

## EXAMINING CONSUMERS' CHOICE IN SELECTING SMART PHONES: AN EMPIRICAL STUDY OF PUNJAB

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*The aim of this article is to study the psychology of the customers that which attributes influence their buying behavior more significantly while selecting the smart phones. In order to achieve the objective of the study, 200 students of various Colleges, Institutions & Universities located in different areas of Punjab were asked to rate 25 placards on a scale of 1-10 where 10 is the most preferred and 1 is the least preferred. The conjoint model was adopted and tested by Regression analysis. The result of the study suggests that the most prominent attribute while making purchase decision is Camera of the smartphone. In addition to this, After Sale Service and RAM of the phone governs the decision making process to a great extent. From the study it is further clear that a mobile phone having 16 MP Camera, IOS, containing 3GB RAM, 4.5 to 5 inches' screen, with excellent after sale services, within the price range of ₹5,000-₹10,000 has been preferred the most by the potential customers i.e. students. The study provides the guidelines to the smartphone marketers to configure their products as per the psychological phenomenon of the aspirant customers.*

**Key words:** Smartphones, Conjoint Analysis, Attributes, Regression Analysis

### INTRODUCTION

In this age of modernization, electronic communication has become as important as our body parts are. The speed at which our daily life is becoming complex and schedules are becoming more and more busy, it is impossible to survive without electronic modes of communication. Mobile phone is the most commonly used device for the purpose of communication in today's era. And as everybody knows, its use is increasing at very high speed because of the convenience and increasing number of services offered by it day by day.

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This concept of the mobile phones is not very old. It is in knowledge of almost everyone that in the year 1998, when Nokia launched the indestructible and utterly desirable 5110, almost everyone wanted to have it. The Nokia 5110 was ultra-durable, had user interchangeable covers, a stubby antenna, great battery life, crystal-clear call quality, a clear LCD screen and it popularized the game that we all know as 'Snake'. Importantly, that was the time when local call rates from a mobile phone were in the region of Rs 12 to Rs 18 per minute. Incoming calls were still not free at that point of time.

But today the scene is totally different. It is a well-known fact that mobile phones are more frequently replaced than any other electronic good. It is a very common chitchat these days when many of the people usually speak that I have purchased a new mobile phone yesterday, or I am going to buy a new handset very soon or I bought a mobile phone few months back but now I am thinking to replace it, etc. This is because there are large numbers of models of mobile phones available in the market at very reasonable prices. Moreover, the mobile phone of today is completely different from that of late 90s. The preference for features has been changed as that stubby antenna stands nowhere, and there are lot more games than the only 'Snake'. Today mobile phones have colorful screens, good quality video players, music players, various types of softwares being used for different purposes, and there are many more changes coming in this particular segment rapidly. People are becoming more and more dependent on their mobile phones as these are having almost all the features which usually a computer has.

While one more fact can be seen that the consumers have become much more aware than ever before. Now they use to analyze the market before buying any product, they see the detailed specifications of that particular product; they compare the available alternative products with each other from various perspectives. And this practice has caught fire especially in the field of mobile phones because of easy access of product details on internet and on various other sources. The customer before buying a mobile phone checks or compares its various features like its RAM, processor, operating system, screen size, price etc.

And now if we see from companies' point of view, which are manufacturing mobile phones, for those companies "marketing involves building profitable, value-laden exchange relationships with customers" as indicated by Kotler and Armstrong (2008). But there are many companies and big business firms present in the market which want to do the same in this particular segment i.e. mobile phones. Today, we practically see

many new models getting launched into the market every month. In this situation, to build profitable and value-laden exchange relationships with customers there is only option for them that is to provide customers what they actually want.

This paper is written to study the psychology of the customers that what they actually want in this particular segment i.e. smart phones. Further, it will also be beneficial to the dealers and manufacturers for customizing their product and marketing plans according to the need and aspiration of potential customers.

