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An Empirical Study on Factors Affecting Purchase Decision of Smartphone

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The purpose of the study is to investigate the factors affecting purchase decision of customers towards smartphone. A seventeen item questionnaire was used to elicit responses from 360 potential customers in Delhi, Noida and Gurgaon. Factor analysis (data reduction technique) was applied on the collected data. The finding of the study resulted in the emergence of five factors viz. Product Features and Cost, Brand, Social Influence, Convenience and Dependency which affects the Smartphone purchase decision of customers in these three regions.

Keywords: Smartphone, Factor Analysis, Product Features and Cost, Brand, Social Influence, Convenience, Dependency.

Introduction

Smartphones have clearly transformed the lives of many across the world. With the growing speed of technological advancement, Smart phones have become the essential components of our daily performance. They offer so much in one small package, making them a must have for millions of people. As we look for convenience, we also respect the devices, which can combine multiple features and which give us more mobility and entertainment. You can do nearly everything on a smartphone, and that is truly remarkable. Smartphones have been around for over 5 years, but have never been as popular as they are now. As the whole world is going into the new phase of technological performance, our needs become more sophisticated. Since they are so common now, they can be found in nearly every mobile phone dealership. On the one hand, we need speed, quality, and effectiveness on the other hand, these features should be combined in a solution small enough to carry it in the pocket.

They can become very pricey, and may even cause you to search for some quick loans online or in town.No matter what, these phones are well worth the price, just check out everything that they have done to revolutionize life for the masses.

Relevance

Smartphones are beginning to transform how we engage in our everyday lives. Only a few years ago, they were still the minority of mobile phones around the globe, but already they're beginning to transform how we engage in our everyday lives. Today, they have a much more dominant presence. The penetration of Smartphone is all time high across the globe. In fact, first time in the history, Smartphone leapfrogged feature phone in terms of global market share. In last quarter, ended March 31, 2013, total 217 million smartphones were shipped and India emerged as one of the most prominent Smartphone markets due to emergence of local vendors producing low-priced entry-level smartphones, explosive adoption of mobile internet and country-focused marketing approach by giants like Samsung and Apple.It is expected that the number of Internet enabled Smartphones will reach 264 million by 2016. India is the third largest country in terms of Android App downloads. However, majority of the app market growth is still being driven by free apps.In 2012, Smartphone market in India recorded commendable 87% growth.In 2012, 221.6 million mobile handsets were shipped, out of which 206.4 million handsets were feature phones or smartphone feature phones. In 2014, sales of smartphones worldwide topped 1.2 billion, which was up 28% from 2013. It projects a big opportunity for local and global Smartphone makers to tap the Indian market aggressively.

Meaning of Smartphone

A smartphone (or smart phone) is a mobile phone with an advanced mobile operating system. They typically combine the features of a cell phone with those of other popular mobile devices, such as

personal digital assistant (PDA), media player and GPS navigation unit. The majority of these devices run on any of these popular mobile operating systems: Android, Symbian, iOS, Black Berry OS and Windows Mobile. Most smartphones have a touchscreen user interface, can run third-party apps and are camera phones. A smart phone is a mobile phone which includes functions similar to those found on personal computers.

Smartphones provide a one stop solution for information management, mobile calls, email sending, and Internet access. Smartphones are compact in size and often only slightly bigger than standard mobile telephones.

A smartphone is a mobile phone with highly advanced features. A typical smartphone has a high-resolution touch screen display, Wi Fi connectivity, Web browsing capabilities, and the ability to accept sophisticated applications. Most Smart phones produced from 2012 onwards also have high-speed mobile broadband 4G LTE internet, motion sensors, and mobile payment mechanisms. Facebook updates, SMS and Email are the top three activities by Indian Smartphone users.

Literature Review

Sarwar and Soomro (2013) investigated how Smartphone‘s are impacting the society and also how Smartphone‘s are going to transform the culture, social life, technology landscape and other diverse aspects of modern society. They examined all the positive and negative aspects of Smartphone on the society. The primarily focus of the study was on impact of Smartphone on business, education, health sectors, human psychology and social life. It was found that smartphone can certainly be smart if the vendors, society and technologists understand their responsibility towards usage of these devices smartly in order to get more benefit in business, education, health and social life. The authors opined that the benefits of Smartphone are tremendous and negative impacts are minor. They suggested to concentrate on how to stop and avoid smartly the misuse of Smartphone rather trying to stop or avoid use to Smartphone‘s.

