

Predicting The Dynamics of Influencing Smartphone Purchase Decisions

S. Hanumantha Rao, A. Uday Kiran Sarma, K.S. Venkateswara Kumar

Abstract--- *The aim of the current study is to find the features which are highly preferable by the customers while purchasing smartphone. The study concentrates on the gap analysis between the importance given to the features and the satisfaction level of customers towards that features. This study also emphasises on mostly used smartphone brand in the market and customer willingness to spend money for purchasing smartphones. The data was collected through survey method by administering a structured questionnaire. A 5-point Likert scale was used. The data collected was analysed using descriptive statistical measures and Wilcoxon Signed Rank Test was used to test importance and satisfaction levels of customers. The study reveals that features like Operating System, Battery, Storage, Speed/RAM, Camera, Weight and After Sales Service are given most importance by customers but they are not satisfied with the performance of these features. There are some variables like Size/Shape/Design, Brand and Price to which customers have not given more importance but the customers are satisfied with these variable features.*

Keywords— *smartphone, gap analysis, Wilcoxon Signed Rank Test, satisfaction, and important features*

1. INTRODUCTION

Recent developments in the telecommunications in India has led the country to be one of the top users of smartphone in the entire world. Researchers identified that that consumers in India are spending 3 hours in a day on their smartphone usage. Users check their Smart phones at least between 77 and 100 times on an average in a day. According to the study conducted by (Singh, 2013), 62% of consumers preferred purchasing Android based smartphones in their recent times. As of September 2014, Android occupies top position in the Indian smartphone OS market segment, which is beyond 50% of the total share in the market. Studies show that there has been a steep rise of smartphone purchase among the youth in India. IBN live surveyed and found that smartphone purchase in India increased by 100% as compared to last one year. This shows the importance of smartphones at every instant in day to day work.

India is no doubt a lucrative market for smartphone manufacturers because of its large population. India has

turned into a paradise for domestic and foreign manufacturing companies that produce and sell smartphones within India. The smartphone purchases in India has sky rocketed in the recent years along with customer awareness on its features and importance of having a particular feature in the smartphone. Customers perceive some features of the smartphones are more important than the others. In this scenario, there is a requirement of the study to determine the features that are highly sought by the customers while purchasing a smartphone. The study should emphasise on the importance given to each of the features and the satisfaction the customer acquires on having the feature in the smartphone. The study should also focus on determining the most liked features in a smartphone in the market and customer willingness to spend money for purchasing newer smartphones. This would help the smartphone manufacturing firms to understand the purchase intentions of customers so that they can concentrate in producing the smartphones with those features that the customers value the most.

2. LITERATURE REVIEW

A consumer is an individual or a household who buy the products or services of a firm, these products are for personal consumption (Kotler, Brown, Adam, & Armstrong, 2004). Consumer Behaviour refers to the activities the consumer carries out while procuring, utilizing, and disposing of a product or a service. Consumer behaviour comprises of studying how people buy, what they buy, when they buy and why they buy. When a consumer planned on availing a product/service, they follow the process of recognizing the need, search for proper information, evaluation of alternatives available, actual purchase of the product/service, feedback (Blackwell, DSouza, Taghian, Miniard, & Engel, 2006). Eventually, the consumer decides on a product or brand to consume from numerous options available in the present-day market.

Two major factors influence the consumer purchasing behaviour, they are individual and environmental (Blackwell, DSouza, Taghian, Miniard, & Engel, 2006). The major individual factors affecting consumer behaviour are consumer perception, demographics, motivation, knowledge of consumers, learning, personality of the consumer, consumer beliefs, attitudes and life styles. The environmental factors represent those items outside of the individual that affect consumer's decision-making process. Culture, reference group, social class, family and household constitute the environmental factors (Sujata, Yatin, Abhijit, Noopur, & Ruchi, 2016).

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According to (Karjaluoto, et al., 2005), product price, brand of the device, user interface, and device properties are the most significant factors that have an effect on the actual choice while making a mobile phone purchase. (Ling, Hwang, & Salvendy, 2007) carried out a survey among college students to recognize their preference of the mobile phone that is currently used by the students. The results displayed that the size of the mobile, physical appearance, and the user interface of the mobile phones are playing a vital role in choice decisions while purchasing mobile phones.

(Swait & Adamowicz, 2001) identified in their survey that a lot of customers use diverse methods to make a decision rather than relying on mathematical modelling. This is because the decision behaviour exerted by customers differ from one person to another.

(Riyath & Musthafa, 2014) surveyed and identified in their research that the choice of youth regarding purchase of a brand of a smartphone is compelled by factors such as price of the product, brand image, recommendation from a friend or a family member, quality, design and appearance, advertisement, endorsement by celebrities and after-sales services. (Kotler & Lee, Social marketing: Influencing behaviors for good, 2008), in their book quoted that Word of mouth publicity by aspirational groups, religious groups, professional and trade unions groups and other reference groups such as family also have an impact on purchase decisions of smart phones.

