

Dream Phone – The Smarter Smart Phone

Mrs. Smitha Pillai¹, Mr. Vishnu Hari², Ms. Priyanka Santlani³,

¹Associate Professor, Department of Commerce, Bhopal, ^{2&3} BCOM Honours Students, BSSS College, Bhopal

Abstract: Mobile phones have become the most significant element in mankind's life across the globe; moreover there are various users of mobile phones across different social classes including young generation of school going kids to people of 60 & 80 years old too. This study investigated the usage of smart phones with the most required features youngster wanted, this study is all about a 'DREAM PHONE' of today's youth or student and how can a smart phone become more smarter. Probability sampling technique that is random sampling is used in this paper, to collect data from the participants. The study in this paper shows that people want a phone with maximum features for their ease, this research talks about such functions which is preferred by the generation including security functions, and with high quality camera. The research also came up with a smart phone design (external body) which is most preferred by the young generation.

Index Terms: Smarter Smartphone, Youth, Features, Design Element, Hardware & Software Specifications.

I. INTRODUCTION

A mobile phone (also known as a cellular phone, cell phone and a hand phone) is a device which can make and receive telephone calls over a radio link whilst moving around a wide geographic area. Recent studies suggest that cell phones have evolved into something more than a simple communication tool, gaining its own place in various aspects of social interaction. Some studies revealed that cell phones play an integral part in the lives of young people [1]. The adoption of the mobile phone by young people is a global phenomenon in recent years. This gadget has been transformed from a technological tool to a social tool and now fully integrated into the daily lives of people of all walks of lives, especially the adolescent.

This evolving technology has given rise to concerns over both social and etiquette and workplace propriety of the usage behavior. The question one asks is whether this phenomenon has any impact on social relations?

II. RESEARCH PROBLEM

The adoption of the cell phone especially, by young people is a global phenomenon in recent years. It has turned from a technological tool to a social tool and now a fully integral part of young adults' daily lives. The cell phone itself offers several positive impacts to our lives. The mobile phone has allowed us to create a network of communications [4]. According to [4], it is the very essence of mobility in media as it allows instantaneous interactive communication over long distances. The cell phone device offers us security, safety, accessibility and other benefits [5]. It is also seen as a

possibility of spur-of-the-moment business or casual meetings and also through the mobile data services that allow you to find where other people are located in a building or surrounding area [6].

However, this evolving technology has given rise to concerns over both social and workplace propriety cell phone usage behavior. The questions one asks is whether this phenomenon has any impact on social relations and operations at workplaces.

III. PURPOSE OF STUDY

The purpose of this study was to find out the most preferred Smartphone with required features and specifications. It will study how the cell phone affects social relations and etiquette. In this context it was essential to pursue the following specific objectives:

- To identify the common type of handset set preferred and the cost involved.
- To assess the reasons for purchasing a mobile phone
- To assess the most common uses of the mobile phone by respondents.

IV. RESEARCH HYPOTHESIS

The following alternative hypotheses were tested in this study:

H11: There found a significant difference in the opinion of males and females regarding Design elements and Preference of Smart phone.

H12: The opinion of males and females differ significantly regarding incorporation of hardware and software specifications to smart phones in order to make it smarter.

V. LITERATURE REVIEW

Akoi and Downe's Research focused on the behavior and psychological aspect of cell phone usage among college going students. [2] They identified several attitudinal factors based on the exploratory study including necessity in modern era, cost efficiency as compared to land phones, safety and security, and most importantly dependency.

The authors tried to combine their research result with the previous researches to find the trend in usage by the youth. The results of the researches were based on their attitude towards mobile phone usage, the cost-conscious group believed that mobile phone help them to save money, the safety/security group believes that having a cell phone gives them more security. The dependent group gave the result that they can't live without phone and the sophisticated

group said that there had been with them since a long period of time and feels it is a necessity. This acts as a valuable guideline on how questionnaires focusing on mobile phone's use may be designed by using focus interview.

