Cellphone Technology and its Usage by Students

Mulchandji S. Sen	Mr. Ronak Panchal
Assistant Professor, Department of Management, Shrimad Rajchandra Institute of Management and Computer Application	Assistant Professor, Vidyabharati Trust College of BBA and BCA, Umrakh, Bardoli

ABSTRACT *Change is the only permanent thing in life." The same is applicable to cell phone industry, which is growing at a very fast pace. The total wireless and the wireline subscriber base is 960 million at the end of May - 2012. With this large user base the use of cell phone for various applications is also increasing. Days were gone whereby cell phones were used only for talking (voice communication). Today cell phones are used for messaging, multi media message, chatting, internet access, social community sites, games, music, radio, photography and other stuff. As time changes, the taste and preferences of users also get change and hence cell phone manufacturers change and/or update their product using latest technology. People have experienced 2G, 3G & 4G technologies in India. Research undertaken here focuses on the cell phone generation technology adopted by the students of graduate and post graduate programme in south Gujarat region*

INTRODUCTION:

The concept of cell phone introduced in 1947. The first cell phone system was proposed by AT&T and Bell Laboratories to the Federal Communications Commission (FCC) Regulation of the United States. They proposed small, low-powered, broadcast towers, each covering a 'cell' of a few miles in radius (Rastogi 2003). Bell laboratories used the first cell phone with the police car technology. Martin Cooper, a former general manager for the systems division at Motorola, is considered the inventor of the first modern portable handset designed to be used outside the car. It took almost 37 years to cell phones service to become commercially available in United States. In India the first mobile phone was launched during 1990 by Nokia. After that the mobile phone industry never looked back. In terms of number of wireless connections, China is the world's leader and India is the second rank with 811.59 million mobile phone subscribers. As per the world telecommunications industry report, by 2013, India will have 1.200 billion mobile subscribers. One of the facts about cell phone industry in India is that it is one of the largest industries in India. The cell phone use is very common today. Gone were the days when mobile phone was considered as a status symbol. Today it has become a common utility medium for communication. One can find its use by most of the people around him/herself. In the same way the mobile phone is frequently used device by students. At the same time it has become a multi tasking device like communication (oral and written), gaming, special utility like mathematic software, dictionary, planner etc., for internet access- surfing, music, video, camera, preparing documents / presentations etc. These applications are possible due to technological platform updates from 1G to 4G.In the field of mobile communication and wireless telephone technology, the first generation (1G) was introduced in 1980's which only accepts analog signals and resists digital signals. The second generation (2G) was introduced in 1991 which allowed for enhanced data service and SMS (Short Messaging Service). In 2G voice communication was digitally encrypted. The revised versions of 2G are 2.5G (GPRS – General Packet Radio Services and the usage of CDMA) and 2.75G (EDGE – Enhanced Data rates for GSM evolution or Enhanced GPRS). The third generation (3G) was introduced in 2001 which uses completely different radio frequencies, it requires different technological support to facilitate high data transfer rate than 2G. 3G supports various applications like video calls, video conferencing, online conference, mobile TV, online gaming etc. The next generation is fourth generation (4G) which provide data transfer at very high rate of 100Mbit/sec to 1Gbit/sec. which is not available even in wired network. The second radical change in last few years is adoption of social networking sites like Facebook, LinkedIn, twitter, orkut, Ibibio, Indyarocks, MySpace etc. According to Times of India report, Facebook has said its user base in India has grown from 8 million in 2010 to 5, 14, 31, 600 (51 million) users now and most of the people access the site through mobile phones, prompting it to rethink its business model. The Facebook penetration in India is of 4.38% of its population and of 63.50 % of its internet users. A survey conducted by Tata Consultancy Services (TCS), shows that 40% of high school students in India's metros use the mobile phone to access the Internet. This figure in 2009 was 12%. A tablet is the preferred device for 14% students. The survey also states that the use of e-mail for communication is declining. 50% of the students in metros use SMS to communicate; 45% used Instant Messaging and 38% used Facebook or Twitter. Only 34% use e-mail. The study undertaken here aims to Study on students' adoption of Mobile Phone Generation Technology An online social network is a web-based or mobile service that allows individuals to construct a public or semi-public profile among various domains, develop a list of other users with whom they share a connection, and manage their list of connections and those made by others within the system. While the term online social network site is used to describe this phenomenon, the term social networking sites also appears in public discourse, and the two terms are often used interchangeably. Currently, popular online platforms include Facebook, Twitter, and MySpace. On many of the large online social networks, participants are not necessarily networking or looking to meet new people; instead, they are primarily communicating with people who are already a part of their extended social network.

