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Abstract: The proliferation of the ICT ,smart phone, mobile technologies and other devices such as tab, note pad has encourage the users, financial organization and banks to use more m-banking services than before. The adoption of ICT varies on country to country according to the nature or characteristics of the people. And now a days, m-banking is considered to be an inseparable factor for financial firms for developing and developed country. Since the prior studies has limited focus on cultural dimensions and very few study considered the importance of website quality on m-banking adoption .Therefore, we proposed a model in this study that extended the original UTAUT2 model with cultural dimensions and website quality to know the influences on the m-banking services adoption of Bangladeshi consumer. As a developing country like Bangladesh m-banking services adoption can play an important role and also motivate people to use m-banking services. This paper analyzed by applied partial least squares (PLS) with 220 samples. The study found that performance expectancy, facilitating condition and price value influences on behaviour intention but effort expectancy had no influence on m-banking adoption in this research. This study also revealed that power distance had influence on m-banking adoption and masculinity and uncertainty avoidance had no influence on behavioral intention to adopt m-banking services. The paper offers valuable insights to decision-makers involved in the implementation and deployment of m-Banking services. Moreover, the results endorse the relative significance of websites quality and culture to the adoption of m-banking services adoption. It will help the banking sectors to regulate their strategies and future plans to advance successful adoption and diffusion of m-banking services in Bangladesh.

Keyword: m-banking, Cultural dimension, Website quality, UTAUT2 and PLS-SEM and Bangladesh.

1. INTRODUCTION

Internet banking is one of the most popular e-commerce applications [1]. Most of the bank introduced internet banking to cut cost as well as improve customer services [2]. But, due to some limitation of internet banking [3], mobile banking system introduced by the financial firms [4], which considered the most information system innovation in financial sectors. Mobile banking reduces the operational cost and providing more convenient and on time services [5]. The wireless technology enhances the total number of mobile phone users which gives much opportunity to the customers to execute their commerce transaction more promptly than before. This wireless technology (mobile phone) inspires many firms to develop to offer their services through alternative delivery channel (ADC) and the rate of penetration of mobile devices brings implausible opportunities to the wireless technology users or m-service users. All these things happen due to the advancement of ICT and especially financials firms invested bulk resources in ICT development to gain competitive edge in implementing the new information technology[6].A number of research gives clear ideas about Information technology adoption models [7-12]and a few number of models elucidate about final user perspectives[13, 14].

With the steady growth of mobile banking and its importance and influence in various economic and commercial aspects of life, there are some communities including the Bangladeshi society that are still in the early stages of using m-banking technology. Despite significant growth found in last three years, mobile banking has not accepted widely in Bangladesh. According to data provided by Bangladesh Telecommunication Regulatory Commission (BTRC), there are around 160 million people in the country of which the total number of mobile phone subscribers has reached 133.163 million at the end of November, 2015, (www.btrc.gov.bd). And among these the total number of Internet Subscribers has reached 53.941 million at the end of November, 2015 (40% people has internet connection on their mobile phone) means 30% mobile users, around 31.20 million (Bangladesh Bankwww.bb.org.bd) are registered under mobile banking services which means 80.5%, around 101.963 million, people have not yet adopted mobile banking services. This provides a good indication of the low rate of mobile banking users compared with the total population who usages internet.

Researchers found the adoption of ICT depends on the characteristics of the people from where they are living and this research focus on m-banking adoption a part of ICT. There is another factor is important for the adoption of mobile banking is the website quality. Prior studies scholars adopted Hofstede four cultural dimensions[15], and five cultural dimensions[16] to study m-banking adoption. But no researches have been done in m-banking adoption in any country perspective which integrates six cultural dimensions. In this study, we introduce three dimension power distance (PD), masculinity (MF), and uncertainty avoidance (UA) among the [17] six cultural dimension model and UTAUT2 model. Since, Hofstede gather data all over the world and as a country Bangladesh score Power Distance (80), Uncertainty Avoidance (60), Masculinity versus Femininity (55), Collectivism versus Individualism (20), Pragmatic versus Normative (47), and Restraint versus Indulgence (20).Hofstede identified these three dimension has significant score for Bangladesh. The previous study on web site literature, researchers [18-21] identifies the multiple dimensions such as information quality, system quality, security, user satisfaction, service quality and ease of use. The main gaps of this study, that need to be investigated is i) penetrate three cultural dimension ii) focus on website quality and iii) low rate of m-banking user in Bangladesh. Therefore, we investigated the influence of cultural dimensions and website quality to adoption of m-banking adoption in Bangladesh

Through this paper we try to present the overview of the mobile banking aspects, mobile banking adoption with prior most acceptance models [13]UTAUT2. Further we include cultural dimensions and website quality to extend the UTAUT2 model and to know about the influences those on the adoption of m-banking especially for Bangladeshi consumer through UTAUT2 model and using PLS method.

2. LITERATURE REVIEW

2.1 About UTAUT2 Model:

In the field of information technology and technology acceptance, the Unified theory of acceptance and use of technology [12] (UTAUT) model is consider the most popular model. It consist of four construct such as performance expectancy (PE), effort expectancy (EE), facilitating conditions (FC), and social influence (SI)[12]. It is based on the eight most popular models in information success (IS) adoption studies including Technology acceptance model (TAM). The UTAUT model is an influential theory and actively used in Information success

adoption[22]. The [12] UTAUT model has an excellent acceptance in consumer perspective as well as organization perspective but it has some limitation found by[23] .Therefore [13] include other three constructs such as hedonic motivation, price value and habit with the UTAUT model to adopt UTAUT2 model in a particular consumer market hence we use this model on m-banking adoption in Bangladeshi consumer perspective. (UTAUT2) [13] presents a justification for the taking and apply of information and communication technologies (ICTs) by consumers. It constitutes an extension of the UTAUT [12] designated as UTAUT2 [13], which was devised to give details the acceptance and use of ICT specifically by the consumer, since the UTAUT was originally devised in order to explicate the issues that affect the acceptance and use of ICT by employees where UTAUT [12] was as an extension of the popular TAM [9, 10]. Researchers analyzed cultural dimensions as a moderator on mbanking adoption through the UTAUT2 model[16].

