Discussion and Conclusion

5.1 Discussion:

5.1.1 Quantitative Analysis

Present study was conducted on the topic 'Impact of cell phones on the behavioural pattern of Undergraduate Students of Pune City' with the following objectives:

i. **General Objective**: to study the impact of cell phones as a medium of communication on the behavioural patterns of undergraduate students of Pune city.

ii. **Specific Objectives are**:
   a. To study the cell phone usage pattern of undergraduate students of Pune city.
   b. To analyze the effects of cell phones as a medium of communication on the communication pattern of the undergraduate students.
   c. To examine the nature of cell phone dependency of the undergraduate students.
   d. To find out the influence of cell phone use on the behavioural pattern of the undergraduate students and its repercussions on relationships with their family members and friends.
   e. To investigate the cell phone usage patterns of undergraduate students when they are alone and when they are in the public places.

“Putting your phone away and paying attention to those talking to you? There’s an App for that. It’s called ‘RESPECT’.” – Anonymous
f. To study the consequence of various communication facilities like Short Messaging Service, video camera etc. on communication patterns like use of language and graphic symbols, as well as sound and visual clips, among undergraduate students.

g. To discover whether the young generation is getting more importance in the family due to their technological knowledge base and if the family is experiencing a change in the decision making process.

Based on these objectives, the following research questions were designed as the next step of the research.

i. What are patterns of cell phone usage among undergraduate students of Pune city?

ii. What impact has cell phone as a medium of communication created on the communication pattern of undergraduate students?

iii. What is the intensity of cell phone addiction among undergraduate students of Pune city?

iv. What is the influence of cell phone use on the relationships with the family members and friends of undergraduate students in Pune?

v. How do the undergraduate students use cell phones when they are alone compared to when they are in public places?

vi. Whether or not the Indian society is experiencing the shift in power centre with reference to cultural values? For example, the young generation is becoming a part of decision making process of the family and at times their opinion is given preference over the opinion of elders.
This study was conducted on 582 undergraduate students (305 boys and 277 girls) of 5 colleges affiliated to the University of Pune and located within the jurisdiction of Pune Municipal Corporation. Among the undergraduate students who participated in the survey, three fifth (60%) of boys and more than three fifth (70%) of girls fall in the age group of 18 to 20 years.

5.1.1.1. Demographic Details

While studying the demographic details, it was observed that nearly three fifth (60%) number of boys and nearly three fourth (72%) number of girls were members of a nuclear family type, followed by nearly one fourth of the boys and less than one fifth (16.24%) of girls were members of extended family structure. Less than 15% of the total undergraduate students led their lives as members of joint families. There were 7 boys and 3 girls who did not mention anything about their family types in their response. The undergraduate students who participated in the survey for the present study gave the economic cross section of the students studying in Pune city. The classification of economic classes as lower income class, middle income class, upper class and rich class was based on the statistics provided by the undergraduate students participated in the survey. The researcher has borrowed the concept of classification of economic classes on the basis of McKinsey Global Institute’s parameters (Beinhocker, Farrell, & Zainulbhai, 2007). Almost one fifth (18.03%) boys and more than one tenth (13%) of girls who were from lower income class, about one fifth of undergraduate students (18.2% boys and 21% girl) were from middle income class, one fifth (19.2%) of boys and one fourth (24.17%) of girls were from upper class and more than one fourth (30.16% boys and 27.43% girls) of undergraduate students belonged to the rich class. It was also seen that majority (80%) of the respondents stayed with their parents and siblings in the nuclear, extended, or joint family structure. Nearly one fifth (20%) of them stayed away from the family.
5.1.1.2. Nature of Cell phone ownership

5.1.1.2.1 Age of undergraduate students at which they owned their first cell phone

The main characteristic of the sampling of this research was about undergraduate students using a cell phone for more than one year. About three fourth of the late adolescent population got to own a cell phone in their middle teen age to late teen age and approximately they used the same for about 2 to 4 years.

5.1.1.2.2 Type of the cell phone set used by the undergraduate students

Nearly half of the undergraduate boys and slightly more than half of undergraduate girls who participated in the survey used a multi-media phone, whereas one third undergraduate students used smart phones. Less than one fifth of the undergraduate students used simple phones. It clearly means that more than 80% undergraduate students used either multi-media or smart phone during the survey period.

5.1.1.2.3 Number of cell phone handsets change by the undergraduate students

The statistics shows that majority of the undergraduate students used nearly 4 cell phone handsets since they started using it independently.

5.1.1.2.4 Reasons to change the cell-phone sets

The survey revealed that one fourth of undergraduate students used the same cell phone set till it got out of order and nearly one fourth of them used the same cell phone set unless they misplaced it. It clearly means that about half of the undergraduate student population continued using the same cell phone set till they practically could not use it. There were only 6.5% undergraduate students who said that they happened to change the cell phone set whenever a new model was introduced in the market.
It clearly means that although the mobile manufacturing companies design their advertising campaigns targeting the youth, specifically adolescents, their efforts seem futile.

5.1.1.2.5 Type of the cell phone connection used by the undergraduate students

Less than three fourth (70%) undergraduate students used pre-paid connections and more than one fourth (30%) used the post-paid alternative.

5.1.1.3. Nature of Cell Phone Usage

5.1.1.3.1. Nature of saving contact details.

5.1.1.3.1.1. Undergraduate students’ practice of saving contact details with same/different names

Out of 582 undergraduate students slightly less than half of the undergraduate students stayed at home and saved contact details with different names, whereas one tenth stayed away from the family and saved contact details with different names. On the other hand, one third of undergraduate students stayed with their respective families and saved contact details with original names and less than one tenth of the total undergraduate students stayed away from the family and saved contact details with same name. Overall, more than half of the total undergraduate students saved contact details with different names, and two fifth (41.76%) of them saved contact details with same names.

According to the gender-based consolidation of the data, it can be inferred that less than two third undergraduate boys and more than half girls were found saving contact details with different names. More than one third undergraduate boys and less than half of undergraduate girls saved the contact details with original names.
Thus it can be inferred that more than half of the undergraduate students had a tendency not to save the contact details with the original names. They preferred to save the contact details either with pet name, code name or favourite names. It can also be made out that more than three fifth of boys follow this practice as compared to half of the undergraduate girls. Secondly, the percentage of boys staying away from and saving contact details differently was 18% more than the percentage of the undergraduate girls falling in the same group (boys - 65%; girls – 47%). Thirdly, percentage of undergraduate girls living away from home and saving contact details with the original names was more (53.06%) compared to their other counterparts, i.e. boys from both the categories saving the contact details with original names (37.85% and 35.48%) than girls staying with the family and saving contact details with the original names (45.18%).

5.1.1.3.1.1. (ii) Reasons to save contact details with different names

To justify the practice of saving contact details with different names, one third boys and less than one third girls found it easy to remember if the contact details were saved with nick names or pet names. One fifth of undergraduate girls and boys actually liked to save their contact details with nick names. Nearly one tenth undergraduate boys and girls wanted it that way to avoid confusion. It means that less than two third (62%) boys and half (58.48%) of the girls who were saving contact details with different names saved it not to conceal the information of the contacts but did it for the sake of convenience. 7 % boys and girls were found using different names while saving contact details to avoid parent-policing. One tenth (10.49%) boys did not want their friends to know true information about their contacts as compared to only one twentieth (4.69%) girls.

As seen in Table No. 4.3.1.1 (B) 191 boys and Table No. 4.3.1.1 (C) 148 girls definitely admitted that they save the contact details with different names. The following analysis showed the reasons why they did so.
‘Easy to remember’ topped the list with more than half undergraduate students; followed by ‘I call them by nick names only’ with one third undergraduate girls and one fourth undergraduate boys. An unsubstantiated general perception of feminine traits is explicitly seen in this piece of data i.e. more girls than boys like to refer to their friends by their nick names. ‘To distinguish between the friends with same name’ was voted by less than one fifth of the undergraduate students (girls 16.22% and boys 18.85%) and one tenth of undergraduate students deliberately did it to avoid parent policing. ‘To maintain privacy form the inquisitive friends’ was opted by less than one fifth of undergraduate boys (17%) and less than one tenth undergraduate girls. It means that nearly 8% more boys than the girls accepted to save the contact details in different names because they did not want their friends to know about the contacts. Does this difference show the masculine trait in all those 17% boys to curb hidden competitor in disguise of friend among their friend circles? There is a further scope to research upon this facet of young boys’ cell phone behaviour to save the contact details in different names to conceal them from the inquisitive friends.

In short, three fifth (62%) of undergraduate students saved contact details with different names did it for the sake of convenience and did not express any intentions to mask the information of their contacts.

5.1.1.3.2. Nature of cell phone activity

5.1.1.3.2.1 Frequency of cell phone activities of the undergraduate students

The data reveals maximum (90.49%) boys talked daily on their cell phone whereas less one tenth (7.87%) talked on alternate day. More than three fourth (78.69%) of them used Short Messaging Service every day and one tenth of them used it on alternate days.
Listening to the FM radio on cell phone – More than one fourth (27.54%) boys admitted that every day they listen to radio and less than one fifth (21.31%) of them listened to radio on alternate day, whereas one fourth (25.25%) boys rarely used cell phone radio; 13.44% said they had never done it.

More than one third (38.03%) of the undergraduate boys played games on cell phone every day and nearly one fourth (23.93%) played games on alternate day. Less than one fifth (15.41%) of the boys weekly played games on cell phone sets and same percentage was even for the rarely option. 7.54% of them said they never played games on their cell phone set.

Nearly 1/2 (48.52%) of the boys accessed internet on their cell phone sets regularly, less than one fifth (15.41%) accessed it on alternate days, one fifth (14.75%) of them accessed internet rarely, 12.79% did it weekly, 8.19% of the boys said they never did it.

