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USER PERCEPTION OF MOBILE BANKING ADOPTION: AN INTEGRATED TTF-UTAUT MODEL

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Abstract

This study investigates the factors influencing users' perception on adoption of mobile banking (mBanking) services in Bangladesh from the understanding of technology perception. Exploratory factor analysis (EFA) has used as an instrument

to analyze the data collected from the respondents. The established framework of integrating the task technology fit (TTF) and the unified theory of acceptance and usage of technology (UTAUT) have been applied to examine users' perception and intention in adopting mBanking services. The study shows that the most influencing factor is Social influence (SOI) in adopting mBanking. Besides, Task-technology fit (TTF), Technology characteristics (TEC), Performance expectancy (PEE), Facilitating conditions (FAC), Task characteristics (TAC), and User adoption (USE) have great influence on users' perception and attitude towards mobile banking services. The findings of this research show a useful understanding to the decision makers to implement and develop mBanking service and help to know how it affects users' attitude, perceptions and intention. This research provides a highlight to understand the users' perceptions about the adoption of mBanking in Bangladesh. It emphasizes greatly on the social influence from the users understanding toward adopting mBanking services and new technologies that have been a part of modern life style.

Keywords: mBanking Adoption; Exploratory Factor Analysis; UTAUT; TTF; Bangladesh

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INTRODUCTION

With rapid changes in technology, Mobile banking (mBanking) added attractive opportunities to the bank customers to operate their banking activities through mobile devices such as smart phones, digital assistants with accessing banking networks via the wireless application protocol (WAP). It give the clients accessibility to their bank account in monitor balance, transfer money from one account to another, pay different bills, and locate the ATM booth in 24/7 a week with mobile devices [1]. The information system (IS) professionals have explained the phenomenon as a significant development in the area of e-commerce and banking business. Changing nature of technologies and customer preference has an important influence on the service distribution strategies for the success of bank [2]. With the innovation of mBanking, bank's customers would like to expect convenience from the explosion of mobile technology and persistent connectivity of financial institutions which include strategic instructions of mBanking [3].

At present, the application of mBanking has developed as a new retail banking channel for both the banking and mobile industries as a crucial point of growth strategies [4]. It also provides a combination of payments, real-time two-way data transfer, and ubiquitous access to financial information and services [5]. Mobile phone provides vast prospects in banking sector as a service consumption channel through mBanking application [6]. According to earlier studies, the key factors for the adoption of mBanking are convenient uses, ease access to service without

considering time and place, privacy, and safety in time effort [7,8]. Though mBanking has so many facilities, in fact the use of it has not spread yet according to the expectation [6-9]. The internet is still considered as prominent channel in electronic banking (e-banking). Despite different channels are used to do customer banking activities, they have a tendency to use single channel showed by Diuk-Wasser, Vourc'h [10].

The motivations of this research are threefold. This study aims to offer a comprehensive insight about the adoption of mBanking in the context of Bangladesh. In addition, the objective of this research is to explore the impact of core customer attitude towards initial trust and technological characteristics of mBanking solutions. This research also attempts to show how the customer attitude toward task and technology characteristics, performance expectancy, social influence, facilitating conditions on user adoption that affects the mBanking behavior directly using the integrating model of TTF and UTAUT model [11]. Exploratory Factor Analysis is used to measure the total effect of the variables influencing mBanking adoption since it may not be able to depict a complete representation of direct effects through UTAUT model.

The paper is structured as follows. A brief contextual review of literature on mBanking. Objectives and rationale of the study are presented. The methodology is presented. The results are analyzed. Conclusions, managerial implications and limitation and future research are presented respectively in this study. Eventually the questionnaire of the current study has been shown in Appendix.

REVIEW OF LITERATURE

The use of mBanking has made banking services easier to provide better services to low-income people and reduced the time and distance to access banking services in Bangladesh. The delivery of social connectivity and financial services through the mobile network has been possible for the remarkable growth of mobile sector worldwide [12]. On June 2016, the telecom industry of Bangladesh shows number of cellular users across the globe. Bangladesh ranks as tenth in the world with cellular users of over 131 million-about 85% of its total citizens (Table 1).

