CHAPTER-THREE

REVIEW OF LITERATURE

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DETAILED CONTENT AT A GLANCE

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3.0: INTRODUCTION:

The "Review of Literature" chapter covers all literature related to various technology adoption models, as well as a detailed review of literature related to selected drivers of m-Commerce adoption, such as perceived cost, personalization, privacy, perceived risk, perceived ease of use, perceived usefulness, social norms, perceived behavioural control, attitude, and adoption intention. There are two parts to this chapter. Section 1 provides a detailed introduction of technology adoption models, while Section 2 evaluates the literature on chosen m-commerce adoption drivers.

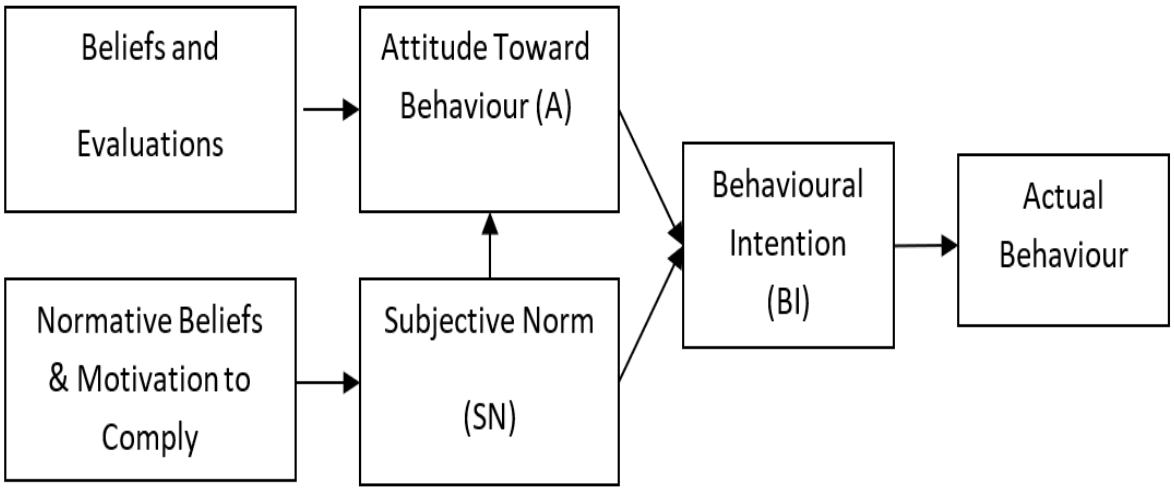
3.1: REVIEW OF LITERATURE ON TECHNOLOGY ADOPTION MODELS:

It is vital to offer a complete grasp of the theoretical underpinning underlying adoption behaviour of information system (IS) study in order to comprehend the processes behind the elements impacting consumers' intention to embrace mobile commerce services. This research looked at a number of models that had been established and built upon one another. This section goes over the models and how they're employed in mobile commerce research adoption. The Technology Acceptance Model (Davis, 1989)[1], the Theory of Reasoned Action (Fishbein and Ajzen, 1975)[2], and the development of TRA into a Theory of Planned Behaviour (Ajzen, 1985)[3] are the three most often used models of Information System (IS) adoption behaviour for understanding ICT adoption.

3.1.1: An Overview of the Theory of Reasoned Action:

Fishbein and Ajzen (1975)[2] proposed the Theory of Reasoned Action (TRA), which has been widely utilised to predict and explain human behaviour in a variety of disciplines. Technology Acceptance Model (Figure 3.2) is a more general theory than TRA (Figure 3.1), and it has been used to explain behaviour in areas other than technology adoption. When it comes to adoption behaviour, however, the model includes four general concepts: behavioural attitudes, subjective norms, intention to use, and actual use. When compared to TAM, the incorporation of subjective norm is a significant improvement. Behavioural intention, according to the TRA, is the most essential determinant of a person's behaviour (BI). The strength of one's purpose to undertake a specific behaviour is referred to as behavioural intention. The combination of a person's attitude toward doing the behaviour and his or her subjective norm determines a person's intention to perform a behaviour. Behavioural Intention is the interaction between attitudes toward a behaviour and subjective norms, which was discovered to predict and lead to actual behaviour (Ajzen, 1988)[4]. The degree to which a person has a favourable or unfavourable opinion of the behaviour in question is referred to as attitude toward behaviour (Ajzen and Madden, 1986)[5]. Subjective Norm was addressed as a social component by Ajzen (1985)[3], who defined it as "perceived social pressure to perform or not perform the behaviour." It is imagining how others will react to a particular activity.

Figure 3.1:
Theory of Reasoned Action Model (TRA)



Source: Fishbein and Ajzen (1975)[2]

TRA is one of the most widely accepted theories of human behaviour (Venkatesh et al., 2003)[6]. It implies that one's attitude toward behaviour and subjective norms will determine one's willingness to engage in certain behaviours. As a result, rather than attitudes, behavioural purpose will govern actual behaviour. TRA has been used to explain the adoption of ICT applications in its basic form, but it is more commonly utilised as a foundation for augmenting the TAM model with subjective norms (Venkatesh and Davis, 2000, a[7]; Venkatesh and Morris, 2000[8]). In a range of subject areas, TRA has been successfully used to predict actual behaviour as well as behavioural intention.

Because TRA is a broad theory, it does not explain the beliefs that underpin specific behaviours (Davis et al., 1989)[9]. As a result, Fishbein and Ajzen (1980)[10] proposed that researchers utilising TRA first identify the beliefs that are important to individuals when it comes to the behaviour being studied. Furthermore, TRA focuses on behaviour prediction rather than result. Despite the fact that TRA is highly predictable across trials, it is troublesome since researchers have documented inconsistent results on the influence of subjective norms on behavioural intention. For example, Davis et al. (1989)[9] found no substantial effect of subjective norms on behavioural intention, although Taylor and Todd (1995)[11] revealed the opposite.

Within each domain of research in TRA, the ability of attitude and subjective norms to predict behavioural intention will differ. When personal-based impact is stronger in the behaviour domain, attitude will be a better predictor of behavioural intention than subjective norms. When purchasing something for personal use, for example, attitude is a dominating predictor of behavioural intention, whereas subjective norms are a dominant predictor when purchasing something for others (Podder, 2005)[14]. Furthermore, when consumers have less knowledge or experience, subjective norms/standards can be more significant in the early stages of innovation implementation (Taylor and Todd, 1995)[11].

Meanwhile, behavioural intentions determine actual behaviour, limiting the model's predictability to circumstances when intention and behaviour are highly connected. When intention and behaviour are assessed simultaneously, it is not an accurate test of the model's ability to predict future behaviour, but rather a test of the model's ability to predict present behaviour. Ajzen (1991)[15] expanded the Theory of Planned Behaviour (TPB) by incorporating an extra construct, perceived behavioural control, to address the lack of variables in TRA that capture situation relevant information.

Furthermore, Davies et al. (2002)[16] proposed that, in order to assess TRA, actual behaviour should be measured objectively and unobtrusively, without any indication of its relationship to the preceding intention measurement phase. A condition of the TRA is that the behaviour be under voluntary control. As a result, the TRA is unprepared to forecast circumstances in which people lack volitional control (Ajzen, 1991)[15]. According to Ajzen and Madden (1986)[5], when control over behaviour is not fully volitional, the Theory of Reasoned Action, which relies on intention as the sole predictor of behaviour, will be insufficient. Many other elements can influence desired behaviour, some of which are internal to the individual and others which are external, such as time and opportunity.

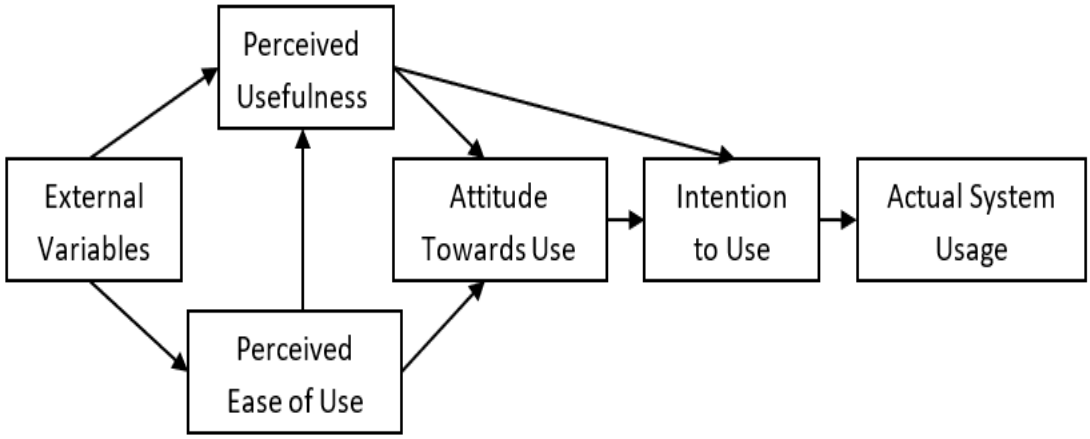
3.1.2: An Overview of the Technology Acceptance Model:

A number of research on the uptake of mobile services are based on the Technology Acceptance Model (TAM) (Davis, 1989)[1]. The model was originally created to forecast the level of user adoption and use of IT in the workplace. At the heart of TAM is the idea that technology adoption is driven by more than just rational considerations (Davis, 1989[1]; Davis et al., 1989)[9]. According to Venkatesh and Davis (2000)[7], TAM is a well-established model for forecasting user acceptance since it is robust, powerful, and economical. TRA's attitudinal determinants were replaced by two specific behavioural beliefs in TAM's technology acceptance measures: perceived ease of use and perceived usefulness, which were derived from Fishbein and Ajzen's (Fishbein & Ajzen, 1975)[10] TRA model (Islam et al., 2010)[17].

TAM is based on the premise that the two variables, perceived usefulness and perceived ease of use, impact whether or not someone will utilise a system. The degree to which a person believes that employing a given system would improve his or her job performance is defined as perceived usefulness (Davis, 1989)[1]. The degree to which a person believes that using a given system will be devoid of effort is characterised as perceived ease of use (Davis, 1989)[1].

The degree of evaluative effect that an individual associates with using the target system in his employment is characterised as attitude toward utilising the system (Davis et al., 1989)[9]. TAM is defined by its attitude toward the adoption of new technology. In addition, attitudes have a role in mediating the effect of perceived usefulness and ease of use on behavioural intention (Davis et al., 1989)[9]. According to the original TAM (Figure 3.2), attitude can mediate the impact of perceived ease of use on intention to use, as well as attitude mediating the impact of perceived usefulness on intention to use.

Figure 3.2:
Technology Acceptance Model (TAM)



Source: Davis (1989)[1]

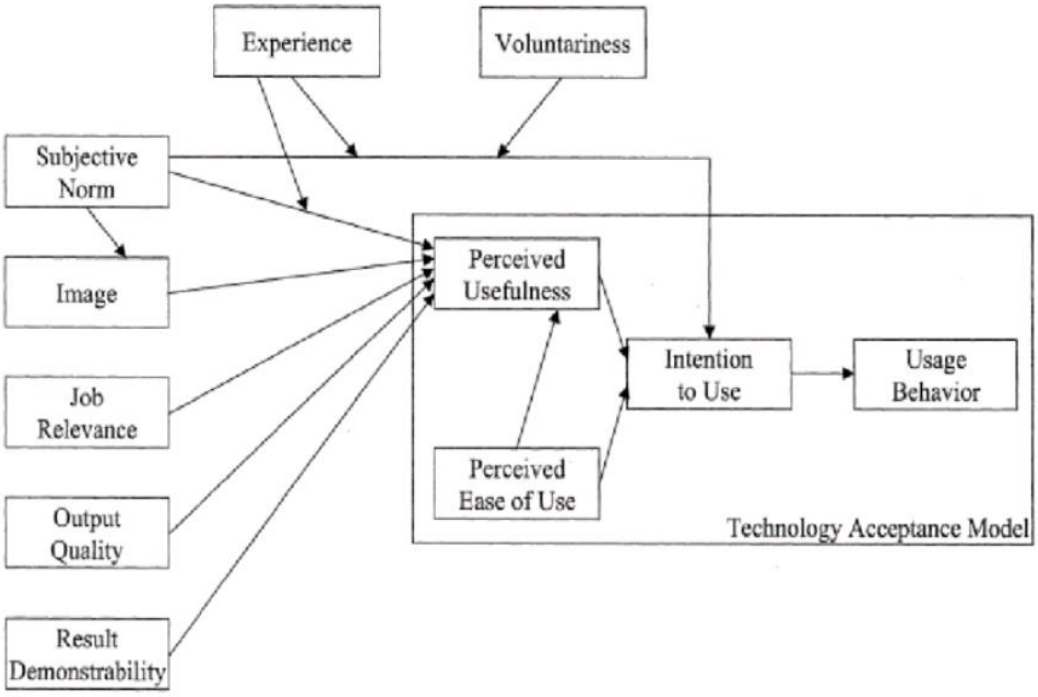
TAM theorizes that perceived usefulness and ease of use mediate the relationship between external variables, such as system characteristics, development process, training and intention to use a system (Venkatesh and Davis, 2000, a)[7]. Hence, perceived usefulness and ease of use are user's beliefs on Information Technology and therefore form user's attitude toward technology which will, in turn, predict acceptance (intention to use technology). The original TAM consisted of perceived ease of use, perceived usefulness, attitude toward behavioural intention to use and actual system use. Perceived utility and ease of use, according to TAM, moderate the interaction between external variables such as system attributes, development process, training, and intention to use a system (Venkatesh and Davis, 2000, a)[7]. User attitudes toward technology are shaped by the perceived usefulness and ease of use of the technology, which in turn predicts user adoption (intention to use technology). Perceived ease of use, perceived utility, attitude toward behavioural intention to use, and actual system use were all part of the original TAM.

3.1.3: Extension of Technology Acceptance Model (TAM2):

Many researchers recommended that TAM requires to be given additional variables to provide an even stronger model (Legris et al., 2003[18]; Wu and Wang, 2005[19]). TAM2 developed by Venkatesh and Davis (2000)[7] combined, additional theoretical constructs containing social influence processes (subjective norm, voluntarism and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability and Perceived ease of use) but omitted attitude toward use (ATU) (Figure 3.3).

The researchers did four longitudinal field study in four different corporations that covered a range of industries, organizational contexts, functional areas (ranging from small accounting service firm, medium-sized manufacturing firm, to the personal financial services department of a large financial services firm) as well as the types of system being introduced; findings showed that all the social influences and cognitive instrumental processes have significantly strong affect and influence on user acceptance of the systems (Venkatesh, 2000,c)[20].

Figure 3.3:
Extension of Technology Acceptance Model (TAM2):



Source: Venkatesh and Davis (2000, c)[20]

Davis (1989)[1] found a weak link between perceived usefulness and attitude, but a strong link between perceived usefulness and behavioural intention, therefore attitude was dropped from the final model. The revised model of TAM has two versions: pre and post implementation. Davis et al. (1989)[9] expressed that in both the phases of implementations, individuals would depend more on perceived usefulness and perceived ease of use to form intentions, which predicts acceptance behaviour.

The modified TAM has been tested in several users' technology adoption or continual usage investigations (Venkatesh et al., 2003[6], Venkatesh and Davis, 2000, a[7;] Venkatesh and Morris, 2000, b[8;]) and has consistently done well in predicting users' intentions. On the other hand, attitude has found to mediate the effect of perceived usefulness and perceived ease of use (Davis et al., 1989[9]; Mathieson, 1991[21]; Taylor and Todd, 1995[11]). The third extension is the introduction of behavioural control and user resources as an issue in the TAM model (Pedersen,2005)[22].

There is a weak link between perceived usefulness and attitude, but a strong link between perceived usefulness and behavioural intention, hence attitude was removed from the final model (Davis,1989)[1]. TAM's new model has two versions: pre-implementation and post-implementation. According to Davis et al. (1989)[9], individuals will create intents that predict acceptance behaviour based on perceived usefulness and ease of use during both phases of implementation. The modified TAM has been used to forecast users' intents in various technology adoption or continuous usage studies (Venkatesh and Davis, 2000, c[7]; Venkatesh and Morris, 2000[8]; Venkatesh et al., 2003[6]).

The influence of perceived usefulness and perceived ease of use, on the other hand, has been found to be mediated by attitude (Davis et al., 1989[9]; Mathieson, 1991[21]; Taylor and Todd, 1995[11]). The final addition to the TAM model is the inclusion of behavioural control and user resources as issues (Pedersen,2005)[22]. Future technology acceptance study, according to Davis (1989)[1], must consider how other factors influence utility, simplicity of use, and user acceptability. As a result, perceived ease of use and perceived utility/usefulness may not be sufficient to adequately explain behavioural intentions toward the usage of mobile services, prompting the search for other criteria that can better predict mobile service acceptance.