2.2 Mobile Banking and Mobile banking Adoption

Prior studies explain about the benefits of m-banking such as checking account balances, transferring funds between accounts, and accessing other banking products and services from anywhere, at any point of time,[24] . Mobile banking is an important element of e-banking that comprises an alternative delivery channel (ADC) for financial and non-financial services that offered by different institutions,[25]. The term m-banking represents in various forms such as m-banking[26], branchless banking[27], m-payments, m-transfers, m-finance[28]or p. M-banking transaction or accessibility of financial information is not popular or spread out through the mass people as expected though they offer more opportunities than before.

Researchers found significant interest in m-banking specially in practice and academia such as ,[29-31] .Some well-known accepted theories and models also studied in m-banking adoption such as technology acceptance model (TAM)[9], Innovation diffusion theory (IDT) [11], unified theory of acceptance and usage of technology (UTAUT)[12] have been used to study the adoption or the intention to adopt m-Banking. Some prior studies related with mobile banking in Bangladesh perspectives are given below: [32]using TAM model and [33] used TAM and DTPB model.

To the best of our knowledge, none of the extant studies have taken a holistic view to assess m-Banking adoption by examining the UTAUT2 model . To be our best knowledge, one research had been done by using UTAUT2 model to mobile banking services adoption with considering culture as a moderator variable[16] but no research in Bangladesh perspectives. This is our main strength to find out the influences of web site quality on m-banking services Adoption in Bangladesh. We are applying the UTAUT2 model using PLS.

2.3   Website Quality and Cultural dimension

Prior research relating to banks' websites, portals or other service and product providers interested in e-business·[34]. Investigated the concept of service quality in e-banking portals and developed their service quality model. [18] developed an instrument that captures key characteristics of website quality from the user's perspective. Resent study found that within 2017 the total number of customer of m-banking will exceed I.75 billion though it equal to only 32% of global mobile subscriber holder, Since prior research found that cultural dimensions is an important factors[35] and the information technology in affected by culture revealed by[36]. Since it plays an important role in technological acceptance [37] that's why researchers express their views to added cultural dimensions in acceptances model [38, 39].Some Scholars suggested that cultural value plays an

important moderator in technology acceptance [37] [40-43] found that culture have an unforeseen impact on adoption and that influence on user beliefs and attitudes towards the technology have an indirect impact on adoption through its influence on user beliefs and attitudes.

The adoption of ICT is depends how the countries people culturally motivated to use specially in mobile banking services [42]. Due to cultural differences in different countries affects individual behavior on technology adoption or use [40]. The adoption of mobile technology as well mobile banking depends on the telecommunication infrastructure, marketing strategies , service offerings and cultural diversity of consumers[44].Prior studies revealed that culture has an important drivers in mobile banking adoption,[15, 16] [45].

In this study author tried to examine the impact of six cultural dimensions on mobile banking adoption but few research on this areas [15, 16] discuss 4 dimensions of culture on mobile banking adoption.

Hofstede's defined culture as "the collective programming of the mind which distinguishes the members of one group or category of people from another" [46] but before that [47] define his views on culture as the process how can people settle their problems and dilemmas. Again [48] given their opinion as it is transmitted and developed ideas, symbols and different patterns of values which in important for human behaviour. Besides these concepts of culture, [49] oppose that "the assumption of homogeneity is not appropriate, particularly if the national constructs are to be integrated into IS models that reflect individual behavior…" (p. 214). But scholars give their opinion to Trompenaars, 1993, for his ideas about cultural dimensions in front of the people's eyes.

3.　HYPOTHESIS AND RESEARCH MODEL

3.1　Hypothesis

To investigate the influence of cultural dimensions and web site quality on m-banking adoption UTAUT2 model and Hofstede cultural dimensions were combined together in this research. Since UTAUT model and UTAUT2 model was found the most effective and perfect model in information technology acceptance therefore we investigated this UTAUT2 model here**.** Performance expectancy(PE) reflects user perception of performance improvement by using Internet banking on tasks, i.e., it is the degree to which an individual believes that using Internet banking will help to attain gains in performing banking tasks [12]. It reflects user perception of performance improvement by using Internet banking, such as convenience of payment, fast response, and service effectiveness [31]. Again, effort expectancy construct represents the perceived ease of use (TAM) of an IS [6, 50-53] [54] and also has a positive influence on the behavioral intention. Some features such as user interfaces, content design, and functional ability [12, 30] of mBanking can influence its adoption. Facilitating conditions is a UTAUT2 construct that is considered to have a direct effect on the technology adoption. Different form of promotion of mBanking, and support from the organization remove impediment to usage and influence adoption. A number of literature [55, 56], based on ICT found that hedonic motivation has influence on behavioral intention and actual use of that technology. Specially in consumer [13] context by UTAUT2,[13] explain that it influences both technology acceptance and usages[57-59]. The second constructs introduce in UTAUT2 is price value. According to [13], monetary cost will incur when consumer see any technology oriented services and that is related and influence on consumers buying situation. Before introducing the last and third constructs habit in UTAUT2 model, a number of studies [60, 61]. In UTAUT2 habit took from [61] which explained the use of technology has direct effect on it. In this

study, author omitted hedonic motivation and habit from the conceptual mode due not directly related to the mobile banking adoption [62] but price value is incorporated because mobile banking adoption is directly related to the financial issues . Therefore, the hypothesis are given below