### LITERATURE CITED

Personal feelings, opinions & taste of a person influence his choice for selection of a particular mobile phone (Karjaluo et al., 2005). Friends & family members who are present at the time of purchase, play an important role while choosing a particular mobile phone (Chen and Xie, 2005). Stylish appearance of a mobile phone influences the consumers' choice for selecting mobile phones (Bhatti, 2007). A number of factors such as price, quality, features, family and friend's recommendations, brand image, innovative features, celebrity endorsement, user friendliness, stylish appearance and post purchase services affect the decision of a consumer while selecting a particular brand (Shahzad and Sobia, 2013). Customers consider physical attributes, pricing, operating facilities, size and weight, friends' and colleagues' recommendations, neighbors' recommendations before choosing brand of mobile phones (Uddin et al., 2014). Working women prefer updated technology followed by appearance of mobile phone while making purchase decision for a mobile phone (Bama, 2014). Mobile phones which can be used for long time period and which have option for personalization were most preferred by respondents (Wilhelm, 2012). Youngsters have given more preference to latest features such as brand, lucrative design, operating system etc. while selecting a particular mobile phone (Chowdhury and Rahman, 2013). A study was conducted on consumers of different age groups regarding buying behavior for mobile handset. It shows that consumers of age group 18-30 consider physical appearance, brand, value added features & technical features while selecting a mobile phone (Singh and Goyal, 2009). The study revealed that respondents of both rural and urban areas have given more preference to quality, functions & brand as compared to price (Arya, 2014). The study of Juwaheer et al. (2013) concluded that price is dominating factor while selection of mobile phone among young customers. The most important factor affecting consumer preference for mobile phones is Brand, followed by

Price, then Camera, and FM Radio (Siddiqui and Awan, 2008).

## OBJECTIVES OF THE STUDY

1. To investigate the psychology of customers while selecting the mobile phones with respect to different attributes.
2. To make marketers understand various attributes influencing mobile phone selection in order to customize their marketing strategies.

## RESEARCH METHODOLOGY

The Conjoint analysis method is used for the formation of best choice in selected attributes of any product. Conjoint Analysis had been coined into the marketing literature by Green and Rao (1971). Green and Srinivasan (1978) indicated that conjoint analysis is providing a useful methodology for depicting the structure of consumer preferences and has proficiency for predicting consumers' behaviour towards different features of a particular product. Cattin and Wittink (1981) also mentioned that conjoint analysis has been used extensively in marketing research to judge the impact of selected characteristics of the product/service on customer preferences.

### *Setting Attribute and Levels*

To use conjoint analysis, a reasonable set of attributes and the level of each attribute should be set prior to the collection of preferences. In this study, six attributes were selected to examine consumer preference for mobile phones. These attributes are *operating system* used in the mobile phone, *price* of the phone, *size of its screen*, *RAM* used in it, its *camera resolution* and *after sale service* provided by the mobile phone company. All these attributes and their levels were set on the basis of discussions held with various distributors and marketers of the mobile phones.

### *Data collection*

In order to achieve the objective of the study, the primary data has been collected from the 200 respondents i.e. students of various Colleges, Institutions & Universities located in different areas of Punjab. Particularly college students have been chosen for the study because college going students with their practical knowledge, not only buy mobile phones for themselves but also influence the buying decision of their parents, guardians

and other elders etc. In this age segment the curiosity about the various technical aspects of the product is more as compared to other age groups. Moreover, in many number of cases, children are taken into confidence when a parent buys an item like handset as a gift to be given to the other parent on special occasions like birthdays, anniversaries etc. This implies that these people may not only act as independent buyers, but also influence the buying of people of other age/gender groups.

## RELIABILITY AND VALIDITY

Conjoint Analysis results should be assessed for accuracy, reliability and validity. The objective is to ascertain how consistently the model predicts the set of preference evaluations under different situations. The results derived from the Conjoint Analysis in this study are reliable and valid as:

1. While evaluating the goodness of fit of the estimated conjoint model, it has been found that value of Pearson's R is 0.989, and the value of adjusted R square is 0.935. Both these values are reasonably high and these results are significant at 5 percent level of significance (asymptotic significance = 0.000) (Table 1 & 2)
2. The value of Durbin-Watson statistic is 1.618 (Table 1), which lies in the range (1.25-2.75), showing that auto-correlation is not present.

