An Empirical Study of Consumer Behaviour in Mobile Phone Market in Bhutan

Dr. L. Shashikumar Sharma*

Abstract

The mobile phone market is one of the dynamic markets that have been growing by leaps and bounds in the last decade. Although the manufacturers conduct a lot of market studies, their outcomes are not made available to the public. Therefore, consumer behaviour of mobile phone is an open area for study. The paper attempts to identify the factors that influence the purchase of mobile phones by the youth in Bhutan. It uses factor analysis as a tool to identify the factors that influence the consumer behaviour. This paper surveyed 254 Bhutanese consumers and looked at their motives to purchase new mobile phones. The outcome of the study identifies five accountable factors while making the purchase of a mobile phone by the youth community.

Keywords Consumer behaviour, Mobile phones, Purchase, Bhutan

Introduction

This paper is an attempt to study the factors that affect consumer behaviour as well as to gather information about the mobile phone users. Although it is apparent that there are large players in the telecommunication sector who constantly conduct market research, the results obtained from such study are kept en camera and not for public viewing. Therefore, consumer behaviour in the mobile industry is a less unexamined area for the academician.

On this basis, this paper first describes the trends in the information and telecommunication (ICT) sector in order to highlight the issues relating to consumer behaviour. This is followed by a review of recent studies concerning factors that seem to affect the choice of a mobile phone. Finally, the paper reports the survey findings and discusses the managerial and theoretical implications.

Review of literature

These days are the most interesting times to study consumer behaviour in the mobile industry as changes are happening around. There has been changes and challenges needed for new mobile (e.g., Bradner, 2002; Wagstaff, 2002), currently there is the trend of shifting from second generation mobile phones to third generation in the mobile industry. It means that mobile phones will not be an instrument used for speaking only but a tool that allows a variety of new services such as high bandwidth internet access, multimedia messaging service (MMS) and video conferencing. We are currently witnessing a shift from modem connection to wireless internet connection by using w-lan and GPRS network. The real advantage of 3G mobile services relates to faster broadband speed internet connection.

In order to identify the amount of self-knowledge while purchasing a mobile phone, 94 consumers were surveyed by Riquelme (2001). The study emphasised on six attributes viz., phone features, connection fee, access cost, mobile to mobile phone call charge rates, other call rates, and free calls. The study showed that with prior experience of a product their choices can be relatively predicted but overestimates the features of the phone, call rates and free rates and underestimates the importance of monthly fee, mobile to mobile call rate and connection fees.

The factors affecting the brand decision in the mobile phone industry in Asia was examined by

*Associate Professor, Department of Management, Mizoram University, Aizawl, Mizoram, India

Liu (2002). It was concluded that the choice of cellular phone is characterised by two distinct attitudes to brands: attitude towards the mobile phone brand on one hand and attitude towards the network on the other. While price and connectivity were found to be the main factors on choice of networks, mobile phone brands were affected by new features such as memory capacity and SMS option.

These and other issues are discussed and analysed next with data on Bhutanese consumers. Bhutan is a mountainous country where laying and maintaining land lines is a very difficult task. The adoption of mobile phones has been a boon as it has enhanced the people's access to information and has had far reaching impact on rural development and good governance. The then only mobile service B-mobile was established in November 2003 with only 2,225 subscribers. Now, private parties like Tashi cell has entered the market and as on 2010, there are 2,51,000 subscribers.

Description of the survey data and methods

The data was collected by means of a questionnaire from selected educational institutions in Bhutan in October 2009. There were three target groups in the survey. The first group consisted of secondary school students aged around 18. The second group comprises of college students mainly aged 18 to 25. The third group consisted of faculty members from school and colleges. Their age varied from 22 to 50 although most were between 28 to 45 years of age. The data consisted 254 questionnaire, of which 176 were from male respondents and 78 from female respondents. Almost all students possess a mobile phone and they predominantly use pre-paid mobile services. The respondents were selected on the basis of non-probabilistic and convenience-sampling technique. Convenience sampling has been used because the consumers are at the right place and at the right time. To find the factors influencing the purchase of a mobile phone, 14 statements were used and the respondents were asked to rate on a five point rating Likert scale. Since consumer behaviour concerning the choice of a mobile phone is not known in theory i.e, no commonly accepted knowledge of the factors influencing consumers' decision making exist, thus the results obtained have some limitations and should be treated provisionally.