No.	Hypothesis	Source
H1-H4	The influence of Performance Expectancy (PE), Effort Expectancy (EE), Facilitating Conditions (FC), and Price value (PV) on Behavioural Intention (BI) will be positive .	[13, 16]
H5	The influence of Facilitating Conditions (FC) on Usage Behaviour (UB) will be positive.	[13, 16]

As indicated by the work of [63], website quality, with its dimensions of design, structure and content, is an important factor for achieving customer satisfaction. Social influence is important for the community's satisfaction assessment, while system quality is important for search engine websites [64] .The characteristics of website system include as system, information and service quality [65]. Again, website quality affects on behavioral intention and usages intention in prior studies [66-70]. Cultural dimension, uncertainty avoidance, UA is also included in Hofstede's cultural dimensions and in most of the cultural technology adoption studies researchers frequently incorporates the UA. [71]. It has a negative relationship with the acceptance of information technology. Researchers mentioned that people in high UA cultures are less interested to accept information technology innovations like mobile banking[72] because this medium is not well suited to uncertainty reduction rather than face to-face conversations or other channels[40] .society challenges, assertiveness, earnings , ambition and dealings are considered as valued factors [17] compare than the feminist society[73]. In masculine cultures people has less interest in their online transactions, [74] .The dimension of PD has also used to study information technology adoption [43]. [75] found that people in low PD societies have higher rate of IT acceptances compare than others.

No.	Hypothesis	Source
H6-H7	Website quality (WQ) will have a positive and significant influence on behavior intention and usage behaviour to use m-banking services.	[18, 76]
H8-H10	Cultural dimensions Power Distance (PD), Uncertainty Avoidance (UA), Masculinity versus Femininity (MF) will have a positive and significant influence on Behavioural Intention (BI) to use m-banking services .	[16]
H11	Behavioural Intention (BI) will have a significant positive influence on Usage Behaviour (UB) to use m-banking services.	[13, 16]

3.2 The research Model
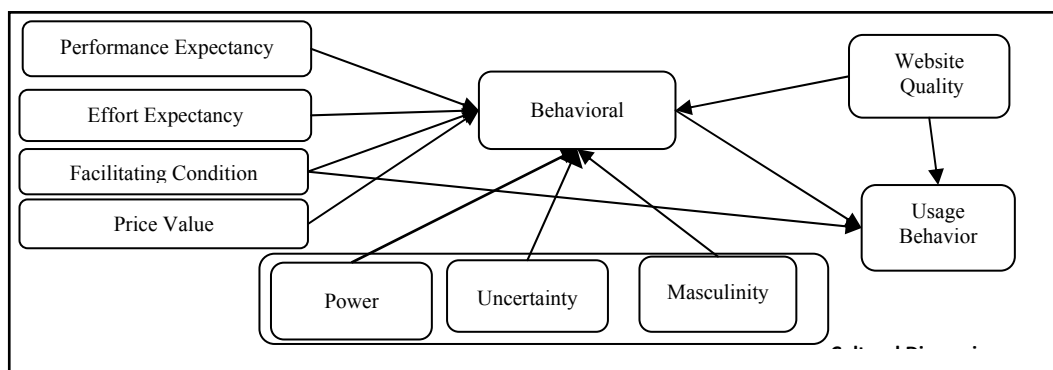
Figure 1. Proposed Research Model

4. RESEARCH DESIGN DATA ANALYSIS

4.1 Research design

A comprehensive set of questionnaire is being used in this research. The questionnaire design was divided into two sections. The first section is comprised of six questions which consist of demographic profile and sources of getting interested in mobile banking. The second section consists of 34 questions of 10 constructs. The items and scales for the UTAUT2 constructs were adapted from [12, 13] use behaviour from[12] , cultural dimension [16]and , web site quality from [76, 77]to improve content validity[78] .The participants were asked to scale the relevant facts on a Likert scales from 1 to 7 with a response continuum from "strongly disagree" to "strongly agree".We prefer to convenient sampling for our research because it is cost effective[79] and who has at least a mobile bank account in Bangladesh. Finally, we collect 220 valid data from customer to analyze. It should be noted that small sample is appropriate for Partial Least Squared (PLS)[80] .Since [81] suggested that to test the structure equation model researchers can collect data minimum 91 sample for maximum 10 of arrows pointing to the latent variable in the model. According to [82, 83] to analysis by PLS, it required the sample 10 times for the following possibilities: a) the largest number of indicator b) the depending variables that interacting through the independent variables .This study required 110 samples to make data analysis by PLS though in this study consider 220 samples which is supported by the prior studies. For data analysis SmartPLS 2.0 were used [84] Expert researchers differentiate between measurement and structural models and explicitly take measurement error into account [85].Smart PLS 2.0M3[84] was the software used to analyze the relationships defined by our theoretical model.

