

Investigation of the Effects of Task Technology Fit, Attitude and Trust on Intention to Adopt Mobile Banking: Placing the Mediating Role of Trialability

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Abstract

The purpose of this study was to investigate the proposed model in which effect of trust, attitude and task technology fit are taken as independent variables and intention to m-banking adoption as dependent variable. The study also analyzes the mediating role of trialability between the independent and dependent variables. To find out how much variance each of the independent variables contribute in dependent variable, Structural equation modeling (SEM) approach is applied on the data sample of 271 respondents from Pakistan. The confirmatory factor analysis (CFA) suggested a good model fit. The results from SEM analysis revealed a model R-square of 0.55. It suggested the significant effect of attitude and task technology fit on intention to adopt m-banking. The analysis further explained the presence of mediating role of trialability between the relationship of intention to adopt m-banking and trust, attitude and task technology fit. The study also provides implications, limitations and future research suggestions.

Keywords: m-banking, mobile banking adoption, Intention, trialability, attitude, task technology fit, trust, Pakistan

1. Introduction

The inventions in the field of information and communication technology (ICT) have revolutionized the banking industry in delivering financial services to its customers. The accelerating growth in 3G, 4G communication technologies and increasing usage of portable devices i.e. smart phones and tablets have created viable business opportunities not just for telecommunication industries but financial industries as well (Yu, 2012). The dynamics of banking across the world has gradually become more competitive and turbulent. Therefore, in order to attract more and retain existing customers, banks are always in search of innovative solutions that maintain their competitiveness. The competitive strategy in this quest is to provide mobile banking (m-banking) through the use of mobile communication technologies on portable devices being used by mass population. M-banking is the latest technological development (Dasgupta et al., 2010) and is the use of financial services through the use of portable devices at anywhere and anytime. The changes in technology and customer preferences have significant effect on service delivery (Byers & Lederer, 2001) so the banks are establishing m-banking service channels for their customers in order to gain market share and remain competitive. Due to its utmost importance and the widespread usage of portable devices establishment of m-banking, now a days, has included as key part in the strategic goal of financial institutions (Lin, 2011; Nysveen et al., 2005). Therefore, the understanding, how customers adopt this delivery channel, will have vital implications for the financial institutions (Zhou et al., 2010). Shaikh and Karjaluo (2015) mentioned the rise and importance of the innovative m-banking services in developing countries such as Philippines, Malaysia and Pakistan to meet customers' needs who live in remote areas. Emerging countries have large potential to adopt m-banking because of majority population in these countries has limited ATMs, low banking access, less diffusion rate of Internet broadband services, less education and less money (Ivatury & Mas, 2008). Providing banking services in those countries will help low income markets and may also create new investment opportunities for the banking companies. Therefore, by establishing m-banking services, banks can cover larger population as customers in developing countries

frequently conduct small value transaction. Pakistan is a developing country and there is huge potential for adoption of m-banking. Not only financial institutions but also people are adopting latest mobile banking services and growth in this area is accelerating. For this purpose, the present study sheds light on the literature of mobile banking by providing a comprehensive framework that aims to explore, the practical aspect of technology in executing routine tasks, the attitude towards m-banking, the effect of trialability and the trust as m-banking is mainly rely on the absence of direct relationship with the bank and lack of prior experience may cause uncertainty. Moreover, the present study contributes further to the existing literature to explore the mediating effect of trialability by following future research recommendations of Ha et al. (2012). In their review research, Ha et al. (2012) found that most of the studies, done before, addressed the direct effects on the adoption of m-banking and recommended to include mediating factors as these factors may be significantly influence the relationship to factors affecting m-banking adoption and the adoption itself. The findings from this study will help banks to understand how customers adopt m-banking and improve their services.

1.1 Literature Review, Model and Hypotheses Development

The literature on electronic banking has filled with a pool of studies focusing the internet banking. These studies provide profound understanding of the diffusion pattern of internet banking. While mobile banking (m-banking) is the latest version in this domain and recently has gained considerable attention from the authors. This is evident from the work of Shaikh and Karjaluoto (2015) who mentioned that 65% of the studies on m-banking adoption were carried on during 2010 to 2012 emphasizing developing countries. Up till now, the studies conducted are either based on triangulation method or other used extended versions of Technology acceptance models (TAM). In recent literature on m-banking, several studies conducted are based on examining the factors effecting the adoption, application of m-banking. According to the authors, the prominent factor in investigating the antecedents of adoption was trust (Malaquias & Hwang, 2016; Jain, 2013; Lin, 2011; Zhou, 2011). In earlier studies, trust is defined as a belief of a company in the honesty of its business partners and other factors relevant (Hanafizadeh et al., 2014). In any business transaction, trust is a key factor (Wang et al., 2015) and in mobile commerce where sellers and buyers are unknown to each other, it plays vital role to minimize the uncertainty (Li & Yeh, 2010; Wang et al., 2015). Likewise, building trust for m-banking adoption is also essential for banks otherwise customers won't adopt it and there will be no use of establishing this technology (Zhou, 2012a; Zhou, 2012b). In Pakistan, Afshan and Sharif (2016) conducted the study by integrating three frameworks (task technology fit, unified theory of acceptance and use of technology, initial trust model). By applying structural equation modeling (SEM) on a sample of 198 respondents, the findings revealed that initial trust and task technology fit have significant relationship in explaining the adoption of m-banking. In Brazil, Malaquias and Hwang (2016) conducted the study on sample of 1077 respondents to see the impact of trust on mobile banking adoption in developing country. Their work argued that in order to promote m-banking adoption, building trust is necessary because it eliminates the asymmetric information. In China, Lin et al. (2014) undertook longitudinal study to investigate the effect of trust on pre and post usage of m-banking and m-commerce. Their research revealed that pre use trust impacts directly and indirectly the usage of m-banking while post use trust is elevated by satisfaction which ensure future usage of m-banking. Due to the unique characteristics ubiquity (Akturan & Tezcan, 2012; Ha et al., 2012; Zhou, 2012a) customers may face issues which dilute the level of trust as they do not have prior experience of m-banking. In our present study, the inclusion of trust has rationale to see its impact on adoption of m-banking. Therefore it can be hypothesized that customers' trust increase the confidence to adopt m-banking.