**TABLE 1: Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.989 <sup>a</sup>	.978	.935	.16103	.978	22.500	16	8	.000	1.618

a. Predictors: (Constant), Excellent\_Service, Camera\_16MP, RAM\_3GB, Screen\_5.5to6, Price20000\_25000, IOS, Price15000\_20000, Camera\_13MP, RAM\_2GB, Screen\_4.5to5, RAM\_1.5GB, Camera\_8MP, Good\_Service, Windows, Price10000\_15000, Screen\_5to5.5

b. Dependent Variable: Rating

**TABLE 2: ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	9.336	16	.583	22.500	.000 <sup>b</sup>
Residual	.207	8	.026		
Total	9.543	24			

a. Dependent Variable: Rating

b. Predictors: (Constant), Excellent\_Service, Camera\_16MP, RAM\_3GB, Screen\_5.5to6, Price20000\_25000, IOS, Price15000\_20000, Camera\_13MP, RAM\_2GB, Screen\_4.5to5, RAM\_1.5GB, Camera\_8MP, Good\_Service, Windows, Price10000\_15000, Screen\_5to5.5

## FINDINGS AND MANAGERIAL IMPLICATIONS

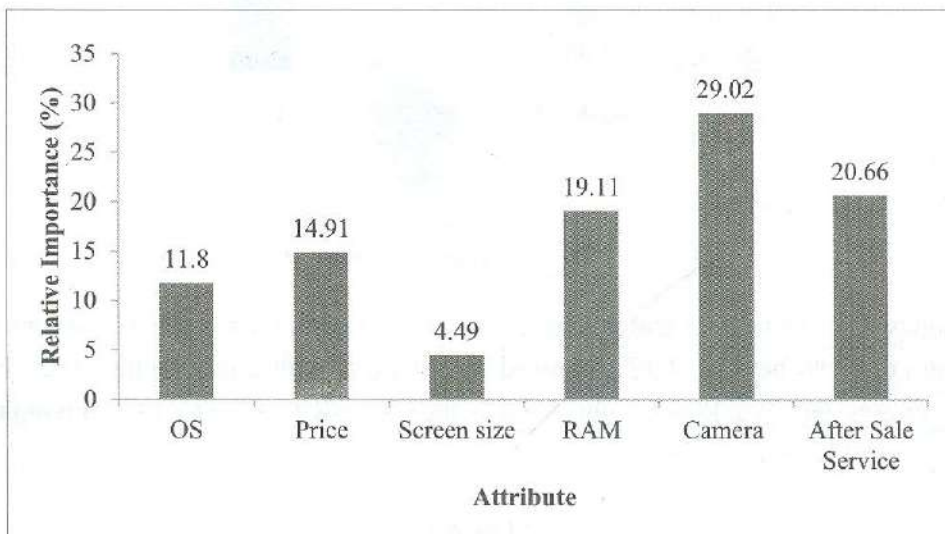
**TABLE 3: Attributes with their relative importance**

ATTRIBUTE	LEVEL	UTILITY ESTIMATE	RELATIVE IMPORTANCE
Operating System	Android	0.003	11.799
	Window	-0.198	
	IOS	0.196	
Price	5,000 - 10,000	0.291	14.91
	10,000-15,000	-0.052	
	15,000-20,000	-0.031	
	20,000-25,000	-0.207	
Screen Size	4 - 4.5 inch	-0.093	4.49
	4.5 - 5 inch	0.057	
	5- 5.5 inch	0.055	
	5.5 - 6 inch	-0.02	
RAM	1 GB	-0.312	19.107
	1.5 GB	-0.096	
	2 GB	0.081	
	3 GB	0.326	
Camera	5 MP	-0.575	29.02
	8 MP	-0.158	
	13 MP	0.34	
	16 MP	0.394	
After Sale Service	Average	-0.323	20.664
	Good	-0.045	
	Excellent	0.367	