Almost one third (31.48%) undergraduate boys used ‘reminder’ rarely whereas about one fourth (22.3%) used it daily. Less than one fifth (17.70%) set the reminder on alternate days whereas less than one fifth (15.41%) of them said they never used it. There were 14.75% of undergraduate students who used it on weekly basis.

Using alarm was the third most widely used arrangement of cell phone set; three fourth (74.10%) undergraduate boys said they used it every day. Less than one tenth (8.85%) of them said alternate day and 8.52% used it rarely.

More than three fifth (67.21%) of undergraduate boys used MP3 regularly and more than one tenth (14.43%) of them used it on alternate day. Only 3.27% said they never have used the said function.
Discussion and Conclusion

Less than one fifth (14.43%) of the boys said they daily watched movies on cell phone screen whereas about one third (30.16%) said they did it rarely and more than one fourth (27.21%) said they never did it. Less than one fifth (15.08%) of boys weekly watched movies on very small screen and more than one tenth (12.13%) said they did so on alternate days.

More than one third (34.10%) of undergraduate boys used camera every day and quarter (24.92%) of them used it on alternate days. one fifth (19.67%) accepted that they rarely used cell phone camera and 14.10% said they used it weekly.

The data further reveals that more than four fifth (86%) of undergraduate girls talked on cell phone every day, only one tenth (10.11%) of them talked on cell phone on alternate days, 0.72% did it weekly, 2.17% rarely.

More than four fifth (82%) of undergraduate girls used SMS facility on daily basis, more than one tenth (11.55%) used on alternate days, 2.17% used weekly, 1.44% used rarely and only 1.08% never used it. Nearly one third (32.13%) girls said that they every day listened to FM radio available in their cell phone, more than one tenth (13.72%) said they listened to FM radio alternate days, one tenth (12.27%) did it weekly, one fourth (28.52%) said rarely and one tenth (10.47%) said they never listened to radio on cell phone.

More than one fourth (27.79%) girls played games on their cell phone every day, less than one fifth (14.44%) played on alternate days, 13.72% played weekly, less than one third (29.24%) played rarely, 13.36% never played any game on cell phone.

Less than one third (31.76%) girls accessed internet on their cell phone every day, less than one fifth (15.16%) accessed on alternate days, more than one tenth (13.36%) accessed weekly, less than one fourth (23.10%) said rarely and more than one tenth (13.36%) never accessed internet on their cell phone sets.
Discussion and Conclusion

Almost one fourth (24.91%) girls put ‘reminders’ on daily basis, one tenth (10.83%) put reminder on alternate days, less than one fifth (15.16%) put reminders on weekly basis, one third (34.66%) used this facility rarely and more than one tenth (12.64%) never put reminders.

More than three fifth (62.81%) of girls used alarm facility every day, one tenth (9.39%) on alternate day, 6.86% on weekly basis, less than one fifth (15.88%) rarely used and 5.42% never used inbuilt alarm system of their cell phones.

Almost two third (64.26%) of girls enjoyed pre-recorded music in MP3 format every day, more than one tenth (13.36%) used MP3 on alternate days, 2.89% on weekly basis, nearly one tenth (9.03%) girls used MP3 rarely and almost equal percentage of girls (8.30%) did not use MP3 at all.

Only one tenth (10.46%) girls used cell phone screen to watch movies everyday, 5.05% alternate day and 7.22% weekly watched movies on cell phone screen. 27.44% girls rarely watched movies on cell phone screen whereas almost half (48.38%) never watched movies on cell phone screens.

Almost one third (32.85%) girls used cell phone camera to click photograph every day, nearly one fifth (18.41%) girls used camera on alternate days, less than one fifth (15.88%) girls used cell phone camera weekly and one fourth (24.91%) girls said they used cell phone camera rarely and 6.86% of them said they never used their cell phone camera.

The cell phone usage pattern of the boys and girls clearly shows that they used cell phone primarily to talk and secondly to SMS. It was also used for setting the alarm and to store and listen to pre-recorded music. Internet browsing and playing games was on the fifth and sixth position in the list followed by clicking pictures and listening to the radio. Setting reminders and watching films were tail-enders.
Gender-wise percentage of frequency distribution of undergraduate students performing various activities with cell phone everyday states that most of undergraduate boys (90.49%) talked on their cell phone every day as compared to more than four fifth (86%) of undergraduate girls. On the other hand more girls sent and received SMSs than boys, the percentage was 82% and 79% respectively. Similarly, less than one third (32.13%) of undergraduate girls listened to FM radio on their cell phone every day as compared to more than quarter (28%) of undergraduate boys. Playing games was more popular in one third of undergraduate boys (38%) as compared to the quarter of undergraduate girls (28%).

Similarly while accessing of Internet on cell phones; nearly half of the undergraduate boys (49%) accessed Internet than the one third of undergraduate girls (32%). It means that more undergraduate boys accessed internet everyday on their cell phone than girls.

Nearly one fourth of the undergraduate students used reminder option daily whereas nearly three fourth of undergraduate boys used alarm facility in their cell phone daily as compared to three fifth of the undergraduate girls. Again, the use of MP3, watching film, and cell phone camera usage was found more among boys than girls.

From the above data it is obvious undergraduate boys used cell phone more than that of undergraduate girls for talking, playing games, accessing internet, putting alarm, listening to pre-recorded music on MP3, watching films on cell phone screens, and clicking pictures using cell phone camera; whereas undergraduate girls used their cell phones more for sending SMSs, listening to the radio, and putting reminders as compared to undergraduate boys.
5.1.1.3.2.2  Monthly expenditure on cell phone usage by the undergraduate students

Majority of the undergraduate students used pre-paid service and approximately 38% undergraduate students spent less than `250 per month and approximately 29% undergraduate students spent between the ranges of `251 to `500 per month. Slightly more than 20% (20.55%) undergraduate students shelled out within the range of `501 to `750 per month and nearly 13% (i.e. 12.69%) spent more than `751 per month.

It is therefore inferred that maximum (87%) undergraduate students limited their monthly cell phone expenditure up to `750.

5.1.1.3.2.3  Internet browsing preference

Nearly one fourth of undergraduate students (23.93% boys and 26.71% girls) while browsing through internet on their cell phones checked emails and social networking whereas about one fifth (18.69%) boys as compared to less than one tenth (8.66%) girls who accepted that they used their cell phones to check their mailboxes, send e-mails, access social networking sites, browse educational material, visit any other website and download applications too. About one fifth of undergraduate students, (19% girls and 17% boys) visited any website while accessing internet on their cell phone whereas less than one fifth undergraduate students (17.33% girls and 15.74% boys) happened to browse educational material while surfing on their cell phones. Slightly more than one tenth of undergraduate students downloaded applications on their cell phone and less than one tenth of undergraduate students (8% boys and 8% girls) accessed only important e-mails.
5.1.3.2.4 Cell phone time spent pattern of the undergraduate students

More than two fifth of the undergraduate students (41% boys and 45% girls) spent majority of their cell phone usage time on texting whereas more than one third (36.39%) of undergraduate boys and less than one third (29.60%) of undergraduate girls spent their time on voice calling. More than one fifth of undergraduate students spent majority of their time on texting and adding emoticons in the text message. One fifth of undergraduate boys and less than one fifth of undergraduate girls made use of cell phone to play games, more than any other cell phone activity. More than one tenth of undergraduate students (17% boys and 13% girls) spent majority of their cell phone activity time on Internet browsing and nearly equal percentage of them (16% boys and 13% girls) spent most of their time on listening to music.

From the above data it can be inferred that nearly two fifth undergraduate students spent most of their cell phone time for texting. About one fifth of them added emoticons to their text messages and together nearly 66% undergraduate students spent most of their cell phone usage time on texting followed by one third of the undergraduate students spent their cell phone activity time on voice calling. About one fifth of the undergraduate students spent their time on playing games, and about less than one fifth spent their time on Internet browsing whereas same percentage of undergraduate students spent their time on listening to music on their cell phone.

Thus it can be concluded that girls used SMS facility more than boys. Practice of adding emoticons to the text messages was found in girls more than boys. In all, other usage options like voice calling, playing games on cell phones, internet browsing, and listening to music boys scored more than the girls by a negligible percentage i.e. just 2%.
5.1.3.2.5 Average time spent per day on cell phone activity of the undergraduate students

Nearly one third of undergraduate students (30% boys and 34.30% girls) spent more than 3 hours of their daily routine to use cell phone; on an average, one fourth of them (28% boys and 22% girls) spent 1 to 2 hours per day on their cell phones. Equal percentage of undergraduate students (23% boys and 25% girls) spent 2 to 3 hours and nearly one fifth of them (20% boys and 18.41% girls) spent less than an hour.

It means that nearly one third of the undergraduate students spent more than 3 hours per day using their cell phones. About one fourth undergraduate students spent 2 to 3 hours on their cell phones and one fourth of the total undergraduate students spent 1 to 2 hours per day on their cell phone.

5.1.3.2.6 Monthly money spent on cell phone activity by the undergraduate students

More than two fifth (43.61%) boys and half (52.35%) of the girls spent their monthly cell phone budget for availing themselves of communication facilities, one fourth (25.25%) boys and nearly one fifth (18.41%) girls spent on internet browsing, less than one fifth undergraduate students (16.39% boys and 14.44% girls) spent on buying cell phone accessories and nearly same percentage of them (16.39% boys and 15.88% girls) spent on value added services too.