4.2 RESULT AND DATA ANALYSIS

4.2.1 Analysis of the Measurement Model

Table 1: Item loading, Convergent Validity, and Discriminant Validity & Reliability

Construct	Item	Loading	Construct	Item	Loading		AVE	CR	CA
PE	PE1	0.8305	WQ	WQ1	0.8525	BI	0.7614	0.9053	0.8429
	PE2	0.8558		WQ2	0.8653	EF	0.6436	0.8758	0.8319
	PE3	0.8718		WQ3	0.8234	FC	0.672	0.8585	0.7564
	PE4	0.8563	UB	UB1	0.9451	MF	0.841	0.9407	0.9054
EF	EF1	0.9285		UB2	0.945	PD	0.7893	0.9183	0.8666
	EF2	0.8345		UB3	0.9268	PE	0.7288	0.9149	0.8769
	EF3	0.8138	PD	PDI	0.885	PV	0.8159	0.9466	0.9249
	EF4	0.5946		PD2	0.8871	UA	0.6841	0.8936	0.8331
FC	FC1	0.8958		PD3	0.8932	UB	0.8817	0.9572	0.933
	FC2	0.862	MF	MF1	0.9058	WQ	0.7178	0.8841	0.8092
	FC3	0.6858		MF2	0.9186				
PV	PV1	0.8991		MF3	0.9267				
	PV2	0.9142	UA	UA1	0.5635				
	PV3	0.8943		UA2	0.8996				
	PV4	0.9053		UA3	0.8898				
BI	BI1	0.8426		UA4	0.9043				
	BI2	0.9143							
	BI3	0.8593							

In this research, measurement model was tested by the internal reliability, convergent and discriminant validity [86]where internal reliability is determine by Cronbach's alpha (CA) and composite reliability (CR)and the acceptance level of indicator is 0.70[87] . In this study the calculated value Table1 &2 both CA (range from 0.7564 to 0.9249) and CR (range from 0.8758 to 0.9572) is more than the acceptance value.

Table 2: Square root of AVE (in bold on diagonal) and factor correlation coefficients.

	BI	EF	FC	MF	PD	PE	PV	UA	UB
BI	**0.8725**								
EF	0.1562	**0.8022**							
FC	0.3846	0.1247	**0.8197**						
MF	0.4049	0.1188	0.046	**0.9170**					
PD	0.4475	0.0186	0.136	0.5128	**0.8884**				
PE	0.3657	0.2056	0.3443	0.084	0.0835	**0.8536**			
PV	0.4189	0.089	0.307	0.1711	0.1622	0.3238	**0.9032**		
UA	0.2013	0.0128	-0.0036	0.2695	0.3689	0.061	0.0791	**0.8271**	
UB	0.4395	0.0538	0.3662	0.1744	0.1135	0.4219	0.4905	0.1137	**0.9389**

Convergent validity is acceptable when constructs have an average variance extracted (AVE) of at least 0.50][88] where in our study also support this because AVE values stands from 0.6436 to 0.8817. from Table 1.Discriminant validity is assessed by AVE with the square of the correlations among constructs[89]. Table 2. below shows the result of the square root of the AVE given in the diagonals which are higher than the correlation among the constructs. Gefen and Straub (2005) And [90]suggested that square root of the AVE of each construct needs to be much larger, although there are no guidelines about how much larger, than any correlation between this construct and any other construct.

4.2.2 Analysis of the Structural Model

The structural model was developed to identify the relationships among the constructs in the research model. Bootstrap method was used to test the hypothesis [91, 92] .In our study tested the relationship between dependent and independent variables by path coefficient (β).[88] path coefficients with standardized values above 0.20 are usually significant and those with values below 0.10 are usually not significant. The model explains 44.8% of the variance in intention to use m-banking (0.448) and 28.5 % of variance in actual use of m-banking (0.285) from figure 2.
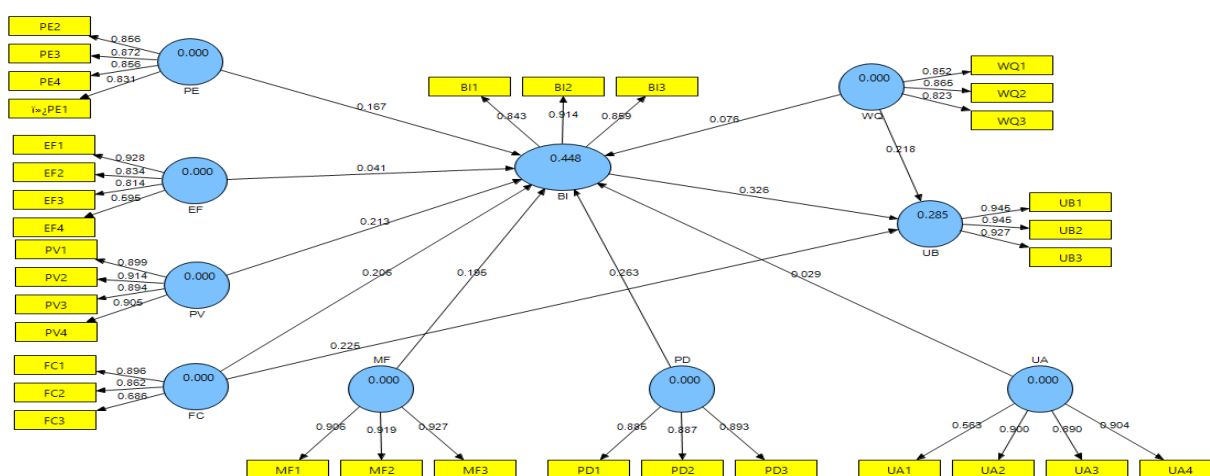
Figure 2.Path Model of the Mobile banking adoption.

