Mobile Shopping: An Analysis of Extended Technology Acceptance Model of Indian Consumers

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ABSTRACT

The study integrates two distinct theories for investing the intentions of Indian consumers’ to adopt mobile shopping. Based on existing literature a conceptual model has been proposed, which will explain the integrated effect of flow and TAM theory in the adoption of mobile shopping. Secondary purpose of this study is to check the influence of flow and its dimension (control), on attitude and intentions on mobile shopping experience. Further, the study proposes that flow experience is induced by perceived usefulness and perceived ease of use toward mobile shopping. Current paper also proposed that flow positively affects attitude therefore influencing purchase intentions. To study the above hypotheses structural equation model will be used. Data will be collected from 490 Indian online shoppers for testing the hypotheses. The data will be collected through convenience sampling technique. Likert scale (seven points) ranging from “very strongly agree” (VSA) to very strongly disagree” (VSD) will be used in the study. The items used in the questionnaire will be taken from the prevailing scales. Further the questionnaire will be divided into two parts. First part will predict the perception of consumers towards mobile shopping and second part will record the demographic details of the respondents. This current study will add to the literature of mobile shopping, as there is lack of literature in this field. This is the first study to check the impact of extended technology acceptance model specially by including flow theory in the case of Indian consumers. The paper concludes with managerial implications and future research directions.

Keywords: Technology Adoption Model, Flow Theory, Control, Mobile Shopping, consumer Behavior.

INTRODUCTION:

Present era is witnessing the exponential growth in popularity of m-commerce and in its applications such as mobile shopping, smart travelling service and mobile payment etc. (Shang & Wu, 2017). Mobile shopping is influencing every aspect of consumers’ life in one way or the other (Madan & Yadav, 2018). Consumers are using their smartphones to gather information about products offered online and making payments for their purchased products and services (Hung et al., 2012 and Madan & Yadav, 2018). The total number of subscribers has hit a total number of 953.80 million subscribers as of October 2017 (TRAI, 2017). As per the report of (ER, 2013), this new channel of shopping (M-shopping), is gaining popularity because of low prices of smartphones and internet data packs. In present scenario, technological advancements and ubiquity presence of mobile networks make consumers to use their smartphone for shopping (Boyle, 2013 & Mahapatra, 2017). Boyle, (2013) found that mobile technology enables customers to shop anytime, anywhere, when a shopping ides strikes them. Due to technological advancements and easy to use mobile shopping applications, mobile shopping is getting attention from marketers, researchers and academicians (Kim et al 2010., Gao et al., 2015., Agrebi & Jallias,
2015 and Lee et al., 2018). As mobile shopping is gaining popularity, many e-commerce companies like Walmart, Myntra, Amazon, Starbucks, Snapdeal, Flipkart and many more have developed their mobile applications to grab the market share (Chen et al., 2018). For example Snapdeal gets its 60 percent orders through its mobile application and expected to grow more in coming times (PIT 2014). India is emerging as a second smartphone market with expected growth of 650 million users in 2019 PIT (2015). Because of massive growth in technology, many m-commerce players consider India as an attractive market for mobile shopping (Mahapatra, 2017).

It has been observed that the concept of mobile shopping has gained popularity among marketers in last 15 years but instead of this, its adoption rate is still very low (Marriott & Williams, 2018). There are many factors like trust, security, anxiety and perceived risk, which hinder the adoption of mobile shopping and negatively affect the intention of consumers to shop online. In addition, m-payment is other factor that is resisting consumers from adopting mobile shopping (Gupta & Arora, 2017).

So, there is a necessity to discover the different aspects that impact the intentions of Indian consumers to adopt mobile shopping. For this, Technology Adoption Model is used here since it is a robust model, which is widely used by researchers to understand how consumers adopt various technologies.

The theory of Technology acceptance model is considered as a conventional approach to predict the intentions of consumers towards adoption of new technologies (Agrebi & Jallias, 2017 and Chen et al., 2018). This versatile theory has two firm beliefs, which are perceived ease of use (PEOU) and perceived usefulness (PU), which affect attitude and intentions of consumers towards new technologies. Perceived ease of use (PEOU) is the “degree to which a person believes that using a particular system would be free of effort” and perceived usefulness (PU) is the “degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989 p. 320).

