Consumer Brand Preference towards Mobile Phone: Effect of Mobile Phone Attributes on Purchase Decision

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ABSTRACT: *A consumer sets a frame of preferences in his/her mind to choose or purchase a product or service of same or different brands or producers. Keeping in view the frame of references the present paper is an attempt to study the attributes affecting the purchase decision of consumers towards the purchase of the Mobile Phones and to recommend the policies which may be adopted by the advertisers to enhance awareness among the buyers. The study used primary data collected from a sample of 84 consumers with the help of a questionnaire and found that consumer perceived that Technical Features are most considered attributes of mobile phone followed by Looks, Image & Resource; Entertainment plays a significant role in taking the decision to purchase Mobile Phones. Hence, it may be recommended that the producers or marketers should made mobile phone with enhanced technical features that results in image building of buyers in the society.*

Key words- attributes, brand, consumer preference, entertainment, technical feature.

I. INTRODUCTION

The mobile phones dominate most of modern human in every movement of life. Which Nowadays is becoming a part of basic needs of a person as means of communication across the world during the last fifteen years. Every individual use mobile for not only communication purpose, but also it became a personal assistance to make an everyday life easier. The development of mobile communication technology e. g. wireless internet, mobile phone, MP3 player, GPS navigation system has been a long journey of innovation, which is constantly evolving and updating as a result of consumers changing needs and preferences (Mokhlis, S. & Yaakop, A.Y. [1]).There is a problem of hard competition among various brands of mobile phones in the market. Every day a new phone is launched with enhanced features and technology. Nevertheless of the fact that this competition has provided the consumer a wide variety of mobile phones to choose from at the same time there is also confusion prevailing in the minds of consumer about which of particular mobile phone suits their requirements the most. This problem of choice is known as brand preference. Brand preference has negatively impacted the marketers as well as consumers. For marketers increase in competition leads to decrease in sales for mobile phones as market share is now divided among more sellers. For consumers, it involves opportunity cost, i.e. cost of foregoing best alternate. So the study of brand preference is of great importance for the marketers as well as consumers. So the marketers have to study the various mobile phone attributes that influence the consumer brand preference towards mobile phones to face this competition. Perhaps a study which investigates the Consumer Brand Preference towards Mobile Phones by Factor Analysis method could remedy the situation.

1.1 Objectives
To identify the attributes considered by the consumer while buying a mobile phone.

II. REVIEW OF LITERATURE
(Macro Analysis & Consumer Research Organisation, 2004.[2]) conducted a study to investigate the attitude, usage patterns, the factors that trigger for purchase and awareness with regards to the recent launches of mobile handsets in the market. The finding shows that a substantial amount has adequate exposure

to technology prior to their actual purchase, there was high awareness about 'new model launches' by various companies like Nokia, Motorola, Samsung and LG and majority of the respondent perceive a cell phone as the technology that offers convenience and make their life easier. (**Chowdhury & Rahman, 2013.[3]**) studied the relationship between demographic variables on the brand preference and identified the attributes that affect the choice behavior of mobile handsets as well as why the young consumers give special emphasis to some particular factors in the Chittagong metropolitan city. young respondents emphasize less importance on durability, price, others advice and opinion because of their swift switching attitude. As a whole, Samsung is competing with industry leader Nokia, Symphony, Sony Erricson and other brands grab a share of the youth market.

(**Gopal & Anjali & Aakanksha, 2013.[4]**) studied showed that in today's market medium screen phone is quite popular, followed by large screen phones while the only minority of buyers go for the small screen models as evident from the survey conducted on consumers. As far as the size and weight of handsets are considered, slim handsets are leading the consumer market, followed by medium and as for the weight, light weighted phones are more popular while heavy weighted are the least while medium weighted phones still hold a ground in the market as observed from the study conducted.