From the above data it is can be concluded that girls spent more on communication facilities than that of boys whereas boys spent more on internet browsing, buying mobile accessories and value added services than the girls.
Slightly less than two fifth of the undergraduate students (39% boys and 39% girls) used ‘qwerty’ full keypad while texting whereas one fourth of them (24% boys and 27% girls) used 0 to 9 keypad without predictive text and one fifth of the undergraduate students (21% boys and 18.41%) girls used 0 to 9 keypad with predictive text. There were less than one fifth of them (19% boys and 16% girls) who used Devanāgari or Indian font to message in Marathi/ Hindi/ Mother tongue.

It can be inferred that the percentage of boys and girls using ‘qwerty’ key pad was almost same. It means nearly two fifth of undergraduate students used ‘qwerty’ key pad. More than one fifth boys (21%) used the alphanumeric keypad with the predictive text than that of girls (18.41%), and more than one fourth girls (27%) used alphanumeric keypad without predictive text as compared to less than one fourth boys (24%).

There are two possibilities that can be inferred from the above data, boys were more scrupulous about the correct spellings of English language as compared to the girls – (a) and boys were better at operating the ‘T-9 technology’ for predictive text – (b).

Nearly one fifth (19.02%) boys and less than one fifth (16%) girls used Devanāgari or/and Indian Script Fonts while texting. It is clear that boys used more of Indian scripts than that of girls.
5.1.1.4 Cell phone behaviour pattern of undergraduate students

5.1.1.4.1 Habit of Carrying Cell-phone Set

Cell phone sets emit electromagnetic waves which are otherwise harmful to living beings. In the review of literature of this study the research scholar had quoted quite a few studies revealing the hazards of radio waves transmitted by the cell phone sets on the animals.

Nearly one third of the undergraduate students were accustomed to carry the cell phone in their front pocket and less than one fifth of them were used to carry it in their hip pocket and slightly more than one tenth were found carrying it in their waist belt case, together three fifth (61%) of them had a habit of carrying it near their pelvic, which might affect their reproductive system adversely whereas 5% and 9% carry the cell phone near their heart and lungs together the percentage is 14%, which is again harmful for these vital organs. In short, nearly three fourth of the undergraduate population was dangerously exposed to the electromagnetic radiations.

5.1.1.4.2 Reason to Use Missed Call Option by Undergraduate students

Exactly one fourth of the undergraduate boys and slightly more than one third of the undergraduate girls used missed call to communicate ‘less balance call me back’. Nearly one fourth of undergraduate boys and slightly less than one fifth of undergraduate girls used missed call to tell the receiver ‘reply urgently to the SMS / emails’ and less than one fifth of undergraduate boys and slightly more than one fifth undergraduate girls used it to convey ‘reached home safely’ type communications. Slightly less than one fourth of undergraduate boys and less than one fifth of girls used missed call just to tease their friends.
Less than one fifth of the undergraduate students used it to tell the receiver ‘miss you’ whereas slightly more than one tenth undergraduate students did not like to use missed call. About one tenth of them used this option to know the convenience of the receiver to attend the call, and equal percentage of undergraduate students was using it as group convention.

About one tenth of undergraduate students used it for ‘coming or not coming’ type of communication and nearly equal percentage of them used missed call option to prompt the receiver to call back with a hidden intention to save money.

The graphical representation states that more than one third of undergraduate girls used missed call option to communicate ‘less balance call me back’ whereas one fifth of undergraduate girls used it to communicate ‘reached home safely’ type message as compared to the boys as there were only one fourth and less than one fifth of the undergraduate boys who used missed call option for these two reasons respectively.

The content of both the messages are used more by girls than boys probably because the first content impliedly shows the dependency which is not acceptable to the majority of boys whereas the second content expressly displays the submission which is not being liked by majority of the boys.

One fourth of undergraduate boys would like to use missed call option to prompt the receiver to reply to their SMS or e-mails as compared to less than one fifth of undergraduate girls. The percentage of undergraduate boys and girls using missed call to know the convenience of the receiver was almost the same. This again can be interpreted as in the first case it the anxiety and dominance of the masculine attitude to expect the prompt reply and in second case it is slightly more in boys to adhere to the formality and professionalism of the same.
Nearly one fourth of undergraduate boys used missed calls just to tease the receiver friend as compared to less than one fifth of undergraduate girls. It once again underlines the gender-based difference in intentions behind the behaviour.

Less than one fifth of undergraduate students used missed call to convey the receiver that s/he was missing / remembering the receiver. Less than one tenth of them used it to convey whether they would be joining the group or not depending upon the groups’ convention. On the other hand slightly more than one tenth of undergraduate girls used missed call as group convention being more conformist (a person who uncritically or habitually conforms to the customs, rules, or styles of a group) than that of boys.

Less than one tenth of the undergraduate students had a hidden intention to save cost of the call by instigating the receiver to call back and bear the expenses. More than one tenth of them undergraduate students did not like to use missed call option at all.

In other words maximum of the undergraduate students used missed call to communicate variety of messages without verbal or text message which can be taken as an electronic improvisation of the beating the drums in ancient times. The only difference is that this improvisation is a strictly one to one i.e. interpersonal communication and not a group communication.

5.1.1.4.3 **Reason to use short messaging service option by undergraduate students**

More than one third undergraduate boys and more than one fourth undergraduate girls were sending decent jokes through SMS. More than one fourth of undergraduate boys and about one third of undergraduate girls used SMS to greet their family members, relatives and friends on special occasions. Slightly less than one fourth of undergraduate boys and slightly less than one fifth of undergraduate girls avoided unwanted conversation by sending SMSs.
Less than one fourth of undergraduate students used it to save money on voice calling and one fifth of undergraduate students sent contact details saved in their phone book through business card SMSs to their acquaintances.

Slightly more than one fifth of undergraduate boys and less than one fifth undergraduate girls sent jokes – otherwise indecent to share - through SMSs. Slightly more than one fifth of undergraduate boys and one fourth of undergraduate girls sent ‘thought of the day’ every day to their contacts. Only one tenth of undergraduate boys as compared to one fourth of undergraduate girls confirmed the convenience of the receiver to attend the call through SMS. Similarly, less than one tenth of undergraduate boys and more than one tenth of undergraduate girls conveyed their inability to attend the call by SMS.

Similarly, nearly one tenth of undergraduate students used SMS communication to maintain secrecy. Less than 1/20th of undergraduate boys and nearly one tenth of undergraduate girls sent SMS out of habit and only about 4% of undergraduate boys and 1% of undergraduate girls emphatically mentioned that they did not like to send SMSs.

From the above details it as obvious that girls were more prone to use SMSs as a medium of communication than that of voice calls as compared to boys. The SMS usage pattern was different for boys and girls. The primary purpose of sending SMSs for the boys was to share decent jokes and for girls was to greet on special occasions and vice a versa.

It is also to be noted that more boys than the girls intended to use SMS to avoid unwanted conversation whereas girls were more prone to share thought of the day than boys. The girls sent less business cards though SMS than boys but were more concerned about the convenience of the receiver to talk as well as conveying inability to respond to voice call and hence using SMSs. Similarly, habit of sending SMSs was found more in girls than boys similarly more girls used SMSs to maintain secrecy.
Both boys and girls were inclined to send jokes through SMS which were otherwise indecent to share; of course, the percentage of boys was more by just 2.25%.

5.1.1.4.4 Undergraduate students’ intentions to call and talk on cell phone.

One third of undergraduate students call and talk on cell phone just to remain in touch and equal percentage of them used it as a mode of ‘time pass’. Less than one third of undergraduate students used voice call option to discuss and take some decision, and one fourth of them voted for ‘to share news’. One fifth of undergraduate students used voice calling to attend emergency and less than one fifth of undergraduate boys and one fourth of undergraduate girls discussed study topics on cell phone. Similarly one fifth of undergraduate boys and about one fifth of undergraduate girls used it to elevate their mood whenever they felt depressed and only 3% of undergraduate boys and 8% of undergraduate girls said they did it out of habit.

It can be said from the above data that staying connected was a felt necessity by one third of undergraduate students as they called up people to remain in touch whereas about one third of undergraduate students called and spoke to people to kill their time and nothing more. Discussion on phone was another reason to call and talk on cell phone nearly 30% undergraduate students used voice calling to discuss a topic on which they had to take some decision whereas more than one fifth of undergraduate girls were calling their friends to discuss study vis-à-vis less than one fifth of undergraduate boys. Nearly one fourth of undergraduate students were calling and sharing the news. Only one fourth of undergraduate students used voice call to attend emergency. When it comes to mood elevation, girls (21%) were found using it more than boys (12.46%) and nearly 8% of undergraduate girls admitted that they keep calling out of habit as compared to about 3% boys. It can be said that girls are emotionally dependent on cell phone than boys and the percentage of habitual callers is more in girls than boys.
5.1.1.5. Perceived and reported impact of cell phone usage on the behavioural pattern undergraduate students

5.1.1.5.1. Undergraduate students’ perceived and reported impact of cell phone on their life, emotional dependency on cell phone as companion

Half of the undergraduate boys and less than half of the undergraduate girls had a strong feeling that the quality of their life has improved because of cell phone. Nearly one third of the undergraduate students accepted that they would feel unwanted or ignored if they would not receive a call for an hour or even a day. Similarly more than one third of them had the realization of their anxiousness caused out of thoughts of probable missed calls when their cell phone is out of coverage area. Nearly half of the undergraduate boys felt helpless without a cell phone and they frequently kept checking their cell phone for miss call or SMS. On the other hand nearly three fifth of the undergraduate girls felt helpless without a cell phone and half of the undergraduate girls habitually kept checking their cell phone with the apprehension of missed call. Only 7% boys and girls did something else when they were alone, besides fiddling with cell phone. One third of undergraduate students just idled away their time with their cell phone than engaging themselves in some recreational work. Nearly half of them tinkered with their phone when they were alone. On an average two fifth of them invariably spent their time playing with their cell phone when they were alone.