Table 3: Summary of test results for the structural model

Hypothesis	Path	Coefficient	t-Statistics	p-Value	Comments
H11	BI -> UB	0.326	2.7955	0.0056	Supported
H2	EF -> BI	0.041	0.3825	0.7024	Not supported
H3	FC -> BI	0.206	2.2713	0.0241	supported
H4	FC -> UB	0.225	1.9366	0.0540	Supported
H10	MF -> BI	0.195	1.7835	0.0758	Not Supported
H8	PD -> BI	0.263	2.2048	0.0285	Supported
H1	PE -> BI	0.167	1.9019	0.0584	Supported
H5	PV -> BI	0.213	2.0918	0.0376	Supported
H9	UA -> BI	0.029	0.2581	0.7965	Not supported
H6	WQ -> BI	0.076	0.8664	0.3872	Not supported
H7	WQ -> UB	0.218	2.2018	0.0287	Supported

R^2 for BI=.448, R^2 for UB=.285

5. DISCUSSION ANF FINDINGS

Here we discuss about the result of our proposed extended UTAUT2 model by findings the consistency and inconsistency of the previous study on mobile banking adoption on[13] UTAUT2 model with[93]cultural dimensions model[16] found significant relationship with BI→UB (.121), PE→BI (.362) and rest of the relationship found insignificant on mobile banking adoption on UTAUT2 model. This finding is same as our findings. From Table 3 author found BI → UB (.326), PE→BI (0.1675), EF→BI (0.0413), FC→BI (0.2061), FC→UB (0.2247), PV→BI (0.213), and rest of the relationship found insignificant of the UTAUT2. Performance expectancy result is consistency with the research [6, 16, 31]. Effort expectancy is not supported by[15, 31, 94] similarly supported by our findings as well as [16], where some research found no consistency with behavioral intention like[16]. Facilitating condition has positive influence on usages behavior and behavioral intention. Prior research had the same findings for usages behavior [6, 16, 36] but not supported to [62]. Price value has no influence on behavioral intention with some earlier research[16, 95, 96] but our findings is supported which is same as others[13, 51]. Uncertainty avoidance is supported by [16, 93, 97] but not supported by our findings. Power distance was supported by [16, 37, 93, 98] that is same as this research findings. Masculinity has no influence on behavioral intention , is supported by[16, 98], but contradicting others that did find it to be significant[93, 99]. And in case of web site quality our result WQ→UB (2.2018) is consistent with the results of several studies, but WQ→BI (.0759) is not supported, all of which reported that website quality affects behavioural intention, usage behaviour, and user satisfaction in their decision to adopt mobile banking services adoption[19, 66, 68, 70, 76]. By considering cultural dimension PD found to be influence to the behavioral intention. Therefore we can say H8 was supported. This findings is similar with the[16] in case of power distance but not with uncertainty avoidance. Again, rests of the dimension MF, UA are not found influence on mobile banking adoption. So, in this paper we can say H9, H10 was not supported. This findings also supported by[16] for masculinity dimensions but in this study not supported.

6. CONCLUSION

The purpose of the study was to identify the influence of cultural dimension and web site quality to

adoption of mobile banking in Bangladesh which is considered to be a vital factor for the consumers to adopt mobile banking services. Based on the prior studies on mobile banking adoption, authors extend the UTAUT2 model with adding website quality and cultural dimensions. Our result is consistent with the Hofstede cultural dimension characteristics explained in original model in power distance perspectives but contradict with the masculinity and uncertainty avoidance. Therefore, future research will be focus on t masculinity and uncertainty avoidance to study in same country as well other country. Since in Bangladesh e-commerce service provider and users can take financial advantage from the adoption [100], also in our study customers are benefited by using mobile banking service. This paper is not out of limitation. Author studied the impact of website quality on usages behavior which is not consistent with the existing result because the prior studies considered small samples. Therefore, future research can be study website quality on m-banking adoption to generalize the findings. The original model has some moderators but we make our study simple by excluding those as well as we do not take cross cultural approach which may limit the generalizability of our study. Further research should include cultural dimension as a moderator variable like willingness to share [101]or demographic variables as moderators and perceived risk, trust or brand equity as external variable which can explain behavioral intention and usages behavior better than our research. And to some extent our study required qualitative research to know more insight the findings for further study.

REFERENCE

1. Lee, M.-C., *Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit.* Electronic Commerce Research and Applications, 2009. **8**(3): p. 130-141.

2. Xue, M., L.M. Hitt, and P.-y. Chen, *Determinants and outcomes of internet banking adoption.* Management science, 2011. **57**(2): p. 291-307.

3. Bielski, L., *Striving to create a safe haven online: ID theft, worms, bugs, and virtual eavesdropping banks cope with escalating threat.* ABA Banking Journal, 2003. **95**(5).

4. Lin, H.-F., *An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust.* International journal of information management, 2011. **31**(3): p. 252-260.

5. Gerrard, P. and J. Barton Cunningham, *The diffusion of internet banking among Singapore consumers.* International Journal of Bank Marketing, 2003. **21**(1): p. 16-28.

6. Oliveira, T., et al., *Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM.* International Journal of Information Management, 2014. **34**(5): p. 689-703.

7. Bass, F., *A New Product Growth Model for Consumer Durables. Management Sciences.* Institute for Operations Research and the Management Sciences. Evanston, XV (5), 1969.

8. Fenn, J. and M. Raskino, *Mastering the hype cycle: how to choose the right innovation at the right time.* 2008: Harvard Business Press.

9. Davis, F.D., *Perceived usefulness, perceived ease of use, and user acceptance of information technology.* MIS quarterly, 1989: p. 319-340.

10. Davis, F.D., R.P. Bagozzi, and P.R. Warshaw, *User acceptance of computer technology: a comparison of two theoretical models.* Management science, 1989. **35**(8): p. 982-1003.

