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Study of Factors Influencing Purchase of Smart phones: A Case Study of College Students in Chennai

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ABSTRACT

India is expected to become world's second largest smart phone market by the end of 2022. This leap is the result of the increasing penetration of affordable smart phones in the country. Out of the 26.7% smart phone users in India, 13% are college students between the age group of 18-24 years. The major objective of this study was to identify the factors which influence the choice of a smart phone by college students in Chennai. The method used for data collection was random sampling of 100 students from various colleges followed by extensive data analysis. This study established the significance between customer buying behaviour, students as major stake holders and product sales for smart phones. The data analysis revealed that the functions/specifications, weight, thickness and price collectively influence the buying behaviour of college students. This study could help manufacturers in designing student friendly models of smart phones, especially for the Chennai region and for the country in general.

Keywords: Buying behaviour, Market scenario, Functions/Features, Data analysis, Affordable smart phone

1. INTRODUCTION

Indian telecommunication industry went through eminent market liberalisation and advancement since the 1990s. It is the most competitive and one of the fastest growing telecom markets in the world. According to Ericsson Mobility Report for 2015, the mobile phone subscriber penetration in India has reached almost 77% of the population. On the basis of the total number of smart phone users in India, it is the second largest in the world.

One of every three people in urban India is a smart phone user. Among this population, students and young professionals have the maximum share. According to Smartphone User Persona Report (SUPR) 2015, the growing smart phone penetration in the country is primarily driven by Indians under the age of 25 years who make 63% of the user base. A recent survey conducted by TCS, a software services firm, found out that more than 70 per cent of students in India have a smart phone. The introduction of reasonable smart phones has opened doors for a potential market in the country. Due to the dynamic impact of smart phones in the current market, the manufacturers constantly try to find an edge

over the others by introducing distinctive features (Omijie et al., 2020). Recently, a company named Ringing Bells launched a smart phone priced at Rs. 251 as a part of the Digital India and Make in India initiative of the Government of India. The phone was opened for consumer booking and was oversubscribed within minutes. It is yet to be seen whether the company is able to live up to its promise, but they have been able to bring to the market a smart phone which is said to be the cheapest in India, priced at Rs.2500 ,already. The introduction of reasonable smart phones has opened doors for a potential market in the country.

Due to the dynamic impact of smart phones in the current market, the manufacturers constantly try to find an edge over the others by introducing distinctive features. Numerous surveys are conducted every day to identify and comprehend customer preferences while buying a smart phone. The major objective of this study is to identify the key factors influencing the choice of a smartphone, by college students in Chennai. This could also provide an insight regarding desired design features of a smart phone.

2. LITERATURE REVIEW

Kim et al (2012) studied the factors that affect usability of cell phones. The result revealed that design, innovation and customer needs were key factors. It also proposed that the product success was proportional to the usability and design of cell phones. They stated that innovation was the most important factor amongst the enlisted key factors. Khan et al (2014) added a new dimension to market survey for buying behaviour of smart phones by using an image based survey. Surprisingly the brand and brand ambassadors were key determinants and not the price, as revealed in this survey. Sata (2013) investigated the factors affecting buying behaviour in Hawasa town of Ethiopia. He stated that price was the most important factor followed by features. Hsiao and Chen (2014) studied multiple factors influencing smart phone demand. Head and Kiolkowski (2012) revealed that too many features in a phone could be detrimental in smart phone sales, as this may confuse the buyer and easy decision may not be possible. Malviya et al (2013) reported the factors influencing consumers in Indore while purchasing a smart phone. Factor analysis suggested that price does not influence consumers in Indore at all while the brand, durability, technology play a vital role while buying a smart phone. ReazUddin et al (2014) in their research paper on customer buying behaviour of mobile phones in Bangladesh inferred that the physical attributes are of utmost importance while choosing a smart phone. The size, pricing and operating facilities are other factors. Liu (2002) stated that new features have more impact on the customer's choice than the size of smart phones. Chou et al (2012) studied and analysed features most required on mobile phones and reported that messaging, battery life, display size are the most important features and needed customisation.

