

Impact of Mobile Phone Usage on Value Creation: An Empirical Investigation

Ataur Rahman¹
Rucsar Jabin²
Md. Azizur Rahman³

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ABSTRACT

Cell phone plays a vital role in the lives of people. People require a mobile phone for doing their lifestyle activities. The purpose of the study is to find out the relationship between value creation and mobile phone use by people's lifestyle activities. A survey containing 400 respondents was undertaken to estimate the importance of 21 lifestyle activity variables linked to the use of mobile phones. Factor analysis (the principal components method with varimax rotation) was used to test these data by using the SPSS program. The study shows that mobile phone is used by people to get value by doing their entertainment activities, work performance, social activities, and shopping activities. The contribution of the study is to make people understanding that people require a mobile phone to facilitate their lifestyle activities. So, mobile phone companies' managers benefit from targeting and positioning the mobile phone user based on the lifestyle activities of the people. This study will aid managers to build strategic competencies that are valuable, thereby creating sustainable competitive advantages.

¹ Professor, Department of Marketing, University of Dhaka. E-mail: ataurrahman@du.ac.bd

² Assistant Professor, Department of Marketing, University of Dhaka. Email: Rucsar.jabin@gmail.com

³ Lecturer, Habibullabaha College, Dhaka. Email: arahmanlec@gmail.com

Introduction

Cell phone is an electric, short range, transportable device that can accumulate, access and share information anytime, anywhere. It has become a vital part of our daily life (Jarenfors and sturesson, 2012). The innovation of telecommunication sector in Bangladesh started with minor phases in 1989 with 4,00,000 telephone subscribers. The total quantity of cell Phone users has stood 191.38 Million at the end of February, 2024 (AMTOB, 2024). The population of Bangladesh was estimated at 173,835,590 on January, 2024 (Worldometer, 2024). So, 91.32 percent people of this country use mobile phone. Therefore, telecommunications area is nowadays one of the main sectors in Bangladesh (appendix, graph 1). The increased use of cell phone indicated that marketer facing new challenges to market it (Jarenfors and sturesson, 2012). Therefore, marketers need to understand, why consumers use cell phone and how they experience value through the use of cell phone. Value is a buyer's eagerness to make payment (Andersen & Narus, 1998) or the gain (benefit) the buyer tastes (Priem, 2007). It is created by interaction or usage between users and providers (Grönroos and Voima, 2013). People use cell phone for receiving value by activities of their lifestyle. Lifestyle is one's form of living in the world as stated in her or his opinion, activities and interests (Kotler and Armstrong, 2020). Niti et al. (2008) explained three kinds of lifestyle activities (social, entertainment and physical activities). Social activity is anything that carries members of a society together to interact such as street parties, dancing and games (Sam, 2013). Physical activity is any volunteer physical drive produced by skeletal muscles that needs energy expenses (World Health Organisation, 2009). Recreation activities are actions of relaxation. These activities are frequently performed for pleasure, enjoyment, or fun (Yukic, 1970).

Research Problem

The development of technology (like cell phone) expands in an industry is making of innovative purchaser value. Purchaser value is created by interaction or usage a product (Eggert et al., 2018). For example, people use cell phone to do calculation, order product, use social media, enjoy music etc. for their work, shopping, social and entertainment activities (Shimada, 2014). Therefore, cell phone has the prospective to create value for the customer throughout their lifestyle activities by attracting the use or many types of interactions (Coursaris et al., 2006). Besides these, it is crucial for cell phone organizations to well realize buying pattern for attaining innovative clients and holding standing ones. Thus, "why do persons use cell phone?" is a dynamic query. Thus, it is authoritative that lifestyle activities traits essential to be occupied into attention for managers of marketing, when exploring cell phone buying behavior of consumers in Bangladesh. Though cell phone present enough prospects for marketers

to reach specific consumers, the marketer must be conscious that consumer generally see the device as particular belonging where marketing message are not essentially valued and consumers are not continuously interested to marketing activity (Andrews et al., 2012). Thus, to generate cell phone marketing valuable, they must create a context that create consumer value (Andrews et al., 2012). Creating consumer value is very important for marketing activity, so deserve attention of consumer researchers (Holbrook, 1999). Beside this, a sound understanding around how consumer relate with mobile phone will have managerial and academic implications in the arena of marketing (Jarenfors and Stureson, 2012). Cell phone is essential for modern lifestyle, since it is not help only work performance, entertainment, shopping, communication activities and recognize device but it also served its' owners to connect with and harmonize social network and to relate socially (Grand and Dohnohoe, 2007). This means that consumer use cell phone and the factors (lifestyle activities) driving this, is a topic worthy of marketing attention. Beside this, understanding value creation and mobile phone use by lifestyle activities of consumers in Bangladesh is important in guiding strategies, policy developments and regulations concerning for marketers, practitioners and users. But, as a new area in Bangladesh, insufficient research has been conducted regarding value creation and mobile phone use by lifestyle activities of consumers in Bangladesh. So, the study has tried to provide guidance and knowledge about value creation and mobile phone use by lifestyle activities of consumers in Bangladesh. Therefore, the purpose of this study is to find out the association between value creation and mobile phone use by lifestyle activities of consumers in Bangladesh.

Research Questions and Objectives

Previous discussion aroused the vital research question, whether value creation has relationship with cell phone use by lifestyle activities of consumers in Bangladesh or not? For seeking the answer of this question, the study has explored the connection between value creation and cell phone use by lifestyle activities of consumers in Bangladesh. So, the broad aim of the existing study is to explore the association between value creation and cell phone use by lifestyle activities of consumers in Bangladesh. There are different elements (such as social activities, entertainment activities, shopping activities and work performance) are included in people lifestyle activities. Therefore, the specific objectives of the study are:

- i. To explore the bond between value creation and mobile phone use by work performance.
- ii. To inspect the association between value creation and mobile phone use by social activities.

- iii. To study the connection between value creation and mobile phone use by entertainment activities.
- iv. To investigate the linkage between value creation and mobile phone use by shopping activities.