Yu and Lee (2014) explored the factors affecting purchase intention of smartphone in Chinese university students. They have identified five independent variables that affects purchase intention of smartphone, which include price, compatibility, security, social influence and consumer innovations. They tested the degree of influence of these five variables on customer satisfaction eventually and on purchase intention. In the investigation 187 samples from Qingdao University were analyzed by using SPSS18.0 program. It was found as the independent variables of compatibility and consumer innovations affects satisfaction; the price, security and social influence not affects satisfaction and the satisfaction as the parameter affects the purchase intention which is the dependent variable in this study in Chinese university students.

Christopher, John, and Sudhahar (2014) studied the influence of peer in purchase decision making of smart phone. They found that peer influence seems to have an effect on the buying behavior of the smart phone purchasers. More specifically purchasers belong to the age group of 40-50 years significantly get influenced by their peers. Further, cutting across their educational qualifications, marital status and occupational status, the smart phone purchasers remain homogeneous with regard to their levels of peer influence.

Naing and Chaipoopirutana (2014) investigated the relationship between perceived quality, product image, consumer aspiration, emotional value, consumer uncertainty, attitude towards product and purchase intention of a smart phone. To do so a survey was conducted by distributing 400 questionnaires in 5 different shopping malls in Yangon, Myanmar. The Pearson Correlation was applied for the data analysis. The results showed that there was a positive and significant relationship among perceived quality, product image, consumer aspiration, emotional value, attitude towards product and purchase intention. They also indicated that there is a negative and significant relationship between consumer uncertainty and purchase intention.

Research Objectives

To analyse the factors that determine the purchase decision of customers regarding smartphone in Delhi, Gurgaon and Noida.

Research Methodology

To analyse the factors determining purchase decision of customers regarding smartphones, the study is conducted in Delhi, Gurgaon and Noida which are one of the fastest growing cities in India.Both primary and secondary data are used to attain the objectives of the study. A set of questions pertaining to the objectives of the study has been identified and adapted with the help of previous studies for the selected variables. A total of 500 questionnaire have been distributed among respondents but only 398 have been received after continuous follow up. Among collected filled questionnaires only 360 are in the usable condition. The data was collected through the convenient sampling method. For obtaining the responses, a five point Likert scale (1=Not at all important, 2 = Not Important, 3= Neutral, 4=Important, 5=Very Important). The responses given were based on their perceptions about some attributes of the smart phone. The preliminary draft of the questionnaire was pre-tested on 25 respondents. This helped in improving the questionnaire. Factor analysis, a data reduction technique for identifying the factors involved in customer decision process have been applied.

Analysis and Interpretation

Table-1
Profile of the Respondents

Demographic Characteristics of the Respondents (N=150)			
Characteristics	**Sub Categories**	**Number**	**Percentage**
Age	17-25 Years	105	29.2
	26-35 Years	152	42.2
	35 Years & above	103	28.6
	Total	**360**	**100**
Sex	Male	193	53.6
	Female	167	46.4
		360	**100**
Marital Status	Single	117	32.5
	Married	243	67.5
	Total	**360**	**100**
Education	Undergraduate	59	16.4
	Graduate	78	21.6
	Post Graduate	119	33.1
	Professionally qualified	104	28.9
	Total	**360**	**100**
Occupation	Service	142	39.4
	Business	103	28.6
	Students	115	32
	Total	**360**	**100**
Monthly Income	Rs 10,000 to 20,000	68	18.9
	Rs 20,000 to 30,000	79	21.9
	Rs 30,000 to 40,000	97	26.9
	Rs 40,000 and above	116	32.3
	Total	**360**	**100**
Place	Delhi	136	37.7
	Gurgaon	123	34.2
	Noida	101	28.1
	Total	**360**	**100**

It is important to know the scales that researchers have used in the questionnaire are reliable. One of the main reasons to do the reliability test was to check the consistency. Table 2 shows the reliability statistics; the Cronbach's Alpha was 0.813, which means that the measuring was very consistent.