Table 1: The number of mobile users of Bangladesh in world rank.

Ranking	Countries	Number of Mobile phones	Populations	Connections/100 citizens	Date of evaluations
10	Bangladesh	131,376,000	157,497,000	84.95	June 2016
Source: Bangladesh Telecommunication and Regulatory Commission (BTRC)					

The above table shows that Bangladesh is one of the largest mobile users' countries

in the world. In the study of Azad [13] showed the rapid growth of mBanking in Bangladesh that increased number of registered customers is 0.483 billions, agents 20.87 million, transactions 66.99 million and transactions value \$1122 million from January 2013 to February 2015 in his report (Table 2).

Table 2: Growth of mBanking in Bangladesh.

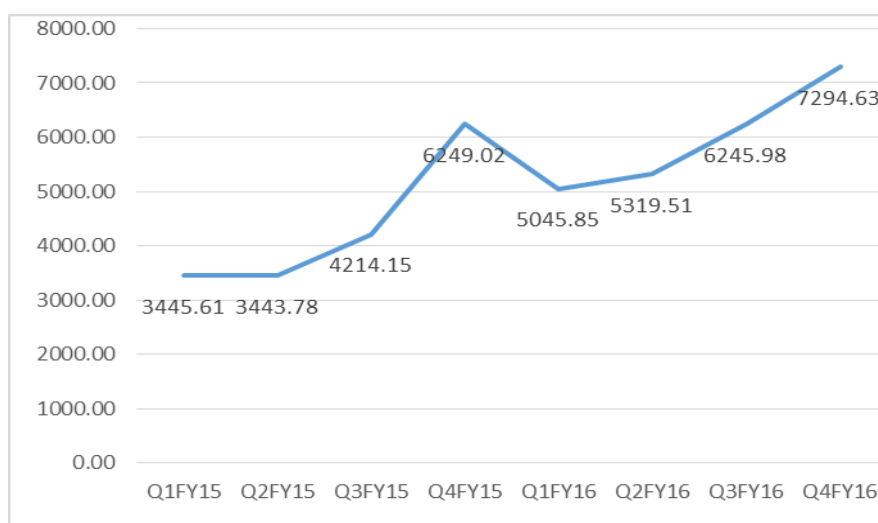
Time	No. of registered customers (in billions)	No. of registered agents (in millions)	No. of transactions (in millions)	Transaction value (million \$)
January 2013	0.060	5.00	10	301
December 2013	0.189	13.18	31.36	862
June 2014	0.414	16.7	44.01	1110
December 2014	0.541	25.2	74.47	1361
February 2015	0.543	25.87	76.99	1423

Source: [13].

The Table 2 clearly indicates that with increasing the number of customers, the number of transactions as well as its value is also increasing day by day.

The annual report of Bangladesh Bank (the central bank of Bangladesh) in the fiscal year 2016 revealed the growth of mBanking transactions is positive (nearly 38%). It also showed that value of the financial transaction through the mobile banking system reached \$23905.98 million in FY16 from \$17352.56 in FY15 (Figure 1).

Figure 1: Mobile Banking Transaction (in million Dollars).



Data Source: Bangladesh Bank.

From Figure 1, with the increasing acceptance of mBanking adoption, the amount of transactions is increasing rapidly in each quarter and it has become a preferable branchless banking segment [14]. The main objective of this study is to analyze the social and technological effects of mBanking adoption in Bangladesh. With the increasing number of cellular phone users, the accelerating growth in e-commerce and increasing demand of customers, the adaptation of mBanking attracts both the financial institutions and mobile service providers that create demand for updated modes of adoption of banking services in Bangladesh.