Not just physical features, many studies revealed the cultural and emotional impact of smart phones as well. Wilska (2003) concluded that rational features and emotional features, both, affect the customer choice. The customers' age is directly proportional to the inclination towards emotional features. Abeele et al (2014) underlined the importance of mobile phones in the lives of youth and referred to it as a status instruments. Mobiles were reported to have a central position in the lives of youth and 'Mobile Youth Culture' was referred to in the research paper. Louis et al (2010) conducted a study on young French consumers. The study stated that personality traits directly affect brand commitment and attachment. They also proposed a different model for market research based on their findings. Tosell et al (2012) conducted a survey which revealed that young users adapted to smart phones rapidly.

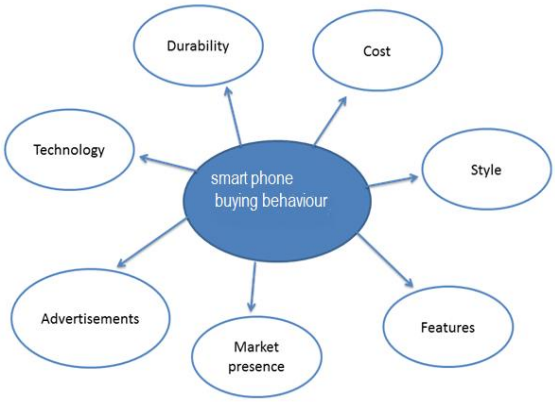

Figure 1 Various factors influencing the choice of a Smartphone

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A hypothesis was put forward based on the extensive literature survey, that pricing is the most important factor affecting choice of a smart phone. It was thought worthwhile attempting this study to determine the preference of college going students in buying a smart phone, since the literature survey revealed that there could be regional differences, preferences based on age groups, utility, technology and so on. Some of these factors have been summarised in Fig 1.

3. METHODOLOGY

Based on the literature search, various factors were identified. Since the degree of influence of each was seen to vary in different reports, a localised study was attempted.

This research was conducted among college students in Chennai, between the age group of 18 to 24 years. Both quantitative and qualitative data were used in this study. The quantitative data was derived from secondary sources of data. This data included research papers and articles relevant to the topic of study. The qualitative data was derived from primary sources of data. Primary data was collected by distributing questionnaires among various college students. The questionnaires had close ended questions and were structured in such a manner so as to enable quick answering. An extensive literature review was undertaken and prospective factors which could make a difference on the purchasing decisions of smart phones identified. Mock questionnaires were designed and options identified on the basis of responses received from random respondents.

On this basis, ten questions were selected Based on the responses received; a questionnaire having four point responses was used. It was decided that students of Chennai would be researched upon as the target audience .The preferable age group was identified as being 18 to 24 years of age since it was thought that this would be the age group of undergraduate or postgraduate students. Care was taken not to include any question which would present a bias towards a certain answer.

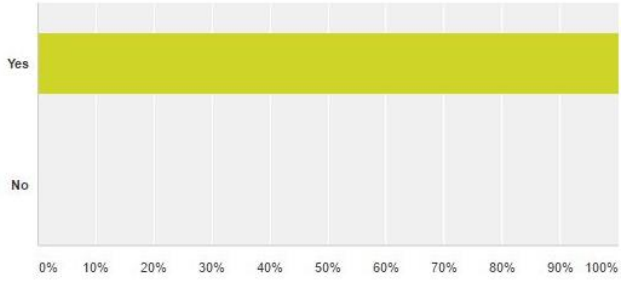
For some of the questions pertaining to the brand of smart phones and so on, the options were left open so that the research could be unbiased and authentic and not suggestive towards a certain answer. The results were converted into figures as this enabled a clear cut comparison and also enabled a quantitative estimation. A total of 100 respondents were asked to fill the questionnaire and their responses were analysed statistically. The variables affecting choices were broadly classified as price, brand, aesthetics, size, functions and so on.

4. RESULTS

The data was analysed and results obtained in terms of percentages. The results obtained from each question were also depicted visually in the form of bar diagrams, for ease in interpretation. The results have been analysed below.

4.1 Smart phone usage

A very surprising fact that was revealed in the present study (Fig 2) was that smartphone usage has 100% penetration in college and university campuses. In a randomised sample size of hundred students taken from various strata(different colleges in Chennai) , every single respondent possessed a smartphone. This may be attributed to the ease of availability and reasonable cost of smartphones.