Another important shortcoming of TAM is that, while it provides useful insight into user acceptance and use of technology, it primarily focuses on the determinants of intention (PU and PEU) and does not explain how such perceptions are produced or managed to foster user acceptance and increasing usage (Mathieson, 1991)[21]. The popularity of the TAM may be owing to its parsimony, however according to Venkatesh (2000)[18], parsimony is both a strength and a weakness of the TAM. TAM gives predictive data, but it is insufficient to provide designers with the information they need to establish acceptances for a new system (Mathieson, 1991)[21].

3.1.4: An Overview of Theory of Planned Behaviour:

Theory of planned behaviour (TPB) was developed as an extension of TRA to account for situations in which people do not have perfect control over their actions (Ajzen, 1991)[15]. The Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975[2]; Fishbein and Ajzen, 1980[10]) was developed to describe practically any human behaviour and has been shown useful in predicting and explaining human behaviour across a variety of application scenarios (Davis et al. 1989)[9]. According to the TPB, a third factor, perceived behavioural control (PBC), influences behavioural intentions and actual behaviour in addition to determinants of behavioural attitude and subjective norm.

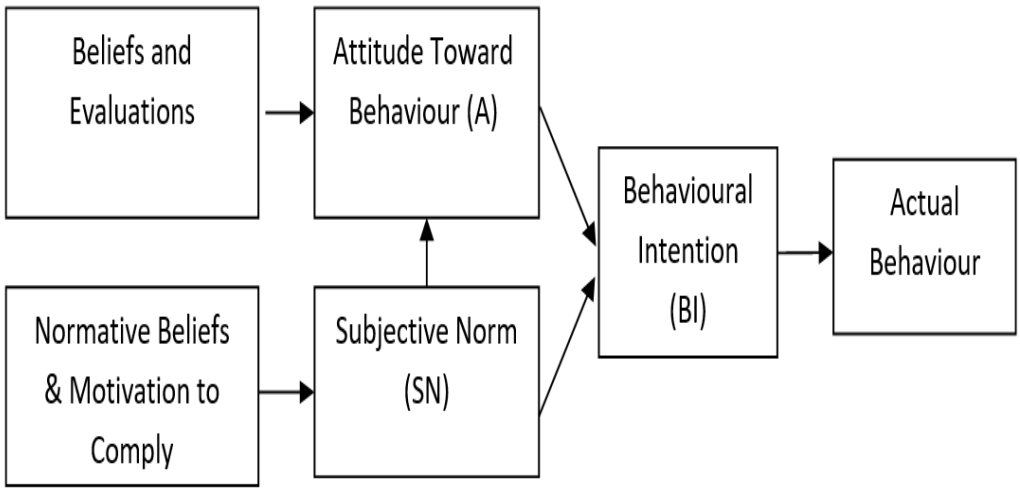
TPB-based models have been used to explain a variety of behaviours, but when it comes to the adoption of ICT systems or services, the model includes five concepts: behavioural attitudes, subjective norm, behavioural control, intention to use, and actual usage. Both attitude toward behaviour and subjective standards, according to the theory, are immediate predictors of intention to do behaviour. The degree of a person's favourable or unfavourable opinion or appraisal of the behaviour in question is referred to as attitude (Fishbein and Ajzen, 1975)[2]. The perceived social pressure to perform or not execute the behaviour is referred to as a subjective norm (Ajzen, 1991)[15]. In other words, subjective norm is linked to normative attitudes about what other people should anticipate. The TPB also claims that the proximate cause of behaviour is the intention to conduct it. Intentions are the motivating components of behaviour, i.e., the amount of conscious effort a person will put in to complete a behaviour.

The term "perceived behavioural control" refers to people's perceptions of how easy or difficult it is to do the desired behaviour. It's linked to perceptions regarding the presence of control elements that could help or hinder the behaviour’s success (Ajzen, 2002)[23]. There are two parts to behavioural control.

The "facilitating conditions," which describe the resources necessary to use a certain system, are the first component. Time, money, and other ICT-related resources are examples of such resources. The second factor is self-efficacy, which is defined as "an individual's belief in his or her capacity to accomplish a behaviour" (Taylor and Todd, 1995)[11]. When compared to TAM, the introduction of behaviour control in the TPB-model adds significantly to the explanatory power of TPB (Pedersen, 2005)[22]. Both Mathieson (1991)[21] and Taylor and Todd (1995)[11] discovered that adding behavioural control to their TPB-model made it explain more variance in intention to use than the TAM-model. Both TPB and TRA have been chastised for failing to indicate operational components or determinants of behavioural attitudes, subjective norm, and, to a degree, behavioural control.

Figure 3.4:

Theory of Planned Behaviour



Source: Ajzen (1991)[21].

TPB has proven successful in predicting the performance of actual behaviour and behavioural intention in a range of subject areas. The fundamental distinction between TRA and TPB is that TPB includes an external variable, perceived behavioural control, which influences actual behaviour both directly and indirectly through intention. TPB, according to several researchers, has a higher predictive power of behaviour than TRA (Cheung et al. 1999[24]; Madden et al., 1992[25]). TPB is identical to TRA except that it includes one additional variable and is more extensively utilised than TRA in studies involving technology adoption.

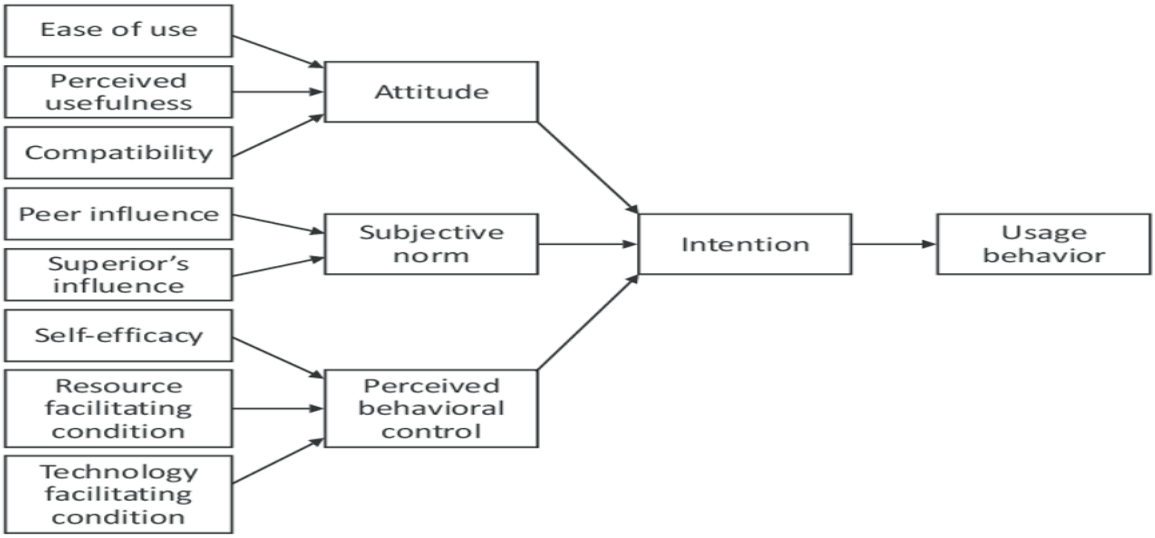
3.1.5 DECOMPOSED THEORY OF PLANNED BEHAVIOUR(DTPB)

To improve on the original idea, the Decomposed Theory of Planned Behaviour dissects these three factors in greater depth. TPB's attitude, subjective norm, and perceived behavioural control are all retained in this model by Taylor and Todd (1995)[11]. They break down the "attitude" of determination into three components: perceived compatibility, perceived usefulness, and perceived simplicity of use.

According to Taylor and Todd (1995)[11], the breakdown of attitudinal beliefs is necessary to gain a better understanding of the connections between belief structures and antecedents of intention. Peer and superior influences were used to define "subjective norm," and self-efficacy, technology, and resources were used to define "perceived behavioural control."

Figure 3.5:

Decomposed Theory of Planned Behaviours (DTPB)



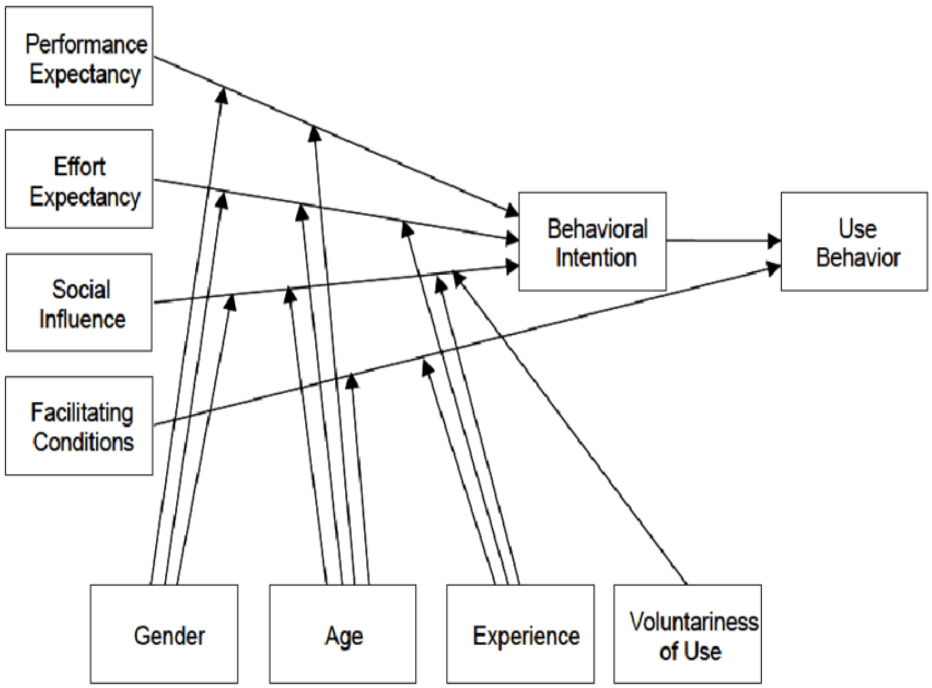
Source: Taylor and Todd (1995)

3.1.6: UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

Venkatesh et al. (2003)[6] analysed related studies and conducted an empirical investigation to establish a more comprehensive IT acceptance model. They combined numerous features of the eight behavioural intention models utilised in earlier technology acceptance scenarios and come up with UTAUT framework. The UTAUT seeks to describe user intentions and usage behaviour. Performance expectancy, effort expectancy, social influence, and enabling conditions are central to the idea. The first three determine usage intention and conduct, and the fourth determines user behaviour. Gender, age, experience, and voluntary use are hypothesised to moderate usage intention and behaviour. In a longitudinal research, Venkatesh et al. (2003)[6] found that UTAUT explained 70% of the variance in behavioural intention and 50% of actual use.

Figure 3.6:

Unified Theory of Acceptance and Use of Technology (UTAUT)



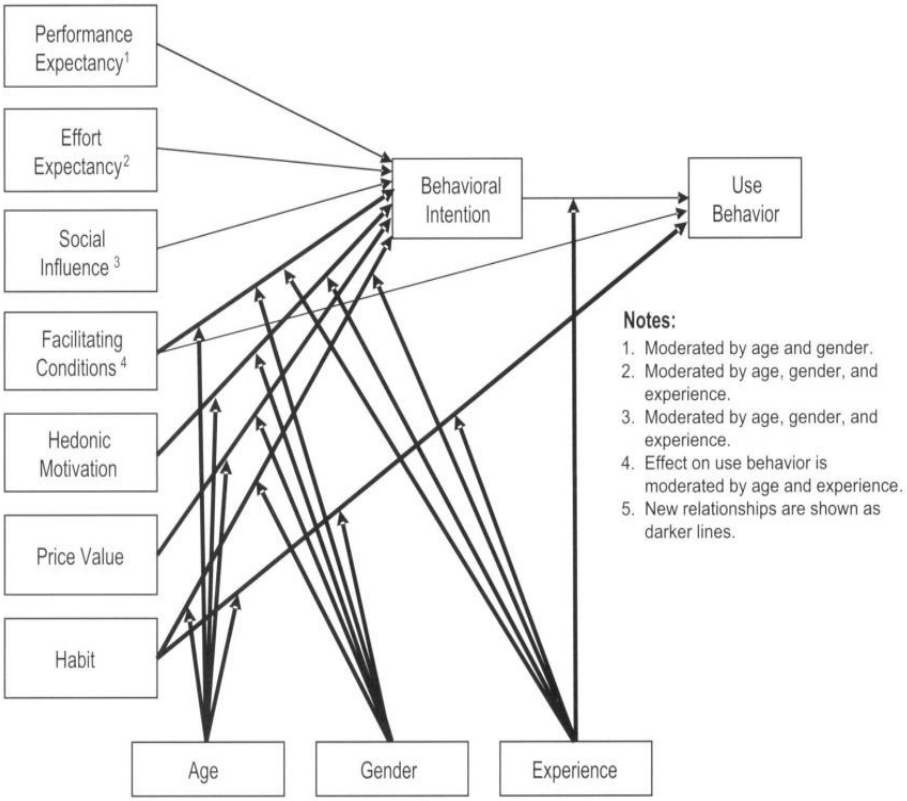
Source: Venkatesh et al. (20003)

3.1.7: UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY2(UTAUT2)

Venkatesh et al. (2012)[12] modified the UTAUT model to include behavioural and attitude drivers of non-organizational technology use. The authors adapted the original UTAUT model by adding three additional constructs and changing several relationships (e.g., deleting voluntariness). UTAUT2 adds hedonic incentive, price value, and habit. Name, age, gender, and experience may mitigate these factors' influence on behavioural intention and technology use. Compared to UTAUT, UTAUT2's additions improved behavioural intention (from 56% to 74%) and technology use (40 percent to 52 percent). The researcher data also showed that the impact of hedonic incentive on behavioural intention is modified by age, gender, and experience, and that habit has both direct and mediated impacts on technology use, and these effects are moderated by individual differences.

Figure 3.7:

Unified Theory of Acceptance and Use of Technology2 (UTAUT2)



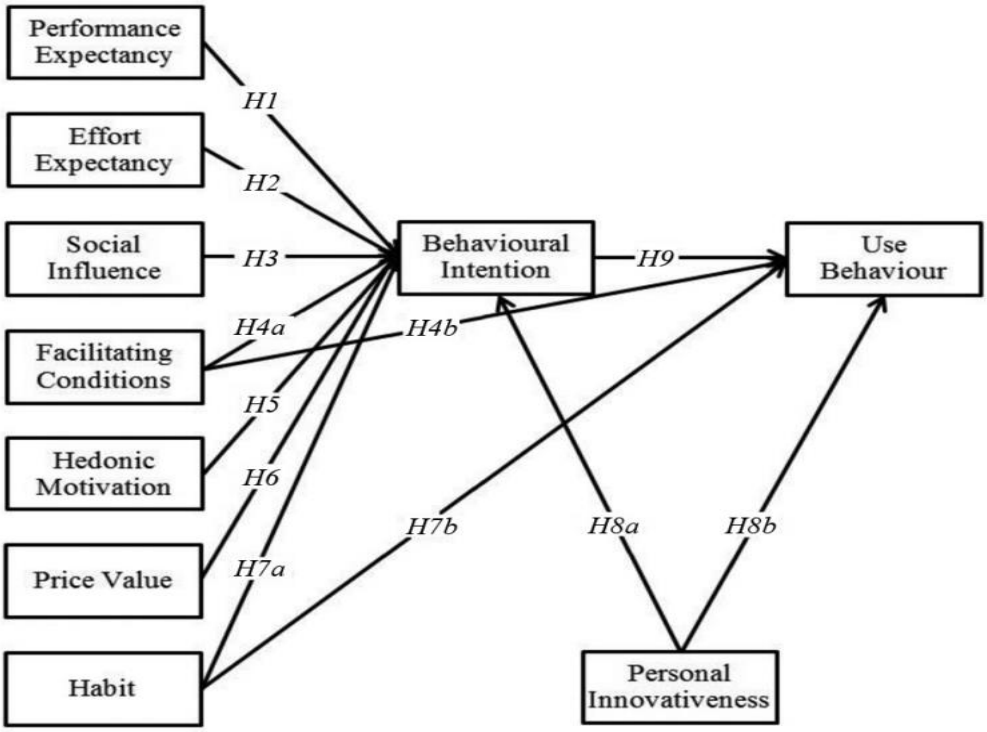
Source: Venkatesh et al. (2012)

3.1.8: UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY3(UTAUT3)

As an expansion of the UTAUT2 model, Farooq et al. (2017)[13] introduced UTAUT3, which combines an independent variable of personal innovativeness in IT (PIIT) with eight predictors of technology acceptance, including Habit, Hedonic incentives, Performance Expectancy, Social Influence, and Facilitating Conditions. In order to understand how executive business students, perceive and behave toward the Lecture Capture System (LCS), which is heavily utilised by market-driven private universities to draw in executive business students, the researcher has developed this model. The study found that executive business students' acceptance and use of LCS are influenced by factors such as performance expectancy, effort expectancy, social influence, facilitating conditions, price value, hedonic incentive, habit, and PIIT, and that PIIT is a critical variable that influences their intention and behaviour when using LCS.