Numerous studies have conducted on analysis of mobile user understanding of mBanking adoption based on user perceptions of the technology such as perceived usefulness and perceived ease of use [8,11,15-20] relative advantage, compatibility [16,21-23], interactivity, level of security, perceived risk and [24].

In information technology and business literature, mBanking has been acknowledged with significant attention by both academic world and practice [11,25-27]. Studies relating to users' intention toward mBanking adoption have been conducted based on famous models and concepts such as technology acceptance model (TAM) Luarn and Lin [1] innovation diffusion theory (IDT) [28], task technology fit (TTF) [29], unified theory of acceptance and usage of technology (UTAUT) [30], initial trust model (ITM) [26], and UTAUT2 model [31]. The study has identified key additional concepts and relationships to be integrated into UTAUT through modifying it to a consumer use context [16].

A number of models have been used to explain users' perception. But it may not be enough to emphasis on only user perception of the technology [11]. The task technology fit (TTF) model claims that users will adopt a technology on the basis of fit between the technology and task characteristics [2]. It will be impossible to adopt the using advanced technology if they think this technology is not fit with their tasks and cannot progress their performance [5]. In other words, these users may be practical, and their adoption of mBanking is not only depending on their perceptions and attitudes toward the technology but also on a good task technology fit [11].

The previous studies have also developed a number of models for better acceptance in determining mBanking adoption factors. TAM is one of them, a very simple and theoretical model [32] which has been drawn from TRA and the psychology field to information systems [33]. UTAUT is an extension model of TAM [11] that was proposed [30]. Though this model has not been extensively used as TAM but it has gradually drawn attentions recently to explore user adoption on mBanking [32,34,35]. One of them is initial trust model (ITM) [26] used to study the relationship between initial trust in and behavioral intentions of mBanking while Zhou and Lu [11] integrate the TTF and UTAUT model to suggest an upgraded mBanking adoption model. The existing studies have engaged a complete understanding to measure mBanking adoption by analyzing the role of initial trust, technology perception and task

technology fit. A summary mBanking literature [7] includes the methodology and major findings of each study where the most common variables of TAM model in mBanking adoption are shown.

Task Technology Fit (TTF)

The TTF adoption model which has been used in several studies has four constructs task characteristics, technology characteristics, task technology fit, and use. The first two characteristics determine the task technology fit which leads to the adoption and use of the model. This model proposes that if a new technology is fit suitably to perform the daily task professionally, the user will adopt it. Therefore, users' adoption in new information technology will depend considerably on their daily tasks [26]. Schierholz and Laukkanen [7] used a combined TTF model with TAM to show the relationship between technology use and user performance. A modified TTF model has been used to discover the factors influencing the e-commerce acceptance in the insurance industry [9]. Diuk-Wasser, Vourc'h [10] studied e-commerce acceptance using a modified model combining TTF and TAM [18]. Aldás-Manzano et al. [36] also showed the mBanking adoption integrating the TTF and UTAUT model.

Unified Theory of Acceptance and Usage of Technology (UTAUT)

Zhou and Lu [11] suggested UTAUT model as an extension of the TAM [18,19]. It is the most familiar and upgrading version of the TAM. The unified theory has been prepared on the basis of eight prominent models in IS/IT adoption study. The eight individual models, including TAM have been theoretically examined and found which aims to study user's intention to use the IS and their subsequent behavior. Performance expectancy, effort expectancy and social influence are the three antecedents which are suggested by this theory to survey users' intention to adopt an information system. Age and gender are the important factors influence the user behavioral intention. In the research of behavioral intention and technology adoption, UTAUT has been capable to draw the researchers' attention. Mallat [20] considered UTAUT as an influential theory in the IS adoption context and used it to study agile IS adoption. Besides, numerous studies have tried to apply various frameworks to forecast the mBanking acceptance [11,14,25-27,37-42]. Shaikh and Karjaluto [43] analyzed various literatures of the significant theories on mBanking where researchers tried to find out the intention of using technology that is the exceptional work.