One third of undergraduate boys and more than one fourth of the undergraduate girls were dependent of cell phone, because, firstly they used it even if they could communicate with their friends face-to-face. Secondly, cell phone conversation was the frequent method they used to counter loneliness and elevate the mood, and thirdly they were regularly cutting down their expenses on canteen, petrol and minor vices like smoking cigarette and consuming tobacco products, and alcohol etc.
5.1.1.5.2. Undergraduate students’ perceived and reported impact of cell phone on their relationship with their parents and friends

Slightly more than two fifth of undergraduate boys and less than half of the undergraduate girls did not appreciate their parents accessing their cell phone for whatever reason. Nearly two fifth of undergraduate students did not like their parents and friends preventing them from excessive talking on the cell phone. Slightly more than one fourth of undergraduate students were more comfortable talking to their parents on cell phone than face-to-face conversation. One third of undergraduate boys and more than two fifth of undergraduate girls would hate if their parents use GPS tracking system to monitor their movements. One third undergraduate students used to get annoyed when their parents call them to know their locations.

It can be inferred that more boys were interested in protecting their privacy and hence they did not appreciate their parents accessing their cell phone. Only one fourth undergraduate population was not comfortable talking to their parents face to face and therefore they found cell phone as a better medium to communicate with their parents. One third of undergraduate boys’ population and more than two fifth of undergraduate girls’ population hated the very concept of using GPS system to track their movement by their parents. The statement is about the act of the parents and not about the parents in particular. Hence it can be deduced that one third of the undergraduate boys and more than two fifth of undergraduate girls would not like their parents tracking their movements using GPS system.
Discussion and Conclusion

It is important to note that more girls than boys disliked their parents accessing their phone and their parents using GPS tracking system to track their movements. It can be inferred that the difference is that parents worry and care more for their daughters as compared to their sons resulting into being possessive towards them. Parents’ anxiety to know the whereabouts of their daughters find a way out through calling them on cell phone to know the locations which irritates the girls.

There is no difference in the percentage of boys and girls getting irritated when their parents and / or friends prevented them from excessive talking on cell phone. Similarly, the percentage of undergraduate boys and girls getting irritated when their parents call them to know their location was almost the same. The percentage of boys was slightly more than the girls in agreeing that they are more comfortable talking their parents on cell phone than face-to-face communication.

Secondly it can also be observed that the concept of privacy in Indian society got expanded with the usage of cell phone. This personal communication technology (Campbell & Park) is responsible not only for the extension of the communication facilities to connect the people with never before ease, but also for the expansion of circumference of personal space and privacy. The parent-child relationship is very fragile where on an average 33% late adolescent population expects the parents to observe some constraints while interfering in their lives especially when it comes to the usage of cell phone.

More than three fourth (78%) population of undergraduate boys and three fourth (71%) of undergraduate girls regularly got the opportunity to enjoy an upper hand among their parents and elderly family members due to their technological knowhow. This privilege then got extended in the family’s decision-making process of daily issues. Slightly less than three fourth (71%) of undergraduate boys and more than three fifth (68%) of undergraduate girls were frequently asked for their opinion by the parents, which were then valued for. Slightly more than three fifth (61%) of undergraduate boys and more than three fifth (66%) of undergraduate girls frequently superseded the elderly members...
of the family in the decision making process as their parents gave importance to their opinion over the opinion of the elderly members.

It means that out of 78% of boys who get the opportunities to explain to their elders 71.4% boys’ opinions are sought and valued by their parents and 61.3% boys’ opinions surpassed the elders’ opinions. Similarly out of 71% of girls who got the opportunities to explain to their elders 67.4% girls’ opinions were sought and valued by their parents and 66% girls’ opinions surpassed the elders’ opinions. This shows the position of the teenage boys and girls in the family.

Secondly, less than half of undergraduate boys and nearly half of undergraduate girls regularly played with their cell phone while interacting with parents or elderly members of the family. This behaviour is against the prevalent social behavioural norms and communication pattern; which indicates to undermine the elders, that is to restrain from any other activity which distracts the attention while interacting with elders.

About three fifth of undergraduate boys and girls reportedly often spoke to and texted people keeping their parents in dark. It means about three fifth of undergraduate population regularly hid their contacts from their parents. Almost an equal percentage of undergraduate students were found regularly deceiving parents / relatives and / or friends on cell phone call about their location. It means they habitually lied on cell phone specifically about their location with their parents, relatives and friends.

This state of affairs was never there before the cell phones were introduced in the Indian society. Thus it can be deduced that cell phone is responsible for the same.
Undergraduate students’ perceived and reported impact of cell phone on their social behaviour

Nearly two fifth of undergraduate boys and more than two fifth of undergraduate girls did not hesitate to respond to the call in the social function. Nearly one third of undergraduate students usually did not put their cell phones on ‘silent’ mode in any formal function, which means overall more than one third of undergraduate population use cell phone without any embarrassment in the social function.

More than two fifth of undergraduate students felt proud when their classmates admire the look and/or facilities of their cell phone and nearly equal percentage of them liked to be friends with the person using latest and trendy cell phone set.

It means that slightly more than two fifth of undergraduate students took into account cell phone set as one of the qualities of personality. To confirm this statement, however, more research is required.

Slightly less than three fifth of undergraduate students regularly made and answered calls and spoke to the caller while attending get together in a group of close friends or with their family members and also made or attended calls while in formal communication with elders. It means nearly three fifth of undergraduate students give preference to the cell phone caller than their close friends and / or family members and also the formal communication with elders. More than three fifth of undergraduate boys and three fifth of undergraduate girls used their cell phone during classroom sessions. This data is firmly supported by qualitative analysis.
5.1.5.4. Undergraduate students’ perceived and reported impact of cell phone on their public behaviour.

Nearly half of undergraduate boys and more than half of undergraduate girls used cell phone in public places, one third of undergraduate boys and more than one fourth of undergraduate girls did not bother about the ‘use of mobile phone prohibited’ type notices displayed in the public places and more than two fifth (43%) of undergraduate students enjoy to be plugged in while driving which meant that, either they listened to music or they talked on phone.

Thus it is can be deduced that nearly 5% more girls used cell phone in public places; however more than half of the undergraduate students used cell phone in public places. Similarly, 5% less girls than boys ignored the public notice of not to use cell phone in a particular place; the average of the percentage of undergraduate students who ignored the public notice of prohibition of use of cell phone is slightly less than one third of the undergraduate population. Two fifth of undergraduate students put on stake the lives of others as well as themselves by using cell phone to listen to music and / or talking on cell phone while driving.

Less than three fourth of undergraduate students regularly spoke on cell phone while walking on the streets and equal percentage of boys and girls respectively frequently made or attended to a call and continued to talk on cell phone for a long while travelling in public transport or standing in a queue. The qualitative analysis supports the above data. In qualitative data it is observed that undergraduate students get irritated and answer back if someone even traffic police constable and/or sub-inspector on duty interrupts their cell phone communication to make them realize their mistake.
5.1.1.5.5. Undergraduate students’ perceived and reported impact of cell phone on their routine communication behaviour.

Slightly more than two fifth of the undergraduate students agree that voice calling is more intense hence it can be said that they cherish it than the texting. It means that more than two fifth of the undergraduate students still prefer voice calling than text for intimate communication.

Three fifth of undergraduate boys and less than three fifth of undergraduate girls generally had heated SMS communication and followed it with another text message which contained LOL or a smiley to reduce the tension.

Less than two third of undergraduate boys regularly sent and received SMSs containing bad language/sexually explicit text to and from the girls of same age. Similarly half of undergraduate girls were found doing the same. Similarly, equal percentage of undergraduate boys and girls were often found sending and receiving ‘not so decent content’ and/or ‘indecent jokes’ from elderly people.

Majority of undergraduate students regularly used short forms of spellings in their text messages.

More than two third of undergraduate boys and nearly three fifth of undergraduate girls habitually clicked photographs or shot videos of important documents displayed on the notice boards, or PowerPoint presentation slides showed in the classrooms without going through them on the spot. More than half of the undergraduate population was found preserving such photos for future reference and also sharing them with concerned persons.
The data clearly speaks about the SMS communication behaviour of the undergraduate students. They take help of additional SMS containing short form of laugh out loud or a graphic showing a smiley to reduce the seriousness of the previous SMS. But it seems that 4% more boys following this practice than girls. They share SMS containing bad language, indecent content and even sexually explicit content with the students of opposite sex. Secondly they also share indecent jokes with persons elder to them through the SMS communication and once again 12% more boys are engaged in such activities than girls. According to the auto-rickshaw drivers, some teenage couples watch some objectionable content on their mobile screen while commuting by the three wheeler.

In SMS, majority of undergraduate students use short forms of the spellings which are phonetically correct but grammatically incorrect. Thus in a way they consider SMS text not as a written communication but verbal communication that is spoken words.

It is implied that they actually want to manage with the 160 character limit of SMS to express themselves.

Finally, cell phone camera is used to click the pictures of important documents to store the information contained in them for further reference and to share it with relevant contacts. The percentage of boys clicking picture using cell phone camera is more than the girls but the percentage of saving and sharing these pictures is almost the same.

Statistically it is inferred that there is no significant gender difference found in the attitude of undergraduate students towards cell phone usage and its impact on their family and social relations and their behaviour in public places barring boys show more inclination towards using cell phone in friend circle and social functions than girls.
It means that the undergraduate boys and girls have somewhat similar attitude towards the cell phone usage and impact on their attitude on factors related to day to day life like their cell phone dependency, friends and family, when they are alone, in social functions, public places, and communication but overall undergraduate boys have more impact and their attitude and behaviour is more under the influence of cell phone as compared to girls.