Results

Various studies on consumer behaviour have shown demography to be the main factor which influences the adoption of technology based product or services (Agarwal and Prasad, 1999). Demographic profiling shows that 69.29 % of the sample is male while the remaining 30.71% are female. In order to identify the factors responsible for the choice of mobile phones from the 254 respondents, statistical tools were used. The correlation matrices extracted are shown in Table 1. Determinant of the correlation matrix was also obtained in order to test the multicollinearity or singularity. The determinant of the matrix is found to be 0.011 which is greater than 0.00001 and thus proves that multicollinearity is not a problem. Kaiser-Meyer-Oklin (KMO) and Barlett's test of sphrecity produces the Kaiser-Meyer-Oklin measure of sample adequacy. The value of KMO is found to be 0.676 which is greater than 0.5 and found that the sample is adequate for testing. The extraction method used is principal component analysis. The inter-operability of factors can be improved through rotation of the matrices. The rotation of the matrix maximizes the loadings of each variable on one of the extracted factors while minimising the loadings on all other factors. Orthogonal rotation varimax is used by considering the factors to be independent. The latent roots with more than eigenvalue 1 (one) are to be considered significant and the rest are disregarded.

The second table lists the eigen values associated with each factor before extraction, after extraction and as well as after rotation. Before extraction, it has identified 14 linear components within the data set. The eigen value associated with each factor represents the variance explained by that linear

component and in terms of percentage of variance explained is also displayed (e.g., factor 1 explains 24.307% of total variance). Then, it extracts all factors with eigen values greater than 1, which leaves us with 5 factors. The eigenvalues are displayed in the columns labelled Extraction Sum of Squared Loadings (without those factors whose value is less than 1). In the third part of the table Rotation Sums of Squared Loadings, the eigenvalues after rotation are displayed. Rotation has the effect of optimising the factor structure and one consequence for these data is that the relative importance of these five factors is equalized. Before rotation, factor 1 and 2 accounted for considerably more variance than after rotation (3.403 and 2.547 before rotation and 2.555 and 2.326 after rotation). The other three factors increased their eigenvalues after rotation (1.543, 1.175 and 1.023 before rotation increased to 1.860, 1.493 and 1.456 after rotation respectively).

Subsequently Table 3 explains the table of communalities before and after extraction. Principal component analysis works on the initial assumption that all variations are common; therefore before extraction, the communalities are all 1. The extraction row reflects the common variance in the data structure meaning 61.8% of the variance associated with statement 1 is common or shared variance. The amount of variance, in each variable that can be explained by the retained factors is represented by the communalities after the extraction.

Table 1: Correlation matrix

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	
Correlation	S1	1.000	.350	.547	-.018	.278	.390	.235	.455	.002	-.016	-.036	.207	.203	-.011
	S2	.350	1.000	.256	.098	.407	.179	.048	.530	.181	.139	.016	-.095	-.160	.152
	S3	.547	.256	1.000	-.197	.021	.526	.440	.368	-.104	-.155	-.144	.371	.408	-.057
	S4	-.018	.098	-.197	1.000	.050	-.264	-.218	.011	.235	.377	.162	.084	-.389	.175
	S5	.278	.407	.021	.050	1.000	.013	.033	.332	.405	-.115	.057	-.164	.000	.276
	S6	.390	.179	.526	-.264	.013	1.000	.411	.196	-.029	-.063	-.260	.411	.411	-.120
	S7	.235	.048	.440	-.218	.033	.411	1.000	.153	.000	-.133	-.344	.285	.514	-.137
	S8	.455	.530	.368	.011	.332	.196	.153	1.000	.193	.202	.144	.084	-.010	.040
	S9	.002	.181	-.104	.235	.405	-.029	.000	.193	1.000	-.007	.180	.031	-.105	.181
	S10	-.016	.139	-.155	.377	-.115	-.063	-.133	.202	-.007	1.000	.124	-.056	-.423	-.090
	S11	-.036	.016	-.144	.162	.057	-.260	-.344	.144	.180	.124	1.000	-.376	-.214	.386
	S12	.207	-.095	.371	.084	-.164	.411	.285	.084	.031	-.056	-.376	1.000	.301	-.149
	S13	.203	-.160	.408	-.389	.000	.411	.514	-.010	-.105	-.423	-.214	.301	1.000	-.072
	S14	-.011	.152	-.057	.175	.276	-.120	-.137	.040	.181	-.090	.386	-.149	-.072	1.000
Sig. (1-tailed)	S1		.000	.000	.421	.001	.000	.004	.000	.493	.430	.346	.010	.011	.452
	S2	.000		.002	.137	.000	.022	.296	.000	.021	.060	.429	.145	.037	.044
	S3	.000	.002		.013	.406	.000	.000	.000	.122	.041	.053	.000	.000	.261
	S4	.421	.137	.013		.289	.001	.007	.452	.004	.000	.035	.175	.000	.025
	S5	.001	.000	.406	.289		.444	.354	.000	.000	.100	.262	.033	.496	.001
	S6	.000	.022	.000	.001	.444		.000	.014	.372	.239	.002	.000	.000	.090
	S7	.004	.296	.000	.007	.354	.000		.043	.500	.068	.000	.001	.000	.063
	S8	.000	.000	.000	.452	.000	.014	.043		.015	.012	.053	.173	.458	.329
	S9	.493	.021	.122	.004	.000	.372	.500	.015		.471	.022	.367	.120	.021
	S10	.430	.060	.041	.000	.100	.239	.068	.012	.471		.083	.268	.000	.156
	S11	.346	.429	.053	.035	.262	.002	.000	.053	.022	.083		.000	.008	.000
	S12	.010	.145	.000	.175	.033	.000	.001	.173	.367	.268	.000		.000	.048
	S13	.011	.037	.000	.000	.496	.000	.000	.458	.120	.000	.008	.000		.209
	S14	.452	.044	.261	.025	.001	.090	.063	.329	.021	.156	.000	.048	.209	