Changchit, Lonkani [8] examined the technology acceptance model (TAM) to explore the determinants of mBanking adoption by multiple regression analysis. The study showed normative beliefs, perceived ease of use, perceived privacy and security, perceived usefulness and previous experience have significant effects on mBanking adoption. Gupta [24] conducted an exploratory study on mobile banking adoption in Indian metropolitan and urban areas. The paper attempted to reveal how the levels of security affect user perceived risk and control in adopting mBanking. The study

also showed that the customers of urban areas are significantly influenced by both the perceived risk and control but the customers of metropolitan areas are influenced only by the perceived control in mBanking adoption. Afshan and Sharif [14] examined an extended framework of unified theory of acceptance and usage of technology (UTAUT) with the task technology fit (TTF) and initial trust (ITM) in Pakistan. Applying structural equation modeling technique, the study concluded that task and technology characteristics, performance expectancy, social influence, structural assurance and familiarity have positive effects on users' intention toward mBanking adoption. But effort expectancy showed a negative effect.

Azad [13] examined a neural network (ANN) approach to predict mBanking adoption in Bangladesh. The study showed that social influence, trust, compatibility, perceived usefulness and perceived ease of use are the significant influencing factors in adopting mBanking. The study also predicts that gender, age and education have important impacts on mBanking adoption. In Thailand, Bhatiasevi [44] also examined the extended framework of UTAUT model on mBanking adoption and combined perceived cost perceived convenience with perceived credibility. The study showed that performance expectancy, effort expectancy, social influence, perceived convenience and perceived credibility have significant positive effects on users behavioral intentions in accepting mBanking by applying structural equation modeling technique.

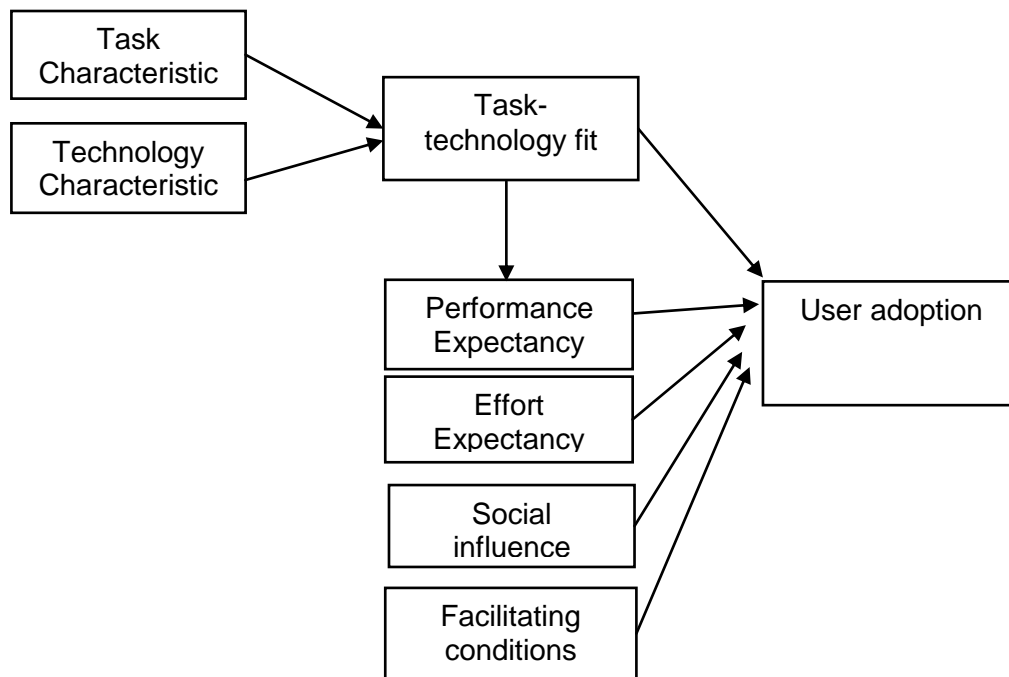
Oliveira, Faria, Thomas, and Popovic, conducted a study on extending the understanding of mBanking adoption in Portugal by using SEM approach. The study examined the sample of 194 students of 30 colleges and the results showed that performance expectancy, social influence and facilitating conditions, technology task fit have significant and effort expectancy has insignificant positive effects on mBanking adoption. Besides, the study showed a negative effect of personal propensity to trust and firm reputation in adopting mBanking. In China, [11] surveyed user's adoption of mobile banking integrating the theories of UTAUT and TTF. The study implemented path analysis on the sample size of 250 respondents. The findings of the study confirmed that the performance expectancy, task technology fit, social influence, and facilitating conditions are significant on adoption of mobile banking. TTF was also found significant in influencing the construct performance expectancy of mBanking. Chen, Yen [21] analyzed the impact of trust, risk, self-efficiency and performance expectancy in mBanking adoption and concluded that the performance expectancy is the most important determining factor in mBanking adoption.

