FACTORS INFLUENCING THE CHOICE OF MOBILE BANKING SERVICES IN BANGLADESH: AN EXPLORATORY ANALYSIS

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Abstract

This paper explores the reasons why people are shifting from traditional banking to mobile banking services. A survey was conducted among 150 mobile bank users of different age, academic status and profession to understand their responses on different factors of mobile banking for which people are moving towards this new banking service. Out of 150 respondents initially selected, 127 complete and valid questionnaires were selected for the study. The most significant factor we have found in this study is the availability of the service. Most of the respondents stated that the prime reason for using mobile banking service is that through mobile banking service they have the convenience to do transactions anywhere, anytime. Data was collected from respondents using a structured questionnaire having 5 point Likert Scale. Statistical Analysis using SPSS has been done on the collected data.

Keywords: Mobile Banking, bKash, mCash, Factor Analysis, Regression Analysis

1. Introduction

The history of banking in this geographical area is age-old. Back on early days, only a few governments based public banks used to provide banking services. In fact, some Calcutta based banks used to run their activities here in the very first period of this industry's history. Today, with the progression of the time, the banking industry has grown massively. With the introduction of computer technology, the Internet, and the mobile phone technology, the modalities of its operation has witnessed a huge change

The banking industry of Bangladesh is almost as old as the age of the country. After the independence in 1971, commercial activities had grown noticeably. Hence, the need for developing a banking system became evident. In 1972, Bangladesh Bank, the Central Bank of Bangladesh, has been reorganized from the name State Bank of Pakistan which was owned by the Pakistan Government. Today nearly one hundred commercial and non-commercial banks operate in this country. Fifty commercial banks are providing service to almost every urban areas and many important rural areas. Since the GDP and per capita income of the people is increasing day by day,

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citizens have the need for saving money, taking loan and using other banking facilities in order to make their living easier and lifestyle better. So over the years, the banking sector of Bangladesh has shown tremendous growth.

Although the history of banking is pretty old, the digitalized internet banking is still young here in Bangladesh, the mobile banking service is even younger. The mobile banking sector is experiencing an exponential growth since its introduction in Bangladesh back in 2011. bKash, Rocket, mCash etc are the leading mobile banking service providers at this moment. According to a recent report of USAID, the growth has attained a new peak in the month of February, 2015 marking a figure of $1.42 billion (BDT 11,1040 million). Bangladesh has one of the biggest mobile banking markets in today's technology infested world. Bangladesh accounted for nearly 8% of total registered global mobile banking users. Hence, it is easy to say that the industry is growing massively. Mobile banking gives the power to the user to get the banking service anywhere, anytime. Users do not have to go to a physical bank branch every time to make a transaction. This service can be used on the move, away from a bank branch with more convenience. The mobile phone users are growing every single day, so is the mobile banking user. However, the industry is still not in the maturity stage yet because of some barrier like security, usability etc.

In recent years several commercial banks have their own mobile banking service for the customers. This service was first introduced by the Dutch Bangla Bank Limited (DBBL) back in May, 2011 called DBBL Mobile Banking. Only 3 months later, in July 2011, another competing Bank, BRAC Bank, introduced their version of mobile Banking, named it bKash. A recent USAID report shows that transfer of money through mobile network is rising in Bangladesh. Right from its launching in 2011, mobile banking sector has experienced an exponential growth. The report shows the strong position of Bangladesh among global mobile banking users with an astounding 8% of all registered users in the world and crossing a revenue figure of nearly 1.5 billion USD. Since, in Bangladesh, a large percentage of the population doesn't have access to conventional banking services, mobile banking has become an immediate success in the country, especially to BOP population.

Bangladesh is an agriculture centric economy. According to World Bank (2015), 65.72 % of the total population lives in the rural area and their prime economic activities centre around agriculture (World Bank collection of development indicators, 2015). But it is difficult for the banks to establish branch or booth (ATM) in all the rural parts of Bangladesh. Therefore many people, though they have the need of banking service, cannot avail the service. This is one of the main reasons the mobile banking was introduced in the market to meet this need. Besides, by the end of January, 2016, the total number of Mobile Phone subscribers has hit a figure

of nearly 132 million (BTRC website). Hence, it was the right time to introduce the revolutionary mobile banking system in Bangladeshi market.