Literature Review

Cell phone is a wide, transferable electrical equipment utilized for movable contact (Indunair, 2014). It improves customer values (Shimada, 2014). The more marketers realise people's lifestyles by which they drive, the more achievement they will gain to design products like cell phone (Olewiler and Fershee, 2014). Lifestyle is a form of personal and community behavior (Veal, 1989); living replicated by actions, desire and views (Kotler & Armstrong, 2007). Plummer (1974) calculated lifestyle of persons with regard to spend their time, their interests, their opinions. He identified some elements of foremost lifestyle factors. The elements which are included in activities factor are hobbies, work, social events, entertainment, vacation, club membership, shopping, community and sports. The elements which are included in interest factor are home, family, community, job, recreation, food, fashion, achievements and media. The elements which are included in opinion factor are social issues, themselves, politics, economics, business, education, future, products and culture. The elements which are included in demographic factor are education, age, income, family size, occupation, city size, dwelling, geography and phase in life cycle. Persons forthcoming from the similar social class, occupation and sub-culture may be relatively diverse lifestyle. Therefore, marketers normally hunt connection between their services/ product and lifestyle groups.

Value is the desirability of a thing such as worth or merit (Sheth & Usley, 2007). Marketing is such kind of process where companies generate value for customers and make robust relationships with them so as to capture value from them in return (Kotler and Armstrong, 2020). Value are co-created by Customers (Vargo and Lusch, 2008). "Co" indicated "who" creates value. Creation indicated interaction (Saarijärvi et al., 2013). Co-creation happens while dual or too many peoples interact by each other (Grönroos and Voima, 2013). Value proposition of cell phones to buyers is related with serving as an active communication and activities such as messages, phone calls, e-mails, recreation, working, purchases etc. (Campbell et al., 2012). Above discussion indicated that there may be a relationship between value creation and cell phone use by lifestyle activities of consumers. Therefore, previous discussions induce to identify variables which are related to value creation and cell phone use by lifestyle activities of consumers in Bangladesh.

Literature Review for Identifying Dependent Variable and Independent Variables

Previous researchers (Dange, 2012; Murugaboopathi et al., 2013) indicated that value creation was depended on cell phone use by lifestyle activities. Therefore, value creation is dependent variable for this study. Now it is attempted to identify the independent variables that people consider to use cell phone by lifestyle activities based on the literature review.

i. People used cell phone to pick information, accumulate it and occasionally distribute it to others. They used it to do correct, speedy and efficient calculation (Rahman, 2014). They use it in teaching and learning process (Lehner and Nosekebel, 2002; Dange, 2012). People used it to pay utility bill (water, electricity or any other) (Amankwaa et al., 2020). They used it to monitor their friends, relatives, care givers and elderly persons activities of daily living (Ouchi& Doi, 2013). They used it for financial transactions. They used to pay for services or goods whichever at all or at the point of sale. They used it for SMS banking (Sayer, 2011). They used it for collecting community clinical and medical health data. They used it to get medical facility and doctors' information (Ashraf et al., 2010). They used it to support their mental health (Stawarz,2019). So, 'information', 'calculation', 'teaching,' 'learning', 'paying utility bill', 'monitoring', 'transaction' 'health' and 'medical' are nine independent variables for this study.

ii. Mobile phone enabled people to watch and listen video, TV news, action program, sports scores, music to game; alert breaking events, weather, sports; entertain and inform anytime, anywhere (Jeong, 2016). People used it for enjoyment purpose such as listening radio, sharing songs, downloading songs, take photos, take videos, surfing the internet, reading e-books, playing games, taking photos etc. (Ogunlesi and Busari ,2012). Staff (2013) showed that 46% people used smart phone for enjoyment and relaxation (such as reading a gossip website, watching a funny video, shopping for fun, playing solitaire etc.). Thus, 'take picture', 'take video" 'read gossip', 'play game' 'listen music' 'watch video' are six independent variables for this study.

iii. People used cell phone to receive and send text, photo, messages and make calls. They used it for relationship building, maintaining formal/ informal/ close relationship, pre-marital relationship and social networking (Charney and Greenberg, 2002; Kraemer,2017). They used it for social/community interaction (Goliama, 2011). They used it for innovative factors of status, status symbol, image and lifestyle (Ozcan and Kocak, 2003). So, 'communication', 'relationship', 'social interaction' and social status considered as four independent variables.

iv. People used cell phone to order services and goods. They used it in the shopping procedures connected with a wide series of goods. They valued the accessibility

and convenience with the use of their mobile phone for shopping (Li et al., 2012). Therefore, 'order goods and services' and 'shopping procedure' are two independent variables for this study.

Above discussion aids to identify one dependent variable (value creation) and 20 independent (paying utility bill, monitoring, transaction, medical, information, teaching, health, relationship, listen music, searching product, play game, shopping procedure, read gossip, communication, watch video, learning, calculation, take picture, social interaction, order goods and services) variables which may be helped to identify the relationship between value creation and cell phone use by lifestyle activities of consumers in Bangladesh.

Research gaps

In spite of the existing body of research relating to use of mobile phone for work performance (Rahman, 2014; Lehner and Nosekebel, 2002; Dange, 2012; Amankwaa et al., 2020; Ouchi & Doi, 2013; Sayer, 2011; Ashraf et al., 2010; Stawarz, 2019), entertainment activities (Jeong, 2016; Ogunlesi and Busari, 2012; Staff, 2013), social activities (Charney and Greenberg, 2002; Kraemer, 2017; Goliama, 2011; Ozcan and Kocak, 2003), and shopping activities (Li et al., 2012); they limited their research to use of mobile phone for different kinds of activities. In the marketing literature, despite the fact that value creation through product use for increasing lifestyle is already quite popular. So, there is a lack of scientific articles on the impact of mobile phone usage on value creation. Given this gap in the research and the growing body of research related to use of mobile phone, it seems important to explore the relationship between value creation and mobile phone use by lifestyles activities of the people in Bangladesh. It also seems to be quite a new subject, not yet very popular in Bangladesh. This is what this study proposed to accomplish.