Answer Choices	Responses	
Yes	100.00%	100
No	0.00%	0
Total		100

Figure 2 Smart phone penetration rate among college students in Chennai

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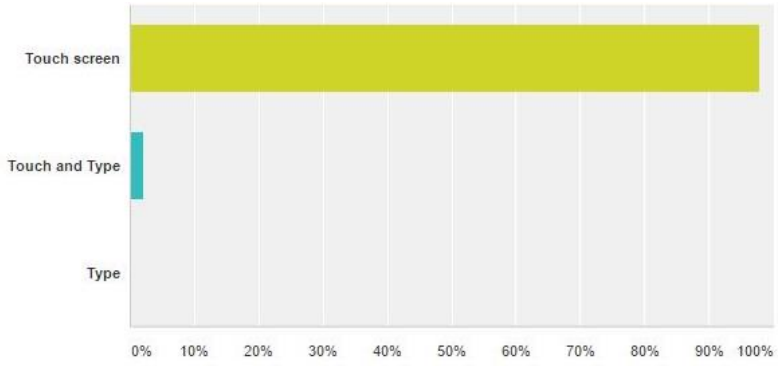


Answer Choices	Responses	
Touch screen	98.00%	98
Touch and Type	2.00%	2
Type	0.00%	0
Total		100

Figure 3 Screen type owned among college students in Chennai

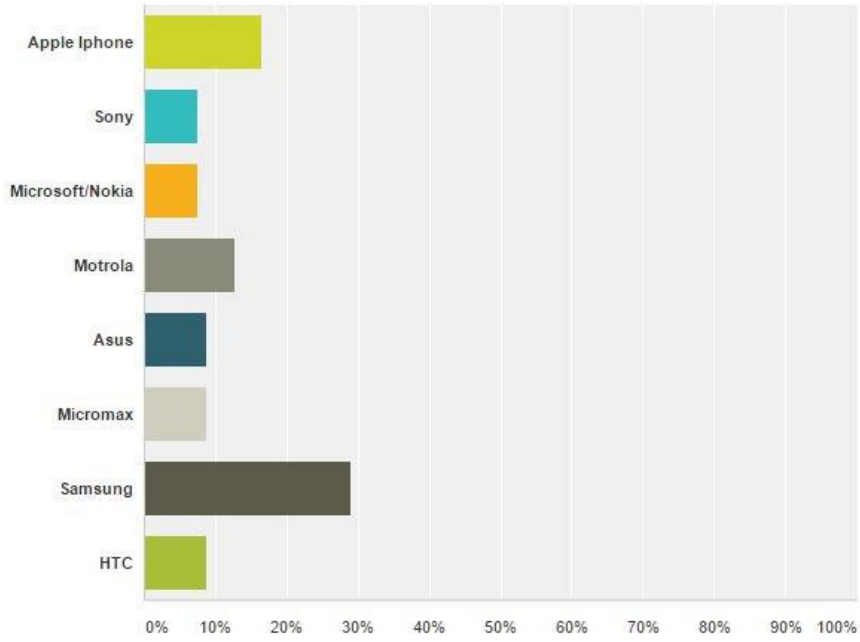
4.2 Touchscreen versus Non-touch screen

The respondents were asked about the type of screen their current smart phone has i.e. touch, touch and type or type. 98% respondents had touch screen type of phones whereas 2% had a touch and type screen (Fig 3).

4.3 Brand ownership among college students in Chennai

When the respondents were queried regarding the smart phone brands they own, results revealed that Samsung smart phones were most (29.11%) popular amongst college students of Chennai and Apple Iphone was a distant second with 16.46% ownership. This was followed by Motorola although the percentage was slightly lower at 12.66% (Fig 4).

Asus, Micromax and HTC shared equal popularity with 8.86% respondents owning them. All other brands like Microsoft/Nokia and Sony (7.59% each) had smaller user base when it came to students of Chennai. Other brands like LG, Xiaomi, Lenovo, Lava, Vivo etc. had low popularity amongst college students in Chennai.