5.1.2. Qualitative Analysis

The qualitative analysis can be concluded as follows:

1. The cell phone had become an extended social interface for undergraduates. The privacy which PTC offered to the young users had changed the traditional, cultural and behavioural set, as also homogenized the nation into one. That it also caused lack of concentration and at times, a reduction in educational discipline, while affording greater exposure was a fact. It made the educationists, teachers, parents and social scientists to revisit teaching pedagogies, content and evaluation systems and look at their students more holistically – not just as domain learners at the tender undergraduate stage.

2. Undergraduate students talked on phone regardless of the space. They even talked on some such subject which, otherwise, they would not discuss in presence of others.

3. Every medium had its impact on language so did cell phone had. The size of the screen and the limitation of the characters to be texted could not afford the luxury of grammatical, syntactical and other linguistic precisions like spellings. Therefore, it was obvious that this generation brought up with the cell phone as a medium of communication used the abridged, condensed and so called distorted text language. This form of language should be looked at as one of the phases in the voyage of development of language.
4. The enthusiasm in research of communication technology and gadgets by teenage population resulted in fading out their interest in general studies. The teenage girls were more into SMS and teenage boys were more into voice calling. This difference was because boys had less patience to type the message hence they resorted to talking. The content of their cell phone interaction was irrelevant, they could talk without any topic; gossiping was prime activity. They used cell phone to pass the time when they were travelling or walking. Teenagers were engrossed all the time on the cell phone. They hardly acknowledged the presence of the visitors visiting after some interval to their home. They did not realize the importance of present tense. The person who was present in person became insignificant once they received a call or SMS. This behaviour actually detached them from the process of developing personal relationship. This gadget created a disturbance in the communication with the person present on the spot. They were found saying things which were not true, like their location was different and they mentioned some other place, or they were away from the location they said they would be reaching within some minutes. Use of Information Technology may it be computer or mobile phone, made them impatient and this technology would teach them some patience when it took time to download or process.

5. It was painfully palpable that cellular phones were more indispensable than the blood for some. It was a classic case of bliss turned into curse and nobody wanted to get a handle on it.

6. For youngsters of today (17-20 yrs) the cell phone had almost always existed and therefore was an integral part of their lives. Rather, an extension of their physical existence. With the use of cell phones came the issue of private space. They enclosed themselves within their (mental) private space even when they were supposed to be interacting with individuals physically present around them. This conflict disabled them to be aware of the physical world or surrounding environment and hence reduced the level of receptivity in their consciousness.
In addition to that, if human interaction got entirely dependent on technology then there lurked a danger of breakdown of civil society. Civil society entailed on not only collective communication but also collective action. Technology such as phones could give access to communication on a larger scale but dependence on it would cut off ties of communication with action because no technology would be available to make something happen. By making something happen can be as simple as revamping of a community hall or a full fledged democratic movement. Now, one must be cautious in judging the role that communication technology played in socio-political movements such as in Libya and other Middle Eastern countries. If someone was to argue that communication technology is vital to organize such movements then they would be wrong because socio-political movements have occurred, more so, before the advent of such technologies and history is replete with such examples. Although it is possible that communications technology facilitates the spreading of thought faster than before, nevertheless, people have to act collectively and with a physical presence. In this, technology has no role to play. It was also to be noted that the cell phone communication vis-à-vis face to face communication had a diamond-water paradox in it. Diamond glitters, is rare to find and it is useless for life for all practical purpose; on the other side water does not glitter, is available in abundance, hence easy to find and necessary for life. But people value more for diamond and waste water very often. The same paradox could be applied to cell phone communication vis-à-vis face to face communication.

7. There was a dramatic shift in student perception and concentration levels with the advent of increased mobile phone usage. Students from a very young age (16+) had access to such features as 24 hours internet access, social networking sites and a host of other on-line features. From an awareness point of view, this had been an unprecedented boon, with a new generation being extremely tech-savvy; it had also made a lasting impact during these formative years.
The time between the ages of 16-23 is extremely important from a child's point of view as the personality of a student is moulded. As students try to find a place for themselves in a society that they do not fully understand, they are confronted by two seemingly obvious choices. Either form a Social Circle or join a Social Network. From the outside it appears that a social circle with its limited membership aims to curb your appetite, whereas a social network with its global reach will most certainly expand your appetites.

8. This gradually goes from an initial fascination with social networking sites (easily accessible via mobile phones), to a complete and total dependence on these features for every aspect of their lives. The student initially felt that since he was in contact with so many likeminded people, his problems could be shared and lessened by a group which truly seemed to understand him. However, since each member of their group joined these forums with the same perception, this created a surrogate online personality that all of them kept tapping into. This had led to extremely detrimental effect on the new generation.

9. ‘The coming generation grew up looking forward to upgrade their technology instead to upgrading their lives.’

10. Cell phone had become as essential as food, clothing and shelter to this generation. The young generation would be paralyzed without cell phone. It certainly affected their behaviour in many ways - a) it minimized the physical activity as most of their time was spent doing some or the other cell phone activity, b) They had no practice of writing letters now; either it is a voice call or an SMS, c) The person who was present got no preference over the person on call, d) Considerable increase in tendency to lie, e) Two-wheeler and mobile is a deadly combination.
11. The traffic police observed that out of 100 youngsters on the road 99 used cell phone either for communication or for texting or for listening to music. More than 40% of the road accidents were because of use of mobile phones while driving. When the policeman on duty expressly raised objection on use of mobile phone on road by the youngsters, nearly half of them got annoyed and back answered Police.

12. The youngsters when they talk on phone while driving they got carried away with the talks and could not concentrate on driving. Hence their chances of meeting with the accident increased.

13. Approximately half of the teenager population i.e. undergraduate students entered the places like daily needs and grocery shop talking on cell phone or they received call in the shops. They kept the shopkeepers and their assistants waiting to attend them as customer. Thus the teenage population not only misused the space of the shop but also wasted shopkeepers’ valuable time.

14. Excessive use of mobile technology was widely seen lately in teenagers. Their parents were at fault as they gave their child the hand-set and the connection to use when the child was not psychologically mature to use it. Using ear plugs continuously to hear either music or talk on phone is dangerous to the ear drums. This fact is ignored by the youngsters. Their parents proudly confessed that their children did not listen to them. These youngsters were lost in the virtual world far away from the real world which is certainly not a very pleasing fact. But it is all beyond one’s control now.”

15. There was certain oral and textual degradation of language, considerable increase in impatience and decrease in tolerance. Their behaviour was absolutely irrational, irresponsible and utter disregard to social etiquettes.

16. The young generation was all the time online with the social media networks like ‘What’s up’, ‘Face book’, ‘Twitter’ et cetera. Undergraduate students did not hesitate to seek permission from the teacher to attend a call during classroom session pretending that the parents called them.
The young generation was very fast in typing the text with their thumbs. Irrespective of the content they type their typing speed was commendable. They could really type speedily without looking at the keypad. Of course this skill was used just to pass the time but the at the cost of their concentration. The calls and the SMSes prompted them not to concentrate on the work they were doing.

17. The craze of staying connected at times proves to be unsafe. There were some examples where economically backward young people compromise on the quality of the battery of their cell phone set and met with uncalled for incidences like explosion of the cell phone battery. The young people on phone were cocooned and hence were cut off from the surrounding. They took all the safety instructions very lightly. They happened to use cell phone rampantly as if it an extension of their body and personality. They were under the impression that they were multi-tasking while talking on cell phone and simultaneously doing some work. But they happened to compromise on their ability to concentrate.

18. In human relations mobile communication was found to be misused. The cases of youngsters involved in multiple relationships and using mobile phones to deal with their multiple girl/boyfriends were reported. Some recent examples of deceiving the lover resulting into serious crimes like murder might increase in future. Although mobile phone saved lot of time but at the same time it consumed most of it. With the advancement of technology they would resort to any means to play their hands on the latest technology.

19. Young generation was really good at all the aspects of the Information Technology and how to use latest gadgets. But unfortunately one could not limit the world to technology only and the reality was entirely different. Listening to music on cell phone could be interpreted as more of running away from the reality than to listen actually.
Karl Marx’s statement ‘religion is the opium of the masses (German scholars prefer ‘people’ instead of ‘masses’’) should be rephrased as ‘Cell phone is the opium of the people.’ Some incidences in the recent past proved Personal Communication Technology could be effectively used to terrify the common people.

20. The young generation was found busy chatting with friend on cell phone in the late night hours and habitually getting up late in the mornings. The parents could only guide them from time to time as to stay in limits and help them see the pros and con of cell phone use.

21. Undergraduate students excessively using cell phone must be repeatedly counselled for the over use of cell phone.

22. Youngsters did not want any interruption in their cell phone conversation. Their first priority was cell phone recharge and then they asked for other things in the shop especially notebooks and other stationery. Majority of the young population on an average spent nearly 500 per month. They were invariably found using cell phone everywhere in the public space, converting it into private one.

23. Teenagers were found wasting too much of their time on cell phone. They had no patience to wait. They got upset if they were not attended. They immediately wanted to recharge their talk time, or top up for their Internet account.

24. The customers hardly paid attention to the written instruction ‘use of mobile phone is prohibited’ and reported to pick up the call when the petrol tank was filled by the petrol pump attendant. Nearly two fifth to half of the young population did not even bother for the pump attendant’s request not to use the mobile phone. Usually, their expression would be full of arrogance. They seemed to forget that they risked not only their lives but also the lives of several other people.
25. It was also observed by the auto rickshaw driver that sometimes teenage couples watched objectionable clips on their mobile screen. Else their earphones were plugged in they were lost, the auto rickshaw drivers had to speak a loud and repeat the query for sure.