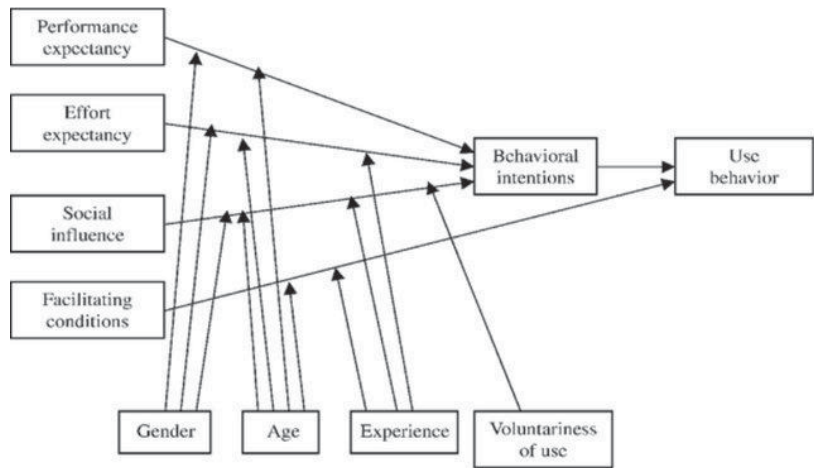
Theoretical Perspectives Relating to Mobile Phone Use and Value Creation

Subsequently an appraisal of the related literatures, it appears that some models/frameworks have some importance to the existing conversation.

Behavioral intention of users to use a technology:

Venkatesh et al. (2003) model suggest four core elements (Performance expectancy, effort expectancy, social influence and facilitating conditions) to determine users behavioral intention to use a technology. Gender, age, experience, and voluntariness of use are moderating variables assumed to influence the four key variables on usage intention and behavior (Figure 2.2.1). The model has already been used in several similar studies examining users' technology acceptance (Abdel-Wahab, 2008; Tagoe, 2012).

Figure 2.2.1 Unified Theory of Acceptance and Use of Technology (UTAUT) Model

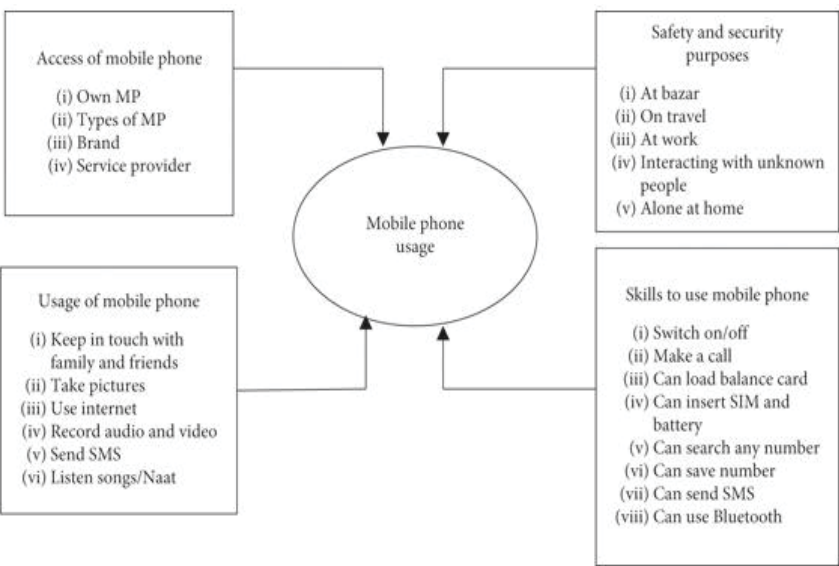


Source: Venkatesh et al. (2003).

Benefits of mobile phone usage

Rahim et al. (2020) explain a theoretical model (Figure 2.2.1) to examine benefits of mobile phone usage. They identified skills to use mobile phone, access of mobile phone, use for security and safety purposes.

Figure 2.2.2: Major categories of mobile phone usage

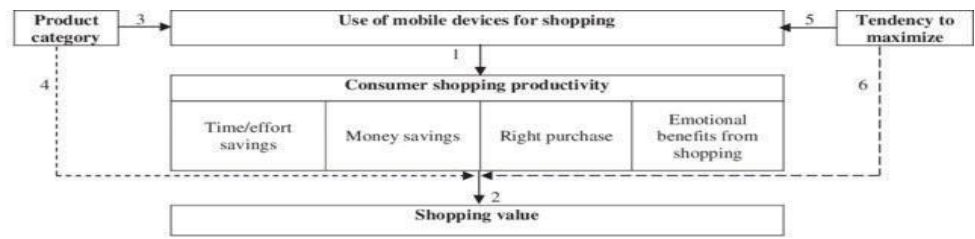


Source: Rahim et al. (2020)

Use of mobile devices for shopping value and productivity

Voropanova (2015) framework suggested that consumer used cell phone for generating shopping value by savings time and money. It also produced shopping value by creating emotional benefits from shopping and right purchase (figure2.2.3).

Figure 2.2.3: Use of mobile devices for shopping productivity and value

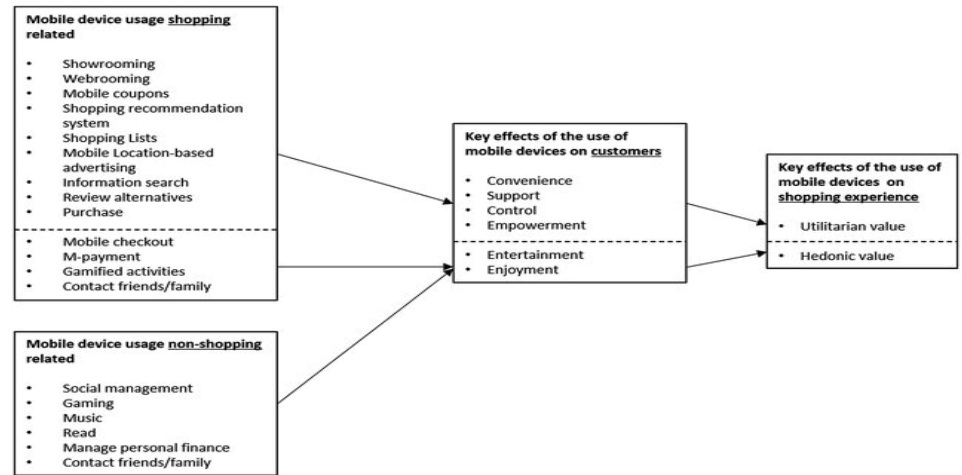


Source: Voropanova (2015).