1.1 Top Mobile Banking Services in Bangladesh

Most of the commercial banks are trying to introduce their own mobile banking service in the market. But the market is already very competitive and therefore, it's difficult for the new banks to earn expected return on their investments. It is pertinent to mention that the introduction of mobile banking system requires substantial capital investment in technological infrastructure and network building. Several banks have introduced their service with different names and product positioning. Their marketing activities and servicers also differ from each other most of the times. Let's have a look at the top competitors' status.

Service Name	Bank/Service Provider	First Operation in Marketplace	Total Market Share
bKash a BRAC BANK company	BRAC Bank Ltd.	July 2011	58%
ROCKET রকেট	Dutch Bangla Bank Ltd.	May 2011	16.60%
Islami Bank M CASH	Islami Bank Ltd.	Dec 2012	8.50%
UCash MOBILE FINANCIAL SERVICES	United Commercial Bank Ltd.	Nov 2013	7.70%
MYCash	Mercantile Bank Ltd.	February 2012	3%
হাত ক্যাশ Cash	One Bank, Prime Bank & Others	--	6.10%

Source: USAID, as of Feb 2015 | Future Startup

1.2. Objective of the Study

a. The primary objective of this study is to find out the impact of the factors influencing Bangladeshi people to switch from traditional to mobile banking system.

b. The secondary objectives of this study are to

↳ determine whether the availability of services influence the switching behavior

- measure whether the experiences of users affect the switching behavior
- calculate whether the users' perceived services quality affect the intention to switch
- measure whether the marketing activities affect the switching intention
- measure the reliability of the factors
- develop and validate a research questionnaire to measure the levels of service quality
- statistically measure the acceptability of the samples employed

2. Review of the Related Literature

M-banking is not a very new phenomenon, neither it is pretty old. It grew with the advent of mobile phone technology. The journey started towards the end of a great decade of technological innovations. At the end of the 1990s, Paybox, a German Company, collaborated with Deutsche Bank, to launch the first M-banking service. At the beginning, the new system of money transfer was launched and test marketed in European countries only that include Germany, United Kingdom, Spain, Austria and Sweden. Surprisingly, among the developing countries, Kenya was the first to launch a text-based M-banking service called M-Pesa, back in 2007. There were more than 7 million registered M-Pesa users in Kenya by the year 2012. As Veijalainen et al. (2006) argue, the main reason for the fast acceptance of small mobile devices is the capability they offer for obtaining services and running various applications any time and from any place, including while the user is in a journey. In case of India, the local scenario is that people need m-banking, including poor and rural ones. Since last couple of years mobile phone service boomed significantly in India, and it was a golden opportunity to grow the m-banking service. However, some problems exist in m-banking system because m-banking is not widely accepted yet. Most of the Indian people are unable to operate the service because of their level of education or awareness of the product. In this case, companies should increase the awareness and arrange some campaign to make people learn how to use the service of mobile banking. Also companies have to keep it on mind that the operation should be easy to use. There is need to improve the service including the range and security. (A. Sheikh & Karjaluoto, 2014)

Mobile banking is a recent technology wonder among the latest series of mobile technology based innovations. According to a research (Safeena et al, 2012), although ATM and Internet banking are offering effective delivery channels for transacting traditional banking products, the newest delivery channel established by retail and microfinance banks, m-banking is likely to have a significant effect on the banking sector and delivery system in both developed and developing countries. Another study examined the changes in m-banking in the United Kingdom. The paper was mostly based on customer satisfaction and how the banks could make their service better to attain new customers for themselves. As an early study on this

issue, it stated that though mobile banking is well developed, but it will take time for this service to actually catch on, but with the progression of time, this will be one of the most popular service for every commercial bank. (Jayawardhena et al. 2000). A different, which was an Indonesia based research, analyzed the customer satisfaction in Mandiri. The main purpose was to find out the level of customer satisfaction and the gap between the perception and expectation of Mandiri banking system. In this research it was found that the customer of mobile banking was overall positive about their experience with mobile banking. But those who hadn't tried it yet had some concern and unwillingness to use the service. Another study done by a Pakistani to find out the impact of mobile banking on the profitability of 12 banks, interviewed the managers and analyzed the financial date of the banks. Interviewing the bank managers it has been revealed that mobile banking has a substantial impact on banks' profitability. Gradually banks are transitioning from manual usage to the mobile usage; efficiency has significantly improved but cost has declined (cost of labor, time saved, accuracy and quality of service improved). The financial statements of the banks have also showed that the bank's profitability has significantly improved (Sana Haidar 2011)