Limitations in Existing Literature

Although studies were conducted on mBanking adoption in many countries of the world, there is no study based on UTAUT and TTF model in Bangladesh, one of the largest mobile device users in the developing world. In addition, very few studies were conducted by integrating UTUAT, TTF and other related models. However,

there is no study that incorporated both UTAUT and TTF model in Bangladesh context. Considering the two model [11,14] and relevant literatures discussed in literature review section the following empirical model has been developed (Figure 2).

Figure 2: Empirical Model of Integration of UTAUT and TTF.



OBJECTIVES OF THE STUDY

The broad objective of this study is to examine the factors that influence users’ perception on adoption of mBanking services. In Bangladesh, though there are several studies on mBanking adoption, nobody has examined the integration of TTM and UTAUT model yet. Moreover, the study is conducted to provide useful insights on factors influencing mBanking adoption to the policy makers both in banking sector and mobile operators.

Rationale of the Study

The study shows what factors influence the users’ perception in adopting mBanking services in Bangladesh. The study also explores the significant role of behavioral and technological characteristics influencing users’ intentions in mBanking adoption that the service provider should identify and ensure. This research study has done to provide practical observation to the financial institutions and mBanking operators so that they can make plan and decide regarding users’ perceptions in adopting mBanking and rendering right services to them.

METHODOLOGY

Sample Size and Data Collection Procedure

This study is conducted among the students from four universities of Bangladesh (03 private universities and 01 public university). These are University of Chittagong, International Islamic University Chittagong (IIUC), East Delta University and Northern University Bangladesh out of 4 public universities and 8 private universities situated in Chittagong region, Bangladesh. The rationale of using university students as respondent in this study is they use various smart mobile services more intensively. Three hundred (350) questionnaires were served based on a systematic stratified sampling. The response rate was 87.57% with 296 useable questionnaires. The respondents were from different disciplines and a mixture between males and females.

Measurement Instrument

A closed-ended questionnaire on mBanking adoption was structured for the students at university level in Bangladesh using a Likert scale [45] (where, 1=strongly disagree and 7=strongly agree) in this study. The questionnaire was developed on the basis of latest literature of mBanking to make suitable understanding the local situation. Besides demographic information, here forty items with 8 latent variables were included on mBanking adoption following the early studies [6,7,11,14]. The questionnaire was split into two segments: demography and mBanking adoption.

Data Analysis Tools

In this study data are analyzed in two steps. In step one, only the demographic data of the 296 respondents including gender, age, educational qualification, years of experience with mBanking and the types of bank analyzed with frequency and percentage. Exploratory factor analysis (EFA) is conducted to find out the most influencing factors for mBanking adoption. The Cronbach's coefficient (α) was also run to test the consistency and reliability of the data. These analyses were computed using the software SPSS version 20.0.

Ethical Considerations

At the very beginning of interviews, respondents were informed that data and information gathered through this process would be used for research purpose only. After giving the assurance of confidentiality, they provided their response of the data used in this study.