Use of mobile device on customers utilitarian value and hedonic value.

Cavalinhos et al. (2021) framework identified mobile devices usage shopping interrelated and non-shopping interrelated and its key effects of the use of mobile device on customers utilitarian value and hedonic value (figure 2.2.4).

Figure 2.2.4: Use of mobile device on customers utilitarian value and hedonic value.



Source: Cavalinhos et al. (2021)

Social interaction over smartphones, motivational factors and consumers value

Jarenfors & Sturesson (2012) framework interpret how consumer value can be generated by social interaction through smart phone (figure 2.2.5).

Figure 2.2.5: social interaction through smartphones, motivational factors and consumers value

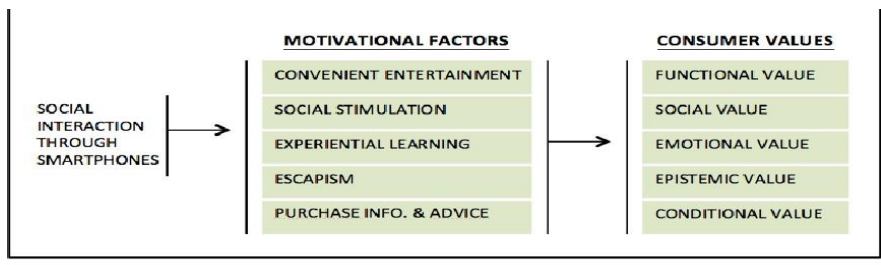


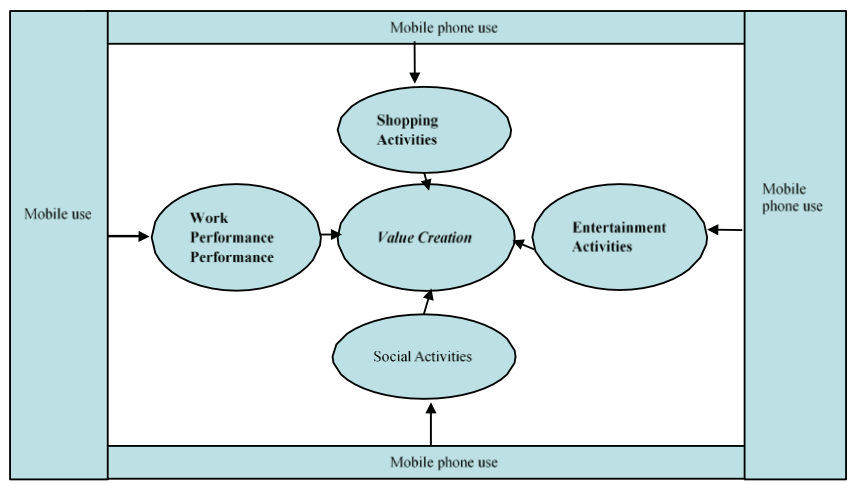
FIGURE 1.3. Interpretive Model of Social Interaction through Smartphones, Motivational Factors and Consumer Value based on Sheth et al. (1991) and Grant & O’Donohoe (2007) (Jarenfors & Sturesson, 2012)

Source: Jarenfors & Sturesson (2012)

Conceptual/Analytical Framework and Development of Hypothesis

Previous framework revealed that most of the people use mobile phone for work performance, enjoyment, social and shopping productivity purposes (Voropanova, 2015; Rahim et al. ,2020); whereas Jarenfors & Sturesson (2012) explain that consumer value can be generated by social interaction through smart phone. Therefore, on the basis of literature review and analysis of the previous theoretical framework/ model, a conceptual framework has been developed for this study (figure 3.1).

Figure-3.1: Relationship between mobile phone use and value creation by lifestyle activities



It is a comprehensive framework and it contains related factors involving the problem. The certain number of variables are considered to measure the link between mobile phone use and value creation by lifestyle activities. All the variables are related to following lifestyle activities factors.

Work Performance is the way of carrying out a task. Such as cell phone enables people to perform activities like pick, accumulate, preserve, distribute information (Rahman, 2009).

Shopping Activities: Cell phone enables to solve shopping activities like browsing, researching, buying, checking prices (Li et al., 2012).

Entertainment Activities: It is an action of relaxation (Yukic,1970). Mobile phone enables to watch and listen video/ TV news, action program, sports scores, music to game (Jeong, 2016).

Social Activities: Social Activities means all activities link with socializing with family, friends and in the community (Keefe and Sulanowski, 1995). Cell phone is used to receive and send text, photo, messages and make calls with others (Charney and Greenberg, 2002).

Value Creation: The value proposition is the set of benefits a company promises to deliver for satisfying their buyer needs (Kotlar,2022). Value is created when something perceived as benefit by the consumers (Sheth et al., 1991). There are different kinds of value that influence consumer behavior, for example, functional value, social benefit, shopping value, hedonic/ entertainment value (Sheth et al.1991; Sheth et al.,1991; Babin et al. 1994).

Above discussion indicated that there may be a robust association between value creation and cell phone use by lifestyle activities of consumers. So, Hypotheses (H) which are formulated for this section are summarized below:

H1: There is a strong association between value creation and cell phone use by lifestyle activities.

As lifestyle activities include work performance, shopping activities, entertainment activities and social activities; For the purpose of the study, the following four sub-hypotheses have been developed.

H1a. There is a strong association between value creation and cell phone use by work performance.

H1b. There is a strong relationship between value creation and cell phone use by entertainment activities.

H1c. There is a strong bond between value creation and cell phone use by social activities.

H1d. There is a strong relationship between value creation and cell phone use by shopping activities.