The above table shows the importance given by the respondents to the various factors/attributes. The table shows that the respondents have considered camera to be

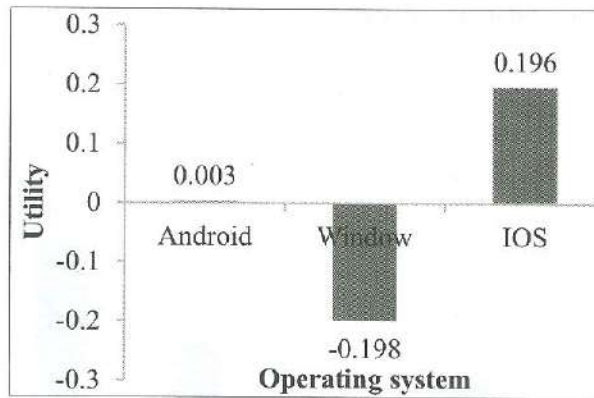
the most important factor while making the purchase decision. The Screen size is considered to be the lowest in importance.

**Figure 1**



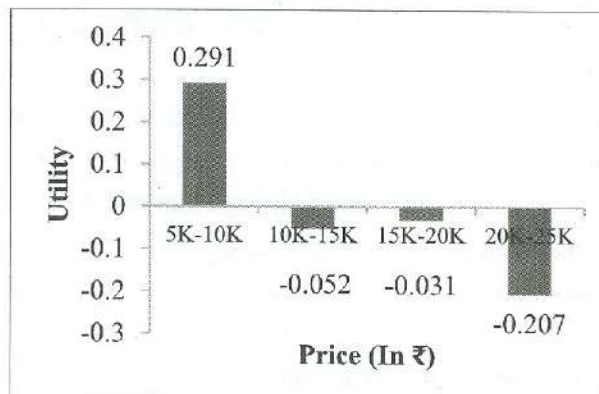
Here six salient attributes and their levels have been identified for consumer preference for features of smart phones by exploratory identification process. Full Profile Conjoint Analysis has been used for construction of preference structure. Analyzing the preference structure or the relative importance accorded (by respondents) to the six salient attributes, from figure 1 it can be clearly seen that the maximum importance has been given by the respondents to the attribute camera with relative importance as 29.02%. The next important attribute is after sale service with a relative importance of 20.66% followed by RAM with 19.11%, price with 14.91% then operating system having 11.8 % relative importance. However, the screen size is considered to be the lowest in importance with 4.49%.

Figure 2



In figure 2, it can be seen that in case of operating system, the highest average utility value i.e. 0.196 held by 'IOS', followed by 'Android' with utility value 0.003. The operating system 'Windows' is considered by the respondents as undesirable, giving it a negative utility value -0.198.

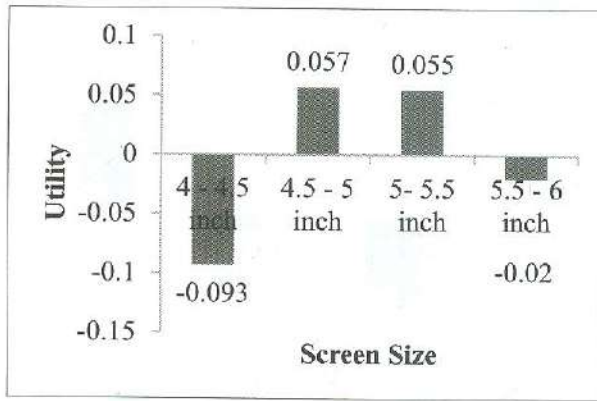
Figure 3



From the Figure 3 it is clear that the respondents want cheapest smart phone with all features. They preferred smart phones in price range of '₹ 5,000 to ₹ 10,000' with utility value 0.291.