Karjaluotoet, Karvonen, Kesti, Koivumaki, Manninen, Pakola, Ristola, Salo in their article "Factor affecting consumers choices on Mobile phones, two studies from Finland" published in Journal Euro Marketing in 2005 [7]. The research study deals with consumers choice criteria while purchasing the mobile phone. With the use of a serious interview of 79 graduate students followed by the survey of 196 respondents it was found that although the choice of mobile phone is subjective choice situation there are some general factors that seems to guide the choices. The two studies suggest that although the technical problems are the reason for replacement of mobile phone among the youngsters, price, brand, interface and properties are the most influential factors affecting the actual choice between brands, further the study found that there is a strong evidence that although mobile phones are developing at a rapid pace to closer to personal digital assistance. Many consumers tend to be unaware of properties and services the new model in market contains.

Bhatt in his article "A study of mobile phone usage among post graduate students" released in Indian Journal of Marketing in April 2008 [4] has studied usage of cellphones, duration of usage, necessity, the spending on mobile phones, influencing factors for purchasing mobile phone, awareness of medical side affects of mobile phone usage among post graduate students on the basis of primary data which was collected at Sardar Patel University from 700 post graduate students. The results indicate that the usage and satisfaction level of mobile phone users differs from company to company

Sinhas and Wagh in their article "Analyzing growth of cellular telecom sector and understanding Consumer's preference and choices on the use of cell phone" published in Indian Journal of Marketing September 2008 [9] has studied growth and performance of cellular telecom sector. The study measures consumer choices, preference regarding mobile and usage of mobile, the study was based on primary data collected from various sources. In Janupur district of Uttar Pradesh with a sample size of 100 respondents, the study concludes that majority of consumers are prepaid consumers and prefer low tariff by better services and consider 30 paise as idea call rate. Further study found that there is lack of coordination between service provider's handset manufacturers and customers ultimately the coordination between service providers and manufacturers play an important role in satisfying need of mobile phone users.

Market analysis and consumer research organization has presented a report on "A study of mobile phone usage among the teenagers and youth in Mumbai" they have attempted to study the attitude of teenagers towards cellular phones and enumerate the pattern and arrive peculiarities gender wise. further they have examined the way young people relate to the functionality of mobile phones as well as assess observable phenomena, it was analyzed hat majority of respondents believes cell phone as the technology that offers convinces and make their life easy.

This literature review shows that there is significant effect on choice of mobile phones and most prominent users of mobile

phone are the young generation that is the youth and this also shows the need of study in this field, however relatively few studies are made in the field of specifications and features which are demanded by the mobile phone users so there emerges the need to explore this new field of features and specifications demanded by the users of smartphones which turned us towards this study.

Several established models and theories have been used to explore the adoption of technological products and services. As far as mobile devices are concerned, [7] proposed and validated a model on adoption which was based on the Theory of Reasoned Action [8] the Technology Acceptance Model (TAM) [9] and two non-utilitarian motives. The two proposed several antecedents to attitude towards use (perceived expressiveness, perceived enjoyment, perceived usefulness, perceived ease of use, and normative pressure).

The [7] model is the basis for investigation in this study. It has been demonstrated to be robust across age groups, gender and mobile service categories. The current investigation seeks to understand the perceptions of university student groups that are currently using mobile devices with various applications and tools. Perceived ease of use: The degree to which an individual "believes that using a particular system would be free of efforts".