2.1 The factors influencing the use of Mobile Banking

There are plenty of factors that influence people to switch to mobile banking. If we look closely to all the factors we would see people are mostly switching to mobile banking because of the convenience. Among many factors, we will talk about four and our survey will be conducted using this for factors. We have selected these four because in our initial survey, where we only asked the respondent about the main factors and not specific reasons, we have found out that the following four is the most influential in switching mobile banking.

- **Availability (AV)**: Product availability level is usually measured by using the cycle service level. Some other times is measured by the order fill rate - the fraction of customer demand that is fulfilled from available inventory. Some firms refer to this as "customer service level". However we prefer not to use this terminology as there are many metrics beyond product availability which can measure customer service level (on time delivery, perfect order, etc). A supply chain can ensure a high level of product availability to improve customer responsiveness and also to attract and satisfy customers, but that would require large inventories, thus increasing associated carrying costs. It is our firm belief that an optimum level of product availability is the one that maximizes a firm's profitability. Baldwin M. (2007) points to a new emphasis on distribution as a result of material shortages or failures of supply. They proposed that this new awareness requires an understanding of the nature of distribution efforts through the logistic response function. Their study focuses on the managerial challenges in implementing distribution strategy, and asks

how firms will capitalize on the challenge it presents. Product availability is indeed one of the major factors in switching to mobile banking. (Philip B. et al. 1976) Availability is indeed one of the major reasons for banking service users switching to mobile banking.

- **User Experience (UX):** When satisfied, the customers will respond with brand loyalty and trust. Companies with highly effective UX have increased their revenue by almost 37%. Top 10 UX leaders in America outperform the S&P with a revenue earning that is close to a triple figure. If an experience of the product leaves the user with bad taste, they quickly switch to competing brands. 90% of the users reported they stopped using an app just because of the poor performance, and 86% either deleted or uninstalled the app. It is also found that 86% users indicated they are willing to pay extra for exceptional customer experience (Ines Anic, 2015).

- **Perceived Service Quality (PS): T**ransitory service intensifiers, the very first set of elements, are individual factors that make a customer more aware of the need for service. These are usually short term and temporary in nature. In situations where service is urgently needed, like, personal emergency (such as an accident and the need for immediate help or making an automobile insurance, or the breakdown of an office equipment during busy period) raise the level of service expectation, and the perception of what is an adequate service, particularly the level of responsiveness required and range of satisfaction being considered acceptable. A mail-order company that depends on toll-free lines for receiving customer orders will be likely to be more demanding of the telephone service during peak periods. Any system breakdown or lack of clarity of voices on the lines will be less tolerated during these high demand periods than at other usual times.

- **Marketing Activities (MK):** A well designed promotional strategy is very important to promote a banking service effectively. Interestingly the promotional strategy of most commercial banks is almost similar. Almost all commercial banks take the help of almost every type of available media to promote their services with pretty identical messages. Personal selling and direct selling are the most important way to increase the performance of the banking service (Gupta & Mittal, 2008).

2.2 Hypothesis

On the basis of the discussion and the research electives and from the theoretical model, the following set of Research Questions (RQ) and Hypotheses (H) were developed.

RQ_1: Does '*Availability'* influence switching intention to mobile banking?

H_0: '*Availability'* doesn't influence switching intention to mobile banking.

H_1: '*Availability'* influences switching intention to mobile banking.

RQ_2: Does *'User Experience'* affect switching to mobile banking?

H_0: '*User Experience'* doesn't affect switching to mobile banking.

H_2: '*User Experience'* affects switching to mobile banking.

RQ_3: Do '*Perceived Services'* quality affect the intention to switch to mobile banking?

H_0: '*Perceived Services'* don't affect the intention to switch to mobile banking.

H_3: '*Perceived Services'* affect the intention to switch to mobile banking.

RQ_4: Do '*Marketing Activities*' affect switching intention?