H₁. The relationship between trust and intention to adopt m-banking is positive.

Next, Attitude is the desire to use the system after its evaluation (Akturan & Tezcan, 2012). Attitude exhibits person's assessment about behavior. The assessment may be favorable or unfavorable and influences the intention strength (Lee, 2009). In making adoption decision, Nui-Polatoglu and Ekin (2001) describe attitude as individual's beliefs about the entity or object and its perceived weigh of importance. Several authors have found attitude of an individual as key variable in determining the behavioral intention to adopt mobile banking. In their study, Kim et al. (2009) argued that various small transections can be executed using m-banking in order to minimize the cost (increase profit) and stated attitude is crucial in explaining the technology adoption. Additionally, to investigate the intention to use internet banking, Nasri and Charfeddine (2012) found the similar conclusion that attitude positively influences the intention. Puschel et al. (2010) also examined the Brazilian user's intention to m-banking adoption and stated that attitude has a significant impact on intention. Related to m-banking adoption intention, the work of sheikh et al. (2015), Akturan and Tezcan (2012), Lin (2011), Hsu et al. (2011), Wessels and Drennan (2010) and Schierz et al. (2010) suggested the significance of attitude in m-banking adoption intention. Thus, the inclusion of attitude in developing the framework of mobile banking adoption

behavior is concurrent with the previous research studies and a corner stone to develop our second hypothesis is:

H₂. The relationship between Attitude and intention to adopt mobile banking is positive.

Further, task technology fit refers to the degree people will use technology to support their work. Goodhue and Thompson (1995) argues that merely perception about technology will not make customers to accept new technology. Customers will adopt this new technology if it is smart enough to perform daily task. Oliveira et al. (2014) acknowledged the foundations of TTF and calls it rational perspective. According to Oliveira et al. (2014), "TTF is the rational perspective of what a new technology can do to optimize a job". The models for adoption of new technologies in several studies are based on individual's perception (Afshan & Sharif, 2015) where TTF argue individual will adapt certain technology if it has practical implications for his daily routine. Janglas et al. (2008) and Lee et al. (2007) suggested the same that people will not use the technology if the technology brings no progress in execution. They proposed task technology fit as a focus on efficiency and productivity rather behavioral intention. Behavioral characteristics are also important to consider as these impact how easily a person will adapt the technology (Goodhue, 1995). The task technology fit has already been used and significantly proven by several other studies (Lee et al., 2007; Lin & Hunag, 2008; Janglas et al., 2008; Shang et al., 2009; Gebauer & Ginsburg, 2009). In the context of m-banking, the significance of TTF in m-banking adoption can be found in the studies of Zhou et al. (2010), Afshan and Sharif (2015), and Oliveira et al. (2014). Zhou et al. (2010) examined m-banking user adoption in China and found TTF a significant contributor. Afshan and Sharif (2015) stated the significance of TTF in m-banking adoption in Pakistan. Similarly Oliveira et al. (2014) also found TTF a significant construct in intention to m-banking adoption in Portugal. Thus inclusion of TTF is a practical approach regarding m-banking technology usage and TTF is significantly important in the framework of m-banking adoption. Therefore, it is expected that TTF have positive relationship with m-banking adoption.

H₃. The relationship between task technology fit and intention to adopt mobile banking is positive.

Additionally, trialability refers the specified period of usage of innovative technology for free trial. According to Rogers and Shoemaker (1971), "It is the degree to which innovation can be tried on a limited basis". Puschel et al. (2010) mentioned that new innovative ideas with trialability feature are adapted more frequently than those who don't offer. They define it as "Perception of individuals about how much banks offer chances for them to try mobile banking services". Furthermore they added individual attitude will be better towards m-banking services if the perception about trialability is clearer. Trialability also leads to the reduction of unknown fear attached to adoption (Tan & Teo, 2000). In several studies trialability has been focused as an integral part of not only the already established theories of technology adoption but also the proposed frameworks related to internet banking. Prior studies suggested its positive influence towards acceptance of internet banking (Tan & Teo, 2000; Md Nor & Pearson, 2007; Wang, 2010; Al-Majali & Mat, 2011). Therefore, it is important to consider trialability in the context of m-banking that it has positive influence on intention to adopt m-banking. From the above discussion, we generated our forth hypothesis;

H₄. The relationship between trialability and intention to adopt mobile banking is positive.

1.2 Trust, Attitude, Task Technology Fit (TTF) and Trialability as Mediator

It is crucial to observe the impact of trust as utility of m-banking is mostly attached to its feature of ubiquity. In order to earn trust, users' fear of loss of personal and financial information must be safeguarded and banks assurance is required (Kim et al., 2009). In early adoption decision process, trialability can foster the trust. Customers, through their mobiles and tablets, can use banking services to conduct financial transactions during the trial period and experience its usefulness. Through the time of trial period, customer experience with the m-banking increases and causes initial trust to develop gradually. So with trialability, trust issues like fear of financial and personal information loss can be reduced. Thus it can be contended that trust may lead to adoption but with the provision of trialability the adoption of the m-banking will be quicker. This support our argument that trialability intervene initial trust and m-banking adoption relationship. Moreover, trialability may also impact on attitude of customers towards adoption of services. Before to gather knowledge and control over technology usage which later build attitude towards acceptance of innovation. Dash et al. (2014) mentioned that customers do not exhibit early adaptation of innovation rather they exert late adaptation. Their findings show that trialability influence on attitude among Indian consumers. Contrary to findings of Dash et al. (2014), Puschel et al. (2010) mentioned trialability does not affect the attitude that drive the usage of m-banking services in Brazil. Their study also suggested the further investigation needed in this matter. Based on the above debate, it can be reasonably proposed that attitude leads to adoption but when trialability is the added feature then time between the process of attitude and adoption decision can be minimized. In other words trialability intervene between the relationship between attitude and adoption.