Determinant = .011 .

Table 2: Total variance explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumula-tive %	Total	% of Variance	Cumulative %
1	3.403	24.307	24.307	3.403	24.307	24.307	2.555	18.251	18.251
2	2.547	18.190	42.497	2.547	18.190	42.497	2.326	16.613	34.864
3	1.543	11.022	53.519	1.543	11.022	53.519	1.860	13.286	48.149
4	1.175	8.394	61.913	1.175	8.394	61.913	1.493	10.664	58.814
5	1.023	7.304	69.217	1.023	7.304	69.217	1.456	10.403	69.217
6	.761	5.435	74.652						
7	.684	4.883	79.535						
8	.623	4.449	83.984						
9	.536	3.829	87.813						
10	.471	3.362	91.175						
11	.380	2.714	93.889						
12	.311	2.220	96.110						
13	.294	2.101	98.211						
14	.251	1.789	100.000						

Extraction Method: Principal Component Analysis.

Table 3: Communalities

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
Initial	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Extraction	0.62	0.69	0.75	0.75	0.77	0.58	0.53	0.68	0.71	0.7	0.75	0.78	0.72	0.69

Extraction Method: Principal Component Analysis.

The component matrix before rotation is displayed in Table 4. This matrix contains the loadings of each variable into each factor. By default SPSS displays all loadings, as requested to suppress loadings less than 0.45 which are represented by blank spaces. At this stage SPSS has extracted five factors from the 14 linear factors.

Table 4 :Component matrixa

	Component				
	1	2	3	4	5
S3	.785				
S6	.748				
S7	.692				
S13	.674				
S1	.591				
S12	.539				
S2		.728			
S8		.695			
S5		.648			
S10			.729		
S9		.492		.622	
S4				.477	
S11					.542
S14			-.468		.487

Extraction Method: Principal Component Analysis.
a. 5 components extracted.

The following Table 5 displays the rotated component matrix also known as the rotated factor matrix which is a matrix of factor loadings for each variable onto each factor. The matrix contains the same information as in component matrix except that it is calculated after rotation. In this table, factor loadings less than 0.45 are not displayed and the variables are also displayed in order of size of their factor loadings.

Interpretation

Table 5:Rotated component matrix[a]

Motive	Brand Choice	Attributes	Product Information	Market Accessibility	Influences
S12. I always take my own decision while choosing a mobile phone.	.819				
S3. I consider and give importance to the brand image of the mobile phone while purchasing.	.663				
S6. I like mobile phones which has the latest technology enabled.	.651				
S13. I was more influenced by the advertisement/media.	.592				
S7. I give importance to the audibility of the mobile phone.	.574				
S8. I give importance to the properties of the mobile phone.		.794			
S2. I firmly believe in the guarantee/warrantee to be provided.		.786			
S1. I always checkout the prices of mobile phone.		.653			
S4. I don't consider the external look of the mobile phone while purchasing.			.782		
S10. I do not require the demonstration/knowledge of the mobile phone.			.753		
S9. I prefer to buy the mobile phone which is readily available in the local market.				.816	
S5. I purchase mobile phone where installment/easy loan facility is provided.				.693	
S11. I purchased the mobile phone due to the influence of my friends.					.795
S14. I was recommended by the salesman/saleswomen to buy a particular mobile phone.					.777

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 11 iterations.