26. Cell phones had transitioned into personal assistants and they were the closest friend that anybody possesses. The shock and gloom that showed on one’s face when his/her phone was confiscated was reminiscent of that. Also the frantic search for a charger or a power outlet was suggestive of how inseparable people had become from their phones. Phones have made people more and more reclusive and isolated. The virtual world had become more active than the real one. Talk in person was no longer the norm. But this addiction and the resultant behaviour was not one that was permanent and could easily be corrected. Undergraduate students on field trip/study tour where there was no cell phone connection, experienced manifold increase in the amount of interaction amongst them and everybody momentarily forgot the electronic companion and enjoyed each other’s company.

27. Undergraduate students with smart-phones had a tendency to use the smart phone to escape from the social situation they were in that might be a threat to their current mood. In the past, to end the unpleasant conversation people used to look at their watches. It was a suggestive non-verbal communication gesture for easy escape. It was replaced by cell phone activity, to escape those seconds of being uncomfortable. Undergraduate students with smart-phones were also found craving for their cell phones. The cell phone became an integral part of their life and a tool for their manifested identity.

Sum result of the quantitative as well as qualitative analysis is that the cell phone usage by the undergraduate students is alarming. It is actually creating impact on their personality, their relationships, their social as well as political and public lives.
5.1.3 Findings:

From the above discussion the research could reach following findings

1. The statistics shows that majority of the undergraduate students changed nearly four cell phone handsets since they started using it independently.
2. About half of the undergraduate student population continued using the same cell phone set till they practically could not use it. There are only 7% undergraduate students, who continually changed their cell phone set whenever new model was introduced in the market. Thus, even though the mobile manufacturing companies design their advertising campaigns targeting the youth that too adolescents, their efforts seem futile.
3. More than half of the undergraduate students had a tendency not to save the contact details with the original names. They preferred to save them either with pet name, code name or favourite names. Those undergraduate students who definitely were saving the contact details with different names had multiple reasons to do so. More than half of such population did it as it was easy to remember. Another reason was giving nick names to the contacts and saving nick names of the contact, which was more applicable to the girls, because more than one third girls were doing so as against quarter of the boys. It is an unsubstantiated general perception of feminine traits is explicitly seen in this piece of data i.e. more girls than boys like to refer to their friends by their nick names. The reason for this difference needs to be explored.

Nearly one fifth of undergraduate students were found saving contact details with different names to distinguish between the friends with same name. Slightly more than one tenth of them did it to avoid parent policing.
Nearly 8% more boys than the girls had accepted to save the contact details in different names because they did not want their friends to know about the contacts. Nearly one fifth (17%) of boys and about one tenth (9%) of undergraduate girls wanted to maintain privacy from the inquisitive friends. The researcher would like to emphasise on the point that this 8% difference between undergraduate boys and girls offers a scope for further research to know whether this difference show the masculine trait in all those 17% boys to curb hidden competitor in disguise of friend among their friend circles. In short, more than three fifth of undergraduate students were found saving contact details with different names. But they were doing it for the sake of convenience and had not any explicit intentions to mask the information of their contacts.

Thus it can be inferred that no lying behaviour regarding hiding the information of the contact details is found in three fifth of the undergraduate population.

4. More than two fifth of undergraduate boys and nearly half of undergraduate girls were unaware of these emergency numbers. Unfortunately awareness level of the undergraduate students about the emergency helpline numbers was very low and the parents’ concern about the child to provide her/him a gadget to alleviate emergency was forfeited.

5. Half of undergraduate students used multimedia phone sets whereas only 15% of them used simple phones; one third of the undergraduate population was using smart phone out of which percentage of boys using smart phone was 3% more than the girls.
6. Most of the undergraduate boys (91%) spoke on their cell phone every day as compared to more than four fifth (86%) of undergraduate girls. That means the percentage of boys who spoke on cell phone every day was 5% more than girls. On the other hand more than four fifth of undergraduate girls use SMS option as compared to more than three fourth (79%) of undergraduate boys the difference in the percentage was 3%.

Next most used option available in the cell phone by undergraduate boys was alarm, as nearly three fourth of them used cell phone alarm every day instead of traditional alarm clock. On the other hand, more than three fifth (63%) of undergraduate girls used the alarm option. It means that the percentage of boys using alarm was 11% more than girls.

Two third of undergraduate boys listened to pre-recorded music using MP3 facility available in the cell phone, which was 3% more than the percentage of undergraduate girls using MP3. Similarly more number of boys accessed internet as compared to the girls. Nearly half of the undergraduate boys and one third of undergraduate girls who accessed internet was found to have a difference of 17%.

Percentage of boys who played games every day on their cell phone was one third (38%) whereas the percentage of girls who played games every day was more than quarter (28%), this difference was 10%.

Habit of putting every day the reminder notes in the cell phone is found only in one fifth of undergraduate boys and quarter of undergraduate girls. This can be interpreted in following possibilities:

   a) more than three fourth of undergraduate boys and girls believe in their memory and remember to do list;
b) only quarter of the teenagers are organized enough to use reminders to be prompted to do the tasks in time or

c) More than three fourth of the undergraduate population is not serious about its everyday responsibilities. More research is required to reach the conclusion.

One third of the undergraduate students used camera every day. They use it to click the photographs of important information like notices displayed on notice boards and even the power-point presentations in the classroom rather than going through them and jotting down or keeping them in memory.

Viewing a film on cell phone screen was not a preferred option by them. Less than one fifth of undergraduate boys and slightly more than one tenth of undergraduate girls viewed films on the personal screen probably because they could afford to use the latest high resolution comparatively large screen cell phones. Less than three fifth of undergraduate boys and three fourth of undergraduate girls opted for rarely and never options. It can also be inferred that girls like to watch movies either on big screens, TV screens or laptop screens but not on the personal screens.

7. Maximum (80%) of the undergraduate students had multimedia cell phone sets and Internet browsing facility on their cell phones. quarter of the undergraduate students checked emails and social networking whereas about one fifth of undergraduate boys as compared to about one tenth of undergraduate girls used their cell phones to check their mailboxes, send e-mails, access social networking sites, browse educational material, hit any other website and to download applications too. Nearly one fifth of undergraduate students used to visit any website while accessing internet on their cell phone.
Less than one fifth of them happen to browse educational material while surfing on their cell phones. Slightly more than one tenth of the undergraduate students were downloading applications and less than one tenth of them checked only important e-mails. Less than one tenth of the total population of undergraduate students did not access internet on their cell phone.

8. Less than three fourth of undergraduate students used pre-paid connections and less than one third of them used post-paid one and more than four fifth of undergraduate students limit their monthly cell phone expenditure up to `750. Girls were found spending more on communication facilities than boys. On the other hand boys spent more on internet browsing, buying mobile accessories and value added services than the girls.

9. One third of undergraduate students (30% boys and 34% girls) spent more than 3 hours of their daily routine to use cell phone. More than quarter of undergraduate boys and less than quarter of undergraduate girls spent 1 to 2 hours per day on their cell phones. Nearly quarter of undergraduate students was spending 2 to 3 hours and 19% of them spent less than an hour.

It is seen that more than two fifth of undergraduate students spent majority of their time on their cell phones, mostly texting. Less than quarter of undergraduate students were adding emoticons to their text messages, together nearly two third of undergraduate students spent most of their cell phone usage time on texting. It was followed by slightly more than one third of them spending their cell phone activity time on voice calling. Less than one fifth of undergraduate students spent their time on playing games. Less than one fifth of them spent their time on Internet browsing whereas same percentage of them was spending their time on listening to music on their cell phone.
Discussion and Conclusion

It was also seen that girls used SMS facility more than boys. Practice of adding emoticons to text messages was found in more girls than boys. In all other usage options like voice calling, playing games on cell phones, internet browsing, and listening to music boys scored more than the girls by an average percentage of 2%.

10. More than one third of undergraduate population was accustomed to carry the cell phone in their front pocket. Less than one fifth of undergraduate students admitted carrying it in their hip pocket. More than one tenth of them carried it in their waist belt case, together it is about three fifth of them were regularly carrying it near their pelvic, which might affect their reproductive system adversely in long run. On the other hand, 5% and 9% carry the cell phone near their heart and lungs which is again harmful for these vital organs.

11. Nearly two fifth of undergraduate students used ‘qwerty’ keypad. Nearly one fifth of undergraduate students used alphanumeric keypad with the predictive text as against more than quarter of undergraduate students (27% girls and 24% boys) reported using alphanumeric keypad without predictive text. There are two possibilities that can be inferred from the above data, boys were more scrupulous about the correct spellings of English language as compared to the girls – (a) and boys are better at operating the ‘T-9 technology’ for predictive text – (b).

There were less than one fifth of undergraduate students who used Devanāgari or/and Indian Script Fonts. While texting, boys used more of Indian scripts than girls.
12. Quarter of undergraduate boys and more than one third of undergraduate girls used missed call to communicate ‘less balance call me back’. Slightly less than quarter of undergraduate boys and slightly less than one fifth of undergraduate girls used it to tell the receiver ‘reply urgently to the SMS / emails’. Less than one fifth of undergraduate boys and more than one fifth of undergraduate girls were found using it for ‘reached home safely’ type communications. Nearly quarter of undergraduate boys and less than one fifth of undergraduate girls used missed call just to tease their friends. Less than one fifth of undergraduate students used it to tell the receiver ‘miss you’. More than one tenth undergraduate students did not like to give missed calls. Exactly one tenth of undergraduate students used this option to know the convenience of the receiver to attend the call and equal percentage of them used it as group convention. Nearly one tenth of undergraduate students used it for ‘coming or not coming’ type of communication. Similarly, equal percentage of undergraduate students was even using missed call option to prompt the receiver to call back with a hidden intention to save money.