Additionally, Zhou et al. (2010) suggested that the m-banking delivery channel is more appropriate to those users who are unbanked or frequent travelers. Inclusion of TTF will give the signals to target users to use the m-banking. Therefore, considering task technology fit is important for financial institutions when designing m-banking delivery channel because users will not use the new technology if they think that the technology is not adequate to carry out their routine tasks (Janglas et al., 2008; Lee et al., 2007). According to Dash et al. (2014), users exert late adaptation of innovative technology. It is quite understood that if customers are provided the chance to trial, they consider to buy or adopt the product and service more quickly than those who are not provided the chance of trial. The provision of trialability can lead to early adoption and when people are given chance to use the m-banking services on their mobiles and tablets for specific period of time. Thus in order to promote m-banking, the trialability feature may attract more users and leads to the adoption. Hence, it can be argued that trialability mediates the relationship between TTF and m-banking. The following hypotheses are generated on the basis of above arguments;

H₅. The relationship between trust and trialability is positive.

H_{5a}. Trialability mediates the relationship between trust and intention to m-banking adoption.

H₆. The relationship between attitude and trialability is positive.

H_{6a}. Trialability mediates the relationship between attitude and intention to m-banking adoption.

H₇. The relationship between task technology fit and trialability is positive.

H_{7a}. Trialability mediates the relationship between task technology fit and intention to m-banking adoption.

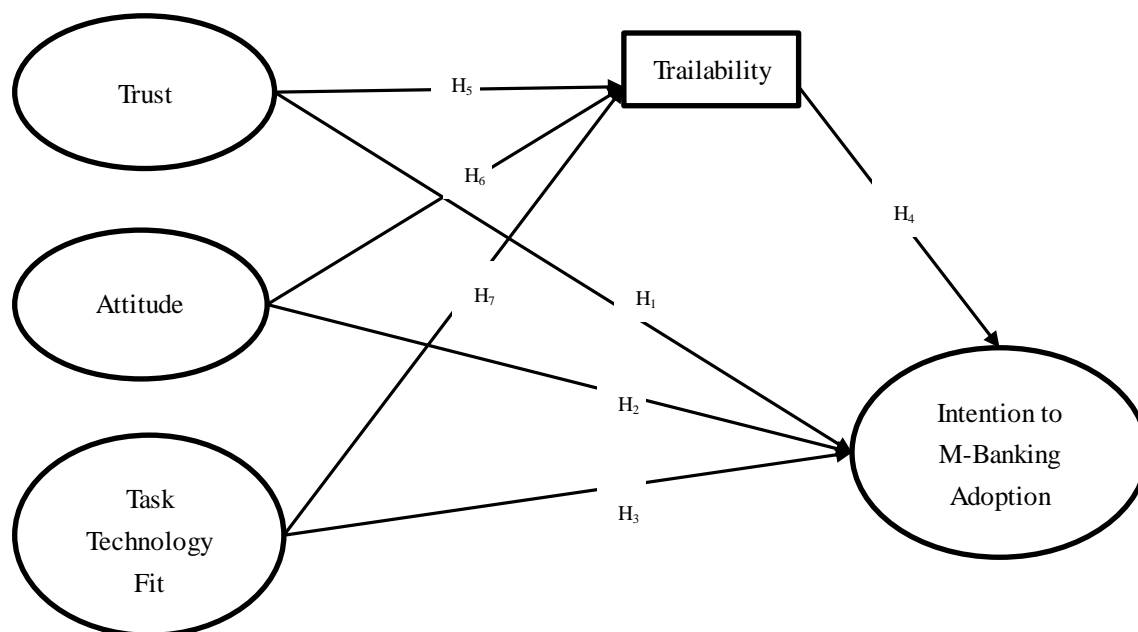


Figure 1. Hypothesized Model

2. Methodology

The study is intended to find out the mediating role of trialability between the independent and dependent variables in banking industry of Pakistan. The purpose of using mediation as a research investigation method has methodological reasoning. Mediation provides the better explanation of the impacts of intervening variables between the relationship of independent and dependent variables (Mackinnon, Fairchild & Fritz, 2007). Structural equation modeling (SEM) is applied for the analysis of the collected data. This approach provides greater insights for fostering theory development and hypotheses testing (Anderson & Gerbing, 1988). Thus, for investigating the relationship between independent, mediation and dependent variables of this study, SEM serves the purpose. Amos 21th is used for analysis of the data through SEM technique.