Table 2
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha based on standardized Items	N
0.813	0.817	17

Factor Analysis

Before applying Factor Analysis, it is customary to check the data adequacy for it. The value of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was calculated as shown in Table 3. It shows the suitability of the data for factor analysis and indicates the proportion of variance in the variables, which is common variance. From the Table below the KMO is 0.690 which is greater than 0.5 and Bartlett's test of significance [$\chi^2(351) = 732.745$, p <0.001] provided a good support for the validity of the data set. These tests confirm that the data is adequate for factor analysis of the data set. Thus, factor analysis may be considered an appropriate technique for analyzing the given data.

Table-3
KMO and Bartlett's Test

Kaiser- Meyer-Olkin Measure of Sampling Adequacy		0.690
Bartlett's Test of Sphericity	Approx Chi-Square	732.745
df.		351
Sig.		.000
Source: Primary Data		

Communalities

The Table 4 shows the communalities defined for each variable based on the extracted factors. Ideally, the communalities should be 1.00, and the minimum acceptable value is 0.5. Table 4 shows that all the extracted communalities were acceptable, and all variables were fit for the factor solutions as their extraction values are large.

Table- 4
Communalities

	Initial	**Extraction**
Price	1.000	.322
Applications	1.000	.724
Size and Weight	1.000	.658
Internet Accessibility	1.000	.789
Societal Status	1.000	.652
Trustworthy	1.000	.653
Lifestyle	1.000	.826
Favorite brand	1.000	.615
Memory	1.000	.576
Online Purchase	1.000	.664
Influence of family and friends	1.000	.743
Colour and Design	1.000	.683
Brand awareness	1.000	.724
High usage	1.000	.806
Being engaged	1.000	.609
Learning	1.000	.701
Leisure	1.000	.694

Extraction Method: Principal Component Analysis

The Table 5 is one of the most important representation of factor analysis, as it defines the percent of variance defined by each component. Since only those components whose Eigen value is greater than 1.00 are considered, the first 5 components have been taken as factors. It is seen that using 5 factors, 67.291% of the variance of the variables can be defined, i.e. in simple terms, the first 5 components can explain 67.291% of the original data set.

Table 5: 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	5.422	31.892	31.892	5.422	31.892	31.892	4.984	29.315	29.315
2	2.139	12.584	44.476	2.139	12.584	44.476	2.387	14.041	43.356
3	1.422	8.366	52.842	1.422	8.366	52.842	1.439	8.465	51.820
4	1.392	8.189	61.032	1.392	8.189	61.032	1.376	8.093	59.913
5	1.064	6.259	67.291	1.064	6.259	67.291	1.254	7.378	67.291
6	.882	5.191	72.482						
7	.873	5.137	77.619						
8	.754	4.438	82.057						
9	.645	3.795	85.852						
10	.520	3.060	88.912						
11	.469	2.757	91.669						
12	.366	2.156	93.825						
13	.347	2.041	95.866						
14	.317	1.867	97.733						
15	.207	1.219	98.953						
16	.178	1.047	100.000						
17	2.290 E-16	1.347 E-15	100.000						

The Scree Plot as shown in Figure 1 below is also a useful tool to decide about the number of factors. If one has drawn a parallel line to the horizontal at Eigen value equals to 1 in the scree plot, it will tell us how many factors are going to be extracted. In our analysis, the scree plot shows that five factors were to be extracted.

Figure-1
Scree Plot

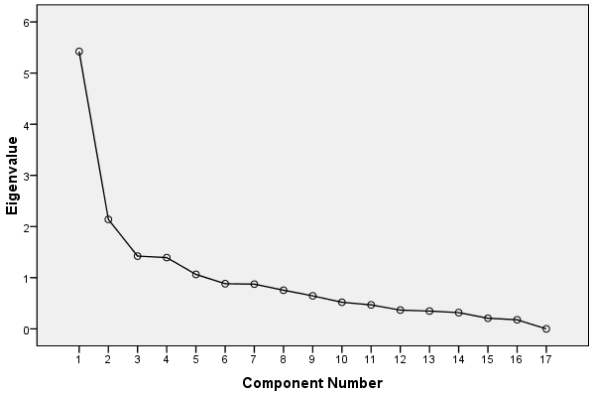

Table 6 given below makes it clear that factors are rotated using varimax with Kaiser Normalization rotation method. Principal Component Analysis (PCA) method for factor extraction has been used. Only those variables which have loading near to 0.5 or greater than 0.5 has been used for interpretation purpose.