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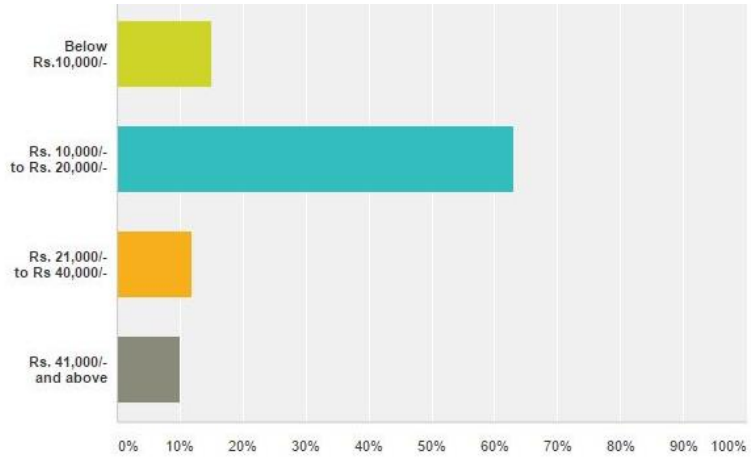
Answer Choices	Responses	
Apple Iphone	16.46%	13
Sony	7.59%	6
Microsoft/Nokia	7.59%	6
Motrola	12.66%	10
Asus	8.86%	7
Micromax	8.86%	7
Samsung	29.11%	23
HTC	8.86%	7
Total		79

Figure 4 Ownership data of various smartphone brands among respondents



Answer Choices	Responses	
Below Rs.10,000/-	15.00%	15
Rs. 10,000/- to Rs. 20,000/-	63.00%	63
Rs. 21,000/- to Rs 40,000/-	12.00%	12
Rs. 41,000/- and above	10.00%	10
Total		100

Figure 5 Data regarding popularity of smart phones *vis-a-vis* pricing

4.4 Effect of pricing on popularity of smart phones

The price ranges provided in the answer choices were below Rs 10000 between Rs 10000 to Rs 20000, Rs 21000 to Rs 40000 and above Rs 41000. 63% of the respondents preferred smart phones in the price range of Rs10000 to Rs20000. 15% of the respondents preferred the lowest price range of Rs10000 and below. The price range of Rs21000 to Rs40000 was preferred by 12% of the sample size (Fig 5). The highest price range (Rs. 41,000 and above) given as a choice was preferred by the least number (10%) of respondents. This suggested that Rs20000 and below was the preferred price bracket amongst students of Chennai as this made up 78% of the total responses recorded.

4.5 Effect of aesthetics on college students

When it came to the aesthetics or 'look and feel' of a smartphone, 41.41% felt that the weight and thickness was also important, 31.31% felt that the screen size was the most important feature. Shape was important to 17.17% of the respondents, colour was important for 7.07% of the respondents. For 2.02%, the button size was important while 1.01% responded for keypad as an important feature (Fig 6). 1% respondents opted not to answer this question.

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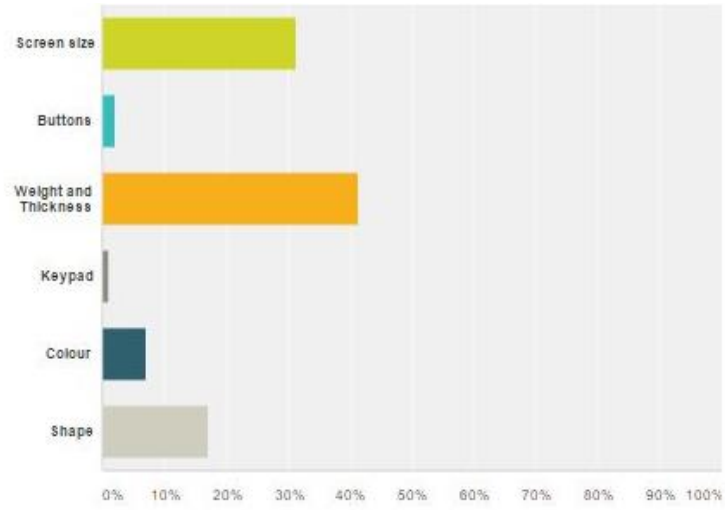
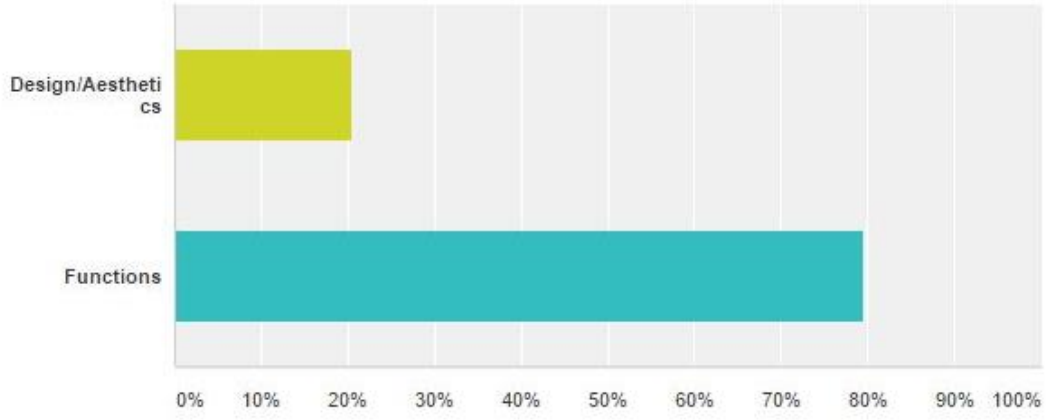