2.1 Sample Size

The population for this research study was the users of bank services in Pakistan. Customers of the banks range from the students, businessmen and young salaried persons who are using bank accounts. Including young students

has a rationale (Luo et al., 2010) as they have necessary computer and mobile usage skills required to use m-banking and are early adopters or potential users of new technologies. This may lead to biased results which ultimately be filtered through the inclusion on old age group (Luo et al., 2010). An approximate sample size is 271 bank customers in Pakistan. In order to reduce the biasness in the results, Churchill and Iacobucci (2010) stated that even for a small sample size ranged from 50 to 100 respondents, SEM works well. Thus, the sample size, in this context, is adequate to execute estimations. The rationale behind choosing Pakistan is perfectly in line with the suggestions of Shaikh and Karjaluo (2015) as Pakistan is developing country and there is huge potential for adoption of m-banking. According to Pakistan Telecommunication Authority (PTA) annual report (2014), Pakistan is ranked 8th in the world in active mobile usage i.e. 140 Million active mobile users and the annual revenue is growing with a rate of 5.6%. The tremendous growth and demand in the usage of m-banking, according to State Bank of Pakistan, can be viewed as evident from the fact that in 2015, approximately more than 8 million users are conducting m-banking transactions as compared to 1.4 million users in 2009. This led bankers to give significant attention to m-banking. Table 1 shows the summary of m-banking from 2011 to 2015 both in volume and in rupee terms. The m-banking volume has grown more than 100% while the value of m-banking transactions increased more than 12 times. Due to its sterling growth, Pakistan has significant strategic importance and potential growing market (World Bank, 2016). Therefore, m-banking is a new, useful, developing and promising concept in research areas, uses and adoption in Pakistan. Hence, there is a potential gap and margin of improvement in Pakistan's banking industry that provides the grounds to investigate the m-banking adaption in Pakistan.

2.2 Sampling Technique

The sample is collected on convenience basis. The complete detail about the customers of the banks was not available as banks normally avoid to reveal information about their customers for privacy reasons. Thus for data collection, researchers applied convenience sampling. This approach of sampling is consistent with several prior and recent studies (Featherman & Pavlou, 2003; Al-Jabri & Sohail, 2012; Afshan & Sharif, 2016). Only those individuals will be contacted who showed their consent to response the request of filling up questionnaire.

2.3 Data Collection Procedure and Ethical Issues

In order to ensure the authenticity of this research study, ethical requirements are kept in mind for data collection. Respondents were told about the purpose of this study and their voluntary participation is ensured of anonymity. In order to increase the content validity, participants are asked about short explanation regarding the m-banking services to make sure the awareness with the m-banking concepts. After getting their consent, data is collected through a self-administered questionnaire. More-over, a permission letter from the Donghua University to collect the data is presented to the respondents to make sure that the respondents are more confident and have no doubt that their information will be misused. This study is purely of academic nature and is not sponsored by any private or public institution.

Table 1. 5 years trend of M-Banking in Pakistan

Year	M-Banking Transactions Volume (millions)	M-Banking Transaction amount (Billions Rs.)
2011	3.29	8.00
2012	3.12	12.00
2013	4.15	27.02
2014	6.17	67.44
2015	6.14	106.89

Cumulative Aggregate Growth CAG Volume 21.71%, Value 309.03%

Source: State Bank of Pakistan, Annual Report, FY 2015, Vol. 1, Chap#2

2.4 Measurement Scale

To test the hypothesized model shown in figure 1, the measurement scale is developed based on prior studies. The scale to measure task technology fit (TTF) is adapted from the studies conducted by Afshan and Sharif (2016), Oliveira et al. (2014) and Zhou et al. (2010). To measure Attitude (ATT), the scale and items are adopted from Akturan and Tezcan (2012), Lee (2009) and Cheng et al. (2006). The scale and items to measure trust (TRU) are adapted from the study of Malaquias and Hwang (2016), Zhou (2012) and Kim et al. (2008). The scale and items for trialability (TRI) are taken from study of Al-Jabri and Sohail (2012), Puschel et al. (2010) and Tan and Teo (2000). The scale for measurement of intention to adopt m-banking (ITA) is adopted from the study of Baptista and Oliveira (2015) and Venkatesh et al. (2003, 2012). These scales have provided sufficient evidence of validity in previous studies and hence, can be used for current study with a reasonable level of confidence (see table 2). A five-point Likert scale ranged from 1= strongly disagree to 5 = strongly agree values is used to generate the responses on these scales (see appendix).

Table 2. Measurement Scale and Reference Source

Construct	Cronbach Alpha	No. of items	Source
Task Technology Fit (TTF)	0.89, 0.94, 0.912	4	Afshan and Sharif (2016), Oliveira et al. (2014), Zhou et al. (2010)
Attitude (ATT)	0.879, 0.91, 0.902	4	Akturan and Tezcan (2012), Lee (2009), Cheng et al. (2006)
Trust (TRU)	0.778, 0.80, 0.85	3	Malaquias and Hwang (2016), Zhou (2012), Kim et al. (2008)
Trialability (TRI)	0.839, 0.828, 0.856	2	Al-Jabri and Sohail (2012), Puschel et al. (2010), Tan and Teo (2000)
Intention to adopt (ITA)	0.858, 0.84	3	Baptista and Oliveira (2015), Venkatesh et al. (2003, 2012)

Table 3. Total Variance Explained - Common Method Bias

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.888	36.802	36.802	5.244	32.772	32.772
2	1.917	11.984	48.785			
3	1.787	11.167	59.952			
4	1.179	7.370	67.323			
5	.985	6.157	73.480			
6	.600	3.752	77.232			
7	.563	3.517	80.749			
8	.459	2.866	83.615			
9	.450	2.811	86.426			
10	.420	2.622	89.048			
11	.390	2.438	91.486			
12	.330	2.065	93.550			
13	.305	1.905	95.456			
14	.284	1.772	97.228			
15	.238	1.488	98.716			
16	.205	1.284	100.000			

Extraction Method: Principal Axis Factoring.