Research Methodology

Quantitative method was used for examining the relationship between value creation and cell phone use by lifestyle activities. Based on the previous literature and theoretical framework/ model, this research has developed a conceptual framework (figure 3.1). Four major lifestyle activities factors (social activities, work performance, entertainment and shopping activities) were identified which inspired consumers to use cell phone for getting value. Based on the conceptual framework, hypotheses (H) were formulated. For data collection and hypothesis testing, this study emphasized on quantitative approach as it is capable of checking the hypothesized links between sets of variables (Blaikie, 2010; Almalki, 2016). People of Bangladesh who have already used cell phone were the population in this study. With respect to personal communication, using addresses as the sampling frame. As there is no existing and inclusive data base regarding people who used or not used mobile phone in Bangladesh, the population was anyone of the people who used mobile phone. As mobile phone users lived everywhere in Bangladesh, the areas of 8 divisions in Bangladesh choose as the research area. Persons who used mobile phone by January 2024 were regarded as respondents. A well-pretested structured questionnaire was administered to respond by the respondents. Then by excluding the incomplete questionnaires, 400 samples (questionnaires) were retained to conduct the survey. Such a sample size was justified according to Cochran (1963) sample size determination formula. The following sample size formula were used for selecting respondents from the target population (Cochran,1963).

$$N = \left[\frac{p(1-p)z^2}{d^2} \right] * deft$$

p= the proportion to be estimated=0.91 (as 91.32% of the people use mobile phone)

z= value of standard normal variate=95% level of significance=1.98

d = the amount of tolerated margin of error=0.04 (usually used d=1to 5%, the study used 4% to support budget)

deft =design effect=1.99

$$\text{Number of sample} = \left[\frac{0.91(1-0.91)(1.98)^2}{(0.04)^2} \right] * 1.99 = 400$$

For getting the target sample of 400 respondents, it was decided to contact 480 respondents who used cell phone. In the beginning, the target population were divided into eight (8) mutually exclusive and collectively exhaustive quotas which were the 8 divisions of Bangladesh (Dhaka, Khulna, Barishal, Chittagong, Mymensingh, Rajshahi, Rangpur, Sylhet). 60 respondents were selected as sample from each division (division as quotas) by considering convenience sampling method. Since there is no sampling frame, convenience sampling technique was used for choosing the

number of respondents from each division (division as quotas). Draft questionnaires were pretested to aim at making it error free. Next, it was finalized and administered personally and also research assistant to carry out survey during a period of two weeks for collecting data. Two broad sections were used in survey questionnaire. 1st part of the questionnaire was focused on the demographic's characteristics of consumers, while the 2nd part contained relation between value creation and cell phone use by lifestyle activities of the consumers. Where most of the questions were related to independent variables, but very few were related to dependent variable.

The dependent variable (value creation) and 20 independent variables (paying utility bill, monitoring, transaction, medical, information, teaching, health, relationship, listen music, searching product, play game, shopping procedure, read gossip, communication, watch video, learning, calculation, take picture, social interaction, order goods and services) were measured using 5-point Likert scale (Cheung & Jin, 2011). The response categories for each statement relating to 21 variables are 1=strongly disagree, 2= disagree, 3=Neutral, 4=agree, 5=strongly agree.

At first, it was planned to conduct a multiple regression analysis considering the value creation as the dependent variable and 20 independent variables as identified based on the literature review. The existence of multicollinearity among the independent variables is determined based on the correlation matrix, VIF, KMO statistic and Bartlett's test of Sphericity. The presence of multicollinearity led to conduct factor analysis. At last, multiple regression is run considering the extracted factors as predictors (independent variables) to explain the dependent variable.

Both secondary and primary data were used for this study. Secondary data were gathered from several sources for instance books, brochure, and magazine (Appendix, graph1). Information about the cell phone use and value creation by peoples' lifestyle activities were collected from different kinds of related Journals and books. Primary data were obtained through questionnaire from sample respondents of Bangladesh. The data covered the information related to the relationship between value creation and mobile phone use by lifestyle activities (entertainment activities, work performance, shopping activities and social activities) of consumers.

Data Analysis and Findings

This section includes tests of multicollinearity, factor analysis and then multiple regression analysis. Literature review indicated that large numbers of interconnected variables are presented in the lifestyle factors which are underlying cause of mobile phone use for value creation. Therefore, the study used factor analysis. Because factor analysis is a powerful tool for simplifying complex data, finding hidden patterns, and setting the stage for deeper, more focused analysis. It is also used to understand the

underlying structure or patterns within this data (Fabrigar et al.,1999). Whether factor analysis was appropriate for this study or not and for measuring the reliability and validity statistics, the study used multicollinearity test.

Tests for Multicollinearity: Since multicollinearity (i.e. high inter-correlations among independent variables) makes the estimated multiple regression coefficient unstable and standard errors of the coefficients wildly inflated (Gregory, 2017), the results were subject to test for multicollinearity. The determination of whether there is problems of multicollinearity and the suitability of conducting factor analysis is based on the analysis of correlation matrix, variance inflation factor (VIF), value of KMO (Kaiser-Meyer-Olkin) measure of Bartlett's Test of Sphericity and sampling adequacy.

Correlation Matrix: The lower triangle correlation matrix (Table 5.1.1) contains 210 unique correlation coefficients between pairs of 20 independent variables. Out of them, 72 coefficients are significant at the 0.01 level (marked with**) and 20 coefficients are significant at the 0.05 level (marked*) implying the existence of multicollinearity in 44% cases (92 out of 210).