(**Marumbwa and Thakur, 2013.[5]**) conducted a study to identify brand image positively influence the consumer brand preference and increase in customer satisfaction levels would yield positive consumer brand preferences. (**Rijal, 2013.[6]**) studied the criteria that student preferred on brand while purchasing a mobile phone. In a study technical criteria and economic criteria play a very important role to prefer brand and internet and friends are the main two sources from where they get information about the branded mobile phones. **Das (as cited in Sata, 2013.[7]**) conducted an empirical research based on survey method. According to the study, a handset of reputed brand, smart appearance, and with advanced value added features, pleasure ability and usability; is the choice of young consumers; females in gender-group, post-graduates in level of education-group, students in occupational group, urban residents in the geographical area group plays most prominent role in buying decision of a mobile handset.

(**Singh, 2012.[8]**) conducted a study to identify the customer preferences towards various mobile phone handsets in Punjab. In order to cope up with the research purpose, primary data was collected and analyzed which showed that Price Consciousness, Multimedia options, Features and Looks and Brand Image were the four factors significant in influencing the purchase behavior of mobile phones. (**Liao, Yu-Jui, 2012[9]**) investigated the determinants in smart phone purchases and identified the market segmentation of smart phone. The result of the study shows that when buying a smart phone, a consumer who considers that product design and integration of hardware and software are important and that the convenience of transferring files or media display are not important would choose Apple's iPhone.

III. RESEARCH METHODOLGY

The research design used in this study is exploratory, descriptive, pure and empirical in nature. The present research paper attempts to identify the effect of mobile phone attributes on consumer brand preference. To achieve the said objective, only 29 question item of the questionnaire was used. The study used primary Data collected with the help of a well- structured questionnaire.

The sampling technique employed in research was a non probability sample method and judgment sampling technique was selected for the study of population. A total 100 questionnaire had been sent out and to which 84 respondents are received are included and time of data collected is October, 2014 to November, 2014.Further, to analyze and interpret the data frequency factor analysis were used for confirmatory data analysis.

IV.   FIGURES AND TABLES

TABLE I: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.780
	Approx. Chi-Square	1.279
	Df	406
	Sig.	.000

Source: Primary data, (Processed through SPSS 16.0)

Table I shows the appropriateness of factor analysis technique the correlation between the variables is checked and Keiser-Meyer-Olkin (KMO) measure of sample adequacy is also used for the same. The test statistics for sphericity is based on Chi-square transformation of the determinants of the correlation matrix. Further, KMO compares the magnitude of the observed correlation coefficient to the magnitude of the partial correlation.The Small value of KMO indicates that the correlation between pairs of variables cannot be explained by other variables and factor analysis may not be appropriate. Generally a value greater than .5 is desired for the test statistic. It can be seen from the table 2 that the population correlation matrix is an identity matrix, is rejected from by Bartlett's Test of Sphericity. The approximate Chi-square value is 1.279 with 406 degree of freedom, which is significant at 0.05 level of significant. The value of KMO statistic, .780 is also larger than 0.5. Thus, factor analysis may be considered as appropriate technique for analyzing the correlation matrix. The two basic approaches are principal component analysis (PCA) and common factor analysis (CFA). In PCA, total variance in the data is considered. PCA is recommended when the primary concern is to determine the minimum numbers of factors that will account for maximum variance in the data. Further, PCA may be carried out if correlation for variables contains at least two correlation of 0.30 or greater as said by F. Andy and M. Jeremy (as cited in Singh, 2013). The table 1 correlation matrix of 29 variables which were develops to know the opinion of consumer about the influence of mobile phones attributes on purchase decision and it is found that there is high correlation between variables; therefore it may be stated that factor analysis is appropriate. Therefore, PCA method is used for extraction of variables for the components and factor concerned.

