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# CONSUMERS' REACTION TOWARDS SMART PHONES: A STUDY OF STUDENTS OF UNIVERSITY OF LUCKNOW, INDIA

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## Abstract

**Background & Objectives:** Smart Phones have become very popular among youths, especially students and young professionals these days. A Smartphone is not just a mobile phone, it is more than a mobile phone. Except calling and messaging one can do many other functions like internet connectivity, instant messaging on yahoo, Skype, Facebook and other social media sites, video calling, audio calling media player etc. The present study tries to explore key motivating factors which affect consumer purchase behaviour towards smart phones. The study tries to find out the motives and reasons behind using Smart Phones by the consumers. It has also been attempted to find out if there is any significant difference between male and females respondents regarding the most important criteria while purchasing Smartphone.

**Methods:** A sample of 70 respondents was selected from among the students of University of Lucknow and they were provided a questionnaire having 15 statements along with the demographic information. They had to rate their opinion on 7-point Likert scale ranging from 1= strongly disagree to 7= strongly agree with 4= neutral.

**Results:** Factors Analysis extracted four major factors – Product Features, Prestige, Usage and Social Influence which are responsible for shaping consumer behaviour towards Smart Phones. Significant difference was found between the responses of male and females for product features and social influence factor only.

**Conclusions:** Product features like price, quality, reliability, after sales service and latest features play a crucial role while purchasing Smartphone. The purchase decision is highly influenced by social groups- family friends & colleges. Having Smartphone is considered as a prestige factor now a days and consumers usually purchase Smartphone for connecting on social media sites and for playing games.

**Keywords:** Smartphone, consumer behaviour, factor analysis

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## 1. Introduction

Telecommunication revolution in India especially in the last two decades has significantly changed the way of life of every Indian. Mobiles phones have become an inseparable part of human life. With the advent of new technologies these mobile phones are becoming smarter day by day. One can not only make phone calls with the help of these smart phones but also can do voice chat, video chat, instant messaging, fund transfer, social media and so many other functions. A smart phone is a multifunctional electronic device which has various features which are not available in a simple mobile phone. According to Cassavoy (2012), "Smartphone can be defined to be a device that enables the users to make telephone calls and at the same time has some features that allow the user to do some activities that in the past was not possible unless using a computer or a personal

digital assistant (PDA) such as sending and receiving emails or amending an office document". Smart phones are becoming hand held computers because we can do many operations on smart phones which we use to do on computer. These Smart Phones works on operating system such as Android, Windows etc. Smartphone needs to have the ability to make use of small computer programs called applications or apps (Weinberg, 2012). A number of apps are available for different operations and functions. These functionalities available in smart phones are making this device very popular among consumers specially students and young professionals. It is like a mini computer in one's pocket which the person can use anytime anywhere as per the need. India being a country of young people is an attractive market for smart phones manufactures. According to a study "Smart Phones Incidence in Urban India" as quoted by

(Malviya, Saluja & Thakur, 2013) which was conducted by Nielsen Informate Mobile Insights there are more than 27 million Smart Phone users in urban which is 9% of the total mobile users in urban India. This number is higher especially in metro cities with one smart phone user among ten mobile phone use. With such a big number of smart phone users, Indian market which is growing rapidly is very lucrative market place for the smart phone manufactures. Many companies including Indian as well as MNCs like APPLE, SONY, NOKIA, SAMSUNG, RIM/BLACKBERRY, MICROMAX, LAVA etc are producing smart phones with different features and price range.

## 2. Literature Review

There are many factors which affects consumer's busying behaviour. "Consumer behaviour is affected by a lots of variables, ranging from personal motivations, needs, attitudes and values, personality characteristics, socio-economic and cultural background, age, sex, professional status to social influences of various kinds exerted by family, friends, colleagues and society as a whole (Moschis, 1976). These factors affect and shape consumer's perception towards a particular product or brand.

In a conceptual paper written by Chow, Chen, Yeow and Wong (2012), based on the extensive literature review the authors proposed four major factors – product features, social influence, price and brand name which affects the demand of Smart Phones among consumers. In another study conducted by Malviya, Saluja, & Thakur (2013) in Indore city, India the authors quoted that Product Features, Price, Brand Name and Social Influence are the major factors which affect consumers decisions while purchasing a Smart phone.

"A feature is an attribute of a product that to meet with the satisfaction level of consumers' needs and wants through the owning of the product, usage, and utilization of a product" (Kotler et.al. 2007).