Figure 3.8:

Unified Theory of Acceptance and Use of Technology3 (UTAUT3)



Source: Farooq et al. (2017)[13]

3.2: REVIEW OF LITERATURE IN THE AREA OF MOBILE SERVICES:

M-commerce was projected to grow exponentially with the rapid expansion in mobile phone devices and round-the-clock access anywhere, but the situation did not turn out as expected (Mylonakis, 2004)[26], making it necessary to shed light on the variables affecting its growth. The adoption of Information technology and e-Commerce has been thoroughly explored, but m-Commerce necessitates specialisation due to the changes in client demand as well as due to unique qualities such as convenience, ubiquity, localization, and personalization (Clarke, 2001)[27].

While previous studies and research have focused on technology (Carlsson, 2000[28]; Ghosh and Swaminatha, 2001[29]) and marketing strategies (Carlsson and Walden, 2002[30]; Kannan et al., 2001[31]), there hasn't been a lot of research or light shone on the effect of mobile technology embracement on attitudes and behavioural intention (Green et al., 2001)[32]. Only recent research has begun to shed light on the primary reasons for m-commerce adoption from the perspective of mobile consumers, hence the primary motivations for m-commerce adoption remain unknown (Urbaczewski et al., 2002[33]; Pedersen et al., 2002)[34].

Because of the rapid advancement in mobile technology, many nations have seen a geometric progression of m-commerce acceptance, which has drawn the attention of scholars to the study of m-commerce adoption (Balasubraman et al., 2002[35]; Hung et al., 2003[36]; Teo and Pok, 2003[37]; Nysveen et al., 2005[38]).Hung et al. (2003)[36] discovered that perceived cost, innovativeness, convenience of use, connection speed, peer influence, and other facilitating variables all affect m-commerce adoption when utilising the Theory of Planned Behaviour and Innovation Diffusion Theory on Wireless Application Protocol (WAP).

Another m-Commerce study that used the extended TAM and combined it with Innovation Diffusion Theory, as well as including perceived risk and perceived cost, found that compatibility had the greatest positive impact on behavioural intention, with the surprising result that perceived risk had a positive impact as well (Wu and Wang, 2005)[19].In a study on mobile service adoption, Nysveen et al. (2005)[38] concluded that perceived enjoyment, expressiveness, ease of use, perceived utility, social norms, attitude, and perceived control all influence adoption decisions. Gender influences adoption decisions, according to the researcher, with social norms and perceived enjoyment (intrinsic motive) determining female users' decisions, while perceived utility and expressiveness (extrinsic motive) influencing male users' decisions. Compatibility, perceived expressiveness, and perceived behavioural control are some of the most influential elements that influence mobile service adoption decisions (Sendecka,2006)[39].

According to a study on consumer attitudes and adoption behaviour, perceived usefulness influences m-commerce adoption decision, while consumer innovativeness, past adoption behaviour, and technology cluster adoption, as well as age and gender demographic variables (male users responded favourably), influence m-commerce adoption decision (Yang, 2005)[40].One of the same kind of study on the impact of consumer loyalty on m-commerce adoption, trust, perceived value, habit, and customer satisfaction, all influenced the decision to adopt (Lin and Wang,2006)[41].

Costs, trust, relative benefit, complexity, compatibility, network extension, and perceived security and risk are among the primary elements that influence m-payment adoption decisions, according to Mallat (2007)[42].Using the Decomposed Theory of Planned Behaviour, Hong et al. (2008)[43] conducted a similar study and found that social impact, media influence, attitude, perceived mobility, and perceived monetary value all play a role in consumers' intentions to continue using mobile data services. Research in India on the impact of self-efficacy and website social presence on m-shopping adoption found that these elements influence consumers' perceptions of trust, risk, and utility, influencing their purchase decisions (Dash and Saji, 2008)[44].

Wei et al. (2009)[45] found that perceived cost, usefulness, and social norms all influence mobile service adoption intentions. According to Kim et al. (2010)[46], perceived usefulness and ease of use based on expertise inspire and prompt early adopters of m-payment services, whereas perceived usefulness and reachability motivate and urge late adopters. Mobile payment uptake is influenced by individual mobility, compatibility and subjective norms.

A study on the impact of innovation traits (such as perceived relative advantage, ease of use, and compatibility) and knowledge-based trust (such as perceived competence, integrity, and benevolence) on attitude and behavioural intention among potential and repeat customers was conducted in the context of mobile banking. It was established that simplicity of use, perceived advantage, compatibility, competency, and integrity had the greatest impact on their attitude, which in turn has the greatest impact on their behaviour intention (Lin,2011)[47].

A study that has analysed the personality traits such as extroversion, openness to experience, conscientiousness, agreeableness, and neuroticism on B2C m-commerce adoption by using Partial Least Squares (PLS) showed that extrovert nature has a strong impact on trust while neuroticism has a negative impact on trust and perceived usefulness (Zhou and Lu,2011)[48].

Zhou (2011)[143] conducted another study based on Expectation Confirmation Theory and data analysis with Partial Least Squares, this time focusing on behaviour following the adoption of mobile services. The findings revealed that expectation confirmation, perceived simplicity of use, perceived utility, and cost of usage all have a substantial impact on their post-adoption satisfaction, with perceived usefulness having a direct impact on their desire to continue using the services.

According to a study by Keramati et al. (2012)[49], trust, ease of use, cost, utility, payment habit, compatibility, social norm, skills and convenience are the primary characteristics that influence m-payment adoption intention. A study on mobile service acceptability based on characteristics such as functionality, trust, innovativeness, relationship, and mediating effects of PEOU and PU on consumers' behavioural intention specified that trust and PEOU had no direct influence on consumers' intention, however perceived usefulness and innovativeness did (Zarmpou et al. 2012)[50].

According to a two-staged SEM-neural network strategy to studying B2C m-commerce, the best indicators of m-commerce adoption are trust, perceived utility, network influence, variety of services, and perceived enjoyment (Chong,2013b)[51]. Further research using the Expectations-Confirmation Model (ECM) to determine whether consumers intend to continue using m-commerce services established that satisfaction, perceived ease of use, perceived usefulness, perceived cost, perceived enjoyment, and trust all have a substantial impact on the intention to continue. According to a study on mobile payment adoption in the restaurant business, the greatest variables that influence consumers' desire to adopt m-payment are "compatibility with lifestyle," followed by "usefulness," "subjective norm," "security," and "prior experience with mobile payment" (Cobanoglu et al., 2015)[52].

The study using Theory of Planned Behaviour (TPB) to find the factors affecting m-commerce adoption among Chinese and Malaysian consumers showed that attitude, subjective norms and perceived behavioural control exert a great impact on adoption decision (Ting et al., 2016)[53]. In a similar study on loyalty of consumers towards m-commerce showed commitment to be at the top of the list followed by trust, satisfaction, risk, privacy, system availability and efficiency where efficiency affects loyalty through satisfaction (Lee and Wong, 2016)[54].

A study conducted in USA using the UTAUT model to examine the factors that affect purchase intention using the parameters like social influence, facilitating conditions, trust, perceived risk, users' perceptions of performance and effort expectancies showed that Performance and effort expectancies, social influence and conditions that facilitate trust were found to remarkably predict m-commerce purchase intentions (Blaise et al., 2018)[55].

Sun and Chi (2018)[56] conducted a study to find the consumers intention of using m-commerce for apparel among Chinese consumers using multiple regression analysis showed that perceived usefulness, subjective norm, compatibility, perceived ease-of-use and past non-store shopping experience affect them positively. Studies related to risk and trust components in m-shopping adoption behaviour have shown that psychological, financial and performance risk have a negative impact on adoption and advised service providers to concentrate towards improving trust among consumers to overcome the inhibitions towards adoption behaviour (Marriott and Williams, 2018)[57].

Chauhan et al. (2018)[58] studied adoption of mobile apps in B2C m-Commerce found that relative advantage, subjective norms, observability along with demographic factors of age and education affected the adoption decision. Systematic Literature Review studies conducted by Tyrvainen and Karjaluoto (2019)[59] regarding m-commerce adoption found that consumers, during the initial stages of adoption look for useful benefits of saving time and personalised offers (Morosan and DeFranco, 2016a)[60]. In the next stage consumers look into cost with ubiquity (Huang et al., 2016)[61] along with customised information in spite of the privacy issues looming over their heads. The last stage of adoption is about familiarity and consumers look for perceived enjoyment (Yang , 2010)[62].

Sarkar et al. (2020)[63] performed a meta-analysis and revealed that user interface, perceived risk, perceived usefulness, perceived ease of use, system quality, information quality, service quality, perceived security, structural assurance, ubiquity, and disposition to trust are the main antecedents and attitude, behavioural intention, user satisfaction and loyalty are found to be the main consequences of developing trust in m-commerce.

Cui et al. (2020)[64] studied factors influencing user adoption of Cross-border m-commerce (CBMC) by combining psychological distance theory and commitment-trust theory and have identified seven key factors namely, mobile exclusive distance, social distance, communication, opportunistic behaviour, satisfaction, investment size and relationship benefit associated with users' trust and sense of commitment. By performing a longitudinal study, McLean et al. (2020)[332] offer an empirical insight on the causes and effects of consumer attitudes regarding retailers' mobile commerce (m-commerce) apps. The findings show notable variations between the factors influencing user perceptions toward the mobile commerce app during the initial adoption phase and during the usage phase. Additionally, the findings claim that positive attitudes regarding the app result in greater purchase frequency through the app, positive attitudes, and brand loyalty over time (after the usage phase). The findings further indicated how customer attitudes and behaviours are impacted by smartphone screen size.

A study of factors namely content delivery, entertainment, location and transaction base that affect m-commerce adoption found that perceived enjoyment and performance and effort expectancy are facilitating factors while social influence has a positive impact and innovativeness has indirect impact on adoption decision (Pandey and Chawla,2020)[65].

The adoption behaviour associated with Mobile payment service (MPS) is a result of interactions between Mobile payment service features and situational factors like purchase intention and time pressure, revealed in a study conducted by Chen et al. (2020)[66]. Chopdar and Balakrishnan (2020)[67] used the Stimulus-Organism-Response (S-O-R) theoretical framework to undertake research in India. Perceived ubiquity and m-commerce app incentives are the largest predictors of impulsiveness and perceived value, respectively, according to data analysed using structural equation modelling. It was also found that impulsiveness has a negative effect on customer's repurchase intention but has a favourable effect on consumers' satisfaction with the experience, whereas perceived value has a positive effect on both variables.

Singh and Srivastava (2020)[68] studied the Indian electronics and fashion industries to learn how consumers reacted to mobile purchasing using smartphones. The results of structural equation modelling demonstrated the significance of perceived usefulness, perceived risk, and perceived self-efficacy for long-term continuing usage. Additionally, the results showed that product type had a moderate impact on two relationships: the association between perceived risk and purchase intention and the relationship between perceived self-efficacy and purchase intention. By extending the Technology Acceptance Model, Abdallah et al. (2020)[69] conducted a study to identify the important factors influencing the acceptance of m-commerce among higher education students in Palestine (TAM). According to the investigation using structural equation modelling (SEM), perceptions of usefulness, usability, staff innovation, perceived ease of use, security and privacy, subjective norms, and perceived trust are all found to have a significant impact on customer behaviour intentions to adopt mobile commerce.

By using a quantitative approach analysis based on the PLS-SEM algorithm, Ntsafack Dongmo (2020)[70] studied the factors predicting the consumer's intention to adopt m-commerce in Cameroon and found that the variety of services, social influence, and perceived cost significantly influence behavioural intention, and as a result, the consumer intention to adopt m-commerce. Using the TAM, Al-Khalaf and Choe (2020)[71] investigated how different groups of Qatari consumers felt about the trust perceptions of mobile commerce. They found that there was a positive indirect effect of perceived usability on the trust of Qatari nationals, that perceived usability could increase the trust of female consumers, and that young consumers could easily trust mobile commerce thanks to the endorsements of their peers. The findings also highlighted the importance of consumers' perceptions of security when it comes to their trust in mobile commerce across all demographics.

In a study on the adoption of mobile payment (m-Payment), Al-Saedi et al. (2020)[72] extended the Unified Theory of Acceptance and Use of Technology (UTAUT). According to the findings, performance expectancy, followed by social influence, effort expectancy, perceived trust, perceived cost, and self-efficacy, is the best predictor of m-payment users' intention to utilise the system. Nevertheless, it was discovered that perceived risk had a negligible impact on behavioural intentions to use M-payment systems. By incorporating the trust and perceived security components into the original unified theory of acceptance and use of technology (UTAUT2) model, Dakduk, Santalla-Banderali, and Siqueira (2020)[73] evaluated low-income consumers' intentions to adopt mobile commerce in Ecuador. According to the findings, enabling factors, hedonistic drive, habit, and perceived trust significantly and favourably impact desire to utilise mobile commerce. Facilitating conditions were the best predictor, followed by perceived trust. Contrary to expectations, the inclination of low-income customers to use m-commerce was not significantly influenced by performance expectations, social influence, or perceived security.

Singh and Sinha (2020)[74] studied merchants' mobile wallet intentions. The study comprises perceived compatibility, perceived utility, awareness, perceived cost, perceived customer value addition, and perceived trust. The study also evaluated the mediating effect of perceived trust on merchant intention. Perceived consumer value addition had the greatest impact on merchants' intentions, followed by perceived technology usefulness. Small but significant, the hypothesised mediation impact of perceived trust on perceived usefulness was also found.

Pipitwanichakarn and Wongtada (2020)[75] did an experimental study to learn more about the prevalence of m-commerce among street vendors. The primary objective was to look into how users' opinions and other factors affect their enthusiasm for and use of mobile commerce. The researcher divided participants into eight separate groups, then adjusted the number of reviews they read before measuring the participants' impressions of the site's usability and reliability. When consumers have contradictory impressions (high ease of use but low trust, for example), positive reviews can sway their opinion of m-value. To the contrary, if users receive congruent information, there is no difference in perceived utility based on online ratings (e.g., high ease of use and high trust).

Consumer anticipation and intention to adopt mobile commerce in Jordan was studied by Gharaibeh et al. (2020)[78]. This study extends the UTAUT2 model by using social media as a new variable. The findings revealed that the intention of Jordanian consumers to adopt mobile commerce is highly affected by factors including social media use, social influence, effort expectation, hedonic incentive, performance expectancy, habit, and facilitating conditions. Similarly, there is little to no correlation between price and willingness to use. The research study conducted by Molina-Castillo (2020)[79] examines how mobile payment learning costs affect user intentions. The researcher also analysed how perceived functional value and enabling environments moderate learning costs.

The researcher discovered that perceived functional value and enabling factors fully mediate negative learning cost effects. Diverse mobile payment services, platforms, and technologies increase user learning costs, slowing consumer adoption. Wang, Teo, and Liu (2020)[80] researched mobile government service in China. Mobility, localizability, and personalisation are positively connected with perceived value and continuing intention. Perceived value modulates the links between mobility, personalisation, localizability, and continuance intention. Compatibility moderates the relationship between perceived value, mobility, localizability, security (but not personalisation), and continuation intention. Personalization and security appear to be at odds (analogous to personalization-privacy paradox where users are torn between their desire for personalization and their instinct to protect their privacy).

Tseng and Wei (2020)[81] conducted research to study the impact of media richness on consumer behaviour at different AISAS (attention, interest, search, action, and share) phases. Media richness influences the early stages of AIS more than the later stages of AS. This research recommends organisations using mobile ads should use rich media for early-stage consumers (AIS). Later-stage (AS) marketers can use medium-rich mobile advertisements. Mobile ads with high media richness are more successful for high perceived risk products, hence enterprises must utilise high richness media even when potential consumers are at the later stage of AS. When the context of mobile commerce is taken into account, this research benefits marketers who are committed to employing a mobile advertisement strategy and helps to improve both the media richness theory and online customer behaviour.

Msweli and Mawela (2020)[82] performed a systematic literature review to understand the facilitators and impediments to older people in developing nations using mobile for banking services. Security issues, trust and privacy issues, a lack of personalisation, and the elderly's inadequate technological expertise are among the key challenges mentioned in the literature. Considerable facilitators include perceived value, consumer attitudes, perceived value of mobile banking applications, and perceived convenience.

Using an extended version of the technology acceptance model (TAM) theory that incorporates variables of personality traits like perceived enjoyment and computer self-efficiency, Nabipour Sanjebad, Shrestha, and Shahid (2020)[83] conducted a study among Malaysian university students to identify the extrinsic influential factors for the adoption of mobile learning. The study discovered that perceived usefulness, an extrinsic factor, had the greatest impact on students' desire to adopt mobile learning. Perceived satisfaction and self-efficacy are personality traits that affect behaviour intention to adopt mobile learning.

Using the stimulus-organism-response (SOR) paradigm and a mixed-methods approach, Shah et al. (2020)[84] examined the effects of various aspects of mobile dining on consumers' valuations and subsequent purchasing decisions in Indonesia. The impact of restaurant type as a moderator is also investigated. The results of the study were analysed using structural equation modelling. The results show that the navigation system, food quality, service quality, and review valence all play important roles in customers' evaluations of value. The value that customers place on a product or service has a direct and beneficial effect on their propensity to buy.