Table 5.1.1 Correlation Matrix

Correlations matrix	v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20
v1.Paying utility bill	1																			
v2.Monitoring	.553**	1																		
v3.Transaction	.587**	.959**	1																	
v4.Medical	.168	.390**	.385**	1																
v5.Information	.584**	.614**	.621**	.362**	1															
v6.Teaching	.558**	.583**	.610**	.454**	.675**	1														
v7.Health	.476**	.461**	.500**	.367**	.440**	.414**	1													
v8.Relationship	.239*	.181	.145	.005	.149	.082	.026	1												
v9.Listen Music	.075	.239*	.255*	.086	.053	-.033	.073	.207*	1											
v10.Searching Product	.216*	.158	.198*	.124	.245*	.116	.162	.174	.259**	1										
v11.Play game	.062	.246*	.252*	.076	.061	-.033	.064	.219*	.981**	.279**	1									
v12.Shopping Procedure	-.151	-.082	-.090	-.127	-.297**	-.263**	.002	.116	.454**	.061	.443**	1								
v13.Read gossip	.085	.178	.176	.116	.163	.065	.046	.090	.380**	.009	.387**	-.080	1							
v14.Communication	-.029	-.025	-.014	-.207*	-.036	-.101	-.026	.344**	.206*	.151	.249*	.065	.133	1						
v15.Watch video	.068	.269**	.272**	.073	.077	-.010	.068	.233*	.971**	.315**	.991**	.437**	.376**	.264**	1					
v16.Learning	.560**	.585**	.595**	.380**	.980**	.672**	.442**	.127	.036	.255*	.044	-.291**	.153	-.023	.059	1				
v17.Calculation	.579**	.600**	.607**	.362**	.995**	.679**	.434**	.152	.058	.247*	.066	-.289**	.158	-.024	.082	.985**	1			
v18.Take picture	.066	.239*	.253*	.071	.058	-.034	.066	.204*	.991**	.267**	.991**	.452**	.387**	.215*	.981**	.041	.063	1		
v19.Social interaction	-.060	-.044	-.034	-.192	-.069	-.128	-.032	.317**	.222*	.171	.265**	.104	.134	.993**	.280**	-.056	-.058	.230*	1	
v20.Order goods and services	-.043	.073	.050	.089	-.073	-.044	.184	.131	.431**	.272**	.420**	.484**	.040	-.010	.433**	-.061	-.065	.425**	.024	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Variance Inflation Factor: Table 5.1.2 shows that the VIF values corresponding to variables v1, v4, v6, v7, v8, v10, v12, v13, v20 are within the range of 1-5, which indicates that each variable is moderate and low correlated (collinearity) with the rest of the variable. The VIF values corresponding to variables v2, v3, v5, v9, v11, v14,

v15, v16, v17, v18, v19 are the greater range of 5, which indicates that each of these variables are highly correlated (collinearity) with the rest of the variable.

Table 5.1.2: Variance Inflation Factor

Model	Collinearity Statistics	
	VIF	Level of Collinearity
v1.Paying utility bill	2.260	moderate
v2.Monitoring	14.817	High
v3.Transaction	16.025	High
v4.Medical	1.770	low
v5.Information	109.556	High
v6.Teaching	2.630	moderate
v7.Health	1.755	low
v8.Relationship	1.476	low
v9.Listen Music	56.973	High
v10.Searching Product	1.558	low
v11.Play game	131.886	High
v12.Shopping Procedure	1.967	moderate
v13.Read gossip	1.375	low
v14.Communication	107.413	High
v15.Watch video	71.159	High
v16.Learning	36.768	High
v17.Calculation	143.983	High
v18.Take picture	121.484	High
v19.Social interaction	105.732	High
v20.Order goods and services	1.720	low

KMO and Bartlett’s Test: Table 5.1.3 shows that the KMO statistic is 0.797 which means sampling is adequate with lower proportion of variance and the model is fit for conducting factor analysis. The table also demonstrate that Bartlett’s Test of Sphericity (Approx. Chi-Square is 2.963E3 with 190 degrees of freedom), an indication of the strength of the association among the independent variables, is highly significant (p=.000) implying that correlation matrix is not an identity matrix, i.e. the presence of multicollinearity. Therefore, overall the factor analysis appears to be appropriate in this case (Sriram, 2012).

Table 5.1.3 KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.797
Bartlett’s Test of Sphericity	2.963E3
Df	190
Sig.	.000

On the whole, the above tests in terms of correlation matrix, VIF, KMO statistic and Bartlett’s test of Sphericity indicate the presence of multicollinearity and thus dictate the appropriateness of conducting factor analysis which will help to address the re-search questions / testing the hypotheses.

Factor Analysis: The purpose of factor analysis is to group the variables into factors that can define their characteristics. Principal component analysis (PCA) was utilized in order to generate suitable data (factors) for conducting regression analysis. This section is concerned with determination of number of factors and interpretation of the factors.

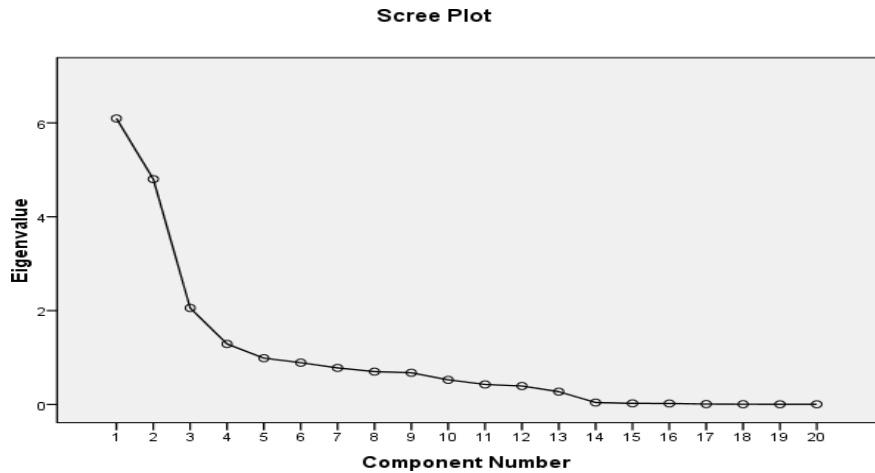
Determination of the Number of Factors: Methods grounded on scree plot, eigenvalues, percentages of variance considered were used to detect the numbers of factors. In Table 5.2.1, it is realised that the eigenvalue greater than 1.0 (default option) marks in four factors extracted. The scree plot connected with this investigation is given in (Figure 5.2.1). As of the scree plot, a diverse break arises at four factors. Thus, four factors seem to be realistic in this condition.

Table 5.2.1 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Vari- ance	Cumulative %	Total	% of Vari- ance	Cumulative %	Total	% of Variance	Cumulative %
1	6.095	30.476	30.476	6.095	30.476	30.476	5.820	29.100	29.100
2	4.803	24.014	54.491	4.803	24.014	54.491	4.422	22.108	51.208
3	2.057	10.283	64.774	2.057	10.283	64.774	2.308	11.538	62.746
4	1.289	6.447	71.220	1.289	6.447	71.220	1.695	8.474	71.220
5	.986	4.931	76.152						
6	.891	4.454	80.606						
7	.779	3.894	84.499						
8	.700	3.498	87.997						
9	.676	3.380	91.378						
10	.525	2.625	94.003						
11	.427	2.135	96.138						
12	.393	1.965	98.103						
13	.273	1.364	99.467						
14	.041	.206	99.673						
15	.023	.117	99.790						
16	.021	.103	99.892						
17	.008	.041	99.933						
18	.005	.024	99.958						
19	.004	.022	99.979						
20	.004	.021	100.000						

Extraction Method: Principal Component Analysis.