VI. SMARTPHONE STATISTICS

There are 2.7 billion smartphone users around the world

- 77% of Americans have smart phones
- 47% of US smart phone users say they couldn't live without their devices
- 62% of smart phone users have made a purchase on the device
- There are 194 billion apps downloads in 2018 worldwide
- Smartphone users worldwide will reach 2.87 billion in 2020
- The top 10 vendors contribute almost 77% of the global smart phone market
- Mobile apps are projected to generate 188.9 billion US dollars in revenues in 2020
- *In 2018, there were around 1.56 billion smartphones sales worldwide. (Source: Statista) : With the world's population at over 7.691 billion, these smartphone numbers show approximately 20% of all people got a new smartphone last year.*
- *In 2018, 52.2% of all website traffic worldwide was generated through mobile phones. (Source: Statista) : That amount will continue to grow, especially with the adoption of 5G networks.*
- *There are 2.71 billion smartphone users in the world today (2019). (Source: Statista) : Almost every third person worldwide owns a smartphone.*
- *There are 14 million jobs directly related to the mobile industry. (Source: GSMA, The Mobile Economy 2019) : Smart phone statistics show there are 17 million other jobs that also benefit from this industry. It may not look like much, but a major part of those are high-paying jobs.*
- *66% of smartphone users are addicted to their phones.*

(Source: TechJury) : If you are interested in smartphone addiction (also known as nomophobia) read 45 Smartphone Addiction Statistics 2019.

- *There are now 7.9 billion mobile broadband subscriptions worldwide.* (Source: Ericsson Mobility Report 2018) : Smartphone usage statistics in 2018 show global mobile subscription penetration reached 104% in Q4 2018. Of course, there are some inactive subscriptions and some users own multiple devices, but still, the number is mind-boggling!
- *7. Almost 10 billion mobile devices are currently in use.* (Source: Outerboxdesign) : This explains the previous stat. I know it looks a lot, but consider this – my girlfriend and I each own two smartphones (one personal and one for work). We also have a tablet at home. That's five mobile devices right there.

(a) How Many Smartphones Are There in the World?

Most of the brands (except Apple) flood the market with new models every year. There are over 3.36 billion active smart phones today. (Source: New zoo 2018 Global Mobile Market Report). Of course, Samsung holds the lion share, followed by Apple, Oppo, Xiaomi, and Huawei. But what is really interesting is that:

The top 10 vendors contribute almost 77% of the global smartphone market. (Source: Counterpoint). Thereby they leave over 600 brands to “fight” for the remaining 23% of the market.

(b) How Many People Will Own Smartphones in the Future?

- The mobile industry will contribute to \$4.8 trillion to world GDP in 2023. (Source: GSMA).
- There will be 6.83 billion smartphone subscriptions in 2022. (Source: Ericsson)
- 80% of global connections will be smartphones by 2025. (Source: GSMA).
- Smartphone users worldwide will reach 2.87 billion in 2020.
- The number of smartphone users in the world in 2018 was 2.53 billion. An estimated 20 million people join the club each year.
- There will be 1.5 billion 5G enabled smartphones in 2025. (Source: Strategy Analytics)
- The first phones with 5G support are already announced and will come out in 2019.

VII. METHODOLOGY

An exploratory research was undertaken to find out people's preferences on smart phones and how to make smart phone smarter. The major emphasis of this survey was to find out the new ideas and insight about smartphones.

Sampling Design – Randomly selected males and females aging between 18-21 constituted the sample for this study.

Statistical Design – The researchers were keen to know the preferences of males and females regarding the Design element & preferences of smart phone and hardware & software specifications in order to make smart phones smarter. T-test is used to test the null hypothesis set for the study.

Observation Design – Since the sample group belongs to the same city and college, the researchers could observe them closely while discussing about the smart phone features and

expectations. It is also surprising for the researchers that the females were very well aware of the software features as well as the hardware specifications of smart phones. Unlike preferring pink color for their phones most of the female respondents were carrying black color phones.

Operational Design – The questionnaire was shared through WhatsApp social media on a particular day after the class hours amongst the college students. 80 students were selected randomly. The responses submitted by them were further analyzed to reach to a proper conclusion of the study.