TABLE II: Communalities

	Initial	Extraction
Camera	1.000	.763
Bluetooth	1.000	.733
MP 3 player	1.000	.771
Dual Sim	1.000	.662
Wi-Fi	1.000	.703
FM-Radio	1.000	.784
Brand image	1.000	.651
Shape	1.000	.685
Size of mobile phone	1.000	.676
Weight	1.000	.838
Colour	1.000	.793
Video-recorder	1.000	.757
Touch Screen	1.000	.725
Internet/GPRS	1.000	.746
Huge Memory	1.000	.756
Screen size	1.000	.641

Social Media Application	1.000	.704
Key Pad	1.000	.787
Communication	1.000	.619
Sending and receiving e-mail	1.000	.811
As a modem	1.000	.756
Playing games	1.000	.731
Strong battery back-up	1.000	.672
Design & Appearance	1.000	.803
Sophisticated	1.000	.689
Good audio-video quality	1.000	.682
Operating System	1.000	.773
Video-calling facility	1.000	.804
Multi-Window	1.000	.776

Source: Primary Data (Processed through SPSS 16.0)
Extraction Method: Principal Component Analysis.

Table II shows that the extraction communalities for each variable which the amount of variance a variable share with all the other variables being considered. It is also the proportion of variance explained by the common factors.

TABLE III: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.419	32.479	32.479	9.419	32.479	32.479	4.288	14.788	14.788
2	2.076	7.159	39.638	2.076	7.159	39.638	3.186	10.986	25.774
3	1.979	6.822	46.460	1.979	6.822	46.460	2.658	9.165	34.939
4	1.818	6.268	52.728	1.818	6.268	52.728	2.464	8.496	43.435
5	1.457X	5.024	57.752	1.457	5.024	57.752	1.981	6.831	50.266
6	1.233	4.253	62.005	1.233	4.253	62.005	1.898	6.544	56.810
7	1.201	4.141	66.146	1.201	4.141	66.146	1.827	6.301	63.111
8	1.082	3.730	69.876	1.082	3.730	69.876	1.780	6.138	69.249
9	1.026	3.539	73.415	1.026	3.539	73.415	1.208	4.166	73.415
10	.879	3.032	76.446						
11	.732	2.524	78.971						
12	.701	2.418	81.389						
13	.592	2.040	83.430						
14	.570	1.964	85.394						
15	.494	1.703	87.096						
16	.477	1.646	88.743						
17	.445	1.535	90.278						
18	.386	1.333	91.610						

19	.377	1.300	92.911					
20	.344	1.185	94.096					
21	.325	1.122	95.217					
22	.277	.955	96.172					
23	.223	.767	96.940					
24	.208	.719	97.658					
25	.175	.604	98.262					
26	.165	.568	98.831					
27	.148	.510	99.340					
28	.101	.349	99.689					
29	.090	.311	100.000					

Extraction Method: Principal Component Analysis.
Source: Primary (Data processed through SPSS 16.0)

       Table III demonstrates that nine factors have been extracted on the basis of prior knowledge to describe the relationship among variable in a best way. Finally, from the commutative percentage of variance accounted for, 73.415 percent of the nine variables, contributed by first component is (32.479) followed by second (7.159), third (6.822), fourth (6.268), fifth (5.024), sixth (4.253), seventh (4.141), eight (3.730), and ninth (3.539) of total variance.

TABLE IV: Component (Factor) Pattern Matrix

	Component									Rotated Component Matrix								
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Camera	0.458	-0.43	0.128	-0.37	-0.35	0.3	-0.06	-0.08	0.05	0.223	0.125	0.49	0.184	-0.06	-0.056	0.645	0.019	-0.037
Bluetooth	0.247	0.477	0.553	-0.14	0.162	0.05	0.297	0.026	0.047	0.056	-0.12	-0.024	0.79	0.102	0.054	-0.23	0.069	0.142
MP3 player	0.537	0.178	0.527	-0.24	0.075	-0.1	0.139	-0.13	-0.26	0.13	0.273	0.013	0.764	0.034	0.174	0.084	0.218	-0.091
Dual Sim	0.501	-0.08	0.218	0.422	-0.26	0.12	0.157	0.18	0.195	0.113	0.266	0.604	0.153	-0.03	0.183	-0.18	-0.04	0.35
Wi-Fi	0.631	-0.27	0.172	0.357	-0.1	0.11	-0.15	-0.02	0.163	0.113	0.416	0.664	0.041	0.108	0.053	-0.03	0.221	0.105
FM-Radio	0.114	0.491	0.159	0.561	0.071	0.02	0.275	-0.25	0.215	0.148	0.001	0.178	0.241	-0.1	-0.068	-0.81	-0	0.054