Literature reveals that both these constructs PU and PEOU positively affect attitude towards adoption of new technologies therefore, leads to intention and actual usage. Several studies in past employed this theoretically sound model in different phenomenon like online shopping (Liao et al., 2007; Wei et al., 2009 and Chan & Chong, 2013); instant messaging (Lu et al., 2009 and Hsu et al., 2014); apparel shopping (Cho & Fiorito, 2009); RFID applications (Smith et al., 2014) etc.

Although, TAM as a classical model has been used in the field of mobile context as well to study consumers intention to adopt services like mobile commerce (Yang, 2005 and Kuo and Yen, 2009); mobile wallets (Shin, 2009); mobile payments (Bailey et al., 2017) etc. Further some more studies used this theory of acceptance in the adoption of several technologies like mobile coupons adoption (Ha & Im 2014; Bailey et al., 2017 and Castillo & Cerdan, 2018); mobile banking (Luarn & Lin, 2005); mobile marketing (Sultan et al., 2009). So far, there are few studies, which examined intention of consumers in adoption of mobile shopping.

Further, this study incorporate flow experience and TAM to predict the intention of consumers to accept mobile shopping. This study has used extended technology adoption model by including flow theory and its dimension in to it to explain the intentions towards mobile shopping. Csikzentmihalyi originated the concept flow theory in 1975. It is defined as “the holistic sensation that people feel when they act with total involvement” (Csikzentmihalyi, 1975; Ozkara et al., 2017).

Many studies in past examine the effect of flow in domain of online settings. However, there are few studies, which have studied this tricky concept in mobile contexts. Few studies in past have investigated flow experience in adoption of mobile tv (Harris & Fig., 2000), mobile gaming (Hsu & Lu, 2004; Zhou, 2013). Previous studies demonstrate that PU and PEOU are two main precursors, which causes flow experience and further flow is also positively affected by these two determinants of technology acceptance model (Harris & Fig., 2000 & Hsu et al., 2013). Moreover, Zhou (2013) and Hsu & Lu (2004) have proposed that PEOU is the main factor, which helps consumers to indulge in online gaming, which further leads to experience flow.

Later, a study conducted by Hoffman & Novak in 2009, revealed that the flow act differently in mobile context as compare to web base surroundings (Chen et al., 2018). So, it is essential to study the influence of flow in mobile based environment and specifically in mobile shopping because till date only one study by Chen et al., (2018), has examined the integrated model of TAM theory and flow in the domain of M-shopping.

Current study seeks to fulfill this gap by applying integrated model of TAM and flow in mobile shopping contexts and to examine whether attitude and intentions of consumers effects by the integration of these two theories. Next section is dealing with literature review and theoretical background for proposing hypotheses.

LITERATURE REVIEW:

TAM (Technology Acceptance Model):
Technology acceptance model is a versatile theory modelled by Davis (1989), to predict the acceptance
intentions of consumers towards new technologies (Natarajan et al., 2017; Djamashi et al., 2010; Li & Bai., 2011, Arning & Ziefle., 2007; and Agrebi & Jallias.,2015). The theory of technology acceptance is built on theory of reasoned action developed by Ajzen (1975).

Theory of reasoned action (TRA) deals with the elements of intentional behavior, which, further predict attitude and intention of consumers towards acceptance of new technologies (Lu et al., 2003 and Wong et al., 2015). Initially, technology acceptance model was developed to examine working people intentions towards different technologies in organization (Natarajan et al., 2017). But its strong base, simplicity and applicability makes it a versatile model that can be used in different business organizations to adopt new innovations (King & He, 2006, Manzano et al., 2009 Koufaris, 2003; Martins et al., 2014 and Hong et al., 2006).

The two main beliefs of technology acceptance theory are PU and PEOU, which are widely used in explaining the intention of consumers in adopting numerous information systems (Wong et al., 2015). TAM is a main model used to study the intention of consumers’ towards any information system tools (Natarajan et al., 2018). Various studies used this theoretically sound model in contexts of mobile commerce (Kuo and Yen, 2009; Yang, 2005), mobile coupons adoption (HA and Im, 2014) and mobile banking (Luarn and Lin., 2005). Previous studies used this robust model in different phenomenon like apparel Shopping (Cho and Fiorito, 2009 and Kang, 2014); mobile payments (Bailey et al., 2017); instant messaging (Lu et al., 2009); mobile marketing (Sultan et al., 2009); RFID applications (Smith et al., 2014) and mobile wallets (shin, 2009).