RESULT ANALYSIS

The demographic results in Table 3 show that out of 296 respondents 46.6% (n=138) are male while 53.4% (n=158) are female mBanking service users. Most of the users are relatively young, as this study shows less than 22 years 37.2% (n=110) and between 22- 30 years 61.1% (n=181).

Table 3: Distribution of survey respondents.

Distribution		Frequency	Total:	%
		296		
Age	Less than 22 years	110		37.2
	22- 30 years	181		61.1
	More than 30 years	5		1.7
Gender	Male	138		46.6
	Female	158		53.4
Educational Qualification	Diploma	4		1.4
	Undergraduate	289		97.6
	Masters	3		1.0
Years of experience with mBanking	Less than 1 year	159		53.7
	1-2 years	77		26.0
	2-3 years	36		12.2
	More than 3 years	24		8.1
Type of bank	Conventional bank	195		65.9
	Islamic bank	101		34.1
Source: Authors' calculation				

It also shows the acceptability rate of mBanking is increasing among young because most of users approximately 54% (n=159) who have year of experiencing with mBanking is less than 1. Almost all the user of mBanking service among the students are in undergraduate level 97.6% (n=289).

Exploratory Factor Analysis

The Cronbach's reliability coefficient (α) for the average extracted factor of the survey is 0.7 which is above the acceptable limit (0.6).

The overall matrix of the KMO value is 0.659 (Table 4) that means the sample size is statistically significant for exploratory factor analysis. To examine the appropriateness of the data for factor analysis, Bartlett's test of sphericity [7] has also been applied and it has been found that the test has a value of less than 0.5. This refers to the internal consistency among the extracted factors about users' perception of mBanking adoption [3,4].

Table 4: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.659
Bartlett's Test of Sphericity Approx. Chi-Square	5843.474
Df	780
Sig.	.000
Source: Authors' calculation	

Since the Central Limit Theorem has been used to this large sample (296 students), there is no issue relating to the normal data. Relating to this, all communalities of a perfectly sufficient sample above 0.5 are acceptable [46].

Table 5: Exploratory Factor Analysis.

Factor Name	Items	Item Loading	Communalities	% of variance (Cumulative)	Cronbach's Reliability Coefficient	Eigen Value
Social Influence (SOI)	SOI30	0.829	0.803	15.466 (15.466)	0.852	8.151
	SOI27	0.815	0.857			
	SOI28	0.807	0.818			
	SOI26	0.783	0.789			
	SOI29	0.758	0.784			
Task Technology Fit (TTF)	TTF11	0.811	0.790	8.985 (24.451)	0.751	4.265
	TTF12	0.733	0.822			
	TTF13	0.715	0.737			
Technology Characteristics (TEC)	TTF14	0.686	0.753	8.251 (32.702)	0.697	2.866
	PEE19	0.649	0.713			
	PEE18	0.635	0.779			
	TEC09	0.603	0.712			
Performance Expectancy (PEE)	TEC08	0.733	0.712	5.488 (38.190)	0.680	2.423
	PEE16	0.682	0.661			
	PEE20	0.602	0.632			
Facilitating Condition (FAC)	FAC32	0.804	0.760	6.015 (44.205)	0.631	2.020
	FAC31	0.741	0.846			
	TEC06	0.600	0.661			
User Adoption (USE)	USE38	0.757	0.790	5.836 (50.041)	0.781	1.804
	USE36	0.677	0.813			
	USE37	0.620	0.789			
Task Characteristics (TAC)	TAC01	0.806	0.746	5.267 (55.308)	0.715	1.697
	TAC03	0.700	0.735			
	TAC02	0.565	0.681			
Source: Authors' estimation						

The communalities (h^2) of the extracted from variables were shown to be between 0.661 and 0.857 (Table 5). Therefore, the sample size (296) of this study is appropriate for factor analysis.