HISTORY AND GROWTH OF CELL PHONE INDUSTRY IN INDIA:

India's mobile phone industry is one of the fastest growing industries. In the past, the Indian subscribers paid around Rs. 16.40 for a mobile to mobile call and around Rs 32.80 for a mobile to a landline call. Today, as per recent statistics, customers pay far lesser for calls and occasional text messages that add up to around Rs 300 a month and upwards. As per the recent statistics, in India, there are nearly 300 million mobile phone subscribers as compared to just around 30 million Personal Computers. As per Telecom Regulatory Authority of India, basic service licensees includes BSNL and MTNL, major cellular service providers include Idea, Airtel, Vodafone,

BSNL, Idea, Doccomo, Aircel, Reliance, Tata etc. Airtel covers 21.45 % of subscriber base in India. Reliance is the second largest with a subscription controlling a base of 20.3%. BSNL follows closely at 18.6% and Hutch was 14.7% according to a June 2005 survey.

NEED FOR THE STUDY:
As per recent survey conducted by JuxtConsult - Delhi-based market research and consulting specialist, almost 1 in 7 mobile users is a 'student'. Graduate and post graduate students are those who have education it means they do not face language barriers to use mobiles and more importantly there are various applications in the mobile which are of their use. According to Telecom Regulatory Authority of India data, there are 83 million Internet users in India and more than 56% of them are on broadband (Business Standard, 7 December). A large number of users also access social media through mobile phones. According to a report, the number of mobile social network users in India is expected to reach around 72 million by 2014. This would be driven by the re-duced cost of smart phones and the launch of 3G services, which will enhance the consumer experience. Various surveys show social media reach 60% of the online audience in India. ViziSense, an online audience measurement service, recently reported that Facebook has the highest reach, with 22.1 million people accessing Facebook in July, followed by Google's Orkut with 18.5 million. Together, they cater to 90% of the users of social media sites (techeye.net, 6 October). With this background study undertaken here focuses on students' adoption of Mobile Phone Generation Technology.

METHOD:
PARTICIPANT:
The study involves graduate and post graduate students of the various institutes of South Gujarat region. The students were contacted at their location and questionnaires were filled up by them. The literature indicates that 1 in 7 users of mobile phone is student. Students use mobiles for various purposes like call, messaging, video, gaming, music, e-mail, internet surfing, video chatting, social networking, net banking and other stuff.

PROCEDURE:
Data was collected by survey involving face-to-face interview with the 300 respondents who are students of graduate and post graduate programmes. The respondents include students of MBA, MCA, BBA, BCA, BA, B.com etc courses. Responses given by respondents were recorded on nominal scale, multiple choice questions & Likert scale using categories ranging from "Highly Unimportant" (1) to "Highly Important" (5).

RESEARCH PROBLEM:
The research problem considered for the study is, "What is the Adoption of Mobile Phone Generation Technology by Students in South Gujarat region?"

OBJECTIVES FOR THE STUDY:
PRIMARY OBJECTIVE:
· To study adoption of Mobile Phone Generation Technology by students.

SECONDARY OBJECTIVE:
· To identify the technology preferred by the students
· To know the purposes of mobile phone usage
· To identify the most preferred social community sites used by the students

RESEARCH METHODOLOGY:
Here the descriptive research design has been used because we want to describe the adoption of mobile phone generation technology by student with special reference of social community sites of Bardoli region. Here we want to describe which mobile phone technology is used by the students?, What are the various utilities of mobile phone for students?, What are the purpose of using internet on mobile? How do

students perceive mobile internet speed? What problems do they encounter while accessing internet on mobile? etc.

DATA ANALYSIS:
Table 1.
MOBILE HANDSET BRANDS USED BY STUDENTS

Brand	Frequency	Percent	Cumulative Percent
Nokia	163	54.3	54.3
SAMSUNG	103	34.3	88.6
Sony Ericsson	9	3	91.6
APPLE	7	2.3	93.9
LG	5	1.7	95.6
Black Berry	3	1	96.6
HTC	2	0.7	97.3
Micromax	2	0.7	98.1
BSNL	1	0.3	98.4
Intex	1	0.3	98.7
Maxx	1	0.3	99
Spice	1	0.3	99.3
Other	2	0.7	100
Total	300	100	100

Table 1 indicates that 54.3% respondents are using Nokia handsets, 34.3% Samsung, 3.4% Sony Ericssion, 2.3% Apple and 1.7 % using LG handsets.

NETWORK / SERVICE PROVIDER
Table 2.

Service Provider	Responses		Percent of Cases
	N	Percent	
For Vodafone User	105	32.3%	38.9%
For BSNL User	42	12.9%	15.6%
For Tata Docomo User	62	19.1%	23.0%
For Uninor User	12	3.7%	4.4%
For Airtel User	59	18.2%	21.9%
For Idea User	32	9.8%	11.9%
For Reliance User	13	4.0%	4.8%
Total	325	100.0%	120.4%

Table 2 indicates that the highest 32.3% respondent are using Vodafone network, 19.1% respondent are using Tata Docomo network, 18.2% respondent are using Airtel network, 12.9% respondent are using BSNL network, 9.8% respondent are using Idea network, 4% respondent are using reliance network, 3.7% respondent are using Uninor network.