3. Data Analysis and Results

3.1 Common Method Bias

The common method bias (CMB) is the variance “attributed to the measurement method rather than to the construct of interest” (Bagozzi & Yi, 1991). According to several studies, CMB may pose threat to validity of the findings and leads to erroneous results (Craighead et al., 2011; Burton-Jones, 2009). Therefore, Richardson et al. (2009) and Ashkanasy (2008) recommended to deal with it before testing the hypothesis testing. To address CMB in present study, Harman’s single factor test was applied by fixing number of factor 1 and using promax rotation with principal axis factor extraction framework (Padakoff et al., 2003). Table 3 shows the total variance explained and was found less than the cut off value of 50% i.e. 32.7% which suggested that the present study is reasonably free from CMB. Therefore, the data was reasonably free from bias to carry further analysis.

3.2 Exploratory Factor Analysis

In order to reduce the sixteen Likert based items into the five proposed factors, the exploratory factor analysis was conducted in SPSS. For this purpose, Kaiser-Meyer-Olkin (KMO) and Bartlett’s test of sphericity was applied along with Maximum likelihood method for factors extraction based on Eigenvalues greater than 1 and promax rotation. The sample is appropriate to go for factor analysis as KMO measure of sampling adequacy resulted the value of 0.849 which is above the recommended value of 0.70 (Barkus et al., 2006, Leech et al., 2005). The Bartlett’s test of sphericity resulted significant (*Approx. Chi-Square = 2097.830, df = 120, p < .000*) which describes that there is dissimilarity between correlation matrix and identity matrix and correlation between variables is non-zero (Leech et al., 2005). In simple words, our sample is adequate for factor analysis. Further, the total variance explained by the five factors resulted 63.103% and all the factor loadings (Table 4) are greater than the threshold value of 0.55 (Tabachnick & Fidell, 2007).

3.3 Convergent and Discriminant Validity

The measurement scale is reliable concerning convergent validity which is evident from the table 4 and table 5 as values of factor loading, $C\alpha$, CR and AVE are above the threshold value of 0.55, 0.6, 0.7 and 0.5 (Tabachnick & Fidell, 2007; Nunnally & Bernstein, 1994; Hu & Bentler, 1999). To address the discriminant validity, square root of AVE was checked and found greater than its coefficient of correlation with other factors (Gefen et al.,

2000). This shows that scale does not correlate to other variable to whom it should differ. Table 4 also validated the presence of good discriminate validity.

3.4 Confirmatory Factor Analysis (Measurement Model)

The present study further performs Confirmatory Factor Analysis (CFA) shown in figure 2 which exhibits the relationship between latent and measured variable. CFA result provides multiple indices for analysis of model fit (Crowley & Fan, 1997). Among various model fit indices Kline (2005) suggested combination of indices i.e. CMIN/DF, CFI, RSMEA and SRMR which are not sensitive to sample size and misleading parameter estimates. In Addition, Hu and Bentler (1999) mentioned the threshold values of different model fit indices (Table 6) and also argued to include PCLOSE along with other indices of model fit. Table 7 presents the five indices of model fit along with their threshold values. All the values were found under the recommended threshold which shows good model fit.

Table 4. Cronbach Alpha Reliability, Variance Explained and Factor Loading

Factor Name	Ca Reliability	% of Variance	Cumulative % of Variance	Pattern Matrix ^a						
				Factor Loadings						
				1	2	3	4	5		
Attitude	.849	32.884	32.884	ATT1	.991					
				ATT2	.722					
				ATT3	.656					
				ATT4	.640					
TaskTechFit	.813	7.382	40.266	TTF1		.807				
				TTF2		.717				
				TTF3		.707				
				TTF4		.667				
Trust	.843	8.789	49.055	TRU1			.796			
				TRU2			.888			
				TRU3			.722			
Intention	.822	8.802	57.857	ITA1				.771		
				ITA2				.626		
				ITA3				.854		
Trailability	.866	5.245	63.103	TR1				.968		
				TR2				.794		

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 5. Convergent validity, Discriminant Validity (Square root of AVE, Italic Diagonally) and Factor Correlation Matrix

	CR	AVE	MSV	MaxR(H)	Factor Correlation Matrix				
					Attitude	TaskTechFit	Trust	Intention	Trailability
Attitude	0.856	0.599	0.395	0.861	<i>0.774</i>				
TaskTechFit	0.813	0.522	0.200	0.816	0.352***	<i>0.723</i>			
Trust	0.846	0.648	0.151	0.856	0.389***	0.335***	<i>0.805</i>		
Intention	0.824	0.610	0.395	0.825	0.628***	0.447***	0.346***	<i>0.781</i>	
Trailability	0.867	0.766	0.307	0.878	0.520***	0.422***	0.381***	0.554***	<i>0.875</i>

Note: * p < 0.050, ** p < 0.010, *** p < 0.001

Table 6. Cutoff Criteria Of Model Fit Indices

Measure	Terrible	Acceptable	Excellent
CMIN/DF	> 5	> 3	> 1
CFI	<0.90	<0.95	>0.95
SRMR	>0.10	>0.08	<0.08
RMSEA	>0.08	>0.06	<0.06
PCLOSE	<0.01	<0.05	>0.05

Source: Hu and Bentler (1999)

Table 7. Model Fit Indices

Measure	Measurement Model (CFA)	Structural Model (SEM)	Threshold	Interpretation
CMIN	180.269	182.805	--	--
DF	94	94	--	--
CMIN/DF	1.918	1.945	Between 1 and 3	Excellent
CFI	0.957	0.955	>0.95	Excellent
SRMR	0.051	0.051	<0.08	Excellent
RMSEA	0.058	0.059	<0.06	Excellent
PCLOSE	0.140	0.112	>0.05	Excellent