A study conducted by (Liu, 2002) in Philippines on factors affecting choice of mobile phones established that latest technological features are more important in making a purchase decision than the size. A survey carried out by (Patel, 2014) on Nokia Lumia smartphone points out that customers expect features like Connectivity through 3g; Wi-Fi, etc. as necessary requirements in the smart phones they purchase.

A research conducted by (Suzuki, et al., 2011), on Finnish consumers to identify the customer intention to acquire mobile phones and the factors affecting change of mobile phones revealed that there were certain basic aspects such as smart phone brand, product price, device properties and user interface affect purchase decisions of mobile phones. A survey carried out by (Yun, Han, Hong, & Kim, 2003), pertaining to design of the phones highlighted that factors such as simplicity in design, appearance, durability, colourfulness etc. are important in affecting the consumer choice of smartphones. According to (Işıklar & Büyüközkan, 2007), functionality is the most deterministic factor influencing consumer decision, whereas (Mack & Sharples, 2009) stress that product feature like aesthetics is considered to be the most important factor while deciding to purchase a smart phone.

3. RESEARCH METHODOLOGY

As we know that the Smartphones are the only electronic device with the largest competition and different types in the market. The competitions between brands are accumulating day by day, the main factor of this rivalry is the customers. Customers are playing a lead role in the smartphones market. Different customer has different preferences and requirement based on their usages.

3.1 Objectives

The study has been undertaken with regard to the following objectives: -

1. To determine the influence of product features, social influence and brand name while smartphone purchase
2. To know the important features in smartphones required by the users.
3. To know the satisfaction level of user of smartphones.
4. Highly preferred Smartphones brand by the people.
5. To analyse the relation between features Importance and Satisfaction level.

4. HYPOTHESIS OF THE STUDY

Hypothesis 1

$H_{0(OS)}$: There is no significant gap between importance given to operating system and how much they are satisfied with operating system.

$H_{1(OS)}$: There is significant gap between importance given to operating system and how much they are satisfied with operating system.

Hypothesis 2

$H_{0(B)}$: There is no significant gap between importance given to battery and how much they are satisfied with battery.

$H_{1(B)}$: There is significant gap between importance given to battery and how much they are satisfied with battery.

Hypothesis 3

$H_{0(S)}$: There is no significant gap between importance given to storage and how much they are satisfied with storage.

$H_{1(S)}$: There is significant gap between importance given to storage and how much they are satisfied with storage.

Hypothesis 4

$H_{0(SR)}$: There is no significant gap between importance given to speed/RAM and how much they are satisfied with speed/RAM.

$H_{1(SR)}$: There is significant gap between importance given to speed/RAM and how much they are satisfied with speed/RAM.

Hypothesis 5

$H_{0(C)}$: There is no significant gap between importance given to camera and how much they are satisfied with camera.

$H_{1(C)}$: There is significant gap between importance given to camera and how much they are satisfied with camera.

Hypothesis 6

$H_{0(W)}$: There is no significant gap between importance given to weight and how much they are satisfied with weight.

$H_{1(W)}$: There is significant gap between importance given to weight and how much they are satisfied with weight.

Hypothesis 7

H_0 (SSD): There is no significant gap between importance given to size/shape/design and how much they are satisfied with size/shape/design.

H_1 (SSD): There is significant gap between importance given to size/shape/design and how much they are satisfied with size/shape/design.

Hypothesis 8

H_0 (B): There is no significant gap between importance given to brand and how much they are satisfied with brand.

H_1 (B): There is significant gap between importance given to brand and how much they are satisfied with brand.

Hypothesis 9

H_0 (P): There is no significant gap between importance given to price and how much they are satisfied with price.

H_1 (P): There is significant gap between importance given to price and how much they are satisfied with price.

Hypothesis 10

H_0 (ASS): There is no significant gap between importance given to after sales service and how much they are satisfied with after sales service.

H_1 (ASS): There is significant gap between importance given to after sales service and how much they are satisfied with after sales service.

5. DATA ANALYSIS AND RESULTS

5.1 Reliability

The items for Important features had a Cronbach's alpha coefficient of 0.90, indicating that there is a good reliability. The items for Satisfaction with features had a Cronbach's alpha coefficient of 0.91, indicating excellent reliability. The items for Factors influencing had a Cronbach's alpha coefficient of 0.85, indicating good reliability. Table 1 presents the results of the reliability analysis.