Price is another very important factor which affects the purchase of not only smart phones but other products too. Nagle and Holden (2002) stated that "price can play a role as a monetary value whereby the consumers to trade it with the services or products that were being sold by the sellers. Price will always be the key concern of consumers' before making any purchasing decision."

Brand name is third important factor while taking

decision regarding the purchase of smart phones. "Brand names are the valuable assets that help correspond quality and suggest precise knowledge structures which are related to the brand" (Srinivasan and Till, 2002). Social influence also plays crucial role in deciding a particular brand of smart phone to purchase.

"Social influences means one person causes in another to make a change on his/her feelings, attitudes, thoughts and Social behaviour, intentionally or unintentionally" (Rashotte, 2007). Social influence is the result of socialisation process which a person undergoes throughout whole of his life. A person is influenced by his/her family, friends, colleges, movies, media etc. "Social Influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system" (Venkatesh, 2002).

## 3. Objectives of the Study

The present study tries to achieve following objectives:

1. To explore the key factors which motivate consumers to purchase and use Smart Phones
2. To find out if there is any significant difference between male and female respondents regarding the selection of most important criteria while purchasing Smartphone.

## 4. Hypothesis

Ho: There is no significant difference between male and female students regarding the selection of most important criteria while purchasing Smart-phones.

## 5. Research Methods

Based on literature review a questionnaire was prepared with 15 items related to the factors that affects consumer's choice of smart phone along with demographic information. Respondents had to rate their response on a 7- point Liker scale (where 1 was strongly disagree and 7 was strongly agree). 7- point Likert scale was used so as to get more precise and accurate response from respondents. A total no of 100 questionnaires were distributed among the respondents in which 75 were returned by the respondents. 5 questionnaires were filled incomplete so only 70 questionnaires were finalized for analysis. The data was collected using convenience sampling. The study was conducted during June- August, 2015 in the city of Lucknow, the capital of Uttar Pradesh.

## 5.1 Statistical Tools

Exploratory Factor Analysis was used to explore underlying dimensions applying Principle component analysis with Varimax rotation. Data was analysed using SPSS 20. K-S test was used to check the normality of the given data and Leven's test was used to check the homogeneity of variance between the male and female responses. 't' test and Non-parametric Mann Whitney U test was used to see the differences between the responses of male and female respondents.

## 6. Data Analysis and Discussions

### 6.1 Demographic Profile of the Respondents

**Table 1: Demographic Profile**

Variable	Category	No.	%
Gender	Male	39	55.70
	Female	31	44.30
Age (in years)	Below 20 years	0	0
	20 – 30 (years)	67	95.70
	30 – 40 (years)	3	4.30
	40-50 (years)	0	0
	Above 50 years	0	0
Occupation	Job (govt/pvt)	4	5.70
	Student	66	94.30
Education	Below 12 <sup>th</sup>	1	1.40
	Graduation	6	8.60
	P. G.	44	62.90
	Ph.D.	9	27.10
Marital Status	Married	10	14.30
	Unmarried	60	85.70
	None	44	62.90
	Below 20K	19	27.10
Income	20 K – 40 K	4	5.70
	40 K – 60 K	1	1.40
	Above 60 K	2	2.90
Area of Residence	Urban	61	87.10
	Rural	9	12.90

The above demographic profile shows that male respondents (55.7%) are slightly more than female respondents who account 44.3% of the total sample. Mostly the respondents are young lying in the age group of 20-30 years accounting to 95.7% of the total sample and the reason being that mostly these respondents are students (94.3%). Regarding educational qualification, 62.9% of the respondents are either doing P.G. or have completed P.G. Also the data is skewed towards unmarried respondents accounting for 85.7% of the sample being unmarried. 87.1% of the respondents belongs to urban area and since mostly are students so they depend on their family for purchasing power.

## 6.2 Results of Factor Analysis

### 6.2.1 KMO and Barlett's Test

Before moving further with factor analysis it is necessary to check whether the sample is sufficient for factor analysis and this is done by KMO test of sampling adequacy. Generally KMO test value greater than 0.6 is acceptable. Table 2 shows that KMO value for the present study is 0.77 which is more than threshold value 0.6 (**Kaiser and Rice, 1974**), therefore data is found to be sufficient for applying factor analysis on it.