Note: Authors' estimation

3.5 Structural Equation Modeling (Structural Model)

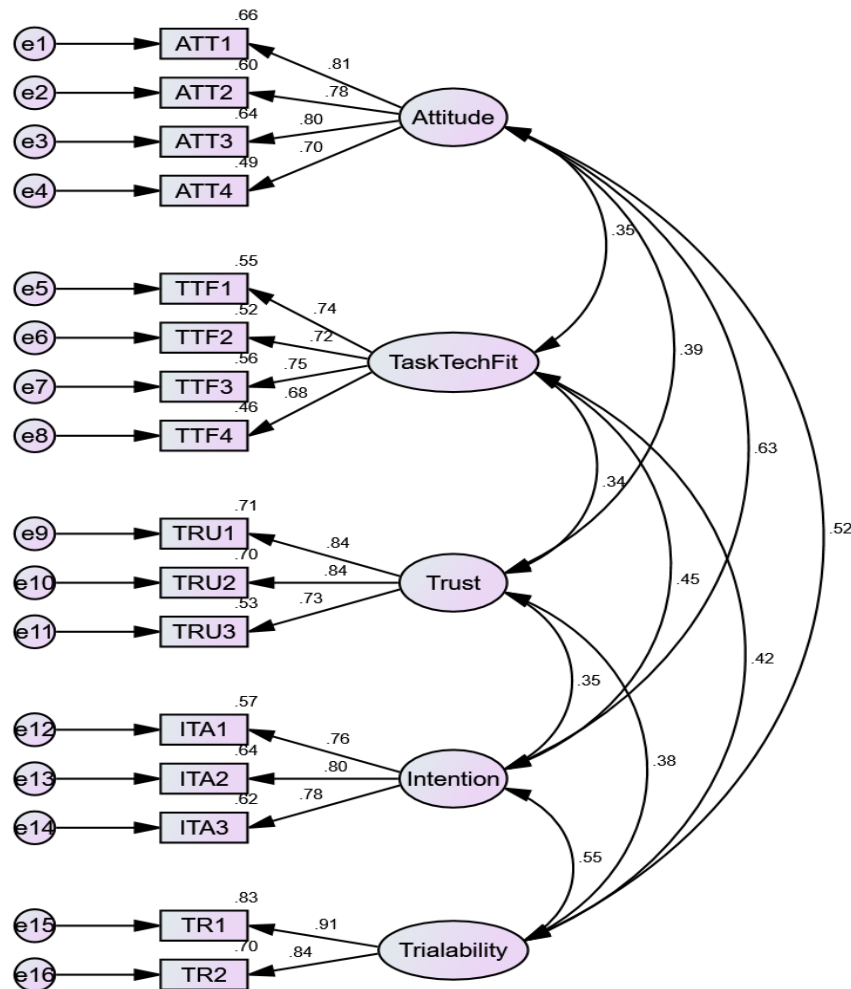


Figure 2. Confirmatory Factor Analysis (Measurement Model)

Table 8 displayed the result of our structural model. Based on the threshold values presented in table 6, the final hypothesized model was found the best fit among all the indices. The final hypothesized model is displayed in figure 3. The mediation analysis is presented in tables 9. The results from our hypothesized model suggested the positive significant impact of attitude ($B=0.427, p<.001$), task technology fit (TaskTechFit) ($B=0.238, p<.001$) and trialability ($B=0.299, p<.001$) thus supported our H₂, H₃ and H₄. The path coefficient of Trust ($B=-0.067, p<.323$) found negative and insignificant thus H₁ is rejected. Moreover, trust ($B=0.183, p<.01$), attitude ($B=0.389, p<.001$) and Task technology fit (TaskTechFit) ($B=0.196, p<.01$) were found significantly and positively in relation to trialability. Which further supported our H₅, H₆ and H₇.

Concerning the mediation effect of trialability, the analysis is conducted in AMOS 21. The researcher followed Mackinon et al. (2007) and performed the bootstrapping technique on 2000 bootstrap samples with 90% confidence interval. Bootstrapping is “intensive computation method that involves repeatedly sampling from the data set and estimate the indirect effect in each resampled data set” (Preacher & Hayes, 2008). Table 8 displayed the results of mediating effect of trialability. All the p-values of the H_{5a}, H_{6a} and H_{7a} are less than 0.10. The analysis showed that trialability mediates between the relationships of trust and intention, attitude and intention and task technology fit and intention. The values of standardized estimates along with standard error, the lower and upper bound of 90% confidence interval presented in table 9.

Table 8. SEM Hypothesis Testing

Hypothesis	Hypothesized Paths	Standardized Estimate	S.E.	C.R.	p-Value	Remarks
H ₁	Intention ← Trust	-.067	.051	-1.988	.323	Rejected
H ₂	Intention ← Attitude	.427	.074	5.408	.001	Accepted
H ₃	Intention ← TaskTechFit	.238	.064	3.332	.001	Accepted
H ₄	Intention ← Trialability	.299	.084	3.843	.001	Accepted
H ₅	Trialability ← Trust	.183	.050	2.580	.010	Accepted
H ₆	Trialability ← Attitude	.389	.062	5.365	.001	Accepted
H ₇	Trialability ← TaskTechFit	.196	.060	2.718	.007	Accepted

Model R-Square 55%

Authors' Estimation

Table 9. Mediation Analysis

Hypothesis	Hypothesized Paths	Estimate	Lower	Upper	p-Value	SE	Remarks
H5a	Intention ← Trialability ← Trust	.041	.012	.094	.009	.024	Accepted
H6a	Intention ← Trialability ← Attitude	.109	.053	.197	.001	.041	Accepted
H7a	Intention ← Trialability ← TaskTechFit	.053	.015	.126	.016	.032	Accepted