Varimax rotation as an element of principle component analysis (PCA) was applied to identify the most significant factors of mBanking adoption in this factor analysis. The study has 40 items to be labeled of each factor TAC1, TAC2, TAC3 etc. Item loading values, Cronbach's alpha and Eigen values are shown. The variable loading value having 0.50 above are considered significant variable [7]. For this, some variables (i.e., TAC4, TAC5, USE39, USE40 etc.) have been dropped from the PCA due to low loading values. After exploratory factor analysis (EFA), the 40 items of mBanking adoption scale were reduced to 24 items. Seven factors have been extracted in the EFA cumulatively that explain 50.15% of the total variance.

Social Influence

The first extracted factor is social influence which represents five items (SOI30, SOI27, SOI28, SOI26 and SOI29) of mBanking adoption calculated for 15.47% of the total variance. The variables range of factor loadings is from 0.758 to 0.829. This study among the youth in Bangladesh reveals that the most persuasive factor is Social influence.

Task-Technology Fit

This is the second extracted factor which represents three variables (TTF11, TTF12, and TTF13) of mBanking adoption accounted for approximately 9% of the total variance. The variables' factor loadings range is from 0.715 to 0.811.

Technology Characteristics

This third factor extracted from varimax rotation represents four variables (TTF14, PEE19, PEE18 and TEC9) of mBanking adoption accounted for 8.25% of the total variance. The factor loadings variables range is counted for 0.603 to 0.686.

Performance Expectancy

The extracted fourth factor is performance expectancy which represents three variables (TEC8, PEE16 and PEE20) of mBanking adoption accounted for 5.48% of the total variance. The factor loadings range of the variables is from 0.632 to 0.733.

Facilitating a Condition

This is the extracted fifth factor which represents three variables (FAC32, FAC31 and TEC6) of mBanking adoption accounted nearly for 6% of the total variance. The variables range of factor loadings is from 0.600 to 0.804.

User Adoption

The sixth factor which is extracted from varimax rotation is user adoption. This factor represents three variables (USE38, USE36 and USE37) of mBanking adoption accounted for 5.83% of the variance. The factor loadings range of the variables is from 0.789 to 0.790.

Task Characteristics

This is the last extracted factor which represents three variables (TAC1, TAC3 and TAC2) of mBanking adoption accounted for 5.26% of the variance. The factor loadings the variables are 0.746, 0.735 and 0.681. This research investigates the factors influencing the intention on mBanking adoption in Bangladesh. Regarding this, a questionnaire was surveyed in integrating the conceptual framework of UTAUT and TTF models. This study attempts to observe the role of technological and social factors in forecasting people intention in mBanking adoption. The interpretation of the findings is elucidated below.

Task Technology Fit (TTF)

In Bangladesh, the use of mBanking is still in its early stage. Many people are not aware of adopting mobile to perform several banking tasks. It is clear from the study that the technology characteristics (TEC) (8.25%) is relatively more effective than task characteristics (TAC) (5.26%) on task technology fit (TTF) in mBanking adoption in Bangladesh. The growth of acceptance level of technology is accelerating which shows 8.98% variance in this research model in TTF. When customers use a technology depending on fitness among technology characteristics, this study shows that it will develop their performance expectancy. The results of the UTAUT and TTF findings in Bangladesh are consistent with the result [14,25,11].

Unified Theory of Acceptance and Usage of Technology (UTAUT)

Regarding UTAUT model, this study shows that the social influence is the dominant construct influencing the users' intention in adopting mBanking. More specifically, people in the surrounding environment are important to the users who encourage and influence intention and behavior to adopt mBanking. However, the construct export expectancy is not significant in this study. Besides, the technological development encourages towards behavioral intentions and confirms the acceptance of mBanking. The similar results are also found [39,47-49].