Table-6
Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
Size and Weight	.748				
Colour and Design	.635				
Memory	.549				
Price	.673				
Favorite brand		.744			
Brand awareness		.641			
Trustworthy		.571			
Societal Status			.746		
Lifestyle			.697		
Influence of family and friends			.570		
Internet Accessibility				.691	
Applications				.627	
Online Purchase				.565	
Being engaged					.733
High usage					.644
Learning					.613
Leisure					.549

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Naming and Interpreting the Factors

Factor 1: Product Features and Cost Concern

1. Size and Weight (0.748)
2. Colourand Design (.635)
3. Memory (.549)
4. Price (.673)

This is the most important factor and explains 29.315% of the variations. Hence, it is named as Product Features and Cost Concern. Feature is an attribute of a product to meet the satisfaction level of consumers' needs and wants, through owning of the product, usage and utilization of a product. This variable suggest that there are some product features which a customer looks for while going for the purchase of a smartphone. All of these four attributes are closely related as the quality aspect of size and weight, colour and design, memory conveys product features which always comes at a price.This is the basic requirement of the product as it has to last repeated usage. And hence, can be considered as a product feature and cost concern

Factor 2: Brand Concern

1. Favourite Brand (.744)
2. Brand Awareness (.641)
3. Trustworthy (.571)

The above mentioned four factors have been loaded on this factor. This factor is the second significant factor which accounts for 14.041% of the variations. Collectively it has been termed Brand Concern. This factor defines the variables like favorite brand, brand awareness and trustworthywhich significantly impact the purchase intention of Smartphone users among respondents in Delhi, Noida and Gurgaon.

Factor 3: Social Influence Concern

1. Social Status (.746)
2. Lifestyle (.697)
3. Influence of family and friends (.570)

Social influences means one person causes in another to make a change on his/her feelings, attitudes, thoughts and behavior, intentionally or unintentionally. It resulted from interaction with each other. This factor explains 8.465% of the variation and comprises of three variables about the social status, lifestyle and influence of family and friends. Hence the factor is named as social influence concern. Result shows that social status and lifestyle has higher influence than family and friends. Social influence indeed plays a significant role in the purchase intention of smartphone among the people in Delhi, Noida and Gurgaon.

Factor 4: Convenience Concern

1. Internet accessibility (.691)
2. Applications (.627)
3. Online Purchase (.565)

The fourth factor elucidates the significance of peoples' attitude towards internet accessibility, Applications and Online Purchase and it explains 8.093% variation. Hence this factor can be called Convenience factor. Convenience refers to a situation where works are simplified, easy and can be done with less effort without discomfort or difficulty. Convenience in Smartphone may refer to the ability to use the smartphone at anytime and anywhere, without having to port the smartphone in a fixed workstation.

Factor 5: Dependency Concern

1. Being engaged (.733)
2. High usage (.644)
3. Learning (.613)
4. Leisure (.549)

This factor takes into consideration 7.378% of the variations. The factors high usage, being engaged, learning and leisure reflects the strong propensity for the dependency of people on the smartphones. A very strong relationship also exists between the purchase decision and dependency of people in Delhi, Noida and Gurgaon.

These five factors as shown in Table 7 below suggest that when consumers go in for the purchase of a new smartphone, they give importance to these factors in this sequence i.e., first they look for the Product Features and Cost Concern, secondly, they look for the Brand Concern, third, they look for the Social Influence Concern, fourth, they look for the Convenience Concern and finally, the Dependency Concern.

Conclusion

This study shows five important factors considered by customers when they go in for the purchase of new smartphone. For Smartphone manufacturers, these five factors are strong hints to look at the design of their products carefully. They can redesign their products according to these factors, and consequently, customers will get a better product. The emergence of these five factors viz. Product Features and Cost, Brand, Social Influence, Convenience and Dependency respectively seem to be important for marketers to understand the consumers' Smartphone purchase decision to be more competitive. The limitation of the study is that it is concerned with factors affecting purchase decision of smartphones only which may or may not be applicable for other consumer durable products. Hence this study may be considered more of an exploratory research than a conclusive research study. This gives a considerable scope for its future replication in other consumer durables across time and space contexts.

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