The results also show that different types of restaurants have distinct effects on consumers' valuations of factors like review valence, navigation ease, meal quality, and service quality. By evaluating the existing literature and speaking with subject-matter experts, Nayal and Pandey (2020)[85] created a framework for assessing the utilisation intention of digital coupons. The framework emphasises that the main factors affecting the intention to use digital coupons are search intention, coupon proneness, and perceived coupon value.

Camoiras-Rodriguez and Varela (2020)[86] examined how perceptions of usefulness and ease-of-use affect mobile shopping intention for the two personality qualities of value consciousness and shopping enjoyment. Path analysis is employed to test the conditioned indirect effects. The findings show that consumers' value consciousness and enjoyment of shopping both have a favourable indirect impact on their intention to purchase on mobile devices. However, value consciousness is associated through both usefulness and ease of use, shopping enjoyment is related exclusively through usefulness.

Talwar et al. (2020)[88] studied the effect of initial trust on mobile-payment continuation. The present study integrated the Information Systems Success (ISS) model, Transaction Cost Economics (TCE) theory, and the IT Continuance Model to propose a two-step framework that includes pre-adoption factors like initial trust and post-adoption factors like confirmation, perceived usefulness, satisfaction, and continuation intention toward mobile-based payments. The framework is tested using cross-sectional data from first-time mobile-wallet users. Information and service quality significantly affect initial trust, which positively affects confirmation and perceived utility. A positive correlation between perceived usefulness and continuance intention was also seen in the results.

Based on the Innovation Resistance Theory (IRT), Kaur et al. (2020)[89] did a study to examine the acceptance and use of mobile payment solutions (MPSs). The results of the study show that usage barriers, risk barriers, and value barriers all make people less likely to use MPSs. On the other hand, users are less likely to recommend MPSs when usage and value barriers are present. Tradition and image barriers, on the other hand, had nothing to do with what the user wanted.

Talwar et al. (2021)[90] explores enablers and inhibitors of mobile wallets (m-wallets) as word-of-mouth antecedents (positive and negative; PWOM and NWOM, respectively). This study examines consumers' continuing use intentions based on WOM valence using Dual Factor Theory. Perceived information quality, ability, and benefit drive PWOM, while cost, risk, and uncertainty drive NWOM. Moreover, only PWOM drives m-wallet customers' retention intentions. The study shows that PWOM antecedents differ from NWOM.

Malik and Annuar (2021)[91] investigated the elements influencing consumers' intentions toward using electronic wallets, particularly among young people. The variables being utilised to determine the links with customers' intentions to use e-wallets in Malaysia include perceived usefulness, perceived ease of use, perceived risk, and perceived reward. To build the conceptual framework, the technology acceptance model (TAM) was used. The findings demonstrate a direct relationship between perceived utility, perceived ease of use, and perceived reward and intention to use an electronic wallet.

Perceived risk does not, however, directly influence one's inclination to use an electronic wallet. The effect of mobile shopping service quality on customer satisfaction and loyalty in the UK fashion clothing business has been researched by Omar et al. (2021)[92]. Efficiency, fulfilment, responsiveness, and contact are the four elements of mobile shopping service quality that the study supported. The quality of mobile shopping services has a substantial impact on client satisfaction, which in turn affects loyalty, according to SEM results. When controlling for gender, age, income, the cost of the clothing item, and m-shopping experience, only the dimension efficiency shows a direct effect on loyalty via satisfaction.

In order to understand generation Z's intention to adopt m-commerce among university students in Northern India, Verma, Tripathi, and Singh (2021)[93] used a modified version of the TPB model. The study's findings revealed that all three independent constructs, namely subjective norm, attitude, and perceived behavioural control, have a positive influence on generation Z's behavioural intention to adopt m-commerce. In addition, when compared to the female subgroup, the male subgroup has a lower beta value for attitude and a greater beta value for subjective norm. There was no discernible difference in beta value across gender for perceived behavioural control.

Varzaru et al. (2021)[94] employ a modified version of the technology acceptance model to look at the influence of antecedents on m-commerce consumers' behavioural intentions (BI) and the part that satisfaction plays in the purchase decision-making process. Structural equation modelling and cross-tabulation of the collected data confirmed that PU and PEU positively affect BI. Satisfaction has a major influence in the adoption of m-commerce and has a favourable effect on the intention to use the service in the future. The findings also revealed significant generational and gender disparities in behavioural intention, with the younger generation and male respondents being more likely to engage in m-commerce.

Another study conducted by Anwar et al. (2021)[95] revealed that value generation factors affecting technology adoption was found to have a positive effect on value while risk and cost have a negative impact. Innovativeness played a moderating role between generating value and actual usage.

In the context of m-commerce in China, Yang, Tang et al. (2021)[96] investigate the role that customers' perceived values (utilitarian and hedonic values) have in influencing Impulse buying behaviour (IBB). In addition, the researchers hypothesised that interpersonal influence acts as a moderator and investigated whether or not it moderates the association between consumers' valuation of something and their intention to buy it. Customers' perceptions of hedonic value have a direct and substantial effect on their IBB, and the results revealed that environmental stimuli greatly affect consumers' perceptions of utilitarian value. Furthermore, IBB is highly impacted by the interaction effect of perceived hedonic value and interpersonal influence.

Manchanda and Deb (2021)[97] studied the effect of Augmented Reality (AR) and anthropomorphism on the attitude of consumers and m-commerce adoption intention, results showed that anthropomorphizing of AR-mediated m-commerce has a remarkable positive effect on the confidence of consumers and their perception towards innovativeness leading to m-commerce adoption in India.

Sankaran and Chakraborty (2021)[98] conducted a study to determine the variables influencing Indian customers' use of mobile banking. The research uses the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2), which incorporates the moderating effects of gender along with Social Value, Monetary Value, Emotional Value, Quality Value and Trust. The conceptual model was experimentally validated using SPSS AMOS, which was also used to assess the study hypothesis and the moderating impact. Performance expectancy and social value were not shown to be significant determinants in behavioural intent, but effort expectancy, monetary value, emotional value, quality value, and trust were.

Manchanda, Deb, and Lomo-David (2021)[99] studied how branded app quality fights perceived counterfeit deceit and engenders trust in an emerging market. Information quality, system quality, and service quality of branded apps negatively affect perceived counterfeit deception, and information quality and system quality positively affect consumers' trust in the supplier. System and service quality have higher effects on perceived counterfeit deception than on trust, but information quality has a stronger effect on trust. Consequently, the research demonstrates that high-quality information is a sales enabler and that high-quality services and systems are sale qualifiers in the context of counterfeiting. The immediate detrimental impact of deceit on willingness to buy appears to outweigh the beneficial impact of trust.

Uzir et al. (2021)[100] did a study in Bangladesh to look into how customer satisfaction is affected by the service quality of home delivery staff and perceived value, with trust playing an intermediary role. Partial least square structural equation modelling (PLS-SEM) with the Smart PLS tool was used to analyse the conceptual model, and the results showed that service quality, customer perceived value, and trust affected customer happiness. Trust served as a partial mediator in the relationships between service quality and customer satisfaction as well as between perceived value and contentment. By extending the SERVQUAL model to include perceived value in the presence of trust and adhering to expectation disconfirmation theory, the findings help to construct and validate a trust-based satisfaction model.

In order to learn more about Bangladeshi consumers' views toward and intentions to use Mobile Financial Services (MFS), Himel et al. (2021)[101] performed a study. Partial least squares (PLS) path modelling was used for data analysis. To validate the findings, this research combined the Innovation Resistance Theory (IRT) and the Technological Acceptance Model (TAM). The authors discovered that customers' opinions regarding the adoption of MFS are positively influenced by perceived usefulness (PU), perceived ease of use (PEOU), and perceived trust (PT). Furthermore, acceptance barriers had a negative impact on consumers' attitudes and usage intentions.

Wu and Ho (2021)[102] looked into how consumer views of live chat usage in mobile banking in Taiwan were influenced by technology features and user beliefs. A research model integrating three technological aspects of mobile chat (mobility, reachability, and convenience) with user attitudes concerning performance expectancy, effort expectancy, and facilitating conditions was constructed. It was also determined how attitude affected the link between intention and its predictions. With the use of information gathered from m-banking users, the proposed model was assessed. The findings imply that reachability and convenience affect performance expectancy whereas all technical factors have an impact on effort expectancy. Customers' attitude depends on the three constructs of user beliefs, whereas their attitude depends on effort expectancy and enabling conditions.

Rialti et al. (2022)[103] explored gamified advertising and in-app purchases using Use and Gratification Theory (UGT) and Theory of Planned Behaviour (TPB). The focus was on how Gamified Advertising (GAMEX) could contribute to consumers' benefits, attitude and intention to purchase using a mobile app. The data tested using a structural model indicated how gamification-induced experiences can boost in-app purchases. Perceived consumer benefits, advertising attitude, and advertising effectiveness influence this relationship. Gamified advertising can be effective if it fosters social, personal, hedonic, and cognitive benefits and is viewed cohesive with the promoted product/brand pair. The important predictors of satisfaction in m-commerce were researched by Kalinic et al. (2021)[105]. The findings, which were based on a combination of structural equation modelling (SEM) and artificial neural network (ANN) analysis, showed that trust and mobility were the most important factors in m-commerce that affected consumer satisfaction.

Using the unified theory of acceptance and use of technology 2 (UTAUT2) in Iran, Farzin et al. (2021)[106] looked at the key elements that contribute to the behavioural intentions of customers to use mobile banking. Results point to a number of factors as supporters of M-banking adoption intention, including performance expectancy, effort expectancy, social influence, facilitating conditions, habit, hedonic incentive, perceived value, and trialability. M-banking adoption intention also positively affects actual use and word-of-mouth (WOM). WOM has influenced real usage behaviour and mediated M-banking adoption intention and actual use.

Su et al. (2022)[107] examines the influence of technology acceptance model (TAM) variables, mobile service quality (M-SERQUAL) elements, personalisation, and privacy in improving customers' trust and loyalty towards mobile food delivery apps (MFDAs). Data was analysed using PLS-SEM. TAM (ease of use and perceived utility), M-SERQUAL (interface quality, interaction quality, and information quality), and personalisation were favourably correlated with consumer trust in MFDAs, which was positively related to customer loyalty. Trust mediates the impacts of TAM, M-SERQUAL, and personalisation on customer loyalty. The relationship between privacy and consumer loyalty was not mediated by customer trust.

Yu and Huang's (2022)[108] research examines users' desire to play games on mobile commerce platforms as well as how gamification techniques affect users' desire to make purchases via mobile platform. This study's foundation was the perceived value theory, and a structural equation model was used to evaluate the data. According to the study's findings, utilitarian value, hedonistic value, and social value are all positively connected with game use intention, and investing less time or effort has a similar beneficial impact. Women are more drawn to these games. Users' intentions to make purchases on a mobile commerce platform are positively connected with the usage rate of games and the average monthly spending amount on the site.

Tseng, Lee, Huang, and Yang (2021)[109] integrated an e-commerce systems success (ESS) model, sales promotion benefits, and parasocial interaction literatures to study customer reuse intention of mobile shopping apps. The data analysis was conducted using the structural equation modelling and the results indicate the validity of the ESS model in predicting consumers' reuse intention of mobile shopping apps where three quality dimensions of system, information and service facilitate both perceived value and user satisfaction, which in turn generates reuse intention. Furthermore, savings and entertainment denoting the utilitarian and hedonic sales promotion benefits have positive impact on perceived value but have no influence on satisfaction. Parasocial intention between consumers and sellers facilitates both value perception and satisfaction.

Tripathi, Srivastava, and Vishnani (2022)[110] used extended TRA with "intention to recommend" as a logical consequence of "usage intention" for mobile wallets and the study was done among brick-and-mortar shops to evaluate the antecedents as well as effects of utilising mobile wallets. The model includes attitudes and subjective norms that influence how useful people perceive mobile wallets to be and how likely they are to utilise them. Additionally, it shows that perceptions of cost and trust have opposite effects on users' intentions to use mobile wallets. Results show that users' propensity to promote mobile wallets is positively impacted by their intention to use.

As banks have embraced artificial intelligence (AI) tools to further the development of mobile banking applications, Lee and Chen (2022)[111] investigated users' adoption intentions for those applications (apps). Perceived intelligence and anthropomorphism are two AI characteristic constructs that are taken into consideration as stimuli under the stimulus-organism-response (SOR) theory. The study then created a research model to examine how task-technology fit (TTF), perceived cost, perceived risk, and trust (organism), which in turn influence consumers' adoption of AI mobile banking apps, are impacted by intelligence and anthropomorphism (response). Data investigation using the partial least squares method revealed that anthropomorphism and intelligence increase consumers' propensity to embrace mobile banking apps through task-technology fit (TTF) and trust. However, more anthropomorphism raises the perceived cost for users. Additionally, there are negligible impacts of IQ and anthropomorphism on perceived risk.

Tupikovskaja-Omovie and Tyler (2022)[112] conducted a study to compare experienced and novice smartphone shoppers by using Mixed-methods research involving eye-tracking and interviews. Comparing experienced and new customers revealed considerable disparities in shopping journey length, website utilisation, and problem areas. Users with less experience have higher expectations of a fashion retailer's website. User experience research and participant recruiting consider mobile consumers' prior use of businesses' digital buying platforms. This research can be used to evaluate current and potential customers' behaviour and to generate personalised shopping experiences on smartphones by feeding them into merchants' digital analytics database and marketing plan.

The intention of Malaysian youth to adopt m-Commerce has been investigated by Lim et al. (2022)[113]. The information demonstrates the connections between perceived utility, perceived ubiquity, perceived usability, perceived enjoyment, and intention to adopt mobile commerce. M-commerce service providers can better comprehend the significance of perceived enjoyment among young people thanks to the role of perceived enjoyment as a mediator in the model.

Using the Theory of Planned Behaviour extended with Perceived Risks (security-related) and Perceived Costs (cost to access the internet and cost to acquire equipment) as the theoretical framework, Sarosa (2022)[114] conducted a study among high school students to understand their behaviour in using online learning during the Covid19 Pandemic. Although perceived risks are thought to be a factor, its influence is rather small. Online learning is not affected by perceived costs.

In order to create engaging retail apps, designers need to have a firm grasp on what motivates shoppers. Parker and Lee (2022)[115] use statistical analysis to determine if m-Commerce attitude or motivation are more important than age and gender. Two-step cluster analysis reveals two groups based on attitude and motivation, and binomial logistic regression determines their shopping motivations. Age and gender have little impact on multichannel retail or app design. The researchers recommend avoiding gender preconceptions, designing apps based on attitude and motivation, and prioritising convenience over brand enthusiasm.

Misra, Mahajan & Singh (2022)[116] has sought to uncover the essential elements affecting m-commerce transaction decisions and explaining their relevance by employing UTAUT model dimensions in three specific areas: m-banking, m-ticketing, and m-shopping. Structured equational modelling was applied to analyse the causal connection between variables. The study revealed Perceived Expectancy and Effort Expectancy as the variables with highest impact; second is social influences on user’s behavioural intention to utilise m-commerce services.

3.3: REVIEW OF LITERARURE ON M-COMMERCE ADOPTION USING TAM

A cross country study using the extended TAM and Diffusion of Innovation (DOI) studied the major predictors of m-commerce acceptance and found that Malaysian consumer decisions can be predicted with trust, cost, social influence, and variety in services whereas for the Chinese consumers trust, cost and social norms impacts their decision to adopt m-commerce (Chong et al.,2012)[117].

Using TAM, m-payment adoption studies in in Thailand found that perceived ease of use, compatibility, perceived usefulness, perceived trust, social norms and perceived cost are major factors that contribute towards early adoption (Phonthanukitithaworn et al.,2015)[118].

A study based on TAM Model to find the m-commerce adoption intention show that social influence and customization remarkably affect perceived usefulness while mobility, customization and personal innovativeness affect perceived ease of use. Both perceived usefulness and perceived ease of use affects the behaviour intention positively (Kalinic and Marinkovic, 2016)[104].

A study regarding the drivers of m-commerce adoption among Vietnamese consumers using extended Technology Acceptance Model (TAM) by using factors like quality dimensions, personal innovativeness, playfulness and cost factors as antecedents showed that Vietnamese consumers are not in favour of paying for mobile commerce in spite of the usefulness and ease of use (Han et al., 2016)[119].

A study of m-commerce adoption factors using SEM-neural network approach by extending TAM through trust, mobility, customer involvement and customization and found that customization and customer involvement are the strongest antecedents of m-commerce adoption intention (Liébana-Cabanillas et al., 2017)[120].

Research studies on the use of m-shopping apps using extended TAM and DOI found personal innovativeness and perceived risk are the main factors affecting the intention to adopt m-shopping apps (Natarajan et al., 2017)[121].