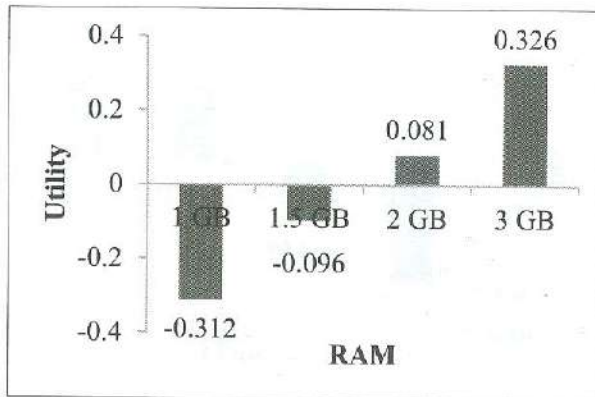


Figure 4



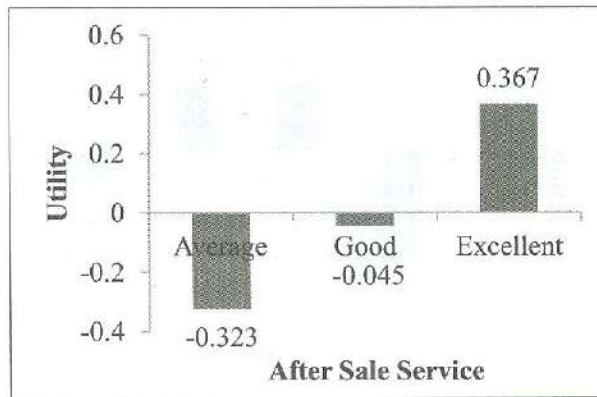
The third attribute was the 'Screen Size'. Here, figure 4 depicts that the respondents have preferred screen size of '4.5 – 5 inches' the most and the second preference has been given to '5-5.5 inches' screen whereas screen size '4 - 4.5 inches', has been given least preference with utility value -0.093.

Figure 5



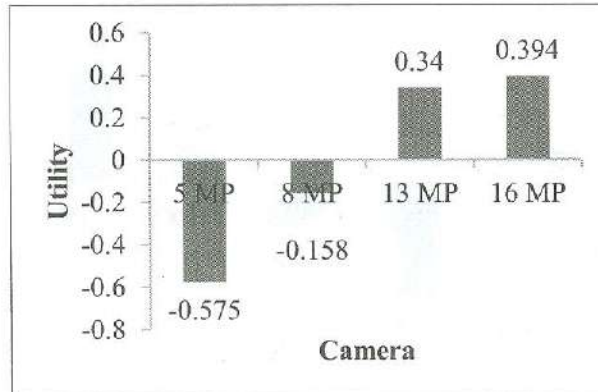
In case of RAM, figure 5 depicts that Consumers have preferred '3GB RAM' the most with utility value 0.326. It seems that '1 GB RAM' has become outdated as is has got least utility with negative value i.e. -0.312.

Figure 6



As it has already been seen that attribute 'After Sale Service' is second from importance point of view with relative importance 20.66%, whereas considering the levels of after sale service 'Excellent After Sale Service' has got maximum utility value i.e. 0.367 as shown in figure 6.

Figure 7



The most important attribute is the attribute 'Camera' with 29.02 % relative importance as already discussed. In Figure 7, it can be seen that the respondents have given first preference to level '16 MP' and after that second preference is given to '13 MP'. Levels '5 MP' & '8 MP' are least preferred by them.

## DISCUSSION AND CONCLUSION

In order to achieve the objective of the study, the conjoint model was adopted and tested by Regression analysis for the formation of best choice in selected attributes of mobile

phones. Before performing a conjoint analysis, six attributes were selected and their levels were set. The orthogonal card design was used to form the questionnaire. The 200 respondents i.e. students of various Colleges, Institutions & Universities located in different areas of Punjab were asked to rate 25 placards (as shown in appendix) on a scale of 1-10 where 10 is most preferred and 1 is least preferred. After getting the questionnaire filled from the respondents, data is validated by Regression analysis. From the analysis it has been found that respondents give highest importance to the attribute 'Camera' whereas 'After Sale service', 'RAM', 'Price', 'Operating System', 'Screen Size' were given second, third, fourth, fifth and sixth preference respectively. It can be concluded from the study that a mobile phone having 16 MP Camera, IOS, containing 3GB RAM, 4.5 to 5 inches' screen, with excellent after sale services, within the price range of ₹5,000-₹10,000 has been preferred the most by the consumers or potential customers. So the mobile phone marketers can really think over it as it is the demand of 'youth' which is the most significant segment of users of mobile phones.