Table 1 Reliability Table for Important features

Scale	No. of Items	α
Important features	10	0.90
Satisfaction with features	10	0.91
Factors influencing	10	0.85

5.2 Demographics

Table 2 Demographic profile of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	196	51.4	51.4	51.4
	Female	185	48.6	48.6	100
Age	Less than 20	77	20.2	20.2	20.2
	21-25	254	66.7	66.7	86.9
	26-30	27	7.1	7.1	94
	31-35	16	4.2	4.2	98.2
	36-40	4	1	1	99.2
	Above 40	3	0.8	0.8	100
Education	Secondary	2	0.5	0.5	0.5
	High Secondary	3	0.8	0.8	1.3
	Under Graduation	192	50.4	50.4	51.7
	Post-Graduation	168	44.1	44.1	95.8
	Other	16	4.2	4.2	100
Area	Urban	221	58	58	58
	Semi-Urban	94	24.7	24.7	82.7
	Rural	66	17.3	17.3	100
Income	No Income	304	79.8	79.8	79.8
	Below 20,000	27	7.1	7.1	86.9
	20,000-40,000	26	6.8	6.8	93.7
	40,000-60,000	12	3.1	3.1	96.9
	Above 60,000	12	3.1	3.1	100

- Out of 381 persons responded, 196 i.e., 51.4% were Men and 185 i.e., 48.6% were Women. According to the data, we can observe that there is no such difference between the Genders in using smartphones. From the data we can observe that both men and women show similar interest in using smartphones.

- From table 2, we have categorised 6 age groups among the responses received, in which 66.7% respondents i.e. 254 belong to the age group 21-25. The second largest group is of 20.2% respondents, comprising 77 respondents belong to the age group of less than 20. 7.1%



respondents are belonging to 26-30 age group, 4.2% from 31-35 age group, 1% from 36-40 age group and only 0.8% respondents from above 40 age group. It is evident from the data that most of the smartphone users are between the age group of 21 to 25.

- Among the 381 responses received, a large chunk of 58% responses accounting to 221 respondents belong to urban area. The semi-urban people constitute 24.7% and the rest 17.3% belong to rural class. It is clear that the availability of resources like mobile stores in urban areas have an impact on smart phone purchase.
- From the table above, we can observe that more

than 94% of the respondents are graduates and among them 44% are either holding or pursuing a post graduate degree. It brings to the conclusion that most of the smartphone users are well educated.

- As most of the respondents of the survey are the students, they do not have any particular source of income, they constitute to almost 79% of the responses.

5.3 Wilcoxon Signed Rank Test for significant differences between importance of features of smartphone and satisfaction of smartphone features

A Wilcoxon signed rank test was conducted to examine whether there was a significant difference between importance given to features of mobile phone and satisfaction towards the mobile phone features.

Table 3 Wilcoxon Signed Rank Test

Variable	V	Z	P-Value	Result
Operating system	11144	-2.58	P = 0.010	Significant
Battery	19492	-8.17	P<0.001	Significant
Storage	22925	-8.46	P<0.001	Significant
RAM speed	22438.50	-9.19	P<0.001	Significant
Camera	17288.50	-4.85	P<0.001	Significant
Size/Shape/Design	10680.00	-1.84	P=0.66	Not significant
Brand	13415.50	-1.79	P=0.074	Not significant
Price	11174.50	-0.97	P=0.330	Not significant
After sales service	17153.00	-3.39	P<0.001	Significant

From table 3,

- The Wilcoxon signed rank test revealed that, there is a significant difference between importance given to operating system and satisfaction with operating system, ($V = 11144.50, z = -2.58, p = .010$).
- The Wilcoxon signed rank test revealed that, there is a significant difference between importance given to Battery and satisfaction with battery performance ($V = 19492.00, z = -8.17, p < .001$).
- The Wilcoxon signed rank test revealed that, there is a significant difference between the importance given to storage and satisfaction with storage capacity of smartphone ($V = 22925.00, z = -8.46, p < .001$).
- The Wilcoxon signed rank test revealed that, there is a significant difference between the importance given to Ram speed and satisfaction with Ram speed ($V = 22438.50, z = -9.19, p < .001$).
- The Wilcoxon signed rank test revealed that, there is a significant difference between the importance

given to Camera and satisfaction with camera performance ($V = 17288.50, z = -4.85, p < .001$).

- The Wilcoxon signed rank test revealed that, there is no significant difference between importance given to Size\ shape\ Design and satisfaction with Size\ shape\ Design ($V = 10680.00, z = -1.84, p = .066$).
- The Wilcoxon signed rank test revealed that, there is no significant difference between importance given to brand and satisfaction with brand of the smartphone ($V = 13415.50, z = -1.79, p = .074$).
- The Wilcoxon signed rank test revealed that, there is no significant difference between importance given to price and satisfaction with price of the smartphone ($V = 11174.50, z = -0.97, p = .330$).
- The Wilcoxon signed rank test revealed that, there is a significant difference between importance given to after sales service and satisfaction with after sales service ($V = 17153.00, z = -3.39, p < .001$).