There are a few researches regarding users' perception on mBanking adoption conducted in the context of developing countries like Bangladesh. But in developed and western countries there are a number of research works on mBanking adoption [13]. The findings of this study will make significant contributions both for research

and practice. The result of this study also shows that users' perceptions of mBanking adoption are affected not only by the task technology fit and characteristics but also by the social influences. In this study, the social influence finding play a most significant role to adopt mBanking in a high power distant society like Bangladesh which is consistent with earlier research [14,39] but contradicts with the earlier research [26, 50]. The study also indicates that users are more experienced to use technology services in current e-life context than a few years ago. Therefore, the effects of effort expectancy is decreasing and play insignificant role in affecting users to adopt mBanking and this finding is consistent with earlier studies [11,50,51] but contradicts the finding some studies [31,34,52]. The constructs facilitating conditions was found an influential determinant in mBanking adoption [11,39,53] but insignificant in some studies [50,52].

CONCLUSION

The new contribution has been added in this study to the published literature with keeping relationship among the users' perceptions of the new technology and its fit in fulfilling banking needs, environmental effects in mBanking services, social influences and its adoption. The present study provides realization regarding the influential factors in the mBanking adoption. The research model is designed with integrating UTAUT [30] and TTF [29]. The results of this study show a significant contribution of task (TAC) and technology characteristics (TEC) in enabling task technology fit (TTF). The findings hold up the relationship of task technology fit (TTF), facilitating condition (FC) and social influence (SI) with intention to adopt mBanking. The present study also provides significant insights in the literature that can assist the banks, financial institutions and mobile operators focusing on the factors that can develop the mBanking industry. In the development and advancement of mBanking growth, the findings of this study can help the banks and mobile operators to make right decisions regarding marketing strategies for increasing mobile banking acceptance.

Managerial Implication

The present study provides an expansive approach by integrating two established theories of technology acceptance namely TTF and UTAUT to find out the most influential factors in mBanking adoption for researcher. For practitioners, the study offers valuable understandings into the noteworthy role of technology in banking service. Particularly, it offers practical insights of the behavioral and technological factors that are domineering in decision making of mBanking adoption. It is also suggested in this study that in analyzing the factors of mBanking adoption, it will not be enough to only focus on the perceptions features based on UTAUT, TAM or others but also consider the social influence and task fit on technology. The importance of social influence and technological aspects may play role in solving mBanking problems of Bangladesh from the evidence of the current study. The results of this study are not only helpful to financial institutions but also mobile

operators in planning and decision making at country level to lessen the problems relating to mBanking transactions with technological structures. The study suggests that when the banks implement mBanking services, they should design the services in such a way that will meet the needs of their customers [8]. The manager should consider a marketing segmentation strategy on the basis of age, gender, education and experience to smooth the progress of consumer technology use since the consumers are influenced by the technology use and social factors in adopting mBanking service [31].

LIMITATION AND FUTURE RESEARCH

The results obtained from this study have strong effect along with some limitations. First, the literature area and scope of this paper could be increased and the factors of adoption also could be increased. Secondly, the UTAUT model that has been used here has some criticism because of emerging the latest UTAUT2 model [31]. Thirdly, the sample is selected in this paper from one district among the 64 districts of Bangladesh.

Hence, representative sampling from the whole population of the country could increase the vigor of this study. Fourthly, the student sample has been used in this present research. Though Zhou [40] showed students are the good surrogates to mirror typical consumers but there might stay the existence of the external validity threat since they do not represent the whole population of mBanking.

Baptista and Oliveira [28,54], and other researchers have revealed the direct influences on mBanking adoption factors. However, we conducted this study in Bangladesh, where we showed the adoption of mBanking is increasing rapidly day by day as the prospects of the e-business and e-commerce are progressing rapidly. Besides, customer willingness toward adoption, their choices and tests are also dynamic. So their psychology in adopting new technology is changing with improving technology day by day. The result of this study is fit to similar circumstances that cannot be universal to the developed countries where m-commerce is widely spread. Future research can also analyze different types of mobile services with a sample of working professionals where the mobile commerce is relatively matured specially in developed countries [14]. Software technology can also play a vital role towards the evolution and the innovation of the mobile banking state of art approaches [55-60].

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