Note: Authors' estimation

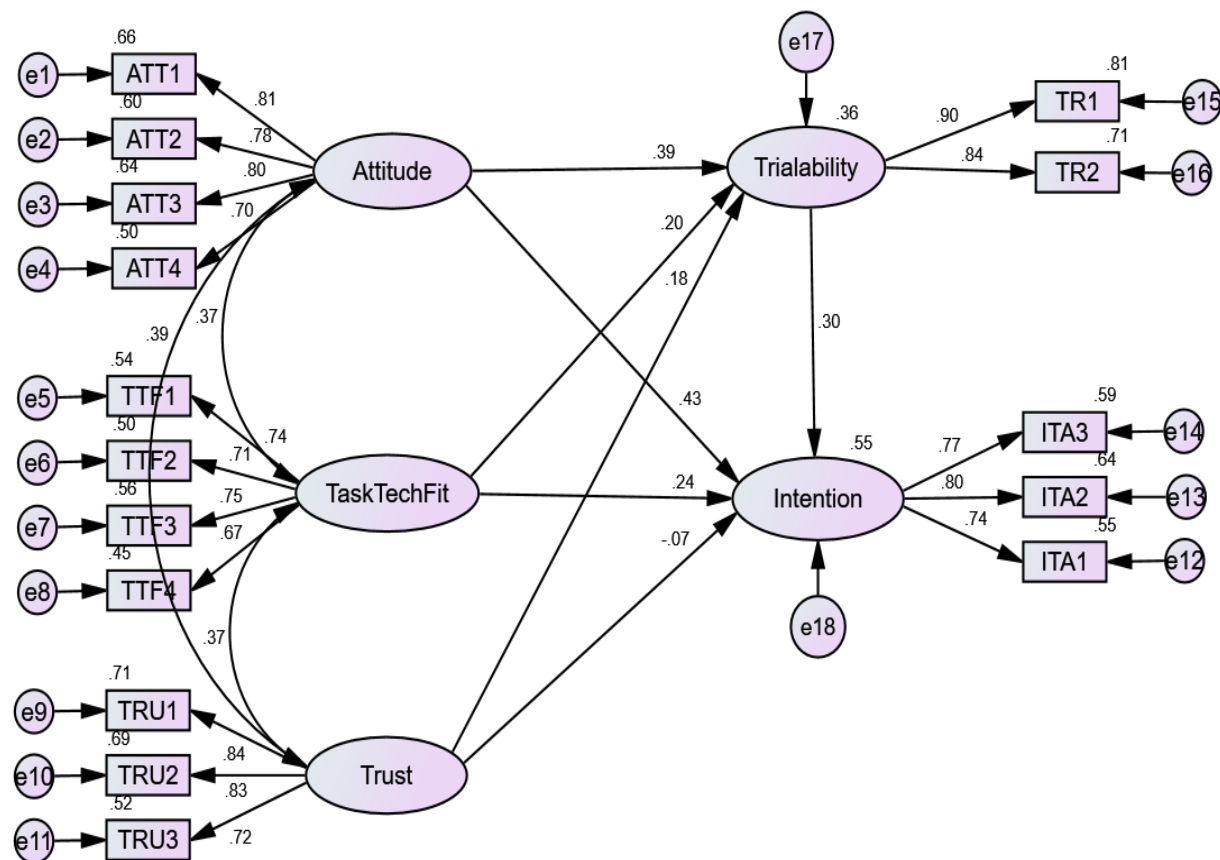


Figure 3. Structural Model

4. Discussion and Conclusion

The aim of the present study was twofold, first, the study was conducted to investigate the factors effecting the intention to adopt m-banking and secondly, to examine the intervening role of trialability. In this regard, the study was carried-out on proposed model using survey questionnaire. The overall model showed good predicted power as $R\text{-square}=55\%$. Venkatesh et al. (2003) mentioned in their study that normally the studies conducted for adoption of technology resulted in R-square of approximately 40%. In this manner, our model has superior predictability power ($R\text{-square}=55\%$). The results of empirical findings are discussed below.

In our model, trust ($B=-0.067, p<.323$) was found negatively related to intention to adopt m-banking services. Although the effect is insignificant but its importance cannot be diluted. Especially in case of m-banking where service is delivered through third party (Zhou, 2011, 2012; Akturan & Tezcan, 2012). The main concerns in adoption of m-banking are the susceptibility to information interception, presence of malware which enhance the risks associated to its usage (Malaquias & Hwang, 2016). In this manner, the results supported the previous studies of Cruz et al. (2010) and Malaquias and Hwang (2016). Further, the relationship of trust with trialability was found positive and significant ($B=0.183, p<.01$). It explained 18.3% variation in trialability. This suggested that people would take m-banking on trial if they have trust. Further, this relationship between trust and adoption intention becomes positive when the service is offered on trial. This can be observed through the positive mediation effect ($p<.01$) between trust and trialability. Using m-banking services on trial, the associated perceived risk can be minimized which ultimately increase the adoption rate.

Next, attitude ($B=0.427, p<.001$) was found positive and significant (H_2) and appeared to be the most influential factor deriving approximately 43% variance in the intention to m-banking adoption. The result from our model supported the previous work of Shaikh et al. (2015), Akturan & Tezcan (2012), Puschel et al. (2010) and Lee (2009). The effect of attitude ($B=.389, p<.001$) was also found the leading contributor towards trialability explaining 38.9% variation (H_6). Our findings further takes advance step and tested the effect of intervening role of trialability between attitude and intention adoption. The findings confirmed that trialability ($p<.001$) acted as mediator. Hence supporting our hypothesis H_{6a} .