H_0: '*Marketing Activities'* don't affect switching intention

H_4: '*Marketing Activities'* affect switching intention

3. Methodology of the Study

3.1 Sampling Procedure and Collection of Data

Data from both primary and secondary sources have been collected to validate the research. Primary data have been collected directly from first-hand sources through questionnaire survey, observation and experimentation. Data collected from the respondents are raw data and have not been published anywhere before. The respondents who were able to complete the questionnaire selected to become part of the study. The data were collected physically by distributing structured questionnaire. A convenience sample of 150 respondents was targeted and a total of 127 completed questionnaires were received back, signifying a favorable response rate of 85%. Secondary data were collected from books, journals, magazines articles and newspaper.

3.2 Research Instrument Development and Pre-testing

A questionnaire was developed by using the norms of the previous studies as the basic concepts (Christo et al. 2014). The development, phrases and wording were modified to fit the Bangladesh banking industry. The questionnaire contained different sections that covered the services delivered by the mobile banking system. These sections include *availability of services*, *users' experiences towards the services*, *perceived services quality* and *marketing activities*. These above sections influence satisfaction and importance to the users and has significant relationships with the service quality provided by the banks. The instrument was constructed with 17 detailed questions divided into 4 sub-sections that measured elements as described above. The instrument collected data on a 5-point Likert scale. Additionally, the questionnaire also used a section where demographic characteristics of the respondents could be recorded. Initially a draft structured questionnaire was

developed for the purpose of pre-testing. Later necessary corrections were made before finalizing the instrument.

3.3 Data Analysis

The data for this study were investigated by employing descriptive statistics, factor analysis and regression analysis. A personal computer with well-known statistical package called SPSS (Statistical Package for Social Sciences) version 23 was employed to analyze the data. While analyzing, the samples adequacy was statistically determined by calculating the Kaiser, Meyer and Olkin test (KMO) and Bartlett's tests. Later a Regression Analysis was done in order to evaluate the relationships between the variables.

4. Findings

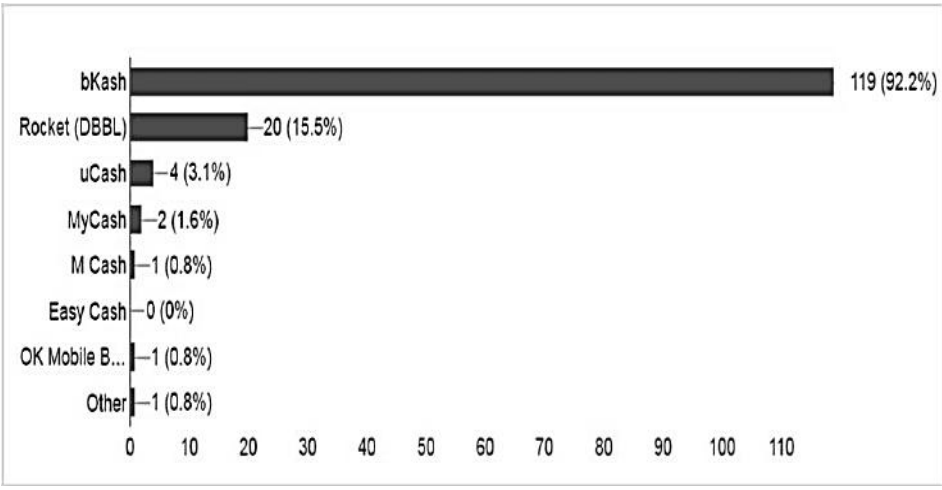
4.1 Demographic Profile Analysis

- **Gender**: The study was conducted among 127 respondents, of them 37% was female and 63% was Male.
- **Age:** Respondents' age is categorized under five different groups. The first group starts from age 18 to age 24, which is 71% of the total respondents. The next category of age is between the ages of 25-30, which represents 19%. Next group is 31-40, which shows 9%. On the contrary, there are 1 representative from the age group of 41 to age 50 detected in the total respondents that has been targeted. This is due to the random sampling distribution of questionnaire. Among the respondents, most were between the ages of "18-24". Another age group is "25-30".
- **Education:** Between all the respondents the major level of education was undergraduates (79%). Besides, post graduate holders were 13%, and 11 % were HSC, while only 1% was below HSC.
- **Profession**: Among the 127 respondents, majority was students, either undergraduate, post graduate or even in the HSC level (69%). The second largest portion is private job which is 23%. Entrepreneur or people who are doing their own business is 3%. The rest 5% is housewife and other minor professions.