VIII. KEY FEATURES TO EXPECT IN FUTURE SMARTPHONES

(a) Augmented Reality (AR)

The term ‘augmented reality’ or AR when used in the context of computer technology refers to what we perceive through our senses (usually sight) enhanced through the use of computer-generated sensory input such as sound, video, graphics and GPS data.

(b) Flexible Screens

It may soon be the cases where smartphones are able provide a large screen to watch and play your favorite movies and games while maintaining a pocketable size. Screens can be folded and unfolded, all thanks to Organic Light-Emitting Diode (OLED) technology.

Thin screen can even project future-features-smart-phones/ from both sides of the screen, so you can show pictures or videos to your friend on one side while using the other as a control.

(c) In-Built Projector

It features a built-in DLP (Digital Light Projection) WVGA projector that is able to project future-features-smart-phones/ at up to 50 inches in size at 15 lumens. What good will this do? Well, for one thing, future smartphones can actually be turned into an interactive gaming console without a need for a TV screen; all you'll need is a flat surface. Instead of a physical controller, you can use your body or your voice. Similar to Kinect, a smart camera and a voice control function can capture your movements and voice commands to let you interact with objects and future features smart phones on the projected screen.

(d.) Seamless Voice Control

Voice control has been receiving much attention since Siri made headlines. Voice control has existed in many earlier mobile phones even though the voice recognition function was crude at best. Research has been made to advance the development of voice control, but it has proved to be a paramount task.

(e) 3D Screens & Holograms

Smartphones may have already reached the peak for their screen resolution with Apple's ‘Retina Display’, which actually provides a resolution that is sharper than what the human eye can perceive. Yet, even then, we still want more. Mobile companies are now moving from 2D future features smart phones to 3D future features smart phones for the smartphone screen. At present, we have a couple of 3D smartphones in the market, such as the LG Optimus 3D, the

Motorola MT810 as well as the very first Samsung AMOLED 3D. So what happens after 3D.

(f) AI-based Smart Interfaces

The Hardware powering phones has plateaued in importance and AI has become the next frontier. The silicon used to power smartphones has also evolved to support on-device AI.

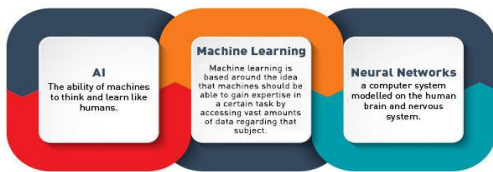


Fig 1. Use of AI in Smart Phone

IX. DATA INTERPRETATION & REPRESENTATION

A questionnaire was prepared for survey, to make the Smart phone more Smarter and to come up with the best model of smartphone with the most demanded features and specifications.

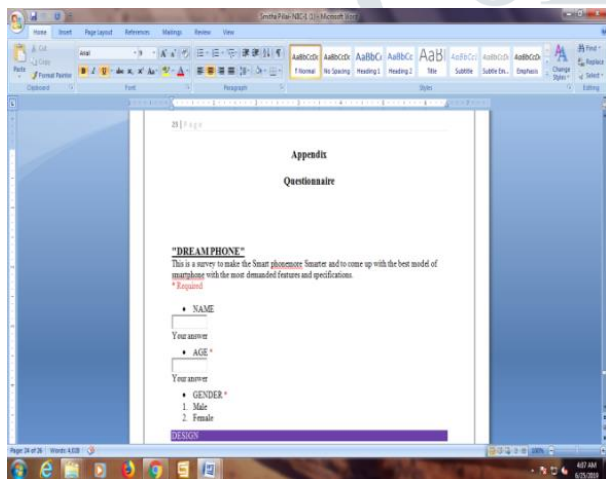


Fig 2. Survey Questions

Demographic Profile: All returned responses from the sample were considered students of School/College. The respondents were also asked to indicate their age in the questionnaire all age ranges were represented in the result.