11. Rogers, E., *Diffusion of Innovations (4th Eds.) ACM The Free Press (Sept. 2001).* New York, 1995: p. 15-23.

12. Venkatesh, V., et al., *User acceptance of information technology: Toward a unified view.* MIS quarterly, 2003: p. 425-478.

13. Venkatesh, V., J.Y. Thong, and X. Xu, *Consumer acceptance and use of information technology: extending the unified*

theory of acceptance and use of technology. MIS quarterly, 2012. **36**(1): p. 157-178.

14. Pagani, M., *Determinants of adoption of third generation mobile multimedia services.* Journal of interactive marketing, 2004. **18**(3): p. 46-59.

15. Bankole, F.O., O.O. Bankole, and I. Brown, *Mobile banking adoption in Nigeria.* The Electronic Journal of Information Systems in Developing Countries, 2011. **47**.

16. Baptista, G. and T. Oliveira, *Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators.* Computers in Human Behavior, 2015. **50**: p. 418-430.

17. Hofstede, G., G.J. Hofstede, and M. Minkov, *Cultures and organizations, software of the mind. Intercultural cooperation and its importance for survival.* 2010.

18. Aladwani, A.M. and P.C. Palvia, *Developing and validating an instrument for measuring user-perceived web quality.* Information & management, 2002. **39**(6): p. 467-476.

19. Delone, W.H. and E.R. McLean, *The DeLone and McLean model of information systems success: a ten-year update.* Journal of management information systems, 2003. **19**(4): p. 9-30.

20. Hoffman, D.L., T.P. Novak, and M. Peralta, *Building consumer trust online.* Communications of the ACM, 1999. **42**(4): p. 80-85.

21. Urban, G.L., C. Amyx, and A. Lorenzon, *Online trust: state of the art, new frontiers, and research potential.* Journal of Interactive Marketing, 2009. **23**(2): p. 179-190.

22. Hong, W., et al., *User acceptance of agile information systems: a model and empirical test.* Journal of Management Information Systems, 2011. **28**(1): p. 235-272.

23. Negahban, A. and C.-H. Chung, *Discovering determinants of users perception of mobile device functionality fit.* Computers in Human Behavior, 2014. **35**: p. 75-84.

24. Ensor, B., T. Montez, and P. Wannemacher, *The state of mobile banking 2012.* Forrester Research, USA, 2012.

25. Shaikh, A.A. and H. Karjaluoto, *Mobile banking adoption: A literature review.* Telematics and Informatics, 2015. **32**(1): p. 129-142.

26. Liu, Z., Q. Min, and S. Ji. *An empirical study on mobile banking adoption: The role of trust.* in *Electronic Commerce and Security, 2009. ISECS'09. Second International Symposium on.* 2009. IEEE.

27. Ivatury, G. and I. Mas, *The early experience with branchless banking.* CGAP Focus Note, 2008(46).

28. Donner, J. and C.A. Tellez, *Mobile banking and economic development: Linking adoption, impact, and use.* Asian journal of communication, 2008. **18**(4): p. 318-332.

29. Gu, J.-C., S.-C. Lee, and Y.-H. Suh, *Determinants of behavioral intention to mobile banking.* Expert Systems with Applications, 2009. **36**(9): p. 11605-11616.

30. Kim, G., B. Shin, and H.G. Lee, *Understanding dynamics between initial trust and usage intentions of mobile banking.* Information Systems Journal, 2009. **19**(3): p. 283-311.

31. Zhou, T., Y. Lu, and B. Wang, *Integrating TTF and UTAUT to explain mobile banking user adoption.* Computers in Human Behavior, 2010. **26**(4): p. 760-767.

32. Ahad, M.T., L.E. Dyson, and V. Gay, *An empirical study of factors influencing the SME's intention to adopt m-banking in rural Bangladesh.* Journal of Mobile Technologies, Knowledge & Society, 2012. **2012**: p. 1-16.

33. Siddik, M.N.A., et al., *Financial Inclusion through Mobile Banking: A Case of Bangladesh.* Journal of Applied Finance and Banking, 2014. **4**(6): p. 109.

34. Bauer, H.H., M. Hammerschmidt, and T. Falk, *Measuring the quality of e-banking portals.* International journal of bank marketing, 2005. **23**(2): p. 153-175.

35. Lonner, W.J., J.W. Berry, and G.H. Hofstede, *Culture's Consequences: International Differences in Work-Related Values.* University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship, 1980.

36. Im, I., S. Hong, and M.S. Kang, *An international comparison of technology adoption: Testing the UTAUT model.* Information & Management, 2011. **48**(1): p. 1-8.

37. Srite, M. and E. Karahanna, *The role of espoused national cultural values in technology acceptance.* MIS quarterly, 2006: p. 679-704.

38. Park, J., S. Yang, and X. Lehto, *Adoption of mobile technologies for Chinese consumers.* Journal of Electronic Commerce Research, 2007. **8**(3): p. 196-206.

39. Al-Gahtani, S.S., G.S. Hubona, and J. Wang, *Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT.* Information & Management, 2007. **44**(8): p. 681-691.

40. Straub, D., M. Keil, and W. Brenner, *Testing the technology acceptance model across cultures: A three country study.* Information & management, 1997. **33**(1): p. 1-11.

41. Zakour, A.B. *Cultural differences and information technology acceptance.* in *Proceedings of the 7th annual conference of the Southern association for information systems.* 2004.