From the sample, 18 - 24 age group possesses the major portion which is 91 (both male and female) of the total sample 127. The largest number of people lies in the undergraduate segment, including both male and female. The second highest is post graduate segment. Most of the respondent was student, both male and female. Private Job holder was 29, including 24 male and 5 female. There were several entrepreneur, businessman and housewife too.

4.2 Mobile Banking service used by the respondents:

Here respondents could choose multiple options. An overwhelming majority of the respondent use bKash, out of 127 respondents, 119 use bKash (92.2%) for transaction via mobile banking. The second highest (15.5%) is Rocket by DBBL.



4.3 Reliability Test:

When the Alpha Coefficient value ranges from 0.60 to 0.69, the strength of association is considered moderate. The range from 0.70 to 0.79 is considered good strength of association. Furthermore, Alpha Coefficient value from 0.80 to 0.89 indicates very good strength of association. Lastly, if the Alpha Coefficient value is more than or equal to 0.90, than we call it excellent strength of association.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.875	0.880	17

As stated in the above table, Cronbach's Alpha is more than 0.80. The alpha coefficient for 16 items is 0.875, suggests that the items have relative high internal consistency. According to the rules of Cronbach's Alpha, the strength of association is considered to be poor, when Alpha Coefficient value is less than 0.6.

4.4 Item-Total Statistic:

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
AV1	58.6571	94.703	.617	.756	.864
AV2	58.9429	92.055	.637	.822	.862
AV3	58.6286	95.240	.648	.824	.863
AV4	59.0857	92.610	.618	.607	.863
UX1	59.0571	93.526	.628	.861	.863
UX2	58.7429	92.785	.749	.801	.859
UX3	58.8286	93.499	.718	.793	.860
UX4	59.6857	95.516	.471	.777	.870
PS1	59.2000	97.047	.560	.710	.867
PS2	58.8286	90.911	.672	.800	.861
PS3	59.2571	102.903	.187	.658	.880
PS4	58.8000	93.282	.633	.762	.863
MK1	59.7714	102.652	.179	.537	.882
MK2	59.8571	99.479	.341	.477	.875
MK3	59.8000	104.165	.108	.518	.885
MK4	59.3143	102.398	.229	.590	.878
OS	58.8000	94.929	.768	.786	.860

The above Table presents what Cronbach's Alpha would become, if that particular item is deleted from the scale. We can see that removal of any question, except question PS3, MK1, MK3 and MK4, would result in a lower Cronbach's Alpha. Removal of question PS3, MK1, MK3 and MK4 would lead to a small improvement in Cronbach's alpha, as it can be seen that the "Corrected Item-Total Correlation" value was low (0.187, 0.179, 0.108 & 0.229) for these item. This leads us to the stage where we consider whether we should remove these items or not.

4.5 KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.669
Bartlett's Test of Sphericity	Approx. Chi-Square	302.992
	df	120
	Sig.	0.000

From the KMO and Bartlett's test, we found that the relevance of the study is 66.9% and the significance level is 0.000. So, it can be said that the obtained data are adequate.

4.6 Total Variance Explained:

Total Variance Explained

	Initial Eigenvalues		
Component	Total	% of Variance	Cumulative %
1	5.979	37.367	37.367
2	1.882	11.764	49.131
3	1.556	9.723	58.854
4	1.417	8.859	67.712
5	1.091	6.816	74.529

Extraction Method: Principal Component Analysis.

From here, we can see that that 74.529 % variation of the dependent variable (switching to mobile banking) can be explained by the independent variables.

4.7 Rotated Component Matrix

Rotated Component Matrix[a]

	1	2	3	4
AV1	.816			
AV2	.862			
AV3	.770			
AV4	.614			
UX1		.709		
UX2	.700			
UX3	.572			
UX4		.835		
PS1	.633			
PS2	.830			
PS3				.861
PS4		.544		
MK1			.889	
MK2			.661	
MK3				-.739
MK4		.549		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

It can be seen that, UX1, UX3, UX4, PS4 and MK4 are substantially loaded on factor (component) 2; while MK1 and MK2 are substantially loaded on factor (component) 3. However, PS3 and MK3 are loaded on factor 4. All the remaining variables are substantially loaded on factor 1.