MOBILE PHONE TECHNOLOGY USED BY STUDENTS
Table 3.

Mobile Technology	Frequency	Percent	Cumulative Percent
2G	213	71	71
3G	84	28	99
Other	3	1	100
Total	300	100	100

Table 3 indicates that 71 % of the respondents are using 2G, 28% uses 3G & rest 1% respondents uses other i.e. 2.5G technology.

PURPOSE OF USING MOBILE
Table 4.

Purpose	Responses		Percent of Cases
	N	Percent	
For Voice Communication(Talk)	259	19.2%	87.8%
For Messaging (SMS)	228	16.9%	77.3%
For File Sharing (Bluetooth / Infrared)	171	12.7%	58.0%
For Music and Radio	205	15.2%	69.5%
For Video	134	9.9%	45.4%
For Internet	216	16.0%	73.2%
For Gaming	136	10.1%	46.1%
Total	1349	100.0%	457.3%

Table 4 of multiple response analysis indicates that 87.8% responses given for voice communication, 77.3% for Messaging, 73.2 % for Internet, 69.5 % for music and radio, 58.0 % for file sharing, 46.1% for gaming and 45.4 % for video purpose.
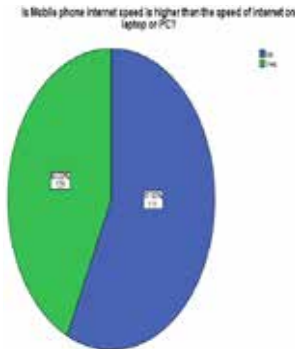
INTERNET ACCESS IN MOBILE PHONE
Table 5.

Response	Frequency	Percent	Cumulative Percent
NO	64	21.3	21.3
YES	236	78.7	100.0
Total	300	100.0	

Table 5 indicates that 78.7 % students access internet in mobile phone while 21.3% students do not access internet in their mobile phone.
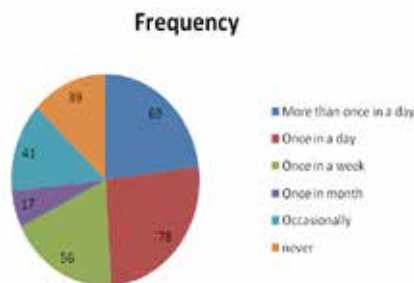
Chart 1.

Above pie chart 1 indicates that 57% respondents say that mobile phone internet speed is NOT higher than the speed of internet on laptop or Personal Computer, while rest 43% respondents say that mobile phone internet speed is higher than the internet on laptop or Personal Computer.

FREQUENCY OF INTERNET ACCESS ON MOBILE PHONE
Chart 2.

Above pie chart 2 indicates that 69 respondents i.e. 23% access internet on mobile more than once in a day, 26% once in a day, 19% once in a week, 6 % once in a month, 14 % occasionally and 13% never access internet in their mobile.

PURPOSE TO ACCESS INTERNET IN MOBILE PHONES
Table 6.

Purpose	Responses		Percent of Cases
	N	Percent	
For E-mail	163	24.7%	63.2%
For Academic	135	20.5%	52.3%
For Downloading Uploading Files	141	21.4%	54.7%
For Chatting or video chatting	84	12.7%	32.6%
Social Networking Sites	136	20.6%	52.7%
Total	659	100.0%	255.4%

Table 6 of multiple response analysis 63.2% responses were marked for email in mobile phone, 54.7% for downloading and uploading files, 52.7% for social networking sites, 52.3% for academic purpose and rest 32.6% for chatting and video chatting purpose.

MOBILE PHONE FACILITY:
Table 7.

GPRS Facility	Frequency	Percent
NO	86	27.9
YES	214	72.1
Total	300	100.0

Above table 7 indicates that 72.1 % respondents were having GPRS facility in their mobile phones.
Table 8.

Wi-Fi Facility	Frequency	Percent
NO	138	79.1
YES	62	20.9
Total	300	100.0

Above table 8 indicates that 20.9% % respondents were having Wi-Fi facility in their mobile phones.

Table 9.

	Response	Frequency	Percent
Network problem	NO	178	59.3
	YES	122	40.7
	Total	300	100.0
	NO	144	48.0
Slow speed	YES	156	52.0
	Total	300	100.0

Above table 9 indicates the problems faced by the respondents while they access internet in their mobile phones. 40.7% respondents confirm that they face network problem while they access internet in their mobile phone. 52.0% respondents confirm that the speed of internet is slow while they access internet in their mobile phone.