A study to find the acceptance of Smart Retail Technology (SRT) among Australian consumers using extended TAM incorporating technology readiness, superior functionality and store reputation as variables found that perceived usefulness and perceived ease of use (TAM variables) helped in identifying technology acceptance in B2C retailing (Roy et al., 2018)[122].

In a similar study on m-payment adoption in India showed significant positive antecedents viz., self-efficacy, perceived usefulness and ease of use whereas subjective norms and personal innovativeness played no role in adoption decision of m-payment (Shankar and Datta,2018)[123].

The user's willingness in adopting m-payment services in Oman was studied using constructs like mobility, customisation, perceived usefulness, self-efficacy along with perceived trust and security. The research model using SEM-Neural network showed that except perceived usefulness all other constructs played a significant role in m-payment adoption among new and existing consumers (Sharma et al., 2019)[124].

Sujatha and Sekkizhar (2019)[125], using revised Technology Acceptance Model and Innovation Diffusion Theory, studied the m-commerce adoption factors in Indian context by including perceived cost, risk, compatibility, perceived ease of use, perceived usefulness, behavioural intention and actual usage. It was found that except cost all other variables have a positive impact on behavioural intention towards m-commerce.

Another study using variables like system trust, risk perception and the impact of socio-cultural factors explored m-payment usage intention and revealed that perceived ease of use, risk and perceived usefulness affect attitude while socio-cultural factors, system trust and attitude affect the usage intention (Bailey et al.,2020)[126].

To investigate the factors influencing actual usage of m-banking adoption, Tiwari and Tiwari (2020)[127] conducted a study using extended TAM (Technology Acceptance Model) constructs with perceived risk, perceived trust, and perceived financial cost. The results showed that perceived usefulness, perceived ease of use, perceived risk, and perceived trust found to be significant in adoption of m-banking adoption. The adoption of mobile banking was not significantly related to perceived cost.

Ashraf et al. (2021)[128] conducted cross-national research on m-retailing by examining how value dimensions influence m-shoppers' motivations, analysing the differential effects of hedonic and utilitarian motivations on intention and habit, and examining the competing roles of conscious (intentional) and unconscious (habitual) m-commerce use drivers across developed and developing nations. Based on data collected from m-shoppers in nine countries across four continents (Australia, Bangladesh, Brazil, India, Pakistan, Singapore, the United Kingdom, and the United States), the results demonstrate differential relationships: consumers at an advanced (early) readiness stage are more likely to be hedonism-motivated (utility-motivated) when using m-commerce and tend to use it intentionally/consciously.

Siji and Nelson (2021) [129]conducted a study with the aim of examining the variables that influence consumers' attitudes toward mobile advertising in India, with a focus on personalisation. Regression and SEM analysis results showed that personalisation, entertainment, irritability, and informativeness have a considerable impact on attitude, which in turn has an impact on the intention to buy. Credibility, however, was shown to have no discernible effect on attitude.

Wan et al. (2021)[130] studied the antecedents of mobile tourism shopping (MTS) using an integrated model consisting of the Mobile Technology Acceptance Model, consumer perception of merchant ethics, consumer decision-making styles, and mobile application characteristics. The PLS-SEM-ANN approach was used to empirically validate the results. The results showed that while privacy concerns have shown a strong negative link with the intention to use MTS, mobile usefulness, mobile simplicity of use, application quality, and service quality had substantial positive relationships with that intention. Furthermore, it was discovered that factors including source credibility, app repute, perfectionism, and novelty-fashion awareness had no statistically significant impact on the evolution of adoption intention toward MTS.

In the expanding Romanian market, which has the fourth-fastest internet speed in the world, Vinerean et al. (2022)[131] did a study on the impact of the COVID-19 pandemic on customers' shopping habits and their behavioural intention to rely on mobile commerce. The research verifies the applicability of UTAUT2 in evaluating customers' behavioural intent to use mobile commerce during a pandemic by utilising confirmatory factor analysis and structural equation modelling. The best indicator of whether consumers will continue to use mobile commerce is hedonic motivation.

Another investigation into how the COVID-19 epidemic has affected Malaysian youth's adoption of mobile commerce was conducted by Lim et al (2022)[113]. The information has shown the connections between perceived utility, perceived ubiquity, perceived usability, perceived enjoyment, and propensity to adopt mobile commerce. The model's inclusion of perceived enjoyment as a mediator gave m-commerce service providers insight into the significance of perceived enjoyment among young people.

Wen et al. (2022)[132] develop an integrated model to investigate what factors contribute to consumers' on-going engagement with m-commerce apps by drawing from the existing literature on consumer behaviours in the context of mobile commerce (m-commerce) and integrating expectation confirmation theory and motivation theory. PLS-SEM analysis of the data reveals three broad classes of motivators, each with numerous dimensions, that significantly impact confirmation of utilitarian and hedonic expectations, respectively. The confirmation of utilitarian expectations is positively affected by extrinsic value (i.e., convenience, efficiency, and informativeness), hedonic expectations are positively affected by intrinsic value (i.e., value motivation, role motivation, adventure motivation, gratification motivation, and idea motivation), and social value (i.e., social motivation, subjective norm, and critical mass) is positively affected by confirmation of both utilitarian and hedonic expectations.

Using the stimulus (S), organism (O), and response (R) framework, Japutra et al. (2022)[133] investigated the factors that influence customer engagement behaviour with mobile commerce applications (m-commerce apps). Four aspects are used to construct customer engagement: co-developing, influencing, enhancing, and mobilising behaviour. According to this study, perceived difficulty and relative advantage have a favourable impact on customers' sense of enjoyment and control, which raises their level of engagement. The relationship between perceived relative advantage, perceived challenge, and three customer engagement aspects was also found to be mediated by customers' perceived enjoyment (i.e., co-developing, influencing, and mobilising behaviour).

The intention and adoption of mobile shopping among Malaysian customers were studied by Chan et al. (2022)[134] in relation to ubiquitous connection, service quality, system quality, perceived utility, perceived ease of use, and perceived enjoyment. The results showed that customers' behavioural intention to adopt mobile shopping was significantly and positively influenced by ubiquitous connectivity, perceived utility, perceived ease of use, and perceived enjoyment, however service quality and system quality had little bearing on their adoption intention. The findings showed that during the COVID-19 lockdown, customer behavioural intention had a more substantial impact on the adoption of mobile commerce.

The results also showed that the link between ubiquitous connectivity, perceived usefulness, ease of use, and enjoyment on the adoption of mobile shopping was mediated by intention to adopt mobile shopping. Asampana, Akanferi, Matey, and Tanye (2022)[135] examined how Ghanaian artisans are integrating mobile commerce into their day-to-day operations and how age, gender, expertise, and educational level affected their decision to adopt and use m-commerce. They also examined how perceived usefulness, perceived ease of use, and subjective norms affected their decision. Age, educational attainment, perceived usefulness, expertise, attitude, and behavioural intention all demonstrated significant effects on the adoption of mobile commerce, with the exception of gender, perceived ease of use, and subjective norms, which did not.

3.4: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERCEIVED COST ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

Perceived cost with respect to m-commerce is the perception of an individual that m-commerce services are not affordable due to the costs related to fees, device, subscription, download of application, communication and upgrade cost (Zhang et al., 2012)[136]. Several studies have mentioned the relevance of perceived cost in m-commerce adoption and its continuation intention (Wu and Wang, 2005[19]; Chong et al., 2012[116]; Wei et al., 2009[45] and Han et al., 2016[115], Ntsafack Dongmo, 2020[134]; Talwar et al., 2021)[90]. A study on the intention to adopt m-commerce using perceived risk and cost through TAM by Wu and Wang (2005)[19] proved that both have considerable influence on B2C m-commerce adoption intention. Studies related to the impact of factors affecting usage and acceptance of mobile internet among Korean people found that apart from TAM variable, factors which affect adoption are perceived price level and perceived playfulness (Cheong and Park, 2005)[138].

A study in Malaysia revealed that perceived usefulness, social norms, perceived financial cost and trust except perceived use of use, have a significant effect on the behavioural intention of consumers in m-commerce adoption (Wei et al.,2009)[45]. While the perceived cost was the major factor in China it was not so in USA as the purchasing power and spending power among American consumers were high as compared to China (Dai and Palvia, 2009)[139]. Only lower cost can improve the rate of adoption of m-commerce as cost was found to be an important reason for slowing down the adoption of m-Commerce (Khalifa and Shen,2008[140]; Wei et al.,2009[45]; Anwar et al.,2021[95]).

Bouwman et al. (2007)[141] conducted a study in Finland, found that the impact of cost is much more than privacy and security issues in mobile commerce adoption. Kuo and Yen (2009)[142] studied the behavioural intention to use 3G services based on perceived cost and found that it affects adoption intention decision significantly (Zhou, 2011)[143]. Among Chinese and Malaysian consumers, cost was an important element in predicting adoption of m-commerce services (Wei et al., 2009[45]; Zhang et al., 2012[136]; Chong et al., 2012[116]).

Kuo and Yen (2009)[142] studied the behavioural intention to use 3G services based on perceived cost and found that it affects adoption intention decision significantly (Zhou, 2011)[143]. The cost of communication and transaction in terms of fees affect m-commerce adoption in case of SMS (Lu, Deng and Wang,2010)[144] which could be negated through rationality in price fixing which will improve the data usage (Shin et al., 2018)[146].

A study conducted by Venkatesh et al. (2012)[12] revealed that consumers intention to adopt and use a new technology or innovation depends on the perceived cost and the structure of pricing. High usage cost (Kuo and Yen 2009)[142] affects the users' satisfaction and the intention to continue thereby leading to increased tendency to complain by consumers and they would restrain themselves from recommending m-commerce services to others (Chong, A. Y. L., 2013a[147], Anwar et al., 2021[95]).

People with low incomes will use m-commerce if they trust the service provider/m-commerce vendor and their decisions aren't based on social norms or how safe they think they are (Dakduk, Santalla-Banderali, and Siqueira, 2020)[73]. Whereas some studies show that perceived cost is not a major factor that inhibit adoption decision as found in a study conducted by Sarosa (2022)[110] among high school students to better understand their behaviour with online learning during the Covid19 Pandemic supports the idea that perceived cost is not a major factor that inhibits adoption decision. In a similar study, Tiwari and Tiwari (2020)[123] found that adoption of mobile banking was not significantly affected by perceived cost.

Consumers' willingness to pay for the variety of services in m-commerce depends on the cost factor among young consumers especially students, who are more sensitive to price than the privacy and security issues which affects m-commerce adoption (Chong et al., 2010a)[148]. Research findings revealed that cost and consumers intention to adopt m-commerce services are inversely proportional. In fact, the cost factor is major deterrent compared to privacy and security issues in adopting m-commerce services. With respect to 3G services adoption intention, cost has a negative impact (Chang,2013)[149] and cost (Al-Saedi et al., 2020)[72] and security are the main factors which negatively impact B2C m-commerce adoption (Agarwal et al., 2007[151]; Ong et al., 2008)[152] which can be overcome by providing varied application to users to interact with it (Chong et al,2012)[116]. Pricing played an important role in Vietnam since Price sensitivity of people were found to be high in purchase decisions (Han et al.,2016)[119]. The study conducted by Tiwari, P., & Tiwari, S. K. (2020)[127] opined that cost is not an important factor in mobile banking adoption.

3.5: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERSONALISATION ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

Customization and personalization of m-commerce services has been found to have a positive impact among consumers (Yeh and Li, 2009)[153] which becomes a motivating factor with increase in loyalty towards their respective service providers (Wang and Li, 2012)[153]. Studies have revealed that customization of m-commerce services leads to improvised design of mobile interface thereby leading to increased use of mobile based services and satisfaction among consumers thereby positively affecting m-commerce adoption (Venkatesh et al., 2003)[6]. This is because of reduced cost through personalisation leading to direct distribution and gives them a chance to compare with other similar products. Retailers are able to personalise communication through promotional offers and coupons at customers location (Taylor and Levin 2014[155]; Khajehzadeh et al., 2015[156], Morosan and DeFranco 2016b[157]) which show the relevance of personalisation in m-commerce transactions. Personalisation reduces cost, improve the level of satisfaction and also help in direct distribution (Morosan and DeFranco, 2016b)[157]. Siji and Nelson (2021)[129] studied how personalization affects Indian customers' opinions about mobile advertising, SEM analysis demonstrated that personalization affects attitude, which affects buying intention. The geographical location-based data of consumers helps retailers to know the consumers regional preferences and send varied offers when consumers visit a physical store (Zubcsek et al.,2015)[158]. The demographic data collected by the retailers when a consumer engages in an online purchase helps them to customise offers through personalised messages which saves the consumer's time during navigation (Melumad et al., 2015)[159].Receiving of personalised coupons and other promotional offers and details regarding product with it reviews and a chance to compare with similar products, all these steps played a major role in ensuring better m-Commerce adoption in retail sector (Tyrvainen and Karjaluoto, 2019)[59]. Personalisation and customization based on consumer's needs, habits, lifestyle and past practices leads to m-Commerce adoption, satisfaction and also affected their intention to continue with the services (Tyrvainen and Karjaluoto, 2019)[59].Several researchers have found that personalization and customization of services have a strong positive impact on customer satisfaction, adoption of m-commerce services (Morosan and DeFranco,2016b)[157] and intent to continue usage (Ooi and Tan,2016[160]; Liébana-Cabanillas et al., 2017[120] Morosan and DeFranco, 2016b[157]).

Ooi and Tan (2016)[160] investigated the impact of mobile device compatibility on perceived usefulness and discovered a strong link between the two factors in m-payment uptake. Researchers (Kim et al., 2010[161]; Slade et al., 2013[164]; Cobanoglu et al., 2015[52]; Ozturk et al., 2016[165]) looked at product compatibility as a way to forecast a customer's willingness to adopt mobile services based on their needs, lifestyle, habits, values, and previous experiences.

3.6: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PRIVACY ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

Privacy in the context of m-commerce is about the concerns which consumers have regarding safeguard of their personal data in terms of unsolicited messages from online marketers and keenly observing the shopping pattern and behaviour of the consumers through the internet (Limbu et al., 2011)[166]. There is an inherent fear among consumers while in the pursuit of mobile commerce activities using smart phones, the sensitive information like, serial number of the device used, details regarding Subscriber Identity Module (SIM) card details, location, lifestyle, social behaviour, shopping preferences and behaviour patterns (Chen et al.,2013)[167]. Though personalisation is aided by location based one to one service, consumers are often wary that their data can be misused and therefore consider it to be a privacy invasion (Xu and Gupta,2009)[168].

Analysis of research studies of consumers (those who use mobile phone for their purchase) through a cross-cultural approach towards m-commerce privacy in United States and Korea revealed that the Koreans were more involved in m-commerce activities than their US counterparts. The US consumers on the other hand were first concerned about their privacy issues as their income and purchasing power were not a barrier for m-commerce indulgence whereas the m-commerce adoption decision among Koreans depended on income and purchasing power, not on privacy aspects (Chen et al., 2013)[167].

Any individuals have a right to speak with respect to their personal data in terms of collection, use of their personal information and exchange or transfer to other service providers engaged in m-commerce (Belanger and Crossler,2011)[169]. Though m-commerce agencies do access and use the consumers personal data but when it goes against the interest and willingness of the consumer, they tend to raise alarms against the misuse by the m-commerce companies and this deters the consumer to abstain from further m-commerce activities using their mobile devices (Chen et al., 2013)[167].

Even though consumers give away their personal details to m-commerce retailers they strongly expect that shared data remains confidential with the m-tailers and not transferred to a third party (Miyazaki and Fernandez, 2001)[170]. Many studies pointed out that what restrains consumers from engaging in m-commerce aggressively are the privacy and security issues and creates a road block toward adoption of e-commerce (Miyazaki and Fernandez, 2001[170]; Turner and Das Gupta, 2006[171]; Wang and Head, 2007[172]; McCole et.al., 2010[173] and Antoniou and Batten,2011[174]). Previous studies have proved that privacy of the user and trust are positively related to m-commerce adoption especially in m-wallet adoption (Amoroso and Magnier,2012)[175] and confidentiality is important in developing trust among consumer and also for consumer retention (Siau and Shen,2003)[176]. Other researchers have also stressed that service providers instead of focussing only on the privacy and security aspect of payment system, need to engage the consumers in instilling the trust component in them regarding m-commerce (Kim et al.,2010)[161] and if service providers who display their non-compromising policies on their websites have developed the trust in a positive manner towards adoption of m-commerce (Mogenahalli et at.,2008)[177], then privacy issues can be overcome to some extent.

Many studies have pointed out that the concerns regarding the consumers privacy impacts the usage and adoption of m-commerce in a big way as it can affect their attitude towards m-commerce adoption (McCole et al.,2010[173]; Antoniou and Batten,2011[174]; Chen et al., 2013[167]., Arpaci 2016[180]; Zhang et al.,2018[181]; Sarkar et al.2020[63]; Abdallah et al.,2020[69] and Bailey et al. 2020[126]).