Additionally, the effect of task technology fit (TaskTechFit) on intention was found significant ($B=0.238, p<.001$; H_3 Accepted). In our model, task technology fit explained 23.8% variance in intention adoption. Our findings are consistent with the previous works that people will not buy the new technology unless it is capable of performing routine tasks (Afshan & Sharif, 2016; Oliveira et al., 2014). Similarly, Task technology fit ($B=0.196, p<.01$) was also found having positive relationship, explaining 19.6% variance in trialability. In addition, further analysis confirmed ($p<.10$) the presence mediating role thereby supporting our hypothesis H_{7a} that trialability intervene the relationship between intention to adopt and task technology fit.

Further, trialability ($B=0.299, p<.001$) was found impacting the intention of m-banking adoption both positively and significantly (H_4). In our model, trialability was found second most influential factor explaining approximately 30% variance. The possible explanation is that in trial period, banks give special attention to potential consumers and provide full support i.e. detailed services awareness about how to perform tasks. Therefore more customers, when they use the services and see its benefits, are influenced with m-banking services. The finding is inconsistent with the previous studies of Puschel et al. (2010) and Al-Jabri and Sohail (2012) who addressed this issue as limitation. In their studies the trialability was found having negative relationship with intention to adopt m-banking. They failed to provide clear reason and suggested for further investigation. Hence, our study mitigates the limitation of their studies.

To sum up, the aim of this study was to test new model for intention to m-banking adoption and to examine the role of trialability as mediator. The proposed model explored the behavioral (attitude) and rational aspects (task technology fit) in adoption of new technology. In our model, task technology fit, attitude and trialability were found the main factors deriving the intention behavior while trust was found having negative effect. The study also contributed to the literature by including the mediation effect of trialability. The results supported not only the impact of trialability, it also suggested the mediating role of trialability with intention to trust, attitude and task technology fit. Hence, the role of trialability in intention m-banking service adoption should not be neglected.

4.1 Theoretical and Practical Implications

The findings from the present research study have solid theoretical implications. The literature is filled with many framework that are based on perception of technology and discussed very little about its practical aspects i.e. task technology fit. Our findings provide for both academicians and practitioners the significance of task technology fit to include this factor in their models. Further, the exiting literature examined the direct

relationship of factors effecting the m-banking adoption. The present study filled the gap by including the mediating variable, trialability, to see its impact on the relationship between the factors effecting the intention and on intention itself. Moreover, Pakistan is developing country and is among the 8th in the world regarding active mobile usage. Due to high growth in m-banking as mentioned in table 1, there is need to have strong understanding of factors effecting intention to m-banking adoption. In doing so, our study has presented the evidence and importance of both behavioral and rational aspects of technology for addressing the m-banking adoption issues.

Additionally, the findings have practical implications to bankers and mobile communication service providers too. For bankers, it is important to consider these factors when designing promotional designs, business frameworks, and technological awareness. For mobile communication service providers, the findings are also helpful to consider the decision factors for adoption intention in developing country level plans for business expansion and to minimize the uncertainty that hurt customer trust. Due to lack of banking facilities, the rural population presents business opportunity for both bankers and communication service providers to cooperate with each other. Through this, bankers can provide financial services and increase their profits from increasing the customer base that are previously unbanked. For both existing and new customers, the banks should introduce software that are user-friendly since task technology fit is among major factor causing the adoption. Moreover, the growth of m-banking is in growing stage, including the trialability feature in marketing campaign may lead to widespread acceptability.

4.2 Study Limitations and Future Recommendation

The present study is not free from some limitations. The study utilizes the convince base sampling which means only those participants included who showed their consent. However, we recommend to include other sampling techniques for sample section i.e. random probability sampling. Second the study is based on urban population; further study needed to utilize rural data in in order to increase generalizability. In our study trust was found negative and insignificant and the reason for not supporting the hypothesis is not clear. It is suggested that further study is needed focusing more on understanding why this factor which is normally important in information technology adoption was not significant and found negative. Moreover, our model explained 55% variance in the dependent variable; hence further study needed to include more variance to increase the predictive power of the model. Thirdly, the study can be further improved by including time lag to compare pre and post adoption pattern. Lastly, our research is based on developing country Pakistan where in its rapid growth phase and the findings can be applicable to the similar countries with similar growth in m-banking. Further research is recommended to implement the proposed model in other developing countries.

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Appendix - Measurement Scale Items**Trust** (Malaquias & Hwang, 2016; Zhou, 2012; Kim et al., 2008)

TRU1. I believe that m-banking is trustworthy

TRU2. I believe that m-banking keeps its promises

TRU3. I believe that m-banking keeps users' interests in mind

Attitude (Akturan & Tezcan, 2012; Lee, 2009; Cheng et al., 2006)

ATT1. I think that using mobile banking is a good idea.

ATT2. I think mobile banking would be a wise idea for conducting financial transactions

ATT3. I think that using mobile banking is pleasant.

ATT4. In my opinion, mobile banking is desirable

Task Technology Fit (Afshan & Sharif, 2016; Oliveira et al., 2014; Zhou et al., 2010)

TTF1. Mobile banking payment services are appropriate.

TTF2. Mobile banking account management services are appropriate.

TTF3. Real time mobile banking services are suitable.

TTF4. In general, mobile banking services are enough.

Trialability (Al-Jabri & Sohail, 2012; Puschel et al., 2010; Tan & Teo, 2000)

TRI1. I want to try for at least one month

TRI2. I want to use Mobile Banking on a trial basis to see what it can do for me.

Intention to Adopt (Baptista and Oliveira, 2015; Venkatesh et al., 2003, 2012)

ITA1. I intend to continue using mobile banking in the future

ITA2. I will always try to use mobile banking in my daily life

ITA3. I plan to continue to use mobile banking frequently

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