FINDINGS:
· From research undertaken here it is found that 54.3% respondents are using Nokia handsets, 34.3% Samsung, 3.4% Sony Ericssion, 2.3% Apple, 1.7 % using LG handsets & rest 4.4 % uses other brands.
· It is also found that 32.3% respondent are using Vodafone network, 19.1% respondent are using Tata Docomo network, 18.2% respondent are using Airtel network, 12.9% respondent are using BSNL network, 9.8% respondent are using Idea network, 4% respondent are using reliance network, 3.7% respondent are using Uninor network.
· Regarding mobile technology it is found that 71 % of the respondents are using 2G, 28% uses 3G & rest 1% respondents uses other i.e. 2.5G technology.
· Regarding purpose of mobile 19.2% respondents use mobile for voice communication, 16.9% for Messaging, 16 % for Internet, 15.2 % for music and radio, 12.7 % for file sharing, 10.1% for gaming and 9.9 % for video purpose.
· It is found that 78.7 % students access internet in mobile phone while 21.3% students do not access internet in their mobile phone.
· 57% respondents say that mobile phone internet speed is NOT higher than the speed of internet on laptop or Personal Computer, while rest 43% respondents say it is higher.
· The pie chart indicates that 69 respondents i.e. 23% access internet on mobile more than once in a day, 26% once in a day, 19% once in a week, 6 % once in a month, 14 % occasionally and 13% never access internet in their mobile.
· Regarding purpose to access internet in mobile phone, 63.2% responses were marked for email in mobile phone, 54.7% for downloading and uploading files, 52.7% for

social networking sites, 52.3% for academic purpose and rest 32.6% for chatting and video chatting purpose.

· It is found that 72.1 % respondents were having GPRS facility in their mobile phones and only 20.9 % respondents were having Wi-Fi facility in their mobile phones.

· 40.7% respondents face network problem while they access internet in their mobile phone. 52.0% respondents confront that speed of internet is slow while they access internet in their mobile phone

CONCLUSION:

Research undertaken here concludes that the Nokia and Samsung are the most preferred brands used by the students. Private mobile service providers including Vodafone, Tata Docomo and Airtel dominate the students market. BSNL is at the forth rank in the list. Majority of the students uses 2G networks while 3G network is used only by 28 % of the respondents. From open ended question we come to know

the reason behind less usage of 3G network is network problem and high cost of 3G network. Majority of the students access internet on their mobile out of which 57% believes that internet access speed is lower than desktop or laptop. 49% of students access internet daily in their mobile phone. The prime application to access internet on mobile includes for emails, downloading and uploading, social networking sites etc. Academic use of internet access is at lower priority of students.

SCOPE FOR FURTHER RESEARCH:

From research undertaken here it is found that students access internet on mobile phones more for non-academic purpose. One can undertake research to study this in details. If we go one step ahead social networking is one of the growing application of mobile internet, one can even go for study of social networking sites' access on mobile phones by students.

REFERENCE   5 Mini Browsers For Mobile Phones. (2009). Retrieved from http://www.makeuseof.com/tag/five-mini-browsers-for-your-mobile-phone/ | Ages of social network users (2010). Retrieved from http://royal.pingdom.com/2010/02/16/study-ages-of-social-network-users/ | Amanda L., Mary M., (2007). How teens manage their online identities and personal information in the age of MySpace, Retrieved from http://www.pewinternet.org/~/media//Files/Reports/2007/PIP_Teens_Privacy_SNS_Report_Final.pdf.pdf | Cooper D.R. & Schindler P.S.,(2003). "Business Research Methods" Eight edition, New York., Tata McGraw – Hill Publishing Company Ltd. | Facebook has 50 million users in India. (2012). http://articles.timesofindia.indiatimes.com/2012-07-25/social-media/32847960 _1_facebook-first-kirthiga-reddy-online-operations-and-head | India Facebook Statistics (2012). Retrieved from http://www.socialbakers.com/facebook-statistics/india | Kundu S., (2008). Camera phones are the need of the hour in India Retrieved from http://www.itexaminer.com/camera-phones-are-the-need-of-the-hour-in-india.aspx | Mobile browser. (2012). Retrieved from http://en.wikipedia.org/wiki/Mobile_browser | Nargundkar R.,(2004). "Marketing Research" Second edition, New York., Tata McGraw – Hill Publishing Company Ltd | Paul A., (2007). What is Web 2.0? Ideas, technologies and implications for education retrieved from http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf JISC Technology and Standards Watch, Feb. 2007 | Philip K., Kevin Lane K., Abraham K., Mithileswar Jha., (2007)." Marketing Management: A South Asian Perspective". India. Pearson Education | Social Networks Overview (Social Networks Overview: Current Trends and Research Challenges, 2010). Information Society and Media , European Commission Retrieved from http://cordis.europa.eu/fp7/ict/netmedia/docs/publications/social-networks.pdf