Survey Results : As shown in Table 1 & Fig.1. the breakdown consisted of 41.3% i.e. 33 out of 80 respondents were of 20 years old, 16.3% i.e. 13 respondents in age of 19, 14.6% i.e. 12 in age of 18, 8.8% i.e.7 in age of 21, 6.3 i.e. 5 of 17 and 22 each. 2.5% i.e. 2 in age group of 23 and finally 1.3% i.e. 1 each in age group 13, 16 and 24 each.

Table 1 : Survey Results

Age	No. of Responses	Percentage	Age	No. of Responses	Percentage
13	01	1.3%	20	33	41.3%
16	01	1.3%	21	07	8.8%
17	05	6.3%	22	05	6.3%
18	12	14.6%	23	02	2.5%
19	13	16.3%	24	01	1.3%

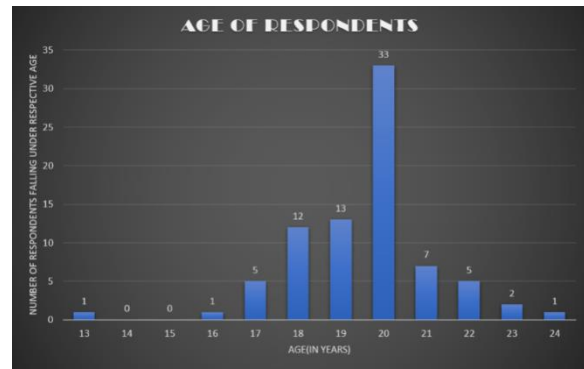


Fig. 3 : Survey Results

Size : If we look an eye on size of phone, most preferred size is 5.5” which is selected by 31 people, with 38.8%, the other distributions were 22 people with 27.5% for 6” phone, 17 people with 21.3% for 5”, 9 people with 11.3% FOR 6.5” and 1.3% 1 person with 4” screen size. The results are shown in Table 3 & fig 2.

Table 2: Survey Results For Screen Size

Screen Size	Number of Responses	Percentage
4”	01	1.3%
5”	17	21.3%
5.5”	31	38.8%
6”	22	27.5%
6.5”	9	11.3%
Total	80	100%

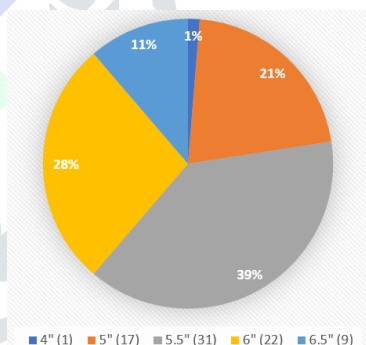


Fig. 4 Pie Chart for Screen size

Color Preference: The preference of color of every product is different and unique, so the color which is preferred by maximum number of people in case of smartphone in this survey is Black with 60% it total of 48people out of 80 went with black color, on second rank is golden color with 13.7% with 11 respondents, and remaining distribution is 11.3% i.e. 9 people for silver, 7.5% i.e. 6 people for white , 5% i.e. 4 people for blue and 1.2% i.e. 1 person each for purple and red.

Table 3 Survey Results For Color Preference

Color	No of Respondents	Percentage
Black	48	60%
White	06	7.5%
Gold	11	13.7%
Silver	09	11.3%
Blue	04	05%
Red	01	1.2%
Purple	01	1.2%
Total	80	100%

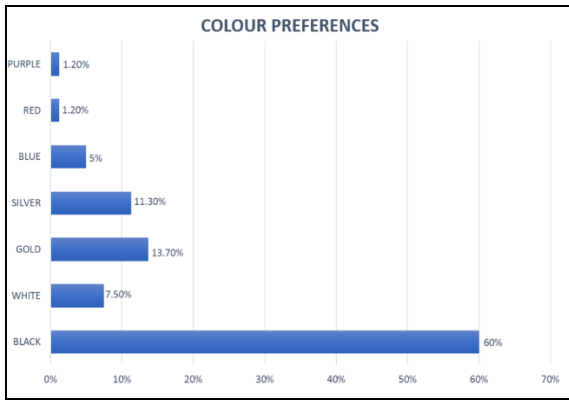


Fig. 5 Bar Graph for Color preference

Display: Display is the most important part of any smart phone. In our survey the most preferred display is flat screen with 41.3% i.e. 33 people voted for flat screen, 33.8% i.e. 27 people for semi curved screen and 25% i.e. 20 people with curved screen.