Brand image	0.587	-0.16	-0.01	0.101	-0.32	0.04	-0.26	-0.17	0.264	0.278	0.168	0.674	-0.04	0.08	0.145	0.094	0.136	-0.186
Shape	0.66	-0.33	-0.02	0.14	0.24	-0.2	0.077	-0.07	-0.02	0.219	0.678	0.205	0.081	0.351	0.039	0.018	0.05	-0.041
Size of mobile phone	0.591	-0.41	-0.03	0.261	0.19	0.03	0.045	-0.09	-0.2	0.206	72	0.214	-0.01	0.106	-0.0086	0.07	0.189	0.095
Weight	0.1	-0.01	0.035	0.3	0.137	0.46	0.212	0.674	-0.1	0.002	0.053	0.016	-0.02	0.015	0.003	-0.03	0.104	0.907
Colour	0.472	-0.34	-0.01	0.448	-0.06	-0.5	0.079	0.161	-0.09	-0.037	0.72	0.247	-0.12	0.136	0.382	-0.13	-0.11	0.069
Video-recorder	0.514	0.241	0.22	-0.12	-0.43	-0.2	-0.05	0.337	-0.11	0.151	0.038	0.227	0.332	-0	0.737	0.135	0.055	0.085
Touch Screen	0.596	-0.3	0.142	-0.12	-0.08	-0.1	0.16	-0.08	-0.44	0.223	0.642	0.048	0.311	-0.09	0.191	0.337	0.072	-0.04
Internet/ GPRS	0.675	-0.21	0.076	-0.27	0.146	0.13	0.362	0.034	0.017	0.432	0.381	0.155	0.424	0.277	-0.082	0.293	-0.09	0.182
Huge Memory	0.64	0.015	-0.38	-0.25	-0.03	0.21	0.181	-0.21	-0.13	0.794	0.227	0.054	0.09	0.036	-0.039	0.231	0.066	-0.041
Screen size	0.685	-0.23	0.147	-0.06	0.238	0.13	0.033	-0.08	0.121	0.282	0.393	0.338	0.296	0.357	-0.143	0.149	0.18	0.056
Social Media Application	0.669	0.13	0.071	0.378	0.047	0.1	0.002	-0.26	-0.12	0.396	0.432	0.313	0.204	-0.04	0.047	-0.3	0.357	0.006
Key Pad	0.552	0.028	0.204	0.059	0.348	0.12	-0.55	-0.03	0.032	0.06	0.17	0.281	0.127	0.401	0.007	0.015	0.704	-0.053
Communication	0.443	0.103	0.035	-0.17	0.508	-0.1	-0.27	0.133	0.146	0.125	0.079	-0.017	0.153	0.66	0.05	0.021	0.367	-0.013
Sending and receiving e-mail	0.761	0.2	-0.36	0.067	-0.16	-0	-0.07	-0.02	-0.16	0.704	0.267	0.175	-0.04	0.057	0.382	-0.01	0.25	-0.004