**Table 2: KMO and Bartlett's Test**

Table 2:KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.770
Bartlett's Test of Sphericity	Approx. Chi-Square	415.920
	Df	105
	Sig.	.000

Barlett's test of sphericity is used to check if there is significant correlation among variables or not. For applying factor analysis it is necessary that there must be correlation among variable under the study. The hypothesis for Barlett's test is given below:

**H<sub>0</sub>:** there is no significant correlation among the variables/items

Or

The correlation matrix is an identity matrix  
Table 2 shows that the p value is .000 which is less than 0.05 therefore the test statistics is significant and the null hypothesis that the correlation matrix is an identity matrix is rejected which is desirable for the factor analysis.

### 6.2.2. Communalities and Total Variance Explained

Communality is the sum total variance of a variable explained by the extracted factors. Ideally its value is 1 because all the factors together explains 100% of the variable but as we retain only few factor based on certain criteria like Eigen value, total variance explained etc. the value of communality decreases as the no of factors extracted decreases. The factors which have been extracted through factor analysis should explain at least 50% of a single variable therefore the acceptable value for communality is 0.5. Table 2 shows that communality value for all the variables is more than 0.5 except Unique-ability (0.498) but it is very close to 0.5 hence this variable is retained for further factor analysis

**Table 3 : Communalities**

Statements	Initial	Extraction
Status symbol	1.000	.604
Style statement	1.000	.709
To treat myself special	1.000	.743
Will increase my prestige	1.000	.740
Friends, colleagues, social circle use it	1.000	.791
For social networking sites	1.000	.676
For playing games	1.000	.555
Brand a crucial factor	1.000	.513
Price a crucial factor	1.000	.567
Features/Attributes a crucial factor	1.000	.610
Quality	1.000	.779
After sales service	1.000	.579
Unique-ability	1.000	.498
Reliability	1.000	.673
Latest technology	1.000	.575

**Table 4: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	4.868	32.450	32.450	4.868	32.450	32.450	3.413	22.750	22.750	
2	2.448	16.323	48.773	2.448	16.323	48.773	2.978	19.853	42.603	
3	1.259	8.396	57.169	1.259	8.396	57.169	1.682	11.215	53.818	
4	1.038	6.922	64.090	1.038	6.922	64.090	1.541	10.272	64.090	
5	.944	6.294	70.384							
6	.739	4.924	75.308							
7	.663	4.421	79.729							
8	.611	4.072	83.801							
9	.574	3.828	87.630							
10	.539	3.595	91.224							
11	.365	2.434	93.659							
12	.336	2.238	95.897							
13	.255	1.698	97.595							
14	.189	1.257	98.852							
15	.172	1.148	100.000							
Extraction Method: Principal Component Analysis.										

Table 4 shows that the total variance explained by the 4 factors is 64.9% which more than the desirable value (60%). Table 5 gives the rotated solution with

Varimax rotation and with Kaiser Normalization. The rotated solution gives 4 factors out of the 16 items/statements.

**Table 5 : Rotated Component Matrixa**

	Component			
	1	2	3	4
Quality	.875			
Reliability	.813			
After sales service	.734			
Features/Attributes a crucial factor	.721			
Latest technology	.590			
Price a crucial factor				
Status symbol		.763		
Will increase my prestige		.757		
To treat myself special		.705		
Unique-ability		.636		
Brand a crucial factor		.509		
For social networking sites			.796	
For playing games			.617	
Friends, colleagues, social circle use it				.875
Style statement		.566		.577
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 5 iterations.				

The first factor explains 22.75% of the total variance and is named as “Product Features” because all the items in this factors – quality, reliability, after sales service latest technology etc are related with attributes aspect of the smart phones

The second factor includes items like status symbol, increase my prestige, to treat myself special, unique-ability and brand name. All these reflects that consumers use or wish to use Smart Phones because he/she considers using Smart Phones as a matter of their prestige and status symbol therefore this factor is named as “Prestige”. This prestige factor explains 19.85% of the total variance.

Third factor which explains more than 11% of the total variance, the two variables basically explain the reasons why consumers use Smart Phones i.e. to play games and to easily stay connected with their friends on social sites. This factor is named as “Usage”.

Fourth factor explains that the consumers use Smart Phones because people in their social circle are using it and now days using smart Phone has become style statement hence this factor is named as “Social Influence”. This factor explains more than 10% of the total variance.