4.8 R^2 Table

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	R^2 Change	F Change	df1	df2	Sig. F Change
1	0.809[a]	0.654	.608	.51457	0.654	14.189	4	30	.000

a. Predictors: (Constant), MK, UX, PS, AV

65.4% variation in the dependent variable can be explained by the independent variables. The independent variables (availability, user experience, perceived service and marketing activities) are enough to explain the variation in the dependent variable.

4.9 Analysis of Variance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.028	4	3.757	14.189	.000[b]
	Residual	7.944	30	.265		
	Total	22.971	34			

a. Dependent Variable: OS

b. Predictors: (Constant), MK, UX, PS, AV

The significance level of this study is 0.000, which is less than 0.05 that means the study is significant.

4.10 Regression Analysis:

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
Model	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	.146	.608		.240	.812	-1.096	1.388
AV	.781	.159	.758	4.921	.000	.457	1.105
UX	-.065	.162	-.062	-.401	.691	-.396	.266
PS	.118	.101	.137	1.169	.251	-.088	.324
MK	.202	.168	.144	1.203	.238	-.141	.545

a. Dependent Variable: OS

Hypotheses H_1

The significance of market competition is 0.000, so the null hypothesis (H_0) for this variable is rejected and alternative hypothesis (H_1) is accepted. So there is a relationship between 'Availability (AV)' and 'Switching to Mobile Banking'. Here, the Beta value for this variable is 0.758, which is most relatively important variable to the dependent variable.

Hypotheses H_2, H_3 and H_4

The significance of 'User Experience (UX)' is 0.691, 'Perceived Service (PS)' is 0.251 and 'Marketing Activity (MK)' is 0.238. So the null hypothesis (H_0) for these variables are accepted and alternative hypothesis (H_2, H_3 and H_4) are rejected. Accordingly there are no relationships between 'UX, PS and MK' and 'Using Mobile Banking'. Here, the Beta values for these variables are -0.062, 0.137 and 0.144 respectively, indicating no impacts on the dependent variable.

5. Recommendation

Based on the research conducted by the authors on "Factors Influencing the Choice of Mobile Banking Services in Bangladesh" some issues clearly stand out. By working on these issues commercial banks can determine consumer's usage of mobile banking service and also develop strategy to grab the wonderful opportunity offered by technology and thus ensure better market share in future. Following are some recommendations for them to implement:

1. It has been found out that 'availability factor' as an independent variable has the major influence on the dependable variable which is 'switching to mobile banking.' If the service is available and offer 24 hours of service to the customers, they are more likely to use that more than other banking services. So, mobile banking companies should make their supply chain strong to retain more customers.
2. As consumers like to make transaction without going to a physical bank branch, which might be far away from home, companies have to give the proper facilities like a bank branch to earn more customers under their umbrella. And if the number of mobile banking service user increase, the customers will more likely to use the service even more.

6. Conclusion

The research tried to evaluate and highlight the crucial factors that influence the switching to mobile banking in Bangladesh. However the study was not significant enough as there were some flaws such as imbalanced cluster of respondents, limited time and data collection resource, sequence of survey questions and so on. Maximum confusion was created making a proper questionnaire. Also respondents mixed the variable of Availability with other differentiation factor which the authors had to merge later during analysis of data.

However, the study was significant to some other extents. The study highlighted that availability of the mobile banking service is significantly affecting the mindset to switch to mobile banking and the usage. It is causing the switching decision most. It is evident that the market is dominated by a major player bKash. They had been very successful due to quick strategic move and aggressive promotion. Even the second player (DBBL) has significantly lower share of the market. The remaining m-bank service providers are still insignificant according to this research. However one

major limitations of this research is the majority of the respondents are university students, who have lesser need for transferring money through mobile banking. Hence this study is not a proper representation of all types of mobile phone and banking service users. Hence this study can be further extended by incorporating users of other professions, particularly the business people and the service holders. Undoubtedly the growth of mobile phone users has a great impact on the increasing mobile banking market. Also, there are other important factors, such as increase in personal disposable income (Y_d) and population growth, have crucial impacts on people's switching intention.

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