5.4 Gap Analysis between Importance and Satisfaction

Table: 4 Gap Analysis

Gap Analysis			
Variables	Importance	Satisfied	Difference
Operating System	4.016	3.866	0.1496
Battery	4.341	3.798	0.5433
Storage	4.310	3.703	0.6063
Speed/RAM	4.402	3.738	0.6640
Camera	4.178	3.822	0.3570



Weight	3.278	3.766	-0.4882
Size/Shape/Design	3.753	3.874	-0.1207
Brand	4.000	3.890	0.1102
Price	3.898	3.961	-0.0630
After Sale Service	3.869	3.617	0.2520

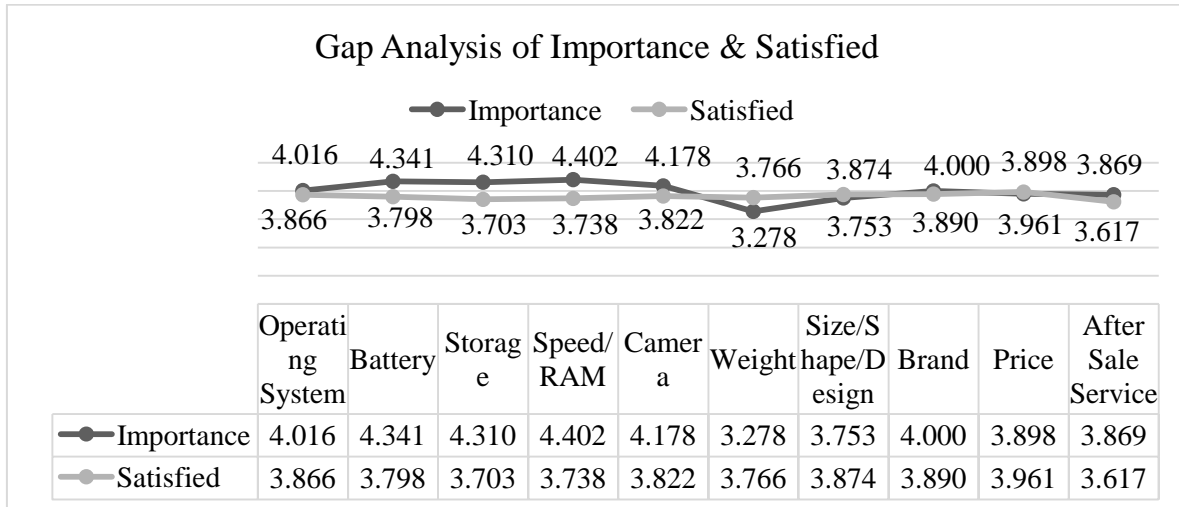


Figure: 1 Gap Analysis of Importance & Satisfied

Interpretation: - In Gap Analysis the Importance and Satisfaction with the smartphone features are measured. From the graph we can observe that there is gap between the importance and satisfaction. The customers are not satisfied with Operating System, Battery, Storage, Speed/RAM, Camera, Weight and After Sale Service and satisfied with Size/Shape/Design, Brand and Price.

Weight and After Sale Service and satisfied with Size/Shape/Design, Brand and Price.

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6. SUMMARY OF FINDING.

- The study found that there is a significant difference in importance given to operating system and satisfaction with operating system results of the Wilcoxon signed rank test were significant, ($V = 11144.50$, $z = -2.58$, $p = .010$), importance given to Battery and satisfaction with battery performance ($V = 19492.00$, $z = -8.17$, $p < .001$), importance given to storage and satisfaction with storage capacity of smartphone ($V = 22925.00$, $z = -8.46$, $p < .001$), importance given to Ram speed and satisfaction with Ram speed ($V = 22438.50$, $z = -9.19$, $p < .001$), importance given to Camera and satisfaction with camera performance ($V = 17288.50$, $z = -4.85$, $p < .001$) and the importance given to after sales service and satisfaction with after sales service ($V = 17153.00$, $z = -3.39$, $p < .001$).
- From the study it is found that there is no significant differences in importance given to Size\ shape\ Design and satisfaction with Size\ shape\ Design ($V = 10680.00$, $z = -1.84$, $p = .066$). importance given to brand and satisfaction with brand of the smartphone, ($V = 13415.50$, $z = -1.79$, $p = .074$), and importance given to price and satisfaction with price of the smartphone ($V = 11174.50$, $z = -0.97$, $p = .330$).
- The customers are not satisfied with Operating System, Battery, Storage, Speed/RAM, Camera,

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