Figure 5.2.1 scree plot



Interpretation of the Factors: The rotated component matrix comprises the coefficients used to exhibit the standardized variables in terms of the factors (Table 5.2.2).

Table 5.2.2 Rotated Component Matrix

	Component			
	work performance	entertainment activities	social activities	shopping activities
v1.Paying utility bill	.729	-.024	.101	.075
v2.Monitoring	.795	.225	-.012	.047
v3.Transaction	.812	.226	-.003	.051
v4.Medical	.509	.096	-.281	.057
v5.Information	.912	.016	.061	-.162
v6.Teaching	.804	-.072	-.061	-.057
v7.Health	.617	-.028	-.012	.325
v8.Relationship	.177	.111	.534	.186
v9.Listen MusiC	.061	.951	.107	.199
v10.Searching Product	.287	.150	.280	.396
v11.Play game	.061	.953	.150	.184
v12.Shopping Procedure	-.276	.384	.024	.645
v13.Read gossip	.128	.576	.037	-.488
v14.Communication	-.089	.140	.944	-.080
v15.Watch video	.082	.941	.173	.202
v16.Learningg	.901	-.003	.066	-.152
v17.Calculation	.907	.018	.071	-.157
v18.Take picture	.059	.957	.116	.189
v19.Social interaction	-.119	.158	.931	-.047
v20.Order goods and services	-.004	.360	-.036	.703

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Factor 1 has high coefficients for variables, namely paying utility bill, monitoring, transaction, medical, information, teaching, health, learning, calculation activities. These factors may be labelled as work performance factor. Likewise, there are relatively high correlations among listen music, play game, read gossip, watch video, take picture. Therefore, this factor may be labelled as entertainment activities factor. Similarly, there are comparatively high associations among relationship, communication, social interaction. So, factor 2 may be labelled as social activities factor. Similarly, there are comparatively high connections among searching product, shopping procedure, order goods and services. These factors may be labelled as shopping activities factor.

Regression Analysis: Above section indicate that conducting factor analysis is appropriate. As a result, considering the extracted factors as the independent variables, a multiple regression model can be run to explain the dependent variable (value creation), which is specified as follows.

$$Y = b_0 + b_1F_1 + b_2F_2 + b_3F_3 + b_4F_4 + e$$

Y= Value creation

b_0 (Alpha) is the Constant or intercept

b_1 is the Slope (Beta coefficient) for F_1

F_1 = Work Performance

b_2 is the Slope (Beta coefficient) for F_2

F_2 =Entertainment Factor

b_3 is the Slope (Beta coefficient) for F_3

F_3 =Social Factor

b_4 is the Slope (Beta coefficient) for F_4

F_4 =Shopping factor

e = Error term

Multiple Regression Model Summaries: Table 5.3.1 demonstrates the model summary of the multiple regressions in explaining value creation. The value of R^2 is 0.572 and Adjusted R square is 0.554, which are highly significant ($p=0.000$). This implies that the null hypothesis that the coefficient of multiple determination in the population is zero (i.e. $R^2_{pop}=0$) has been rejected and that 57. 2% of the variance in the dependent variable (value creation) is explained by four factors (predictors).

Table 5.3.1 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Significant
1	.756 ^a	.572	.554	.43790	0.000

a. Predictors: (Constant), F_4 . Shopping Activities, F_3 . Social Activities, F_2 . Entertainment Activities, F_1 .
Work Performance

Sources: Survey data

Multiple Regression Coefficients: Table 5.3.2 shows that all the multiple coefficients are highly significant ($P=.000$) to explain the value creation. In terms of both Unstandardized Coefficients and standardized Coefficients (B and Beta), in descending order of magnitude, are the factors: work performance, shopping activities, entertainment activities and social activities.

Table 5.3.2 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
1 (Constant)	4.290		.044	97.969	.000
F1. Work Performance	.460		.044	.702	10.463
F2. Entertainment Activities	.107		.044	.164	2.440
F3. Social Activities	.090		.044	.137	2.036
F4. Shopping Activities	.121		.044	.184	2.745

a. Dependent Variable: v21.Value creation

Analysis of Variance: In these outcomes, the null hypothesis affirms that the mean square values of 4 diverse factors (work performance, entertainment activities, social activities and shopping activities.) are equal. As the p-value (p=0.000) is less than the significance level of 0.05; therefore, the null hypothesis is rejected. So, the alternative hypothesis is accepted and indicated that all factors differ significantly from the overall mean of the dependent variable.

Table 5.3.3 ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.374	4	6.093	31.777	.000 ^a
	Residual	18.216	95	.192		
	Total	42.590	99			

a. Predictors: (Constant), F4. Shopping Activities, F3. Social Activities, F2. Entertainment Activities, F1. Work Performance
b. Dependent Variable: v21.Value creation

Results of Hypothesis Testing: The outcomes related to the hypothesis testing are concise in table 4.3.4.

Table-5.3.4 Structural parameter estimates between value creation and use of cell phone factors

Hypothesized relationshipS	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Hypotheses (Remarks)
	B	Std. Error				
F1. Value Creation and cell phone use by work performance	.460	.044	.702	10.463	.000	Supported
F2. Value Creation and cell phone use by entertainment activities	.107	.044	.164	2.440	.017	Supported
F3. Value Creation and cell phone use by social activities	.090	.044	.137	2.036	.045	Supported
F4. Value Creation and cell phone use by shopping activities	.121	.044	.184	2.745	.007	Supported

a. Dependent Variable: v21.Value creation

The estimates of the standardized coefficients display that the hypothesized associations between value creation and cell phone use by work performance (Beta=.702, t=10.463, p=.000), between value creation and cell phone use by entertainment activities (Beta=.164, t=2.440, p=.017), between value creation and cell phone use by social activities (Beta=.137, t=2.036, p=.045), between value creation and cell phone use by shopping

activities (Beta=.184, $t=2.745$, $p=.007$) are statistically highly significant. Therefore, it is concluded that these four relationships between value creation and cell phone use by work performance, entertainment activities, social activities, shopping activities respectively; as anticipated in the conceptual model are supported in this research context.