3.7: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERCEIVED TRUST ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

The basic human component that decides the consumers attitude and the intention to adopt m-commerce is trust which has over the time evolved from a firm set of beliefs and plays an important role in the construct of consumers perception (Flavian et al., 2006[182]; Wei et al., 2009[45]; Kaushik et al., 2015[183], Abdallah et al., 2020[69]; and Al-Saedi and Al-Emran, 2021[150]). The trust component in m-commerce is the deep-rooted faith of the consumers in the service provider regarding integrity, technical expertise and execution of aspirations, commitments, and promises regarding any transaction related to m-commerce in the best interest of the consumer. (Mayer et al.,1995[184]; Palvia, 2009[185]; Cao et al., 2018[187]; Marinkovic et al.,2020[188]). Previous studies have analysed both the antecedents (influence of different factors on trust) as well as consequences (influence of trust on behavioural intention) in m-commerce adoption studies (Al-Jabri, 2015[189]; Nel and Boshoff, 2017[190]; Chin et al.,2018[191]; Hajiheydari and Ashkani, 2018[193]; Ofori et al., 2018[195]; Silic and Ruf, 2018[196] and Zhou, 2011[143]).

Trust is an indelible part of all m-commerce transactions (Morgan and Hunt, 1994[197]; Ranaweera and Prabhu, 2003[199]) and is an important factor in quality of service rendered (Parasuraman et al.,1985)[198], customer loyalty (Gremler and Brown, 1996[200]) and user satisfaction (Lin and Wang, 2006[41]) and therefore needs to be an impetus in developing it (Bejou, Ennew and Palmer, 1998)[201].

Establishing steadfast trust on m-commerce also depends on the visual appeal and the navigational structure of the system (Vance et al., 2008)[202]. Customers when they experience integrity and honesty in transacting through websites (Pavlou, 2003)[186] develop better and long-lasting relations between them and the merchants (Gefen et al., 2003)[203]. Trust development also depends on the expectations from service providers which are to be met by them (Garbarino and Johnson, 1999[204]; Wang et al.,2015[202]) and the belief that m-commerce merchants would not divulge their personal and financial details (Siau and Shen, 2003)[175] has to be restored. Tracking location and transaction history details helps in better quality offers and thereby increase the consumers online engagement as well as trust with the service providers (Wang et al.,2015[209]; Sun and Chi,2018[56]).

The most contributing human factor in e-commerce (Wei et al., 2009[45]); m-Commerce (Chong, 2013a[147]; Wei et al., 2009[45] and Chong et al.,2012[116]); m-shopping (Gao et al., 2015)[206]; m-banking (Wang et al.,2015[207]), mobile wallet (Shin, 2009[208]) and m-payment (Cao et al., 2018[187]) is the perceived trust as it motivates the consumers to disclose their financial and personal details while engaging in m-commerce.

Trust and online adoption intention of e-commerce have a positive correlation (Gefen et al., 2003[203]; Chiu et al., 2010[209]; Kim et al., 2012[210]) and has been found to play a major role during the initial and subsequent stages of adoption (Gefen, 2000[211]; Mallat, 2007[42]; Chandra et al., 2010[212]; Sankaran and Chakraborty, 2021)[98]. m-commerce studies point out that customers develop positive attitude towards the company's service if they trust their website and mobile apps (Alsajjan and Dennis 2010[213]; Kaushik et al.,2020[214]). Trust has a significant role in adoption of technology enabled services since it reduces the risks involved thus prompting consumers to adopt such kind of services (Al-Saedi and Al-Emran, 2021)[150].Trust plays a major role during online mode compared to the offline mode (Kwon and Lennon,2009[215]; Kim et al.,2011)[216] especially during mobile financial transactions (Kim et al.,2010[161]; Zhou,2011[143]; Duane et al., 2014[217]; Arvidsson, 2014[218]; Shankar and Dutta,2018[123]) as this leads to consumers disclosure of financial and personal data and they rest their faith on the service providers and their products to take care of all pertaining issues with benevolence and care (Kim et al.,2011[216]; Kaushik et al., 2015[219]; Marriott and Williams,2018[57]; Kaushik et al.,2020[214]). The initial stages of m-commerce adoption require a strong trust foundation on the agency and the channel (McKnight et al.,2002[220]; Pavlou,2003[186]; Wozniak,2015[221], Movahedisaveji and Shaukat,2020)[223]. In a study by Hernandez-Ortega, B. (2011)[224] with regard to post-use trust in e-invoicing said that acceptance of technology by consumers is affected by perceived ease of use, security and manager's attitude. In another study, the same researcher has reiterated that perceived risk and perceived trust impacts the consumers attitude and intention to adopt in a big way. In relation to behavioural intention study, Wang et al., (2015)[207] analysed the influence of trust in mobile banking services using constructs like situational normality, structural assurances, m-commerce familiarity and calculative based trust. It was found that there is a positive relationship between trust disposition, trust antecedents with trust as well as the relationship between trust and behavioural intention.

A study conducted through structural equation modelling (SEM) techniques regarding the consumers trust antecedents related to adoption of mobile apps in the retail sector revealed that perceived usefulness, ease of use, quality and the reputation of organizations significantly affects m-commerce adoption but the inclination to adopt is not affected in a major way (Kaushik et al., 2020)[214].

In order to assess the factors that contribute to consumers' trust in mobile commerce, Khaw et al. (2022)[225] employed a hybrid three-stage Fuzzy Delphi-Structural Equation Modelling (SEM)-Artificial Neural Network (ANN) strategy. The Fuzzy Delphi method confirmed the five dimensions of resistance to innovation (use barrier, value barrier, risk barrier, tradition barrier, and image barrier). On the other hand, the PLS-SEM method's results corroborated the link between social presence and positive attitudes toward and trust in m-commerce. When people's interest in and use of mobile commerce was piqued by its apparent novelty, the social present effect was at its strongest. Additionally, trust in m-commerce is related to the use of mobile wallets.

The mobile wallet acts as a mediator between the social present and attitudes toward and confidence in mobile payments. Last but not least, there was no attenuation of the correlation between wallet mediates and trust in m-commerce due to aversion to innovation. Conversely, the ANN approach revealed social support, the most important predictor of trust in m-commerce, along with social presence, resistance to mobile wallets, and perceived novelty. Using ideas of social presence and social support, the model forecasts a 94.80 percent rate of trust in mobile commerce. Trust was the most important attribute among Chinese customers engaging in m-payment while perceived security, perceived ease of use and perceived ubiquity were the contributing factors in trust build up among consumers (Zhou, 2011)[143]. Perceived security (in initial adoption) and Information and service quality (influence their intention to continue with the service) played a major role in building up the trust among consumers to adopt m-payment services (Zhou,2013)[226].

A study conducted in the m-payment context by Lu et al. (2011)[222] based on Trust transfer theory and valence framework found that trust is a key influencing factor on cross-environmental relationship and behavioural intention. Trust also plays a positive role in adopting technology-enabled services as it results in reduced risk prompting consumers to continue adopting such services. The attitude and the behavioural intention in m-payment adoption is largely influenced by trust. Trust also has a gender tilt as building up the trust component is more important for female customers as they play a larger role in m-payment as compared to their male counterpart (Lu et al., 2011)[222]. Liebana-Cabanillas et al. (2014)[226] confirmed the role of trust in affecting attitude and behavioural intention towards m-payment adoption and gender do play a major role as trust building was essential for female consumers (due to high impact) than their male counterpart. Trust, trust antecedents and trust disposition have a positive correlation towards mobile banking. Studies by researchers (Wang et al., 2015)[207] have reinforced the fact that trust component is the linking factor between antecedents and intention to adopt mobile banking through mobile apps (Harris et al., 2016)[228] and further reiterated by Movahedisaveji and Shaukat (2020)[223] as these studies found that trust is the binding factor between brand app antecedents (word-of-mouth, perceived image, subjective norms, self-efficacy and perceived ease of use) and purchase intentions. Even though the element of security risks looms large in the consumers' minds (Chong, 2013a)[147], trust mediates to overcome the fears (Yang et al., 2015)[288] by creating a feeling that technology comes handy and motivates them to adopt mobile banking (Bailey et al.,2020)[122] but poor interface design of mobile phones (Lee and Benbasat, 2003)[229] and network quality (Siau and Shen, 2003)[175] issues hinder and slows down the trust build-up towards m-commerce.

In similar study, it was found that performance expectancy and perceived risk are affected by trust and this in turn affects behavioural intention (Luo et al., 2010)[230]. Constant and consistent interactions with consumers can help trust build-up to an appreciable, constant level. Trust can also be developed progressively with trust related knowledge-based interaction with consumers (Lewicki & Bunker, 1995)[231].

If trust disposition is positive, it will help in developing more trust on m-commerce adoption (Luo et al. 2010[230]; Wang et al., 2015)[207] and if it is negative it will lead to uncertainty or social complexity and increased perceived risk (Gao et al., 2015[206]; Cho et al.,2007)[232]. Lack of trust negatively affect the adoption of m-payment services (Daştan and Gurler, 2016[233]; Shankar and Datta, 2018)[123]. Trust was also considered as an important antecedent of perceived ease of use (Pavlou, 2003)[186], as well as perceived usefulness (Suh and Han, 2002)[234]. On the other hand, Alkhunaizan and Love (2012)[235] reported that trust has no impact on consumers' intention to adopt m-commerce. Zhang et al. (2012)[136] found that impact of trust on m-commerce behaviour intention had moderate significance in both western and eastern culture. Moderately significant influence of trust with attitude and indirect relation of trust with behavioural intention was found in a study related to purchasing ancillary service in air travel by Morosan (2014)[237].Some studies have established that trust has a remarkable bearing on perceived usefulness while its impression on perceived ease of use is marginal thereby affecting the behavioural intention indirectly (Zarmpou et al., 2012; Alkhunaizan and Love, 2014)[236] because users of m-commerce are concerned about security and privacy issues (Chong et al., 2012)[116].

Trust in m-commerce retailers and perceived trust on the transacting medium are two sides of the same coin of trust which is composed of credibility of the retailers, consistency in rendering services, competence in terms of customer needs and benevolence (Lin and Wang; 2006)[256]. Lack of trust hinders m-commerce adoption among consumers and it becomes vital for the m-tailors to pay continuous attention to their marketing strategies to engage and bring around more consumers to adopt online purchase (Tseng et al., 2011[238]; Wang et al., 2015[207]; Liébana-Cabanillas et al., 2017[120]; Rana et al.,2019[239] and Sarkar et al., 2020)[63]. What can reduce the trust in m-tailers is the non-implementations of regulations and penalty, one to one interaction being absent in online mode of transactions (Chong et al., 2010a)[148], breach in security with respect to m-payment (Zhou, 2011)[143], and internet speed and small screen size during mobile transactions (Wei et al., 2009[45]). These factors tend to affect adoption and intention to continue (Gao et al., 2015[206]; Nilashi et al., 2015[241]; Koster et al., 2016)[240] which can be overcome with better mobile apps, interactive websites with attractive visual appeal (Li and Yeh, 2010[251]; Rodríguez et al., 2019[270]).

Trust impacts the consumers intention to continue with m-commerce with satisfaction (Susanto et al., 2016[269]; Rodríguez-Torrico, 2019[270]). Trusted consumers develop positive expectation from other party (mobile retailers) who would fulfil their obligations (Cao et al., 2018[187]) and even exhibit readiness to be exposed to susceptibility (Mayer et al., 1995)[184]. Consumers who have a high level of trust prod them to disclose their personal and financial details irrespective of risk factor involved with m-commerce transaction (Gefen et al., 2003[203]; Kim et al., 2008; Deng et al., 2010[163]; Wu et al., 2012[145]; Slade et al., 2015[283]; Groß, 2016)[246] and if consumers doubt that m-commerce vendors are merely opportunists and not trustworthy then they become hesitant to indulge in online shopping activities (Hung et al., 2012[257]; Hong and Cha, 2013[178]; Marriott and Williams, 2018[57]).

Thus, trust play a very important role in m-commerce adoption studies (Gefen, 2000[211]; Hong and Cha, 2013[178]; Kim et al., 2013[280]; Amin et al., 2014)[179]. The relationship between trust with attitude was found in previous studies of m-commerce (Arpaci, 2016[180]; Cheung and To, 2017[335]; Fan et al., 2018[192]; Hajiheydari and Ashkani, 2018[193]; Jang and Lee, 2018[194]; Zhang et al., 2018[181], Sarkar et al., 2020)[63].
Study related to user behaviour of mobile applications in developing countries found that the consumers positive attitude towards adoption of technology increases as the trust level increases (Hajiheydari and Ashkani, 2018)[193]. Some researchers have found direct relationship between trust and behavioural intention (Hanafizadeh et al., 2014) whereas others have found indirect relationship (Koenig-Lewis et al., 2010)[259] between these two variables in mobile baking adoption studies.
Several studies have revealed that behavioural intention is an important outcome of perceived trust (Almaiah, 2018[258]; Gao and Waechter, 2017[276]; Verkijika, 2018[260]) but others could not find any such relationship (Koksal, 2016[244]; Farah et al., 2018[355]; Hajiheydari and Ashkani, 2018[193]). Moreover, the research studies further point out the varying results while trying to correlate trust with satisfaction and intention to continue. But many research studies have identified the correlation between trust and level of satisfaction, adoption and continuance intention (Cao et al.,2018[187]; Groß, 2016[246]; Marinkovic and Kalinic, 2017)[247].Yeh and Li (2009)[153] focussed on factors contributing to trust towards m-tailers and found that customisation, brand image and satisfaction affect the level of trust whereas poor interface design and poor internet speed with other inherent factors of mobile devices, refrain consumers from m-commerce adoption (Sarkar et al., 2020)[63].A meta-analysis study conducted by Sarkar et al., (2020)[63] revealed antecedents of trust include perceived usefulness and ease of use, system quality, information and service quality, user interface, structural assurance, perceived risk, ubiquity, perceived security and disposition to trust, whereas the consequences and outcomes include attitude, behavioural intention, user satisfaction and loyalty and all these factors have significant and a positive correlation with m-commerce.
Paying attention to aesthetics in designing websites in terms of content, security and privacy features for m-commerce contributes to trust building, leading to improved customization, perceived ease of use and perceived usefulness there by leading to increased m-commerce adoption (Li and Yeh, 2010)[255].
Factors like website design, content and security issues also played a significant role in developing trust in m-commerce (Nilashi et al., 2015)[241]. It also helps to tackle privacy and security issues (Ismagilova et al., 2020)[242] while performing wireless online transactions through trust building (Zhang et al., 2012[136]; Marriott and Williams, 2018[57]).
A positive attitude and the intention to adopt m-commerce depends on perceived trust (Zhou and Lu, 2011[143]; Hanafizadeh et al., 2014[243]; Koksal, 2016)[244] on the service provider which helps in fulfilling the expectations from the consumers leading to customer satisfaction (Jimenez et al., 2016[245]; Marinkovic and Kalinic, 2017[247]; Berraies et al., 2017)[248].

While perceived security has a direct bearing on trust, factors like privacy, localisation and perceived usability has an indirect effect on developing trust which leads to develop confidence consumers as well as retain the consumers (Al-khalaf and choe, 2020). Trust building was found to be indispensable in developing consumer confidence and consumer retention (Doney and Cannon 1997[249]; Jarvenpaa et al.,2000[250]; Li and Yeh 2010[251]). In wireless medium due to low resolution, limited memory and battery life (Li and Yeh 2010[251]; Mahatanankoon and Vila-Ruiz 2007[252]), poor band width and unstable internet connection and risks involved have reduced the consumers' level of trust (Siau and Shen 2003)[176].

Trust according to researchers can be categorised into hard trust and soft trust (Head and Hassanein, 2002[253]; Hillman and Neustaedter, 2017[254]). Hard trust encompasses safety features during online transactions, encryption, firewalls which protects consumers details (both personal and financial), soft trust talks about better services by vendors like user-friendly apps, content, product quality and credibility of the service providers or vendors (Luo, 2002)[255]. The hard and the soft trust when coupled together with rich content, better privacy and security ensures that consumers are attracted towards m-commerce and retaining the customer base would not be a herculean task (Siau et al., 2003)[176].

Trust aspect can never be ignored in m-commerce adoption studies as there is a significant correlation between these two (Wang et al., 2006[256]; Wei et al., 2009[45]; Zhang et al., 2012)[136]. Many studies have revealed the relevance of trust in mobile shopping adoption decision (Hung et al., 2012[257]; Chong 2013a[147]; Yang et al., 2015[288]; Verkijika 2018[260]) and revealed that increasing trust level reduces the perceived risk related issues while accessing these services (Blaise et al., 2018[55]; Yang et al., 2015[288]).

Hung et al. (2012)[257] opined that vendor with whom the consumers are satisfied, trust them and the vendors make efforts to sustain the satisfaction by meeting their expectation which in turn build trust on vendors and apps thereby motivating them to adopt m-commerce. Chong (2013b)[51] has stressed that educating customers towards safety and security precautions reduces risk during online transaction.