## LIMITATIONS & POSSIBLE EXTENSIONS

The study reported here is limited to an exploration among college students of a particular area i.e. Punjab (India). The focus during the study was particularly on investigating the factors towards mobile phone selection from perspective of youngsters only whereas the perception of mobile resellers & executives has not been tapped.

In order to overcome the limitation of present study, the research can be extended to other states of the country. Research can be extended to mobile resellers & policy makers in mobile phone sector in order to find out best choice of attributes having impact on selection of mobile phones. Moreover various other factors can be taken into consideration which may influence the sale.

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## APPENDIX

### ORTHOGONAL CARD DESIGN

Please provide suitable marks out of 10 for each Card ID.

Rate 1 for Least Preferred and 10 for Most Desired Combination

Card ID	Operating System	Price (in ₹)	Screen Size	RAM	Camera Resolution	After Sale Service*	Rating
1	IOS	20,000 - 25,000	4 - 4.5 inches	1 GB	8 MP	Good	
2	Android	5,000 - 10,000	4 - 4.5 inches	1 GB	5 MP	Average	
3	Android	10,000 - 15,000	4 - 4.5 inches	1 GB	5 MP	Average	
4	Windows	15,000 - 20,000	4 - 4.5 inches	2 GB	8 MP	Average	
5	Windows	20,000 - 25,000	5.5 - 6 inches	1.5 GB	5 MP	Average	
6	Windows	20,000 - 25,000	4.5 - 5 inches	3 GB	5 MP	Average	
7	Windows	15,000 - 20,000	5 - 5.5 inches	1 GB	5 MP	Excellent	
8	Windows	10,000 - 15,000	5.5 - 6 inches	1 GB	8 MP	Good	
9	IOS	5,000 - 10,000	4 - 4.5 inches	3 GB	5 MP	Good	
10	Android	20,000 - 25,000	5 - 5.5 inches	2 GB	13 MP	Good	
11	Android	5,000 - 10,000	4.5 - 5 inches	1.5 GB	8 MP	Excellent	
12	Android	5,000 - 10,000	5.5 - 6 inches	1 GB	13 MP	Average	
13	IOS	15,000 - 20,000	4.5 - 5 inches	1 GB	13 MP	Average	
14	Android	20,000 - 25,000	4 - 4.5 inches	1 GB	16 MP	Excellent	
15	Windows	10,000 - 15,000	4 - 4.5 inches	3 GB	13 MP	Excellent	
16	IOS	10,000 - 15,000	5 - 5.5 inches	1.5 GB	16 MP	Average	
17	Android	10,000 - 15,000	4.5 - 5 inches	2 GB	5 MP	Good	
18	Windows	5,000 - 10,000	4 - 4.5 inches	2 GB	16 MP	Average	
19	IOS	5,000 - 10,000	5.5 - 6 inches	2 GB	5 MP	Excellent	
20	Android	5,000 - 10,000	5 - 5.5 inches	3 GB	8 MP	Average	
21	Windows	5,000 - 10,000	5 - 5.5 inches	1 GB	5 MP	Good	
22	Android	15,000 - 20,000	5.5 - 6 inches	3 GB	16 MP	Good	
23	Windows	5,000 - 10,000	4.5 - 5 inches	1 GB	16 MP	Good	
24	Windows	5,000 - 10,000	4 - 4.5 inches	1.5 GB	13 MP	Good	
25	Android	15,000 - 20,000	4 - 4.5 inches	1.5 GB	5 MP	Good	

\**After Sale Service*

*Excellent (Repair/replacement within 48 hours) Good (Repair/replacement within 7 days) Average (Repair/replacement in more than 7 days)*

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