42. Min, Q., S. Ji, and G. Qu, *Mobile commerce user acceptance study in China: a revised UTAUT model.* Tsinghua Science & Technology, 2008. **13**(3): p. 257-264.

43. Veiga, J.F., S. Floyd, and K. Dechant, *Towards modelling the effects of national culture on IT implementation and acceptance.* Journal of Information Technology, 2001. **16**(3): p. 145-158.

44. Harris, P., R. Rettie, and C.K. Cheung, *Adoption and usage of m-commerce: A cross-cultural comparison of Hong Kong and the United Kingdom.* Journal of Electronic Commerce Research, 2005. **6**(3): p. 210-224.

45. Laukkanen, T. and P. Cruz. *Cultural, individual and device-specific antecedents on mobile banking adoption: a cross-national study.* in *System Science (HICSS), 2012 45th Hawaii International Conference on.* 2012. IEEE.

46. Hofstede, G., *Cultures and organisations-software of the mind: intercultural cooperation and its importance for survival.* 1991: McGraw-Hill.

47. Schein, E.H., *Organisational culture and leadership: A dynamic view.* San Francisco, 1985.

48. Kroeber, A.L. and T. Parsons, *The concepts of culture and of social system.* American Sociological Review, 1958. **23**(5): p. 582-583.

49. McCoy, S., D.F. Galletta, and W.R. King, *Integrating national culture into IS research: The need for current individual level measures.* Communications of the Association for Information Systems, 2005. **15**(1): p. 12.

50. Kuo, Y.-F. and S.-N. Yen, *Towards an understanding of the behavioral intention to use 3G mobile value-added services.* Computers in Human Behavior, 2009. **25**(1): p. 103-110.

51. Luarn, P. and H.-H. Lin, *Toward an understanding of the behavioral intention to use mobile banking.* Computers in human behavior, 2005. **21**(6): p. 873-891.

52. Martins, C., T. Oliveira, and A. Popovič, *Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application.* International Journal of Information Management, 2014. **34**(1): p. 1-13.

53. Miltgen, C.L., A. Popovič, and T. Oliveira, *Determinants of end-user acceptance of biometrics: Integrating the "Big 3" of technology acceptance with privacy context.* Decision Support Systems, 2013. **56**: p. 103-114.

54. Wang, Y.S., H.H. Lin, and P. Luarn, *Predicting consumer intention to use mobile service.* Information systems journal, 2006. **16**(2): p. 157-179.

55. Van der Heijden, H., *User acceptance of hedonic information systems.* MIS quarterly, 2004: p. 695-704.

56. Thong, J.Y., S.-J. Hong, and K.Y. Tam, *The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance.* International Journal of Human-Computer Studies, 2006. **64**(9): p. 799-810.

57. Brown, S.A. and V. Venkatesh, *Model of adoption of technology in households: A baseline model test and extension incorporating household life cycle.* MIS quarterly, 2005: p. 399-426.

58. Carlsson, C., et al. *Adoption of mobile devices/services-searching for answers with the UTAUT.* in *System Sciences, 2006. HICSS'06. Proceedings of the 39th Annual Hawaii International Conference on.* 2006. IEEE.

59. Childers, T., C. Carr, and J. Peck, *Carson.* 2001.

60. Kim, S.S. and N.K. Malhotra, *A longitudinal model of continued IS use: An integrative view of four mechanisms underlying postadoption phenomena.* Management science, 2005. **51**(5): p. 741-755.

61. Limayem, M., S.G. Hirt, and C.M. Cheung, *How habit limits the predictive power of intention: the case of information systems continuance.* Mis Quarterly, 2007: p. 705-737.

62. Mahfuz, M.A., L.K. and, and D.S.A. Mutharasu., *The Influence of Website Quality on m-banking Services Adoption in Bangladesh: applying the UTAUT2 model using PLS.*, in *International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT) - 2016.* Chennai,Tamil Naru, India.

63. Floh, A. and H. Treiblmaier, *What Keeps the E-Banking Customer Loyal? A Multigroup Analysis of the Moderating Role of Consumer Characteristics on E-Loyalty in the Financial Service Industry.* A Multigroup Analysis of the Moderating Role of Consumer Characteristics on E-Loyalty in the Financial Service Industry.(March 26, 2006), 2006.

64. Schaupp, L.C., W. Fan, and F. Belanger. *Determining success for different website goals.* in *System Sciences, 2006. HICSS'06. Proceedings of the 39th Annual Hawaii International Conference on.* 2006. IEEE.

65. Li, W.Z. and A.Y. Jiao. *The impact of website and offline equality on relationship quality: an empirical Study on e-retailing.* in *Wireless Communications, Networking and Mobile Computing, 2008. WiCOM'08. 4th International Conference on.* 2008. IEEE.

66. Ahn, T., S. Ryu, and I. Han, *The impact of Web quality and playfulness on user acceptance of online retailing.* Information & Management, 2007. **44**(3): p. 263-275.

67. Collier, J.E. and C.C. Bienstock, *Model misspecification: contrasting formative and reflective indicators for a model of e-service quality.* Journal of Marketing Theory and Practice, 2009. **17**(3): p. 283-293.

68. Nelson, R.R., P.A. Todd, and B.H. Wixom, *Antecedents of information and system quality: an empirical examination within the context of data warehousing.* Journal of management information systems, 2005. **21**(4): p. 199-235.

69. Parasuraman, A., V.A. Zeithaml, and A. Malhotra, *ES-QUAL a multiple-item scale for assessing electronic service quality.* Journal of service research, 2005. **7**(3): p. 213-233.

70. Wixom, B.H. and P.A. Todd, *A theoretical integration of user satisfaction and technology acceptance.* Information systems research, 2005. **16**(1): p. 85-102.