Trust on vendors and technology is essential for adopters as well as non-adopters. Consumers who have previous experience with m-commerce technology will have an impact on trust than those who have not adopted it earlier (Hernandez-Ortega, 2011)[224].

Apart from their inhibition is disclosing personal information (Marriott and Williams 2018[57]; Giovannini et al. 2015)[261] other inherent risk and uncertainty like absence of human contact and security issues (Zhou 2013)[226] prevent customers in adopting m-Commerce. Therefore, it is important to minimise privacy and security issues via building trust (McCole et al., 2010[173]; Dickinger 2011[262]). As trust is the crucial element in m-commerce adoption of retail apps (McCole et al., 2010[173]; Kaushik et al., 2020)[214] knowledge regarding the level of trust is very important in online transaction (Pavlou 2003[186]; Zimmer et al. 2010[263], Khaw et al., 2022)[225].

3.8: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERCEIVED RISK ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

In order to provide better service, m-commerce service providers create applications which are structured to suit their consumers need so that they can execute their transactions without any hitches. The primary aim of m-commerce service providers is to bring in personalisation in terms of consumer experience for which the consumers need to share their personal data expecting them to be safe and secure in the hands of the service providers (Venkatesh et al., 2012)[12].

Security is about the ethical view customers have regarding the financial processes that occur on the internet (Matemba and Li, 2018[264]; Sharma and Lijuan, 2014[265]), and it is about the safety of personal information given by the consumer to the retailer (Khalifa and Shen 2008)[140], although some researchers found the link to be inconsistent (Morosan and DeFranco, 2016a)[60].

Several studies point out security features have a large bearing on the intention by the consumer to adopt technology related to m-commerce applications (Riquelme and Rios, 2010[266]; Safa et al. 2015[267]; Gao et al., 2015[206]; Ooi and Tan, 2016; Oliveira et al.,2016[268]; Liébana-Cabanillas et al. 2017[120]; Susanto et al., 2016[269]; Al-Khalaf and Choe, 2020) as well as continuing intention (Rodríguez-Torrico et al., 2019)[270]. Thus, any incidences of breach in security leading to sharing of information with a third party constitutes privacy invasion and this restrains the consumers from the intention to adopt m-commerce services (Islam et.al, 2010[17]; Limbu et al., 2011)[166].

Perceived risk with respect to m-commerce is the risk related to security issues, social aspect, time, financial and performance (Lee, 2009)[304]. Perceived risk is the concern consumers have in terms of negative experiences and its impact on m-commerce adoption (Bailey et al., 2020; Kaur et al.,2020[89]; Anwar et al., 2021[95]). Since m-commerce is all about technology improvised on a daily basis in a virtual medium it is subjected to risks in terms of security breaching leading to the personal data of the consumer being misused (Zhang et al., 2012[136]; Marinkovic et al., 2020). Thus, the perceived risk in utilisation of m-commerce services executed through mobile devices has a negative correlation to the consumers attitude thereby discouraging consumers to adopt m-commerce technology which in turn affects the consumers attitude negatively. (Amaro and Duarte 2015[271]; Natarajan et al., 2017; Liébana-Cabanillas et al., 2017[120]; Kaushik et al.,2020[214]; Anwar et al.,2021[95]).

Perceived risk affects the attitude of the consumers towards further intention to adopt m-commerce services (Bauer et al., 2005)[272] which is due to uncertainty in the minds of the consumer regarding the after effects of using a service or a product and it has been found to be a major determinant in the behavioural intention to adopt m-commerce (Tanakinjal et al., 2010[273]; Singh and Srivastava, 2020[68]). Since all purchases are devoid of physical checks (Looi et al.,2009)[274] using a hand-held device loaded with features like localisation, ubiquity, any time anywhere use, m-commerce is different from e-commerce (Wang et al., 2019)[275], where the privacy, risk and uncertainty are less (Gao, Waechter, and Bai 2015[206]). Studies of emerging economies revealed that perceived risk decides the attitude towards m-payment adoption (Pandya and Chawla,2020)[65].

However perceived risk and trust varies from nation to nation and also on the culture. The capacity to tolerate risk is higher among individualistic culture whereas in collectivistic cultures where people fear taking risk due to failure often don't venture easily into m-commerce adoption (Jarvenpaa et al., 1999[277]; Bontempo et al. 1997[278]). Studies related to behavioural intention of mobile consumers found perceived cost and risk affects adoption of m-commerce (Wu and Wang, 2005)[19]. Luarn and Lin (2005)[279] found that security and privacy issues have more significant influence on adoption that the TAM variables of perceived usefulness and ease of use (Chong, 2013[144]).

Studies have revealed that there is a negative correlation between perceived risk and attitude (Fishbein and Ajzen, 1975)[2] like in online travel (Marriott and Williams 2018[57]); online banking (Kaushik and Rahman, 2015)[219]; and the hospitality sector (Kaushik et al., 2015[183]) in general. Since these sectors involve transactions in the online mode which involves risk and uncertainty, the positive attitude towards adoption of such retail apps is eroded (Amaro and Duarte, 2015) Perceived risk therefore negatively affects the intention to purchase using the online mode of transactions (Kim & Lennon, 2013)[280].

Risk associated with m-commerce transactions can be categorised into financial risk associated with transactions frauds and performance risk associated due to product performance (Chang and Tseng, 2013)[149] and consumers are unwilling to engage themselves in online transactions mainly due to the financial risk (Eggert, 2006)[281].

Another perception regarding the risk factor arises from the consumers preconceived notion that products purchased online will not meet their expectation with respect to design and performance (Featherman and Pavlou, 2003[282]) and the risk perception soars high in online transactions related to m-commerce (Ashraf et al., 2014)[162] and m-payment (Slade et al., 2015)[283].

Perceived risk has an impact on the consumer approach towards adopting technology-based products and services (Dabholkar 1996[284]; Bauer et al., 2005[272]; Kaushik and Rahman, 2015[219]).

Negative relationship between perceived risk and adoption intention of technology was found in different contexts (Natarajan et al., 2017)[121]. For example, Wu and Wang (2005)[19]; Kim et al. (2008)[285]; Liu and Chen (2009)[286]; Mallat et al. (2009)[287]; Zhang et al. (2012)[136] and Yang et al. (2015)[288] studied in m-commerce; Liébana-Cabanillas et al. (2017)[120]; Thakur and Srivastava (2014)[289] in m-payment, Chang et al., (2016)[290] in e-shopping, Park and Jun (2003)[291] and Kim et al. (2008)[285] in ecommerce.

In the area of mobile retailing an essential construct found was perceived risk (Park and Jun, 2003[291]; Johnson et al., 2008[293]; Kim et al., 2008[285]; Aldás- Manzano et al., 2009[294]) which affect the attitude and the adoption intention and consumers may switch over the offline mode to avoid plausible risk associated with online transactions. (Kaushik et al., 2020)[214].

Studies related to mobile banking regarding the role that perceived risk plays as precursor to consumer satisfaction and the adoption intention found negative between the two constructs (Natarajan et al., 2017)[121]. While most of the research studies augment appreciable negative role, some studies show an insignificant role of trust, Chong (2003a)[147] in m-Commerce, Tan et al. (2014)[295] in m-payment, Wong et al. (2012)[296] in m-shopping Luo et al. (2010)[230] in mobile banking.

A study conducted by Yang et al. (2015)[288] to know the overall risk perceptions of Chinese consumers towards online payment and found that economic, functional and privacy risk significantly enhance their risk perceptions. Financial risk was found to be an important predictor of risk in US context (Luo et al., 2010)[230] whereas it was insignificant predictor to decide the attitude of Malaysian consumers towards m-commerce transactions. (Marriott and Williams; 2018)[57].

The perception in the minds of the consumers related to the negative outcomes when indulging in buying products or services increases their anxiety level (Featherman and Pavlou, 2003)[282] and at times varies with context (Campbell and Goodstein, 2001)[297]. Financial security and performance risk were found to be an important predictor of perceived usefulness and perceived ease of use aspects in m-commerce adoption (Yang et al., 2015[288]; Hubert et al., 2017[298]; Marriott and Williams, 2018[57]).

The ubiquity feature of mobile devices provokes the consumers to purchase products impulsively (Marriott & Williams, 2018)[57] which creates a distance between the user and the service provider thereby leading to uncertainty and plausible risks involved in mobile device transactions (Gao and Waechter, 2017[276]; Sarkar et al., 2020)[63].

In General transactions executed in the virtual mode has led to an increase in the security and privacy risk associated with mobile commerce adoption (Wei et al.,2009; Chong et al.,2010a[148]). While improving the functionality, user friendly attributes, strengthening legislation related to m-commerce adoption, encryption policy, transparency and digital authorisation will make a positive impact on the minds of the consumers, time to time review and improvisation of features and laws would make m-commerce adoption better (Hamed et al.,2011[299]; Vasileiadis, 2014[300]; Nilashi et al., 2015)[241].

Since the late 1960s, research and studies on the adoption of technology-based services have focused on perceived trust and risk; further research is needed in today's environment of wireless m-commerce (Marriott and Williams,2018)[57].

3.9: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERCEIVED USEFULNESS ON ATITUDE AND INTENTION TO ADOPT M-COMMERCE:

Perceived usefulness refers to the readiness and eagerness to adopt new technology which helps in executing a task efficiently (Davis, 1989)[1].It has been found that perceived usefulness has a positive impact on studies related to the satisfaction level of adopting mobile banking (Agrebi and Jallais, 2015[301]), using mobile phones for shopping purposes (Zhang et al., 2012)[136], payments through mobile devices (Thakur and Srivastava, 2014)[289], building trust (Zhang et al., 2012)[136], and perceived privacy (Nakayama et al., 2017[302]; Alkhalaf and Choe, 2020). Al-Naimat et al. (2020)[303] investigated the critical mobile commerce adoption factors in the Tourist and Hospitality industries and the results showed that perceived convenience, perceived usefulness, system quality, and service quality are the key predictors of m-commerce adoption.

Perceived usefulness has a positive impact on the attitude, behavioural intention and ease of using technology when it comes to downloading a mobile app. User's attitude is positively affected by perceived usefulness (Lee, 2010)[87]. Some previous studies suggested that there is a relationship among perceived usefulness, attitude and behavioural intentions (e.g., Park et al., 2012[292]; Hu and Zhang, 2016[305] and Talwar et al., 2020[88], Lim et al., 2022[113]; Tiwari and Tiwari, 2020[127]; Roy et al., 2018[122]; Chan et al., 2022[134]).

Prior research has looked into the impact of people's perceptions of technology's usefulness and ease of use on their willingness to download a mobile app (Ko, Kim and Lee, 2009[306]; Liu and Li, 2011[307]; Munoz-Leiva et al., 2017)[308]. Mobile banking adoption by consumers is influenced by perceived usefulness (Luarn and Lin,2005)[279].

While some studies find no link between perceived usefulness and willingness to adopt m-commerce (Li et al.,2008[381]; Dutot,2015[309]), others have discovered that perceived usefulness has a significant impact on m-commerce adoption and use (Chong, 2013[147]; Wu and Wang, 2005[19]; Leong et al., 2011[310]; Liébana-Cabanillas et al., 2017[120]; Cobanoglu et al.,2015[52]; Sun and Chi,2018[56], Singh and Srivastava, 2020[68]; Nabipour Sanjebad, Shrestha, and Shahid, 2020[83]) As there are conflict in the views of researchers this opinion has to be investigated further.

3.10: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERCEIVED EASE OF USE ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

Convenience and the perceived ease of use are the main factors that has led to the success of m-commerce technology adoption among consumers (Wang et al., 2015[207]; Kim et al., 2010[161]; Roy et al., 2018[122]; Tiwari and Tiwari, 2020[127]; Chan et al., 2022[134]) as it consumes minimal time for such tasks using their mobile phone (Bankole and Bankole, 2017; Rodríguez-Torrico et al., 2019)[270]. With the aid of one mediator, namely perceived ease of usage (PEOU), Sharma et al (2019) investigated the impact of mobile network service quality on the adoption of mobile commerce services. They discovered that the mediator (perceived ease of use) had a significant impact on M-commerce adoption.

Ubiquity of mobiles makes transactions easier, faster and quicker and the physical presence in a store is eradicated. Any time anywhere use of mobile services has developed the strong belief system in consumers that adoption of technology saves time and their efforts. The only limitation that can come in their way is cellular connectivity (Li et al., 2008[381]; Rodríguez-Torrico et al., 2019)[270]. It has been found that perceived ease of use is a major determining factor towards m-commerce adoption (Hsiao and Chang, 2014[311]; Apanasevic et al., 2016[312]; Schierz et al., 2010[313]; Sun and Chi, 2018[56]; Lim et al., 2022) and its continued use but has no significant correlation to perceived cost (Cheng et al., 2006[314]; Chong et al., 2010a[148]; Zarmpou et al., 2012; Chong, A. Y. L. (2013)[147] and Tan et al., 2014).

Ertz (2022)[315] investigates what influences Chinese and American customers to make purchases using mobile devices. The authors proposed, drawing on the hedonic-motivation system adoption model (HMSAM), that ease of use influences m-shopping intentions via utility, enjoyment, and self-efficacy. Perceived usefulness, an extrinsic motivator, was found to have a direct effect on Chinese consumers' behavioural intentions and this effect was found to be substantially stronger and reinforced by an indirect effect for the Chinese (compared to American) customers. In contrast, perceived ease of use has a much less effect on intentions in the consumer market than it does in the business sector, and intrinsic incentives like joy and control are irrelevant in both. The intention to engage in m-commerce is only indirectly influenced by feelings of happiness, and only among Chinese customers.

Once the consumer becomes familiar with the system of m-commerce, the perceived ease of use does not impact its adoption when compared to pre-implementation stage (Wu and Wang, 2005)[19].

Research study by Kim et al. (2010)[161] revealed perceived ease of use and perceived usefulness to be major determinants for m-payment adoption as early adopters give importance to perceived ease of use and their knowledge related to payment during the m-payment process. Perceived usefulness was the main consideration for late adopters as they focus mainly on reachability and convenience in using m-payment technology. In this study the research has made an earnest attempt to know the influence of perceived ease of use on attitude towards adopting mobile commerce.

3.11: REVIEW OF LITERATURE RELATED TO THE IMPACT OF SOCIAL NORMS ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

The consumers decision to adopt and utilize e-commerce and m-commerce service largely depends not on the individual's decision but is also guided by mass media and also advice from near and dear ones in the family (Wu et al., 2015[316]; Pandey and Chawla ,2020[65]). Studies have revealed that though the effect of mass-media was not a significant contributor (Wu et al.,2015)[316] but peers do make a remarkable impact on the consumers attitude and intention in m-commerce adoption (Kim et al., 2016)[317].

Generally, an individual decision to embark on and perform an action is largely related to the perception of what society believes in (Fishbein and Ajzen, 1980)[10] and thus becomes the subjective norms for action plan. Studies have pointed out that the user's intention to adopt and use m-commerce services are largely influenced by society (Venkatesh and Davis 2000, a[7]; Teo and Pok ,2003[37]; San-Martin, et al., 2016[318]; Marinković et al., 2020[188] and Ntsafack Dongmo, 2020[137]; Misra, Mahajan and Singh, 2022[115]; Asampana et al, 2022[135]). The peers do have a positive impact on the consumers' confidence to venture into trying new services (Yang and Kim, 2012[319]; Shankar and Datta, 2018[123]) and users tend to turn to their peers and for decision related to online transactions and perceive risk (Chuttur, 2009[320]; Chong et al., 2012[116]; Yang and Kim, 2012[319]; Sun and Chi, 2018[56]).

A crucial precursor towards the intention to adopt services based on technology are the subjective norms and has been incorporated in studies based on Theory of Planned Behaviour (Venkatesh and Davis, 2000, a[7]; Chong et al., 2012[116]; Oliveira et al., 2016[268]; Ting et al., 2016[53]).

Perceived enjoyment and subjective norms have been found to have the maximum impact, among the most common ten predictors studied, on the behavioural intention to adopt m-commerce (Zhang et al., 2012[136]; Liébana-Cabanillas et al., 2017[120]; Chauhan et al.,2018)[58].

The empirical results related to a study conducted to know the extent of acceptance level of m-payments showed a noteworthy impact of compatibility, individual mobility and subjective norms on m-payments adoption. The researcher with reference to social norms has pointed out the role of the reference group in m-payments diffusion and has asked firms to identify early adopters who can be used later as reference group for future adoption decision studies (Schierz et al., 2010)[313].

Park et al. (2012)[292] deduced a significant relationship among subjective norm, attitude, and behavioural intentions among students. Hsu et al. (2014)[76] discovered that social norm has a direct or indirect influence on the attitude and behavioural intention of information system users. Positive influence of social norms on purchase intention was also cited by Sun and Chi (2018)[56] in the apparel industry.

Attitude is affected by subjective norms directly and significantly (Wu and Lin, (2007)[77]; Gharaibeh et al., 2020)[78] and was confirmed by Yu et al. (2005)[322] who opined that greater the positive support an individual gets from other persons or organisations which they consider vital to them greater is the positive attitude. Yu et al. (2005)[322] studied the behaviour patterns of downloading MP3 showed that subjective norm of users on downloading MP3 positively impacts their attitude.