Discussion

The article clarifies the data analysis and key results of this study with respect to the broad research objective as set out in this study. The main purpose of the present research is to discover the link between value creation and cell phone use by lifestyle activities of the people in Bangladesh. Analysis of data indicated a well-built link between value creation and cell phone use by lifestyle activities of the people in Bangladesh. A well-built association between value creation and cell phone use by peoples' work performance, entertainment activities, social activities and shopping activities factors are supported by this study. The study reveals that people use cell phone to boost up their entertainment activities, work performance, social activities and shopping activities. Earlier researchers suggest that nine variables paying utility bill (Amankwaa et al., 2020), monitoring others (Ouchi & Doi, 2013), financial transaction (Sayer, 2011), getting medical facilities (Ashraf et al., 2010), getting information (Rahman, 2009), teaching and learning (Lehner and Nosekebel, 2002; Dange, 2012), getting health services (Stawarz, 2019), calculation (Rahman, 2009) of work performance factor are related to use of cell phone. This study also found that all nine variables of work performance factor are highly significant (table-5.2.2). Nine variables indicated that people need cell phone for paying utility bill, monitoring others, financial transaction, getting medical facilities, getting information, teaching, getting health services, learning and calculation. All five variables of entertainment activities factor regarding value creation and cell phone use by peoples' lifestyle activities are highly significant (table-5.2.2). The findings confirm the observation that people use cell phone for listening music (Ogunlesi and Busari, 2012), playing game (Jeong, 2016). They use it to read gossip, watch video, take picture (Staff, 2013). All three variables of social activities factor regarding value creation and cell phone use by peoples' lifestyle activities were highly significant (table-5.2.2). The study results justify that people use cell phone for maintaining relationship (Kraemer, 2017). They use it to communicate with others (Charney and Greenberg, 2002). They use it for maintaining social interaction with friends/ relatives and others (Goliam, 2011). Previous research (Li et al., 2012) show that people use cell phone for searching products, shopping procedure, order goods and services. This study also supports it (table-5.2.2). From the discussion, it is clear that value creation and cell phone use by people's lifestyle activities factors are related to each other. People need cell phone for doing their work performance, social activities, entertainment activities, and shopping activities.

Conclusion and Implications

The study identifies and clarifies the relationship between value creation and cell phone use by lifestyle activities of the people in Bangladesh. The study found that work performance, entertainment, social and shopping activities are key lifestyle activities factors which influence people to use cell phone. This indicated that cell phone is necessary to perform several kinds of activities like paying utility bill, monitoring, transaction, medical, information, teaching, health, learning, calculation activities. It is used for entertainment activities such as listen music, play game, read gossip, watch video, take picture. It is used to do social activities like relationship, communication, social interaction. Searching product, shopping procedure, order goods and services etc. shopping activities are possible to performed by using cell phone. Therefore, value creation and cell phone use by lifestyle activities of the people in Bangladesh is justified by this study.

This key finding bears some important managerial implications:

- i. From a theoretical point of view, this research has served to broaden our understanding of the lifestyle activities factors influencing mobile phone use from the perspective of consumers value creation. Gathering knowledge from this study, marketers can realise, what types of marketing might be considered as relevant for consumers specific lifestyle activities. So, they can progress marketing communication and strategies captured the consumer perceived value and reach them in their activities recognized in this study. Indeed, the study outcomes form practical tools for the various players and the policy makers in the telecommunication industry in Bangladesh.
- ii. As study show that use of mobile phone by lifestyle activities (work performance, social, entertainment and shopping activities) has strong impacts on value creation; so, it plays a vital role in influencing consumers to use it and thereby creating demand to buy it. So, focusing on consumer lifestyle activities, managers can segment the market accordingly and develop suitable strategies as well as marketing programs for this particular market by fulfilling the values needs of the targeted customers.
- iii. Based on the conceptualization of this study, managers can find out the ways to better utilize mobile phone so that it can be created value for consumers.
- iv. Hypothesis testing among different constructs would define which factors influence what and how? Armed with this knowledge, firms will be able to shape strategic competencies that are valuable, thereby creating sustainable competitive advantages. The study creates the importance of cell phone effect on peoples' lifestyle activities. Therefore, managers of cell phone firms are benefited considerably in targeting and positioning the product (cell phone) on the basis of people's lifestyle activities. The study helps to emphasis on the continuing changes in lifestyle activities of the people by using cell phone.

7.0 References

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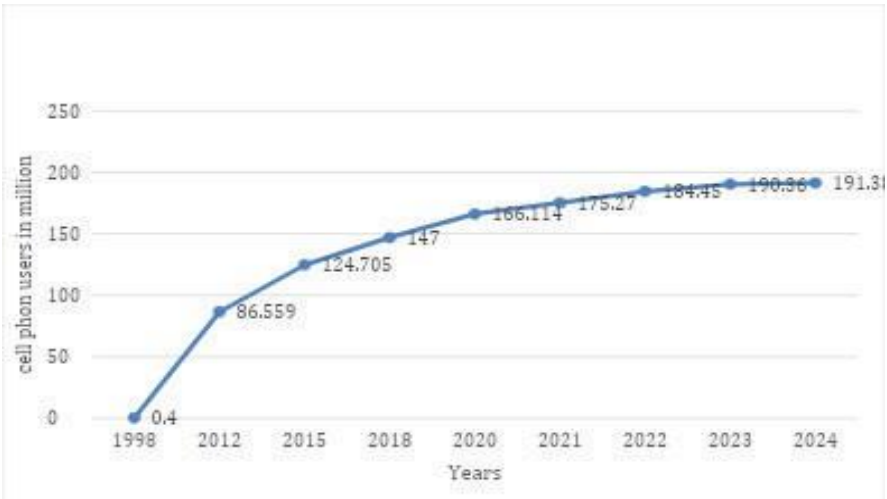
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Appendix

Graph-1. Cell phone users in Bangladesh from 1998 to 2024.



Source: AMTOB (2024)