Two contents to be communicated through missed call option that is ‘less balance, call me back’ and ‘reached home safely’ were used more by girls than boys probably because the first content implicitly shows the dependency which was not acceptable to majority of boys whereas the second content expressly displays submission which was not liked by majority of the boys.

Slightly less than quarter of the undergraduate boys liked to use missed call option to prompt the receiver to reply their SMS or e-mails vis-à-vis slightly less than one fifth of undergraduate girls might be because of the anxiety and dominance of the masculine attitude to expect the prompt reply. Nearly quarter of undergraduate boys used missed calls just to tease the receiver friend as compared to less than one fifth of undergraduate girls. It once again can be interpreted as the gender-based difference in intentions behind the missed call as message.
More than one tenth of undergraduate boys used it to know the convenience of the receiver as compared to one tenth of undergraduate girls. Although this difference is very minor it can be interpreted as there were only one tenth of undergraduate students who adhered to the etiquettes, manners, formality and professionalism but percentage of boys following the norms was slightly more than girls.

Less than one fifth undergraduate students used missed call to convey to the receiver that s/he was missing / remembering the receiver. Less than one tenth of them used it to convey whether they would be joining the group or not, depending upon the groups’ convention. On the other hand slightly more than one tenth of undergraduate girls followed a group convention to give missed call to the group members being more conformist (a person who uncritically or habitually conforms to the customs, rules, or styles of a group) than that of boys. Less than one tenth of them also used missed call with a hidden intention to save cost of the call by instigating the receiver to call back and bear the expenses.

12%+ Undergraduates did not like to use missed call option at all.

In other words maximum (88%) undergraduate students were found using missed call to communicate variety of messages without verbal or text message which can be taken as an electronic improvisation of the beating the drums in ancient times. The only difference is that this improvisation is a strictly one to one i.e. interpersonal communication and not a group communication.
The study indicates that slightly more than one third of undergraduate boys and slightly more than quarter of undergraduate girls sent decent jokes through SMS. Similarly, quarter of undergraduate boys and one third of undergraduate girls sent SMSs to greet their family members, relatives and friends on special occasions. Slightly less than quarter of undergraduate boys and one fifth of undergraduate girls avoided unwanted conversation by sending SMSs. About quarter of the undergraduate students used SMS to save money on voice calling. Slightly more than one fifth of them sent contact details saved in their phone book through business card SMSs to their acquaintances.

One fifth of undergraduate boys and quarter of undergraduate girls’ population were sending ‘thought of the day’ every day to their contacts. Exactly one tenth of undergraduate boys as compared to quarter of undergraduate girls were confirming the convenience of the receiver to attend the call through SMS. Similarly, less than one tenth of undergraduate boys and more than one tenth of undergraduate girls conveyed their inability to attend the call by SMS. Nearly one tenth of undergraduate students used SMS communication to maintain secrecy; 4% boys and 9% girls habitually sent SMSs and only 4% boys and 2% girls did not like to send SMSs.

It is also to be noted that the multiple choice segment of the questionnaire revealed that more than one fifth of boys and slightly less than one fifth of girls sent jokes otherwise indecent to share, through SMSs whereas Part II of the questionnaire analyzing cell phone behaviour of the undergraduate students reveals that more than three fifth of undergraduate boys regularly sent and received SMSs containing bad (indecent) language/sexually explicit text to and from the girls of same age. Also, equal percentage of undergraduate boys sent and received ‘not so decent content’ and / or ‘indecent jokes’ from elderly people. Half of undergraduate girls did the same. It means two third of the undergraduate boys’ and half of the girls’ population used cell phone to communicate indecent content with the population of same age and also with the elder generation.
It can be interpreted in the following ways:

a) Cell phone as personal communication technology provides opportunities to manage the personal space with the personal screen in reasonably small size with the facility to delete the received content, immediately after reading it. This facility provides a conducive environment to communicate and has reduced the psychological barrier of hesitation to share the indecent content which is otherwise not possible due to the contemporary social and cultural restraints.

b) Secondly, most of the time such content is received and forwarded as it is. This facility relieves the SMS sender from typing the content i.e. any kind of physical and psychological involvement in the process of message creation and also to leave any physical evidence like handwriting on paper, hence the onus of the communicator is reduced to a great extent. This leads the communicator to a casual approach towards content of the message to be communicated by pressing a button without bothering for its consequences. This casual approach results into openness and freedom in the communication pattern. However, it could also raise such questions as – ‘should it be looked at as irresponsible and irreversible communication changing the existing socio-cultural norms?’, ‘Can it be said that the technology has provided this young generation opportunity to explore the forbidden areas?’

c) Use of cell phone has blurred the gender distinction as well as the generation gap to some extent. Before the inception of cell phone as a communication medium in the society, the situation was exactly opposite. There used to be a clear distinction between men’s world and women’s world wherein the sophisticated interactions were strictly abided by the socio-cultural norms of decency. Sharing indecent content especially in terms of jokes with opposite sex used to be taboo. Similar used to be the state of affairs while interacting with elderly people formally or informally and these restrictions were followed religiously.
This blurriness of the socio-cultural boundaries of behaviour and casual approach towards communication due to cell phone interaction is further carried out in actual day to day behavioural patterns of undergraduate students especially with opposite sex and elderly people. To confirm these inferences more research is needed.

14. Girls were more prone to use SMSs as a medium of communication than that of voice calls as compared to boys. The SMS usage pattern was different for boys and girls. The primary purpose of sending SMSs by the boys was to share decent jokes and by girls was to greet on special occasions and vice versa.

It is also to be noted that more boys than the girls had intentions to use SMS to avoid unwanted conversation whereas girls were more into sharing thought of the day than boys. The girls were sending less business cards though SMS than boys but were more concerned about the convenience of the receiver to talk as well as conveying inability to respond to voice call and hence using SMSs. Similarly, habit of sending SMSs was found more in girls than boys and more girls used SMSs to maintain secrecy.

15. One third of undergraduate students’ population found it important to stay connected hence they called, spoke and remained in touch. One third of undergraduate students found it easy to kill time in calling and talking on cell. Slightly less than one third of them called to discuss some topic and take some decision. More than one fifth girls and 15% boys were calling to discuss study topics with their friends. Quarter of undergraduate students called to share the news and one fifth of them called to attend to an emergency. One fifth of undergraduate girls and more than one tenth of undergraduate boys called and spoke on the phone to elevate their mood. Nearly one tenth of undergraduate girls and 3% of undergraduate boys were habitual callers.
From the above details it can be seen that both boys and girls had the similar reasons with a few exceptions. 7% more girls than boys were discussing study and 8% more girls were calling to elevate their mood. Similarly 5% more girls were habitual caller and hence calling out of habit.

16. Cell phone conversation gives four types of gratifications to the undergraduate students, out of which relaxation prevails over other types. Quarter of undergraduate students felt satisfied after a cell phone talk whereas quarter of boys felt relaxed after talking on cell phone as compared to slightly less than one third of girls. One fifth of them did not feel any special or noticeable change in their mood, hence felt neutral. More than one tenth of undergraduate students felt cell phone talking boosts self confidence. Equal percentage of undergraduate students found it as exhausting. More than one tenth of them felt stimulated after talking on cell phone. More than one tenth undergraduate students had no reaction.

17. Nearly half of undergraduate boys and less than half of undergraduate girls had a strong feeling that the quality of their life had improved because of cell phone. Nearly one third of undergraduate students would feel unwanted or ignored if they would not receive a call for an hour or even a day. Similarly more than one third of them had a realization of the anxiousness caused by their thoughts of probable missed calls when their cell phone is out of coverage area. Nearly half of undergraduate boys would feel helpless without a cell phone and they frequently kept checking their cell phone for miss call or SMS compared to about three fifth of undergraduate girls would feel helpless without a cell phone and half of them kept checking their phones for probable missed call or SMS. Does carrying information containing contact details of the people to be contacted and a device to contact at any given point of time give a kind of strength and feel of safety? The question needs further investigation.
Less than one tenth of undergraduate students would do something else when they were alone but for fiddling with cell phone. Nearly one third of them would not engage themselves in some recreational work than to just while away the time with their cell phone. Slightly less than half of them would tinker with their phone when they were alone. On an average two fifth of them invariably would spent their time playing on their cell phone when they were alone.

One third of undergraduate boys and slightly more than quarter of undergraduate girls would use cell phone to talk to their friends even if they would be at walking distance and face-to-face communication could happen. Equal percentage of undergraduate students used cell phone conversation as their frequent method to counter loneliness and to elevate the mood. Similarly they were regularly cutting down their expenses on canteen, petrol and other minor vices like cigarette and other tobacco products, pubs etc.

Statistical tests also confirm that there is hardly any difference in the percentage of undergraduate students dependent on cell phone.

18. Slightly more than two fifth (42%) of undergraduate boys and less than half (46%) of undergraduate girls did not appreciate their parents accessing their cell phone for whatever reason. Nearly two fifth of undergraduate students did not like their parents and friends preventing them from excessive talking on the cell phone. Slightly more than quarter of undergraduate boys and quarter of undergraduate girls were more comfortable talking to their parents on cell phone than face-to-face conversation. One third of undergraduate boys and more than two fifth of undergraduate girls would hate if their parents would use GPS tracking system to monitor their movements. One third of undergraduate of boys and girls agreed getting annoyed when their parents call them to know their locations.
Firstly, it is important to note that more girls than boys dislike their parents accessing their phone and their parents using GPS tracking system to track their movements. There is no difference in the percentage of boys and girls getting irritated when their parents and/or friends prevent them from excessive talking on cell phone; it is exactly same and the percentage of boys and girls getting irritated when their parents call them to know their location.

The percentage of boys was slightly more than the girls in agreeing that they were more comfortable talking to their parents on cell phone than face-to-face communication. The percentage of undergraduate students not comfortable talking to their parents face-to-face is alarming. It needs more remedial investigation to bridge this parent-child gap in time to prevent further disintegration of family as a social institution.