Answer Choices	Responses	
Screen size	31.31%	31
Buttons	2.02%	2
Weight and Thickness	41.41%	41
Keypad	1.01%	1
Colour	7.07%	7
Shape	17.17%	17
Total		99

Figure 6 Data analysis regarding aesthetics of smartphones



Answer Choices	Responses	
Design/Aesthetics	20.41%	20
Functions	79.59%	78
Total		98

Figure 7 Data analysis regarding aesthetics Vs. features of smartphones

4.6 Preferences while buying a smart phone

The questionnaire proved to be a powerful tool for gaining an insight into the minds of the youth (Fig 7). Approximately 20.41% respondents preferred various design features and aesthetics over functions of the smart phones, while around 79.59% preferred functions over design.2% respondents opted not to answer this question.

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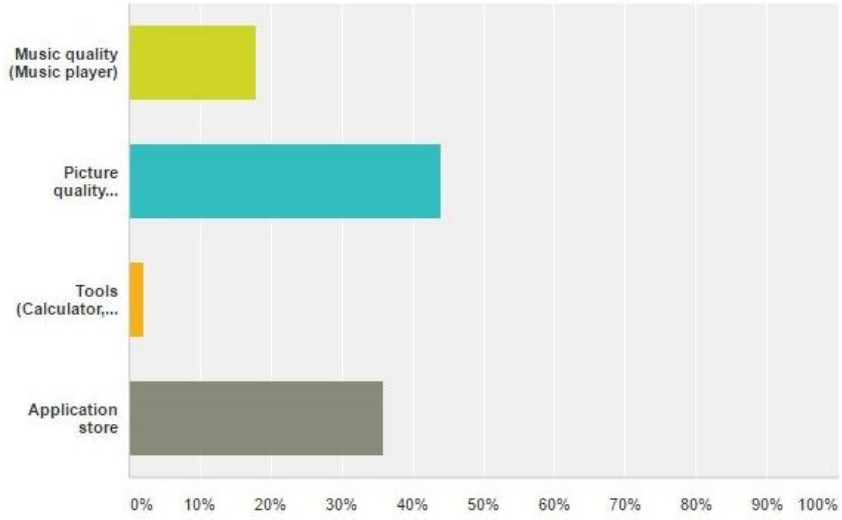
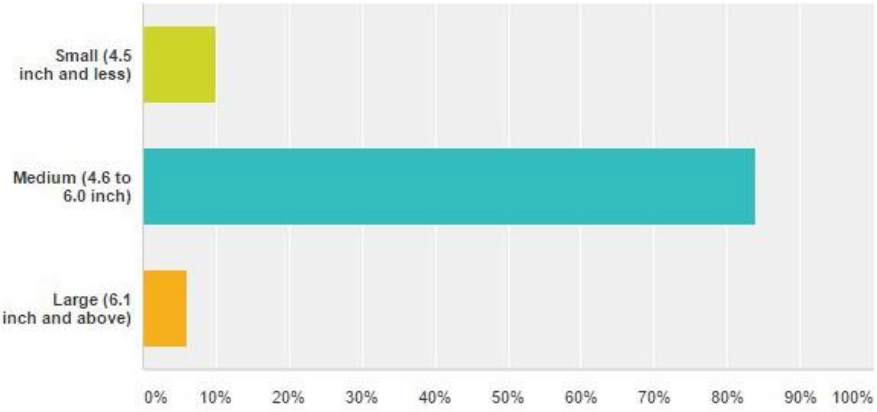
4.7 Preferences among functions in smart phones

To gain a meaningful insight regarding functions preferred in the smart phone, options of music quality, picture quality, tools and application store was given to the respondents. The picture quality of the camera was the most important function for 44% of the respondents. 36% preferred application store as the most important. For 18% of the respondents, music quality was important while only 2% felt that tools (calculator etc.) were an important feature. (Fig 8) This revealed that the smart phone could almost be renamed as a smart camera phone!