The final step in the analysis is to look into the content of questions that load the same factor to try to identify common themes. Brand choice and price were regarded as the most important motives affecting the decision to purchase current mobile phone model among the respondents as displayed. According to the survey close to 65 percent and over 70 percent, for brand choice and attributes respectively, felt that brand and product attributes had affected their decision making at least relatively much. Brand choice might have dominated the decision making in the sample more than it does for the whole population, as the average respondent in the target groups are youth and wants the most fancy product in the market. Influence by friends and salespersons were regarded as the least important motive.

A factor analysis (Table 5) of the 14 statements suggests that five factors were chosen in terms of eigen value of more than 1.0. The Barlett's test of sphrecity was adequately significant indicating correlation between the variables. The first factor analysis presented in this paper satisfied the above mentioned tests also. The identified factors represent 55 percent of the variances of the variables. The first factor can be called brand choice as the highest loadings relate to five variables relating to decision making, brand image, latest technology, audibility, and media. The second factor exhibits largely loadings for three variables relating to product attributes. Mobile phone properties, guarantee/warrantee schemes, and price had the highest loadings for the second factor. The third factor product information is defined by two items relating to variables look of the phone and requirement of product knowledge. The fourth factor is the market accessibility which is exhibited by the factor loadings of ready availability in local market and financing is available. The fifth factor is the influences by the peer groups and recommendations from the salespersons at the point of purchase.

Conclusion

This exploratory study was conducted to increase our current understanding of consumer behaviour. It has attempted to cast light on the unexamined area of mobile phone purchase. Mobile phones have changed the way how people have been communicating. People are just at a button away to link and talk to someone even in a developing country like Bhutan. Several studies have been undertaken to make mobile phones readily available to the consumers and it is imperative to understand what the young customers really perceive on a mobile phone. The study particularly emphasizes to increase the in-depth understanding of the young customers regarding the mobile phone market. It throws a light on the methods of factors influencing on the choice of a mobile phone by a young customer.

The main results of the study indicate that brand choice plays an important role in the choice of mobile phone. The customers seems to be aware of which brands are preferable in terms of product attributes like battery life, looks, signal reception, product features, technology etc. The other factor which needs to be looked into by the manufacturers is the price factor the consumers are aware of , the prices for the different models of phones and their capability, and they would like to utilise the warranty and guarantee schemes which are provided at the time of purchase of mobile phones. Although these warrantees and guarantees honoured in Bhutan, are studies that can be undertaken for further research. Although billboards and hoardings are not allowed in Bhutan, the analysis has shown that the customers were influenced by advertisements made primarily in print media and television, as well as by peer groups and, to some extent, by the salespersons at the point of purchase. These influencers also play an important role in the choice of purchase of mobile phones. Thus, purely from the marketing point of view, the implication of the finding is that Bhutanese youth are influenced by brand choice to a large extent and by the influences, while purchasing a mobile phone.

References

Agarwal, R, and Prasad, J.(1999), " Are individual differences germane to the acceptance of new information technologies?", Decision Science, 30(2), 361-391.

Bhutan Information, Communications and Media Act 2006.

Bhutan Portal http://www.bhutan.gov.bt/government/newsDetail.php?id =509%20&%20cat Retrieved on 12-5-2010.

Bradner, Scott .(2002)," Giving away their future", Network World, Aug 26, 19 (34), 28.

Enhancing Good Governance: Promoting efficiency, transparency and accountability for Gross National Happiness – Cabinet Secretariat, 1999 http://www.raa.gov.bt/ contents/aar/aar 2002/ Back ground.pdf. Retrieved on 24-5-2008.

Executive Summary http://www.budde.com/Research/Bhutan-Telecom-Mobile-and –nternet.html. Retrieved on 12-5-2000

Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C. (1995), " Multivariate data analysis with readings", NJ: Prentice Hall.

Harmon, H. H. (1976), " Modern factor analysis (3rd ed., revised)", Chicago: The University of Chicago Press.

Kline, P. (1993), " An easy guide to factor analysis", New York: Routledge.

Kuensel Online http ://www.kuenselonline.bt Retrieved on 24-5-2008

Kuensel Online http://www.kuenselonline.com/modules.php?name=News& file=article&sid Retrieved on 12-5-2010.

Liu, C. M. (2002). The effects of Promotional Activities on brand decision in the Cellular Telephone Industry. The Journal of Product & Brand Management, 11(1), 42-51.

Report on Bhutan E-Readiness Assessment (The Division of Information Technology). GMCT Information and Communication Technologies, Thimphu, Bhutan 30 June 2003.

Riquelme, H. (2001). "Do consumers know what they want?" Journal of Consumer Marketing 18(5), 437-448.

Wagstaff, Jeremy, (2002), SMS: Keep it plain and pithy, Far Eastern Economic Review, 165 (37), 40-41.