### 6.2.3 Naming the Factors

**Table 6: Factors**

Factor	Variables/Statements	Factor Loading	Variance Explained
Factor 1 (Product Features)	Quality	.875	22.750
	Reliability	.813	
	After sales service	.734	
	Features/Attributes a crucial factor	.721	
	Latest technology	.590	
Factor 2 (Prestige)	Status symbol	.763	19.853
	Will increase my prestige	.757	
	To treat myself special	.705	
	Unique-ability	.636	
	Brand a crucial factor	.509	
Factor 3 (Usage)	For social networking sites	.796	11.215
	For playing games	.617	
Factor 4 (Social Influence)	Friends, colleagues, social circle use it	.875	10.272
	Style statement	.577	

### 6.3 Reliability of the Factors Extracted

According to **Hair et al. (2010)** “Reliability is the extent to which a variable is consistent in what it is intended to measure”. Alphas above 0.6 are generally considered as being satisfactory while values below 0.6 are considered less than satisfactory, (**Malhotra 2010 & Nunnally, 1970**). Table 7 shows alpha value of all the four factors which is more than accepted value 0.6 except for usage.

**Table 7: Reliability**

Factor	No of Items	Chronbach's Alpha (a)
Product Features	5	0.828
Prestige	5	0.769
Usage	2	0.542
Social Influence	2	0.605



#### 6.4 Hypothesis Testing

The second objective of the study is to find out if there is any significant difference between the responses of male and female regarding the selection of most important criteria while purchasing s Smartphone. This objective can be achieved by testing the given hypothesis

**There is no significant difference between male and female respondents regarding the selection of most important criteria (product features, usage, social influence and prestige factor) while purchasing Smartphones.**

**Table 8: Tests of Normality**

<b>Table 8: Tests of Normality</b>							
gender		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Product_Features	male	.160	39	.013	.879	39	.001
	female	.174	31	.017	.787	31	.000
Prestige	male	.143	39	.042	.975	39	.519
	female	.105	31	.200*	.944	31	.106
Usage	male	.120	39	.170	.943	39	.046
	female	.124	31	.200*	.930	31	.043
Social_Influence	male	.136	39	.066	.960	39	.185
	female	.119	31	.200*	.952	31	.172
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

The K-S Test (Table 8) shows that the given data is not normal for product features (male  $p$ -value $<.05$  & female $<.05$ ) and Prestige (male $<.05$ ) However it is normal for usage and social influence for both the categories male and females. Therefore independent sample t-test will be applied for usage and social difference (as the data is normal) to test if there is any significant difference between the responses of male and females on these factors and Mann-Whitney test will be used for product features and prestige.

	t-test for Equality of Means		
	t	df	Sig. (2-tailed)
Usage	1.564	68	0.122
Social_Influence	2.083	68	0.041

Leven's Test (table 9) verified equality of variance in the sample ( $p>.05$ ) for both usage and social influence. T-test

for comparing two independent means (table 9) shows that there was no significant difference in the mean scores of male and female ( $p>.05$ ) for usage however this difference was found to be significant ( $p<.05$ ) for social influence.

**Table 10: Test Statisticsa**

<b>Table 10: Test Statistics<sup>a</sup></b>		
	Product_Features	Prestige
Mann-Whitney U	414.000	587.500
Wilcoxon W	910.000	1083.500
Z	-2.267	-.201
Asymp. Sig. (2-tailed)	.023	.840
a. Grouping Variable: gender		

Mann-Whitney U test (table 10) shows that there was a significant difference in the mean scores of male and females for product feature ( $p<.05$ ) whereas no significant difference was found in the mean score of male and female ( $p>.05$ ) for prestige.

Thus the significant difference was found between the response score of male and female for product features and usage only.

## 7. Conclusions

On the basis of above results it is clear that most of the consumers perceives mobile phone to be an important and integral part of their life. For them using costly Smart phones is a matter of style and status. Most of the consumers are using or want to purchase Smart phone because their social circle is using it and hence they are also motivated and inspired to use Smart phone. While considering a brand most of the consumer gives due importance to product features like quality, reliability, unique ability, after sales service and availability of latest technology like operating system etc. Brand name in itself is a crucial and deciding factor for the consumers while purchasing Smart phones. Well established brands have more credibility as compare to new brands.

## 8. Limitations of the study

Like any other study this study also have certain limitations. The first limitation of the study is that the data was collected amongst the students of University of Lucknow and the sample size is of 70 respondents so the study can't be generalised for whole India. India being a very diverse country in terms of cultural and social aspect, the consumers of different regions have different perception and behaviour towards any product so on the basis of the present data it is not suitable to generalise the findings of the study to the consumers of India as a whole. Time and cost of collecting data is another limitation which affects the findings of the study.

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