would be easy for me to become skillful at using internet through mobile.	Davis, (1989)
Perceived Usefulness (PU)	PU1: I think using m-commerce would make it easier for me to conduct transactions. PU2: I think using m-commerce would make it easier for me to follow up my transactions. PU3: I think using m-commerce would increase my productivity. PU4: I think using m-commerce would increase my effectiveness.	Davis, (1989)
Trust (T)	T1: I feel using internet through mobile in monetary transactions is safe. T2: I feel my personal data are in confidence while using internet through mobile. T3: I feel the terms of use are strictly followed while using internet through mobile. T4: I feel using m-commerce for my transactions is trustworthy.	Zarpou et al., (2012)
Subjective Norms (SN)	SN1: People who are important to me think that I should use the m-commerce to purchase goods and/or services. SN2: People whose opinion I value prefer me to use the m-commerce to purchase goods and/or services. SN3: People who influence my behavior would think that I should use the m-commerce to purchase goods and/or services. SN4: People who are important to me would think that I should use the m-commerce to purchase goods and/or services.	Taylor and Todd, (1995)
Perceived Privacy	P1: I am concerned that the information I submit on the mobile internet could be misused. P2: I am concerned that a person can find private information about me on the internet. P3: I am concerned about submitting information on the mobile internet, because of what others might do with it. P4: I am concerned about submitting information on the mobile internet, because it could be used in a way I did not foresee.	Dinev and Hart, (2006)

Security	S1: I feel secure sending personal information through mobile internet across web. S2: I feel safe providing personal information about me to web retailers through mobile internet. S3: Web is safe environment to provide personal information through mobile internet.	O’Cass and Fenech, (2003)
Perceived Value Added	D1: Redeeming discount makes me feel good D3: I enjoy looking for discount on the Internet D4: When I use discount, I feel that I am getting a good deal.	Rakesh and Khare, (2012)