PEOU and PU:

PEOU and PU are two primary components of TAM that explains the intention and adoption of new technologies (Hsu et al., 2013). According to Davis (1989), PEOU is “the degree to which a person believe that using a particular system would be free of efforts” and PU as “the degree to which a person believes that using a particular technology will increase his or her job performance”. In the perspective of this study i.e mobile shopping PEOU is a state where people believe that shopping over mobile is very easy. Further PU is a state that where people believe that shopping over mobile is useful for them.

Literature reveals that perceived usefulness (PU) and perceived ease of use are two main predictors, which significantly affect attitude towards new technologies (Aggarwal & Prasad 1998; Davis & Venkatesh 1996; Davis et al., 1989, Venkatesh & Morris, 2000 and Jiyong, 2012). Davis (1989) reveals that PU is a stronger component and predictor of new technology acceptance as compared to PEOU.

In addition, previous study reveals that there is a direct link between perceived usefulness and perceived ease of use (Van Der Heijden, 2003). Some researches reveal that people will accept new technology when they feel that new technology is providing extra features over existing solutions (Rogers, 1995). In addition, Venkatesh and Davis (2000), revealed in a study that perceived ease of use (PEOU) and perceived usefulness (PU) are two elements which significantly affects consumers intention towards new technologies. Because the theory of TAM posits that when a particular technology is simple and user-friendly then people will definitely accept that technology without any hesitation (Bhatiaesevi et al., 2015; Aljabari, 2016; Sim et al., 2012 and Cabanillas et al., 2018).

Moreover, literature shows that PEOU act as an essential condition of flow in mobile gaming contexts (Hsu& Lu 2004; Zhou 2013 and Ha et al., 2007). Previous studies also disclose flow as a precursor to PU and PEOU in adoption of mobile tv (Holsapple & Wu 2008; Jung et al., 2009, Chen et al., 2018). Prior literature states that PEOU influenced attitude toward use of new technologies in both ways directly as well as indirectly (Davis 1989, 1993). Hsu et al., 2013 states that the core beliefs of technology acceptance model such as PU and PEOU induces flow. Similarly study by Harris and Fig (2000), also demonstrates the same fact that flow experience is impelled by two foremost factors of TAM i.e PU and PEOU.

Some studies also applied TAM into E-commerce and M-commerce environments and verify that PU positively affect the intentions of consumer shop online. Hsu and Lu (2004), reveal that easy and enjoyable mobile services will undoubtedly stimulate flow experience. Further literature reveals that people who are more enthusiastic towards new technologies (with high PEOU) will adopt and use (PU) novel technologies (Chen et al., 2018).

Based on existing literature and observations following hypotheses are proposed:

\( H_1: \) Flow is significantly influenced by PU and PEOU of mobile shopping.

\( H_2: \) Adoption Intention of mobile shopping is significantly influenced by PU.

\( H_3: \) PEOU of mobile shopping is positively influenced by PU.

**Attitude and Behavioral Intention:**

“Attitude involves the likes and dislikes of a person toward a given object” (Chen et al., 2018). Fishebin & Ajzen (1975) defined behavioral intention as the “strength of a person or an individual to perform behavior”. Bagozi et al., (1989) reveal that behavioral intention acts a mediating factor in the relationship between attitude
and actual behavior intention (Kaur & Soch, 2018). Literature in past discovered that behavioral intention directly influences the actual behavior (Nicosia, 1966; Howard & Sheth, 1969). Similarly some more studies supported the same notion that attitude significantly affect intentions, which lead to the actual usage behavior of consumer (Davis, 1989 and Davis, 1993). Further the Theory of Reasoned Action (TRA) shows that behavioral intention is formed by subjective norm and attitude, which further defines actual usage behavior.

Literature posits that positive emotions induce flow, which motivates consumers to adopt mobile shopping applications (Korzaan 2003 and Chen et al., 2018). Moreover, Yang (2010) disclosed in a study that customers purchase intention is positively and negatively affected by their attitude depending upon their (Bandura 1986; Dabholkar & Sheng 2009).

Prior literature on attitude and behavioral intention reports that flow experience can work as a critical element affecting consumers’ attitude towards Target Company and website (Kim & Han 2014, Mathwik & Ridgon 2004). Furthermore, flow experience can enhance attitude and behavioral intention towards learning of new products and services (Korzaan 2003, Chen et al., 2018 and Novak et al., 2000).