71. Leidner, D.E. and T. Kayworth, *Review: a review of culture in information systems research: toward a theory of information technology culture conflict.* MIS quarterly, 2006. **30**(2): p. 357-399.

72. Bagchi, K., P. Hart, and M.F. Peterson, *National culture and information technology product adoption.* Journal of Global Information Technology Management, 2004. **7**(4): p. 29-46.

73. Hofstede, G., *Germany.* online], The Hofstede Centre, http://geert hofstede. com/germany. html, accessed June, 2014. **7**.

74. Stafford, T.F., A. Turan, and M.S. Raisinghani, *International and cross-cultural influences on online shopping behavior.* Journal of Global Information Technology Management, 2004. **7**(2): p. 70-87.

75. Al-Hujran, O., M. Al-dalahmeh, and A. Aloudat, *The role of national culture on citizen adoption of eGovernment services: an empirical study.* Electronic Journal of E-government, 2011. **9**(2): p. 93-106.

76. Alshehri, M., et al. *The Effects of Website Quality on Adoption of E-Government Service: AnEmpirical Study Applying UTAUT Model Using SEM.* in *Australasian Conference On Information Systems* 2012.

77. Aladwani, A.M., *An empirical test of the link between web site quality and forward enterprise integration with web consumers.* Business Process Management Journal, 2006. **12**(2): p. 178-190.

78. Straub, D., M.-C. Boudreau, and D. Gefen, *Validation guidelines for IS positivist research.* The Communications of the Association for Information Systems, 2004. **13**(1): p. 63.

79. Eze, U.C., et al. *Factors affecting internet banking adoption among young adults: Evidence from Malaysia.* in *International Conference on Social Science and Humanity.* 2011.

80. Chin, W.W. and P.R. Newsted, *Structural equation modeling analysis with small samples using partial least squares.* Statistical strategies for small sample research, 1999. **2**: p. 307-342.

81. Marcoulides, G.A. and C. Saunders, *Editor's comments: PLS: a silver bullet?* MIS quarterly, 2006: p. iii-ix.

82. Chin, W.W., *The partial least squares approach to structural equation modeling.* Modern methods for business research, 1998. **295**(2): p. 295-336.

83. Barclay, D., C. Higgins, and R. Thompson, *The partial least squares (PLS) approach to causal modeling: Personal*

computer adoption and use as an illustration. Technology studies, 1995. **2**(2): p. 285-309.

84. Ringle, C.M., S. Wende, and S. Will, *SmartPLS 2.0 (M3) Beta, Hamburg 2005*. 2005, OpenURL.

85. Henseler, J., C.M. Ringle, and R.R. Sinkovics, *The use of partial least squares path modeling in international marketing.* Advances in International Marketing (AIM), 2009. **20**: p. 277-320.

86. Hair Jr, J.F., et al., *A primer on partial least squares structural equation modeling (PLS-SEM)*. 2013: Sage Publications.

87. Hair, J.F., et al., *Multivariate data analysis*. Vol. 6. 2006: Pearson Prentice Hall Upper Saddle River, NJ.

88. Hair Jr, J.F., Hult, G Tomas M Ringle, Christian and Sarstedt, Marko, *A primer on partial least squares structural equation modeling (PLS-SEM).* 2014, SAGE Publications, Inc. p. 73-94

89. Hair, J.F., C.M. Ringle, and M. Sarstedt, *PLS-SEM: Indeed a silver bullet.* Journal of Marketing theory and Practice, 2011. **19**(2): p. 139-152.

90. Gefen, D. and D. Straub, *A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example.* Communications of the Association for Information systems, 2005. **16**(1): p. 5.

91. Hofstede, G., *Dimensionalizing cultures: The Hofstede model in context.* Online readings in psychology and culture, 2011. **2**(1): p. 8.

92. Erumban, A.A. and S.B. De Jong, *Cross-country differences in ICT adoption: A consequence of Culture?* journal of world business, 2006. **41**(4): p. 302-314.

93. G., H., *Cultural consequences: International differences in work-related values.* 1980: Sage Publications.

94. Faria, M.G., *Mobilie Banking adoption: a novel in the portuguese context.* 2013.

95. Karjaluoto, H., et al., *Predicting young consumers' take up of mobile banking services.* International Journal of Bank Marketing, 2010. **28**(5): p. 410-432.

96. Yang, S., et al., *Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits.* Computers in Human Behavior, 2012. **28**(1): p. 129-142.

97. Lee, I., et al., *Culture-technology fit: Effects of cultural characteristics on the post-adoption beliefs of mobile Internet users.* International Journal of Electronic Commerce, 2007. **11**(4): p. 11-51.

98. Sriwindono, H. and S. Yahya, *Toward Modeling the Effects of Cultural Dimension on ICT Acceptance in Indonesia.* Procedia-Social and Behavioral Sciences, 2012. **65**: p. 833-838.

99. Yoon, C., *The effects of national culture values on consumer acceptance of e-commerce: Online shoppers in China.* Information & Management, 2009. **46**(5): p. 294-301.

100. Hoque, M.R., M.A. Ali, and M.A. Mahfuz, *An Empirical Investigation on the Adoption of E-Commerce in Bangladesh.* Asia Pacific Journal of Information Systems, 2015. **25**(1): p. 1-24.

101. Lee, I., J. Kim, and J. Kim, *Use contexts for the mobile internet: a longitudinal study monitoring actual use of mobile internet services.* International Journal of Human-Computer Interaction, 2005. **18**(3): p. 269-292.