As a modem	0.455	0.319	0.116	0.078	0.105	0.33	-0.42	0.086	-0.36	0.236	0.036	0.049	0.159	-0.04	0.182	0.013	0.779	0.175
Playing games	0.482	0.108	0.587	-0.13	-0.18	-0.2	-0.05	-0.14	0.209	-0.032	0.061	0.463	0.618	0.132	0.239	0.01	0.075	-0.223
Strong battery back-up	0.696	-0.19	-0.06	-0.23	-0.15	0.16	0.02	0.176	0.133	0.432	0.178	0.405	0.151	0.249	0.159	0.389	0.029	0.165
Design & Appearance	0.561	-0.1	-0.22	-0.17	0.338	-0.3	0.045	0.235	0.367	0.294	0.229	0.099	0.014	0.78	0.161	0.056	-0.13	0.026
Sophisticated	0.544	0.322	-0.26	0.125	-0.07	-0.04	-0.09	0.088	-0.22	0.42	0.26	-0.059	-0.03	0.128	0.59	-0.19	0.18	-0.088
Good audio-video quality	0.662	0.237	0.001	-0.25	-0.15	-0.2	-0.14	0.216	0.056	0.377	0.023	0.197	0.25	0.319	0.538	0.153	0.15	-0.028
Operating System	0.704	0.159	-0.34	-0.11	0.265	0.02	0.208	-0.1	-0	0.734	0.289	-0.032	0.146	0.344	0.016	-0.05	0.087	0.017
Video-calling facility	0.668	0.39	-0.32	-0.18	-0.13	0.09	0.14	-0.01	0.175	0.794	-0.082	0.185	0.168	0.206	0.243	-0.04	0.016	0.032
Multi-Window	0.667	0.282	-0.39	0.164	-0.18	0.15	-0.03	-0.08	0.097	0.737	0.073	0.324	-0.09	0.055	0.218	-0.17	0.181	0.038

Source: Primary (Data processed through SPSS 16.0), Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 19 iterations.

Table IV shows the component matrix or factor matrix. It is also called factor pattern matrix. It shows the coefficient used to express the standardized variables in the terms of the factors. These coefficients, the factors loadings, represent the correlation between the factors and variables. A coefficient with a large absolute value indicates that the factors and the variable are closely related. The left portion of the table namely component matrix indicates the relationship between the factors and individual variables; it seldom result in the factors that can be interpreted, because factors are correlated with many variables. Therefore right portion of the table 4 namely rotated component matrixes is useful for interpreting the factors. The rotation is made by Varimax procedure. This is an orthogonal (unrelated) method of rotation that minimizes the number of variables with high loading on a factor, thereby enhancing the interpretability of the factors. Interpretation of facilitated by identifying the variables that have large loadings on the same factors, the factor can be interpreted in terms of the variables that load high on it. For the purpose of interpretation, each factor was composed of variable that loaded 0.30 or higher on that factor. In case a variables loaded 0.30 or above on two factors, each variable was assigned to factor where it had the highest loading. The maximum of each row (ignoring the sign) indicates the respective variable belongs to the respective component (Table IV).

TABLE V: Component Score Coefficient Matrix

	1	2	3	4	5	6	7	8	9
Camera	.044	-.081	.237	.041	-.137	-.111	.340	-.016	-.027
Bluetooth	-.007	-.089	-.069	.406	.038	-.043	-.135	-.057	.113
MP 3 player	-.039	.118	-.167	.358	-.113	.029	.035	.065	-.090
Dual Sim	-.051	-.007	.295	.016	-.058	.050	-.117	-.143	.252
Wi-Fi	-.090	.044	.308	-.078	.001	-.059	-.049	.067	.032
FM-Radio	.085	-.012	.125	.138	-.053	-.146	-.483	-.102	-.022
Brand image	.006	-.097	.371	-.121	-.010	-.011	.011	.018	-.195
Shape	-.047	.264	-.043	-.020	.129	-.047	-.053	-.061	-.076
Size of mobile phone	-.017	.308	-.051	-.055	-.062	-.126	.007	.079	.030
Weight	-.031	-.025	-.050	-.027	.013	.031	.048	.050	.769
Colour	-.170	.336	-.008	-.118	.036	.264	-.109	-.155	.023
Video-recorder	-.088	-.066	.014	.080	-.071	.474	.101	-.049	.092
Touch Screen	-.005	.321	-.201	.125	-.234	.080	.175	.001	-.047
Internet/GPRS	.102	.079	-.059	.187	.059	-.162	.115	-.178	.144
Huge Memory	.310	.025	-.099	.012	-.143	-.162	.103	-.027	-.050
Screen size	.003	.052	.081	.082	.134	-.214	.030	.023	.012
Social Media Application	.074	.136	.037	.037	-.168	-.108	-.188	.154	-.067
Key Pad	-.136	-.052	.081	-.061	.198	-.080	.006	.456	-.080
Communication	-.090	-.068	-.076	-.010	.415	-.020	-.011	.193	-.012
Sending and receiving e-mail	.178	.024	-.055	-.116	-.115	.142	-.007	.086	-.028
As a modem	-.004	-.048	-.103	-.018	-.150	.053	.074	.544	.127
Playing games	-.131	-.085	.224	.249	.045	.070	-.037	-.058	-.207
Strong battery back-up	.062	-.095	.141	-.010	.069	.015	.193	-.078	.140