Table 4 Survey Results For Screen Size

Screen	No. of respondents	Percentage
Flat screen	33	41.3%
Semi-curved screen	27	33.8%
Curved screen	20	25%
Total	80	100%

Rear Camera : Placement of camera is one of the most important design elements of a smart phone, it decides the whole back look of a phone, the most favored position of back camera is Top Center with 42.5% i.e. 34 people, then 33.8% i.e. 27 people voted for right corner and for left corner with 23.4% i.e. 19 people.

Table 5 Survey Results For Camera:

Position	No. of Respondents	Percentage
Top Center	34	42.5%
Top Right Corner	27	33.8%
Top Left Corner	19	23.4%
Total	80	100%

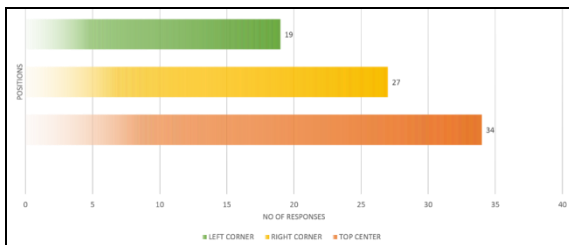


Fig. 6. Bar Graph for Camera

X. HYPOTHESIS TESTING

The following alternative hypotheses were tested;

H₁₁: There found a significant difference in the opinion of males and females regarding Design elements and Preference of Smart phone.

$$t = (M1 - M2) / \sqrt{(s2M1 + s2M2)} = -2.33 / \sqrt{14.04} = -0.62$$

The t-value is -0.62262. The p-value is .547467. The result is not significant at p < .05.

The alternative hypothesis is rejected as there found no significant difference in the opinion expressed by the male and female respondents of the study.

H₁₂: The opinion of males and females differ significantly regarding incorporation of hardware and software specifications to smart phones in order to make it smarter.

$$t = (M1 - M2) / \sqrt{(s2M1 + s2M2)} = -0.33 / \sqrt{15.56} = -0.08$$

The t-value is -0.08452. The p-value is .934315. The result is not significant at p < .05. Both the males and the females are of almost similar preferences regarding the smart phone features in order to make it smarter. Thus the alternative hypothesis stands rejected.

XI. CONCLUSION

On the basis of findings several conclusions regarding smart phones can be drawn. The findings of this study indicate choosing the smartest phone, on the basis of people’s expectations and with all required features. It is so very interesting to know through this research study that the girls color preference have shifted to standard colors.

We can also conclude that an overwhelming majority of youngsters use mobile phones for entertainment; the main motive of our study was to find out what is the DREAM PHONE in student’s perspective. On that ground the most patronized mobile phone include the following features:

5.5” Phone, Black color, Flat screen, Camera placement at top right corner, Removable back cover, Android operating system, Speakers placed at bottom side near charging pin, Nano SIM slots, Fingerprint lock, 5 megapixel selfie camera and 12 megapixel rear camera, WhatsApp as a pre-installed social networking application, Google chrome as default browser.

2019 will be a great year in smartphone history. 5G is just around the corner, and brands like Samsung, Huawei, and Xiaomi have released foldable smartphones. Nokia is back in the game, showing good results year on year. There are so many exciting things waiting to happen. I don’t know about you, but I can’t wait to update my Smartphone Statistics list in 2020.

A. References

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