**H₁**: Attitude toward mobile shopping is significantly influenced by flow.

**H₂**: Attitude affects the intention to use mobile shopping services.

**Flow Theory:**

Csikszentmihalyi developed flow theory in 1975. It is well-defined as a “fully immersed state that people experience when they act with total involvement” (Csikszentmihalyi & Lefevre 1989; Kim & Han 2014). In addition, Studies reveal that “flow experience is an experience, which describes the “good feelings, and most enjoyable experience possible in human lives as the bottom line of experience” (Csikszentmihalyi 1982; Zha et al., 2015 and Chen & Milan 2000).

According to Csikszentmihalyi, pioneer of this theory stated that flow is characterized by combination of different dimensions such as goal clarity, feedback, concentration, focus, control, challenges matching skills and loss of self-consciousness (Csikszentmihalyi & Lefevre 1989). Flow is a multidimensional concept, which comprises of many dimensions including enjoyment, curiosity, concentration, time distortion, interactivity and perceived control (Koufaris 2002 & Trevino and Webster, 2015). It has been revealed that mostly studies in past have examined perceived control, enjoyment and concentration in various areas (Koufaris 2002, Zhou 2013 and Gao et al., 2015).

Past literature posited that flow is a constructive and complex concept (Lu et al., 2009) in spite of its complexity several studies in past used flow in different contexts of software and internet, information technology and in the field of online games as well (Rette 2001; Drenger Guas, & Jahn 2008; Hoffman & Novak 2009).

Literature also supports the prediction that Flow influence intentions in many aspects like purchase intentions (Luna et al., 2002; Luna et al., 2003 and Ozkara, 2017), intentions related to play games online (Hsu and Lu, 2004 and Lin et al., 2013), revisit the website (Koufaris, 2002; Luna et al., 2002, 2003) and Ozkara et al., 2017). Many studies used this concept in the area of online shopping (Hsu et al., 2013); Virtual community (Yan et al., 2013), e-learning (Ho & Kuo 2010 and Zhou, 2015).

Recently some studies used this theory and its different dimensions to observe consumer behavior in mobile environments like mobile TV (Gao et al. 2015), mobile banking (Zhou 2012) and mobile payment (Zhou; 2013). Some researchers use this concept in the field of human computer interactions (HCI) (Trevino & Webster 1992; Ghani & Deshpande 1995; Parvinen et al., 2015 and Huang, 2010). Park et al posits that flow increases the brand value in the virtual context. They reveal that flow yields the consequences including behavioral outcomes and cognitive and task related.

In the literature of marketing, the flow theory and its components has been used in various studies dealing with different areas, but, till date only one study has examined the integrated effect of these two versatile theories in understanding the consumers intentions regarding adoption of mobile shopping particularly in Indian context.

**Control:**

It is an integral part of flow theory (Karpinnen et al., 2014). It empowers a person to feel strong in correspondence to the conditions and circumstances that surrounds him. A person feels great when he manages to control the situation in which he found himself (Mehrabian & Russell, 1974).

In flow research, it is identified as an extent of control on environment and actions by consumer while surfing online (Koufaris, 2002). Novak et al, 2000 argued that control is determined by an individual’s skills, which are beliefs of an individual (Greenberger et al., 1989; Liao et al., 2007 and Zhou et al., 2010).

Studies in past view this dimension of flow as a particularly important construct in the context of internet (Wang
et al., 2007; Deng et al., 2010; Drenger et al., 2008; Hsu & Lu 2004 and Prashar et al., 2018). Some studies demonstrate that people feel more positive and dominant when they feel they can control their surroundings in which they are working (Csikszentmihalyi, 1990; Ghani & Deshpande, 1994 and Ozkara et al., 2017). Few studies in past have documented the positive relationship between website skills and control in online shopping context (Koufaris, 2002; Guo & Poole 2009 and Novak et al., 2000). Literature found one study in past that demonstrates the fact that flow experience significantly influence intentions while purchasing online (Domina et al., 2012 and Huang, 2013).

Further, control is used as an important construct in retail environment also. One study on retail environment found that retail environment employs a great influence on consumer perception of being in control of their consumption experience (Ward & Barner, 2001).