Answer Choices	Responses	
Music quality (Music player)	18.00%	18
Picture quality (Camera/Video recorder)	44.00%	44
Tools (Calculator,Calender etc)	2.00%	2
Application store	36.00%	36
Total		100

Figure 8 Data analysis regarding preferences amongst various features of smartphones



Answer Choices	Responses	
Small (4.5 inch and less)	10.10%	10
Medium (4.6 to 6.0 inch)	83.84%	83
Large (6.1 inch and above)	6.06%	6
Total		99

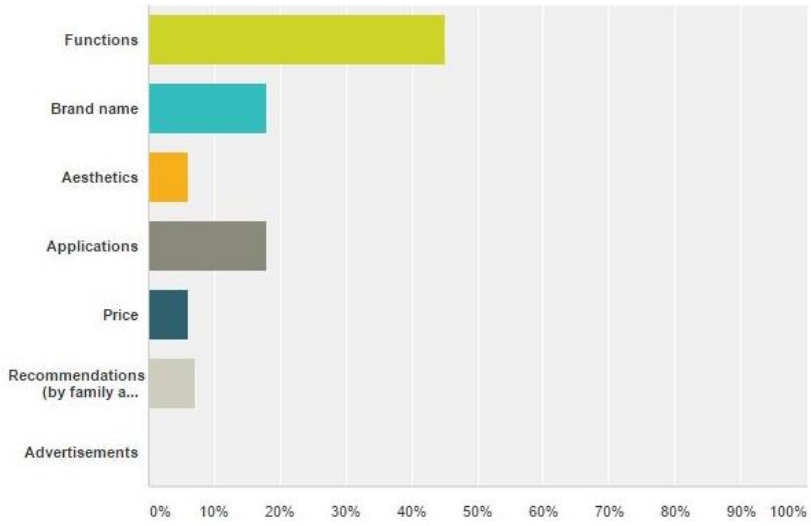
Figure 9 Screen size preferences among college students in Chennai

4.8 Screen size preferences among college students in Chennai

When queried regarding the size of handset, 83.84% preferred a medium size screen (4.6 to 6.0 inches). 10.10% preferred a small screen size (4.5 inches and less), while only 6.06% preferred a large screen of 6.1 inches and above (Fig 9).

4.9 Single most important consideration while purchasing a smart phone

When the respondents were queried regarding the most important consideration while purchasing a smart phone, results revealed that the functions in a smart phone were preferred the most as this made up 45% of the total responses recorded. Brand name and Applications were the second most important with a percentage slightly low at 18%.7% of the respondents take recommendations by family and friends into consideration ,while only 6% consider the aesthetics and price while choosing a smart phone and none keep the advertisements in mind while buying a Smartphone (Fig 10).



Answer Choices	Responses	
Functions	45.00%	45
Brand name	18.00%	18
Aesthetics	6.00%	6
Applications	18.00%	18
Price	6.00%	6
Recommendations (by family and friends)	7.00%	7
Advertisements	0.00%	0
Total		100

Figure 10 Data regarding the most important factor affecting purchase of a smart phone

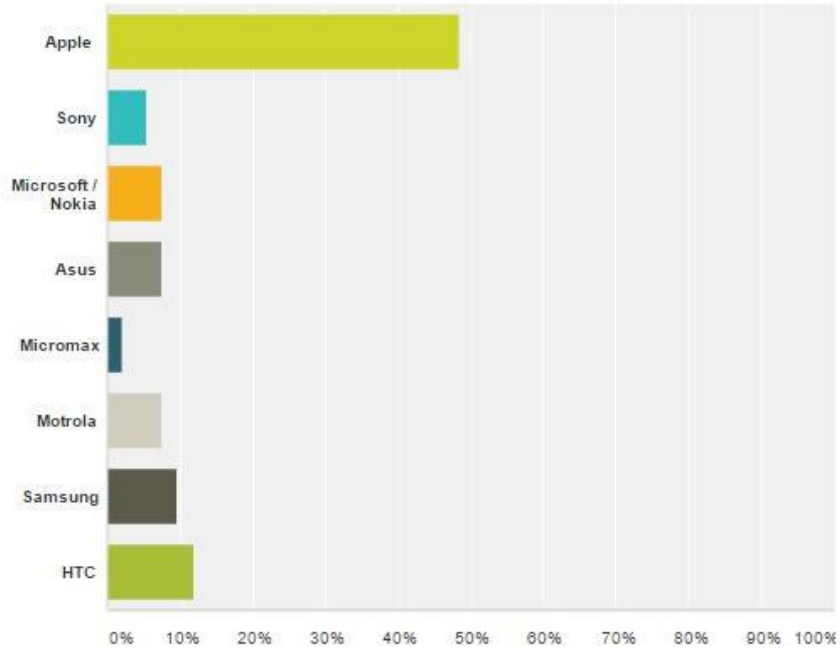
4.10 Brand preferences amongst college students in Chennai