3.12: REVIEW OF LITERATURE RELATED TO THE IMPACT OF PERCEIVED BEHAVIOURAL CONTROL ON ATTITUDE AND INTENTION TO ADOPT M-COMMERCE:

According to Pedersen (2005)[34], PBC is "an image of a person's constraints both internal and external on behaviour which is further reflected in the individual's intention to use the services of mobile commerce". The consumers access to various opportunities and resources influences his behavioural intention (Ajzen,1991). The confidence in consumers with respect to their own ability to execute activities has a major impact on their behaviour (Bandura,1977[323]; Zhang et al., 2012[136]). Perceived behavioural control among consumers is a projection of past experiences, knowledge about the products, and the plausible obstacles (Randall and Gibson, 1991)[324] based on which consumers develop attitude towards that medium of commerce thereby affecting their adoption intention.

A person's belief with respect to the difficulty level in executing a behaviour is defined as PBC (Ajzen and Madden, 1986)[5]. The logic in this reasoning (Trafimow and Duran, 1998)[325] is that easier to execute a behaviour is considered as an advantage for the agent and a disadvantage it is difficult. Since advantages and disadvantages determine attitude, perceived difficulty may just represent a complementary way of measuring attitude (Kraft et al,2005)[326].

When operationalized in terms of perceived difficulty, PBC is more than simply a supplement to other methods of assessing attitude (Leach et al., 2001)[327]. Both affective and instrumental evaluations constitute attitude towards behaviour (Breckler and Wiggins, 1989[328]; Rhodes and Courneya, 2003[329], Kraft et al., 2005)[326]. PBC was conceptually distinct from affective attitude when judged by perceived difficulty items.

In the original Theory of Planned behaviour by Azjen (1985)[3], the relation that PBC has impact on attitude was not included. However, attitude can be an intervening variable of the subjective norm when influencing behavioural intention. Therefore, researcher's (Yu, Wu and Lee, 2005)[322] specifications in the casual model construct with respect to behavioural inclinations of Taiwanese tourists in Kinmen, attitude was made an intervening variable. The results based on the casual model construct showed that attitude is an intervening variable while studying the effect of perceived behavioural control towards behaviour intention. Tsai (2010)[330] also proved the impact of perceived behavioural control has on attitude by analysis of canonical correlation. From this, it can be concluded that perceived behavioural control has a positive effect on attitude.

3.13: REVIEW OF LITERATURE RELATED TO THE IMPACT OF ATTITUDE TOWARDS USE ON INTENTION TO ADOPT M-COMMERCE:

Attitude is the opinion and perception a person has towards a particular activity, and that comes into tangible play when performing the said activity and can be either positive or negative. If a consumer thinks that a particular activity's outcome would be positive, then the consumer is said to have a positive attitude toward it (Zhang, Lu and Kizildag , 2018)[181].Attitude does play the most important role during the study of consumers behaviour as it has a direct bearing on the thoughts, feelings and the most important aspect being the decision-making process of the consumer (Bagozzi and Warshaw,1990[331]; Parker and Lee[114], 2022; Asampana et al., 2022[135]) and positive attitude leads to customer loyalty (McLean et al., 2020)[332]. The Theory of Reasoned Action shows several attitudes converge to formulate behavioural intentions (Sheppard et al.,1988)[333]. The theory also say that attitude has directly impacts behavioural intention during the process of decision making by the consumer (Zhang and Kim, 2013)[321]. Therefore, the resulting attitude towards a retailer is critical towards competition and survival in the emerging completive Indian market (Das,2014)[334]. A study conducted to know the extent of impact on attitude with respect to privacy, security and trust on the student's intention to use mobile cloud storage found that the degree of trust increases if the cloud service providers can assure privacy and security strictly, consumers develop positive attitude towards adopting these services (Arpaci, 2016)[180]. Cheung and To (2017)[335] opined that if a person develops the trust on the expected behaviour of the other person leading to a desirable outcome, then a favourable attitude is developed, so trust affect both expectation and outcome and can be regarded as an antecedent which leads to a particular behaviour. Trust plays a significant role towards influencing consumers' attitude towards online advertising (Bleier and Eisenbeiss ,2015)[336] which was confirmed through a study on students' attitude and purchase intention (Cheung and To, 2017[335]; Walrave et al., 2018)[337]. Perceived ease of use and trust are the two major factors that has an impact on the consumers attitude towards retail websites (Elliott and Speck, 2005)[338] and the influence on trust was also confirmed by Pennington et al. (2003)[339] as well as Pavlou (2003)[186] in e-commerce. Peers, parents, role models and professors do have a role to play on the consumers attitude in mobile apps adoption (Yang, 2013)[340]. Subjective norms also cast a major influence on the attitude of the consumer during the initial stages of m-commerce adoption (McLean et al.,2020)[332] as well as mobile banking services (Msweli and Mawela, 2020)[82]. Some research studies have found a positive correlation between consumers positive attitude and behavioural intention to adopt and continue using the technology (Zhang et al., 2018)[181]. The belief that attitudes towards m-commerce is strongly tied to the tendency of a consumer to adopt m-commerce formed the bases of TAM (Technology Acceptance Model) and TPB (Theory of Planned Behaviour). This correlation has been proved by several studies (Bailey et al., 2020; Sarkar et al., 2020)[63].

Adopting the Theory of Planned Behaviour (TPB), Kao and L'Huillier (2022)[341] investigated how consumers' views on Covid-19 public health limitations affect their intentions about m-Commerce. Structural equation modelling investigation found that individuals' adherence to recommended procedures throughout the pandemic does favourably influence the adoption, and that individuals' attitude towards social distancing is a significant mediator of shopping via mobile devices.

3.14: REVIEW OF LITERATURE RELATED TO ADOPTION INTENTION OF M-COMMERCE:

Behavioural intention is defined as an individual's intention to portray a particular behaviour, where both societal norms and the person's attitude play a role (Sadi and Noordin 2011)[342]. Generation Z's behavioural intention to adopt m-commerce is positively influenced by subjective norm, attitude, and perceived behavioural control (Verma, Tripathi, and Singh, 2021)[93]. Varzaru et al. (2021)[94] employ a modified version of the Technology Acceptance Model (TAM) to look at the influence of antecedents on m-commerce consumers' behavioural intentions (BI) and the Structural equation modelling and cross-tabulation of the collected data confirmed that PU and PEU positively affect BI.

Factors that negatively affect usage do not truly predict what the actual usage by a customer is, whereas behavioural intention can be used to predict true usage to a significant degree (Venkatesh, Speier and Morris, 2002[343]; Malhotra and Galletta, 1999)[344]. Thus, it is fair to assume that the behavioural intention of a consumer towards m-commerce correlates well with his/her intention to adopt the said services (Zhang et al., 2012[136] Agrebi and Jallais, 2015[301]; Asampana et al., 2022[135]). This is a fundamental concept in models like UTAUT (Venkatesh et al.,2003)[6] and TAM (Davis, 1989)[1]. Research has shown that a lack of intention to make online purchases is has a strong negative influence on adoption (Sarkar, Chauhan and Khare, 2020)[63].

3.15: REVIEW OF LITERATURE RELATED TO THE IMPACT OF DEMOGRAPHIC VARIABLE ON M-COMMERCE ADOPTION INTENTION:

The digital era in India began in the 1990s and people born from 1990 onwards were exposed to internet and other digital technologies (Oblinger and Oblinger,2005)[345] and the way they think, communicate and live are totally different from others (Pieri and Diamantinir, 2010)[346]. There a was shift in the mode of study from printed books to mobile and internet to complete assignments. The mobile and the internet become a medium for networking and entertainment. This age group people were the target by online shopping companies since they had a say in the purchase decision of the family. This generation being techno-friendly believed that mobile phones have made the world smaller and life easier (Ansari et al., 2012)[347]. The young generation were exposed to global media and products, lifestyle of people living in other countries and hence were attracted to foreign products via shopping apps. As young adults spend more time on the internet through their mobiles for information, entertainment, shopping and networking it becomes important to study the factors that attract them to the wireless medium.

Young adults use mobile shopping for entertainment and a study of relevance of word-of-mouth on m-shopping revealed that perceived entertainment is the deciding factor among young people and subjective norms are more decisive for adults (Molinillo et al., 2022)[348].

Age, Gender and social class affect m-shopping adoption (Maldifassi and Canessa,2009)[349] as youngsters use m-shopping for entertainment where as others use if for functional purpose (Chong et al.,2012)[116] Which was confirmed by San-Martin et al. (2016)[318] who has further found that subjective norms are more relevant for older adults while making purchase decision.

There is a correlation between age and adoption of technology with the younger generation being more proficient in use of technology compared the other age groups (Pieri and Diamantinir, 2010)[346]. A study conducted to correlate age and privacy concerns among three million people over a period of eight years revealed that the older people have concerns regarding privacy issues compared to the younger ones and the older people are less likely to divulge their personal details (Goldfarb and Tucker, 2012)[350]. People over forty-five years of age are either highly apprehensive or not all regarding privacy issues over online transactions whereas the younger people's concerns are with respect to situation at that point of time (Sheehan, 2002)[351]. Higher education among people led to more concerns regarding privacy whereas high income group were less concerned about information privacy (O'Neil, 2001)[352]. Age was found to be an important factor in adoption decision of m-commerce (Pederson, 2005[22]; Islam et al., 2010[17]) while others have showed some reservation against this (Kalliny and Minor, 2006)[353].

The studies which have included demographic variable Age in m-Commerce adoption decision found it to be significant (Hernández et al., 2011[354]; Yousafzai et al., 2012; Chong et al. 2012[116]) as young women are positively and favourably adopting m-Commerce medium that their counterpart (Koenigstorfer and Groeppel-Klein, 2012[357]; Yousafzai and Yani-de-Soriano 2012[356]).

Previous research has discovered that there is a direct link between age and privacy concerns in online transactions (Zukowski and Brown, 2007)[358]. Chong *et al*., (2012)[116] conducted a Cross country empirical examination between China and Malaysia by using extended traditional technology acceptance model (TAM) and diffusion of innovation (DOI) model, to investigate the predictors of m-commerce and found that except age, other demographic factors like gender and education have no role to play in adoption decision.

Some studies have found that the factors affecting m-commerce differ based on the gender with gents preferring utilitarian apps while ladies preferred hedonic apps (Sohn et al.,2014)[359]. There are other studies which found no difference in attitude in terms of gender towards m-commerce adoption. A study that looked at the relationship between gender and four m-commerce activities, including content distribution, transactions, location-based services, and entertainment, revealed no differences in how these services were perceived (Chong, 2013[147]), which was confirmed by Faqih and Jaradat (2015)[362].

The impact of gender on mobile credit cards (Tan et al., 2014) and mobile wallets (Shin, 2009[208]) were found irrelevant. Therefore, more research and studies are required to understand the role of gender on m-commerce services especially in developing economies like India keeping in view of its diverse socio-economic nature which can help marketers develop suitable strategies (Han et al., 2016)

Gender played an important moderating role in m-payment adoption and it was greater in men than women (Liébana-Cabanillas et al., 2014)[227]. Similar results were obtained with m-banking adoption (Chaouali and El Hedhli, 2019[360]); m-commerce (Okazaki and Mendez, 2013[361]; Faqih and Jaradat,2015)[362] and mobile credit cards (Tan et al.,2014; Leong et al.,2013)[363]. Direct role of gender in m-banking adoption found gender has an impact on adoption decision (Yang ,2005)[40] and Teo et al.,2012)[364] but the findings of Chong (2013a)[147] contradict this finding as no relation was found between two variables which was also confirmed by other researchers stating that gender gaps are lessening (Enrique Bigné et al., 2007)[365].

Some prior studies showed that during the initial stages of m-commerce adoption women are more wary of privacy and risk (Chen et al., 2013[167]; Nilashi et al., 2015[241]; Rodríguez-Torrico et al., 2019[270]). Men are driven by perceived usefulness while their counterpart is much motivated with the ease of use involved in using technology involved with m-Commerce decision (Venkatesh and Morris, 2000, b[8]; Yang, 2005[40]; Yuan et al., 2016)[366].

Moderating role of gender was covered in adoption related studies (Yuan et al., 2016[366]; Faqih and Jaradat, 2015)[362], risk and trust related studies in online shopping (Kim et al., 2008)[285] as well as in the study related to price sensitivity on consumer satisfaction (Natarajan et al., 2017)[121].The effect of age, gender and income between Government and private sector employees towards m-commerce adoption show that gender, experience and employment sector do have an impact on their attitude which has an effect on their actual use of technology (Akman and Rehan, 2016)[367]. Gender has been found to have positive effect on attitude of females as they use m-technologies more than their male counterpart while age and income has no remarkable impact. Experience was found to be significant since people who are experienced use more of technology and therefore have a positive attitude towards m-commerce and mobile related services (Akman and Rehan, 2016)[367].

The study using the UTAUT model related to the role of gender towards user satisfaction and the intention to continue to use m-commerce found that there was a remarkable difference between attitude of men and women (Marinkovic et.al. 2020)[188] which had mixed effects. Some studies have confirmed the findings (Liébana-Cabanillas et al., 2014)[227], while others are giving contradicting results (Faqih and Jaradat., 2015)[362]. Prior researchers have endorsed for the inclusion of socio-economic aspects during the initial stages of individual technological adoption (Adams et al.,1992)[368]. The models developed by Davis (1989)[1] did not take into account of the demographic aspects and was criticised for its non-inclusion whereas Venkatesh *et.al*., (2003) developed a model suggests that gender and age are a must in order to explain studies related to technology adoption.

Income has been found to be a major predictor in mobile commerce adoption (as it has an impact on the extent of mobile technology penetration ((Dekimpe et al.,2000[369]; Muthaiyah, 2004[370]) but it was not a significant determinant towards m-purchase decision in other studies (Enrique Bigné, 2007[365]; Sun and Chi,2019)[205] and another study surprisingly revealed that higher income has negatively affected the adoption decision (Madden et al., 2017)[371]. A study conducted to find the moderating effects of gender and age on e-payment adoption using the Unified Theory of Acceptance and Use of Technology (UTAUT) model found that while in males it was performance and effort expectancy, in females it was social influence (Acheampong et. al., 2018) [372]. Studies related to know the perceived benefits and barriers in m-commerce adoption using the demographic variables such as age, gender and educational level show that male students perceived more benefits from m-commerce adoption than their female counterparts. Students in the age group of 17-19 are more interested in m-commerce adoption than students above twenty years of age (Alduaij et al., 2016)[373]. Many researchers have looked into the impact of demographic characteristics like age, gender, and educational level on adoption (Chong, 2013[147]; Dalhberg et al., 2015[374]; Shaikh and Karjaluoto, 2015[375]) and found that demographic variables are one of the most commonly examined variables in the adoption process. Women are more affected with changes in technology (Leppäniemi et.al., 2010)[376] and concentrate on ease of use in using it, since they show reluctance to indulge and adopt technology which further dissuades them from choosing it as a career option (Wong et al., 2012)[296]. E-commerce study conducted by researchers (Kukar-Kinney *et al.*, 2012[377]; Slyke *et al.*, 2010)[378] proved that men are more prone to online purchases than women.

A study on the effect of age and efficient use of computers on adoption of information system by nurses showed that knowledge of computers has a positive effect on their attitude while age is not significant on their perceived ease of use towards attitude to adopt and use information systems (Ifinedo, 2016)[379].

A study of behaviour of generation Y towards computer mediated tools of communication based on UTAUT 2 reveals that females were more inclined to use as compared their male counterparts (Acheampong et al., 2017)[380] and youngsters in the age group of 18 to 25 preferred computer mediated communication tools than their older counterparts. These findings were contradicting with the other findings performed among college students which revealed that male are early adopters of technology than their female counterparts (Li et al.,2008)[381].

Age and gender have a negative influence on mobile money transfers while education and employment positively impact user's acceptance (Marumbwa,2014)[382]. Educated male youngsters early to adopt technology innovation (Powell et al., 2012)[383] while it is not so in the older people as they find it complicated (Joshua and Koshy, 2011)[384]. This view was also confirmed by Yu (2012)[385] and Chauhan et al., (2018)[58] as they found that highly educated people are very eager to go for technological innovation. The anxiety levels among women are higher when it comes to technology adoption. The highly educated people are willing to adopt innovation in technology (Powell et al., 2012)[383].

Apart from identifying the main drivers of m-commerce adoption intention, the other objective of the research study was to find the impact of chosen demographic variables like age income, gender, occupation, type of family and marital status of selected consumers on their adoption decision. Studying to what extent demographic variables have an impact on m-commerce adoption would help vendors in segmenting their target market by personalising their offers as per the requirement of the target group. This information would also benefit the advertising industry deciding their positioning accordingly. Hence it is imperative on the part of researches to have a clear understanding with respect to the demographic profile of the consumers and their adoption behaviour towards m-commerce services.

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