Design & Appearance	-.028	-.028	-.005	-.068	.513	.056	-.037	-.213	.027
Sophisticated	.042	.102	-.187	-.094	-.012	.350	-.101	.051	-.085
Good audio-video quality	-.006	-.129	.009	.019	.135	.291	.080	-.001	-.009
Operating System	.233	.050	-.160	.028	.097	-.126	-.072	-.057	-.010
Video-calling facility	.267	-.196	.041	.019	.041	.017	-.049	-.121	.019
Multi-Window	.235	-.113	.117	-.129	-.068	.005	-.109	.024	-.005

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Source: Primary (Data processed through SPSS 16.0)

Extraction Method: Principal Component Analysis.

Table VI defined the light on attributes which are considered by consumers before making purchase decisions. Factor i.e. Technical Features are most considered attributes of mobile phones as it accounts for 32.479% of the total variance explained, followed by Looks, image with Resource,Entertainment, Basic Attributes, Storage & discussion way entertainment, User Friendly and Weight.

TABLE VI: Attributes Influencing the Consumer for Purchase of Mobile Phones

Factor No.	Name of Dimension	Variable	Variables No.	Factor loading
F1	Technical Features (32.479%)	Internet/GPRS Huge Memory Sending & receiving e-mail Strong battery back-up Operating System Video-calling Facility Multi- Window	14 15 20 23 27 28 29	.432 .794 .704 .432 .734 .794 .737
F2	Looks (7.159%)	Shape Size Colour Touch-Screen Screen size Social Media Application	8 9 11 13 16 17	.678 .720 .720 .642 .393 .432
F3	Image with Resource (6.822%)	Dual Sim Wi-fi Brand Image	4 5 7	.604 .664 .674
F4	Entertainment (6.268%)	Bluetooth MP 3 Player Playing Games	2 3 22	.790 .764 .463
F5	Basic Attributes (5.024%)	Communication Design & Appearance	19 24	.660 .780

F6	Storage & Display (4.253%)	Video-recorder	12	.737
		Sophisticated	25	.590
		Good audio-video quality	26	.538
F7	Way Entertainment (4.141%)	Camera	1	.645
		FM-Radio	6	.809
F8	User Friendly (3.730%)	Key Pad	18	.704
		As a modem	21	.779

V. CONCLUSION

In total, it is found that Technical Features are most considered attributes of mobile phone followed by Looks, Image & Resource, Entertainment, Basic Attributes, Storage, Display, Way Entertainment, User Friendly and Weight. Technical attributes includes Internet/GPRS, Huge Memory, Sending & receiving e-mail, Strong battery back-up, Operating System, Video-calling Facility and Multi- Window. Looks encompasses Shape, Size, Colour, Touch-Screen, Screen size and Social Media Application. Image with Resource involves Dual Sim, Wi-fi and Brand Image. Entertainment attributes incorporates Bluetooth, MP 3 Player and Playing Games. Basic Attributes includes Communication and Design & Appearance. Storage & Display attributes contains Video-recorder, Sophisticated and Good audio-video quality. Way Entertainment attributes embraces Camera and FM-Radio. User friendly attributes includes Key Pad and as a modem.

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