When queried about the phone that students of Chennai would prefer to own even if they do not have it now, 48.39% responded in favour of Apple, 11.83% responded in favour of HTC, 9.68% responded in favour of Samsung. Microsoft/Nokia, Asus and Motrola got equal preference of 7.53% each, 5.38% respondents preferred Sony while 2.15% of the respondents favoured Micromax (Fig 11). Other brands like One Plus, Xiaomi, Lava, Vivo etc. had low popularity amongst college students in Chennai.

5. DISCUSSIONS

This study revealed that there was a hundred per cent penetration of smart phones in colleges of Chennai. 98% respondents preferred touch screen type of phones. The survey revealed that Samsung ownership to be the highest, followed by Apple I phone amongst the students of Chennai. When it came to the aesthetics, maximum respondents felt that the weight and thickness was important followed by screen size as a feature. Approximately 80% of the respondents preferred functions over design. This was opposed to the results put forward by Kim et al (2014). The results given by Raez Uddin et al. (2014) supported the findings of the present study. When queried for larger the better regarding screen size, the results confirmed the fact that a large screen was

required but if too large, it may prove to be deterrent for potential customers. This may be attributed to the fact that smart phones have to be carried by the youth and this is mostly done in their garment pockets, too large a smart phone might not be easy to carry thus the medium screen size. The pricing was not an important factor which nullified our hypothesis, "cheaper the better". This was contrary to the study by Sata (2013) and was supported by the study by Malviya et al., 2013.Perhaps the later put forward an Indian context which was also proved through the present study. The study suggested that Rs.20,000/- and below was the preferred price bracket amongst students of Chennai.



Answer Choices	Responses	
Apple	48.39%	45
Sony	5.38%	5
Microsoft / Nokia	7.53%	7
Asus	7.53%	7
Micromax	2.15%	2
Motrola	7.53%	7
Samsung	9.68%	9
HTC	11.83%	11
Total		93

Figure 11 Data regarding brand choice of students in Chennai

This study was also aimed at studying the attitude and perception of college students towards technology adoption. The word "smart" implies ease in operation, a user friendly as well as a multi utility approach. Most smart phones have integrated: a calculator, clock, alarm, reminder services, camera, torch, music, radio, fitness and above all, social networking, internet search engine, video conferencing, all into a single device. A number of operating systems are available and the popularity of these may also indirectly affect the choice of a smart phone. Chou et al (2012) also suggested features to be the most important. A camera was the most important feature preferred by the respondents. Probably the smarter players in the market are aware of this pulse of the market and have been increasing the resolution of the front as well as the back cameras each time a new model is launched. Advertisements, on the other hand, are of no importance to the students in the decision making process. The ownership brand data did not match with the preferred smart phone brand; the reason for this could be factors like affordability, interference of friends/family of the smart phone owners. There could be a possibility that these phones were gifted to them, therefore not leaving them with a choice. This study confirmed that the primary features that maximum college students consider while buying a smart phone are the functions it has to offer.

6. CONCLUSION

This study illustrated the importance of regional difference in choices made by youth as revealed through literature survey. Although various studies have reported pricing as the most important factor while choosing a smart phone, in the Chennai region, the present study confirmed functions as the most important factor among college students. The other factors which were found to have a significant effect on the purchasing decisions were brand name, applications, recommendations and aesthetics in the mentioned order of preference. It was concluded that certain student friendly models could be preferentially marketed in the region having the desired features.

Such a study could be performed pan India and geographical mapping performed, as future scope of the study. The study could also be undertaken for various target groups like office goers, homemakers, and elderly. A comparison of these groups would give a holistic picture.

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Conflicts of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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