Koufaris 2002 & Koufaris and Ajit, 2002 found that impulse buying is not significantly affected by perceived control. The experiences of customers while shopping online and offline can be very different (Koufaris 2002 and Ozkara et al., 2017). Features like less time for shopping, and lot of information about product and services available on websites led to the need of control (Engel et al., 1990; Bellman et al., 1999 and Koufaris, 2002).

Previous studies respond to these features and provide customers with features of great extent of control and convenience during shopping on online websites (Baty & Lee, 1995 and Hoffman & Novak, 1996).

H₆ Control is positively influencing attitude and intention toward mobile shopping experience.

**Proposed Model:**

Based on recommendations of existing literature the present study proposed the following conceptual model which will examine the integrated effect of Flow and TAM theory on the attitude and intention to adopt mobile shopping.

![Proposed Model Diagram]

**RESEARCH METHODOLOGY:**

Based on existing marketing literature and discussions with experts a conceptual framework has been proposed, which will explain the integrated effect of flow and TAM theory in the adoption of mobile shopping. Data will be collected from 490 Indian online shoppers for testing the hypotheses and to address the proposed relationships. Reliability of the questionnaire will be measured through pilot study. Questionnaire items will be based on the prevailing scales and ranging from “very strongly agree” (VSA) to “very strongly disagree” (VSD). The questionnaire will be segregated into two parts. The first part will record the perception of the respondents about each variable in the suggested model and the second part will record the details about demographic details of the respondents. Demographic variables will be assessed are age, income, marital status, education and frequency of using mobile phones for shopping. Coefficient alpha and reliability test will be done to evaluate the consistency of the results measured. Further hypotheses will be evaluated by using structural equation modeling (SEM) technique.

**FINDINGS AND DISCUSSIONS:**

Studies in past found sufficient literature on mobile commerce; but research in the domain of mobile shopping and flow theory is still in its infancy. Only one study in the past examined these theories together to check the intentions of consumers’ for adopting mobile shopping. The proposed model in the study will help to understand correlation between variables of TAM and dimension of flow to examine the attitude and intention to accept mobile shopping. The primary objective of the study is to examine the combined impact of these two versatile theories i.e flow theory and technology acceptance model to check the intentions of consumers towards mobile shopping. Secondary objective is to check the influence of flow and its dimension (control) on attitude and intentions on mobile shopping experience.

Literature reveals that flow acts as a mediating factor between attitude and usefulness of mobile shopping.
Further, it explains that attitude and perceived ease of use is partially mediated by this factor (Chen et al., 2018 and Jashapara & Tai, 2017). This study examined the significance of flow in the domain of mobile shopping. The study confirms the fact that flow is positively affecting attitude toward mobile shopping therefore influencing purchase intentions (Yang et al., 2014). Literature found that easy to use technology helps customers to enter into a state of flow. Positive attitude leads consumers to enjoy and use mobile shopping websites more often and encourage them to experience flow, which further rises the possibility of the acceptance of shopping over mobile devices (Chen et al., 2018).

THEORETICAL IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH:

Present study rigorously analyzes the literature and develops a conceptual model, which provides insights into how flow and dimensions mediates the relationship between PU, PEOU, attitude and intention towards mobile shopping. Present study provides valuable implications for marketer, academicians and researchers. Marketers should design easy to use and compatible mobile shopping services for consumers so that they can get advantage of this new mantra of shopping. Easy to use and simple mobile application helps consumers to enjoy the process of shopping online and enter into a state of flow. The conceptual model provides information about the adoption beliefs of the consumers that include their perception regarding mobile shopping. Companies should promote the features ubiquity, convenience, personalization and flexibility of mobile shopping so that inexperienced users should also try this new way of shopping. Managers should make the transaction procedure easy because customers are using mobile shopping services on their smartphones and making payment online is a critical issue for customers. Further marketers should place their services in market with appropriate information so that consumer adoption beliefs can be shaped about new online services provided to them. Current study is contributing to the literature of M-commerce by revealing the influence of the flow theory on technology acceptance model, which further explains the intentions of consumers to adopt mobile shopping. This study has some limitations also. Present study is conducted to study the factors, which influence consumers’ intention to accept shopping on mobile. In this study the effect of flow is examined with one more dimension i.e control. However, there are also other dimensions of flow theory, which includes time distortion, telepresence and intrinsic interest. Thus, future research should include these variables into the model of technology acceptance so that the effect of these variables can be examined on intentions. Furthermore, the conceptual framework used in this study is based on existing literature; the proposed model could be tested empirically in future.

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