Secondly, the percentage of girls expressing their frustration on parents’ interference was more because parents worry and care more for their daughters as compared to their sons resulting into being possessive towards them. Parents’ anxiety to know the whereabouts of their daughters find a way out through calling them on cell phone to know the locations which irritates the girls.

Thirdly, it is observed that the concept of privacy in Indian society has expanded with the usage of cell phone. Before its inclusion in the lives of the Indian middle class and lower middle class population, there was only one landline in a household if they happened to afford it; which used to be common for all the family members, placed in the drawing room where everyone can have access to it. The households those who could not afford the landline connection used to use public telephone booths or their neighbour’s landline which was only to be used in case of any urgency or emergency.
With the availability of cell phone technology each family member can afford to have at least one cell phone set and connection. This personal communication technology (Campbell & Park) is responsible not only for the extension of the communication facilities to connect the people with never before ease; but also for the expansion of circumference of personal space and privacy.

The parent child relationship is very fragile where on an average one third of late adolescent population expects the parents to observe some constraints while interfering in their lives especially when it comes to the usage of cell phone.

More than three fourth of the population of undergraduate boys and girls regularly got the opportunity to enjoy an upper hand among their parents and elderly family members due to their technological knowhow. This privilege then gets extended in the family’s decision making process of daily issues. Nearly three fourth of undergraduate boys and more than three fifth of undergraduate girls were frequently asked for their opinion by the parents, which were then valued for. Slightly more than three fifth of undergraduate boys and two third of undergraduate girls were recurrently found superseding the elderly members of the family in the decision making process, as their parents were giving importance to their opinion over the opinion of the elderly members. It means that out of 78% of boys who get the opportunities to explain their elders, 71.4% boys’ opinions are sought and valued by their parents and 61.3% boys’ opinions surpass the elders’ opinions. And out of 71% of girls who get the opportunities to explain their elders, 67+% girls’ opinions were sought and valued by their parents and 66% girls’ opinions surpass the elders’ opinions.
Discussion and Conclusion

This shows the position of undergraduate boys and girls in the family; nearly two third of the late adolescents get opportunity to be a part of decision making process of the day-to-day family activities, which previous generations never got before in traditional Indian society. There is certainly a social power shift from elder generation to the younger generation. This finding actually supports the theory proposed by Harold Innis ‘Monopolies of knowledge’ and ‘bias of communication’ along with ‘the vision of ‘technological dependency’ articulated by George Grant--for whom technology becomes the locus of human domination (Soules, 1996).

Similarly, less than half (46%) of undergraduate boys and nearly half (49%) of undergraduate girls reportedly played regularly with their cell phone while interacting with parents or elderly members of the family, this means slightly less than half of the young population fiddle with the cell phone when talking to their parents and elderly family members. This behaviour is against the prevalent social behavioural norms and communication pattern. Conventionally, younger person is expected to restrain from any other activity which distracts the attention while interacting with an elder person. Younger person not adhering to this convention implies insulting the elder.

About three fifth of undergraduate students were often found talking and SMSing people keeping their parents in dark. It means that three fifth of undergraduate population was almost always hiding their contacts from their parents. Less than three fifth of undergraduate students were deceiving parents / relatives and / or friends about their location on cell phone call. It means that they were often found to be lying on cell phone specifically about their location to their parents, relatives and friends.
Discussion and Conclusion

Thus on an average, three fifth (58%) of undergraduate students’ population had deceitful behaviour with their parents, friends and relatives from time to time. This state of affairs was never before the cell phones were introduced in the Indian society. Thus it can be deduced that cell phone is responsible for the same.

19. More than one third of undergraduate boys and two fifth of undergraduate girls did not hesitate to respond to the call in the social function. Less than one third of undergraduate students usually did not put their cell phones on ‘silent’ mode during any formal function. It means that more than one third of undergraduate population was using cell phone without any embarrassment during the social function.

More than two fifth of undergraduate students admitted to be feeling proud when their classmates admired the look and/or facilities of their cell phone. About two fifth of undergraduate students liked to be friends with the person using latest and a trendy cell phone set. It means that slightly more than two fifth of undergraduate students take into account cell phone set as one of the qualities of personality.

Nearly three fifth of undergraduate population accepted that they did call and talk with the caller when they attend get together in a group of close friends or with their family members. Equal percentage of undergraduate students accepted that they did make or attend the calls while they were in formal communication with elders. It means nearly three fifth of undergraduate students were frequently giving preference to the cell phone caller than their close friends and / or family members, and also the formal communication with elders. It can be inferred that the person present in person becomes insignificant, irrelevant and standing apart without any purpose.
Discussion and Conclusion

More than three fifth (68%) of undergraduate boys and three fifth (60%) of undergraduate girls were reported using their cell phone during classroom sessions.

20. Nearly half of the undergraduate boys and more than half of undergraduate girls used a cell phone in public places. One third of undergraduate boys and more than quarter of undergraduate girls did not bother about the ‘use of mobile phone prohibited’ type notices displayed in the public places. More than two fifth of undergraduate students enjoyed to be plugged in while driving means either they listened to music or they attended calls on phone. Thus it is can be deduced that nearly 5% more undergraduate girls than undergraduate boys used cell phone in public places. However, more than half of undergraduate students used cell phone in public places. Similarly, 5% less girls than boys were ignoring the public notice of not to use cell phone in a particular place; the average of the percentage of undergraduate students ignoring the public notice of prohibition of use of cell phone was slightly less than one third. Two fifth of undergraduate students risked their own lives and of others also by using cell phone to listen to music and / or talking on cell phone while driving.

More than three fifth of undergraduate students (70% boys and 68% girls) regularly talked on their cell phone while walking on the streets and equal percentage of boys and girls respectively frequently made or attended to a call and continued to talk on their cell phone for a long while travelling in public transport or standing in a queue.
It confirms Green & Haddon’s (Green & Haddon, 2009) statement that personal technologies used in public space respatializes (rearranges or transforms the attributes related to space around) the public space. It is therefore clear that the mobile telephony has extended the personal space of the user. In other words, the personal space is now encroaching the social and public space.

21. Three fifth of undergraduate boys and less than three fifth of undergraduate girls generally have had heated SMS communication and very often send an additional SMS thereafter which contained words like ‘LOL’ (Lough out Loud) or a smiley to reduce the tension.

22. Slightly less than three fourth of undergraduate students regularly used short forms of spellings in their text messages. In SMS, slightly less than three fourth of undergraduate students used short forms of the spellings which are phonetically correct but grammatically incorrect, thus in a way they considered SMS text as a verbal communication in written form. It is implied that they actually wanted to manage within the maximum 160 character limit of SMS to express themselves.

Expressing oneself within the limitation of 160 characters over and over again has a palpable impact on formal written communication by the undergraduate students as the similar language is found in the written examinations’ answers; using short forms and minimal space of answer-sheet.

In a way one can say that cell phone is responsible for expanding the personal space and shrinking the written space. The long term impact of such a practice may result in reducing the ability of in-depth comprehension and analytical approach in thoughts and expression in the formative years of late adolescence.
23. Less than three fourth (68%) of undergraduate boys and nearly three fifth undergraduate girls were habitually clicking photographs or shooting videos of important documents displayed on the notice boards, or PowerPoint presentation slides showed in the classrooms without going through them wherever they are displayed. More than half of undergraduate student (55% boys and 52% girls) preserved such photos for future reference and also shared them with their classmates. This shows that boys were more prone to saving information by clicking photographs instead jotting it down or memorizing it. The data once again underlines that boys were more lethargic than girls as seen in the use of more voice calls than SMSs. But on an average, slightly less than two third of the undergraduate students preferred to click photographs of important information displayed on notice board, and in PowerPoint Presentations presented. On the one hand, it is an easy and time saving way to store information as it is, while on the other hand, this obviates any prospect of writing which has resulted in a reduced use of motor skills as defined by the coordination of voluntary muscles of fingers and hands which are controlled by the brain.

24. When it comes to the cell phone dependency of undergraduate students, statistical tests found that there were no gender differences on the nature of cell phone dependency. The mean values for girls (61.63) and for boys (61.37) indicate that there is a considerable dependency on cell phone for their daily personal and work schedule. Although the dependency quotient is equal in both boys and girls, it is important to note that undergraduate boys were more under the influence of cell phone than undergraduate girls in terms of their behavioural pattern and their relationships with their parents, other family members and friends.
When it comes to the perception towards cell phone and the life of undergraduate students, no gender differences were found. However, when it came to assess the reported behavioural pattern undergraduate boys’ behaviour was more influenced by the cell phone than the undergraduate girls’ behaviour.

25. Undergraduate boys and girls treat Cell phone as part of the personality as well as part of the body.

5.2 Conclusion:

This quest ended with the answers for the research questions found after quantitative, statistical and qualitative analysis. The answers for respective research questions were as follows:

I. What were the cell phone usage patterns of undergraduate students of Pune city?

About three fourth of the late adolescent population got to own the cell phone in their middle teen age to late teen age. They had used the cell phone for about approximately 2 to 4 years when they filled the questionnaire. On an average half of the undergraduate students used multi-media phone, whereas one third undergraduate students used smart phones. Majority of the undergraduate students used nearly 4 cell phone handsets since they started using it independently.

About half of the undergraduate student population continued using the same cell phone set till they practically could not use it. There were only 6.5% undergraduate students who accepted that they happened to change the cell phone set whenever a new set was introduced in the market.
Less than three fourth of undergraduate students used pre-paid connections and more than quarter of them used post-paid one. Quantitative analysis revealed that maximum (87%) undergraduate students limited their monthly cell phone expenditure up to `750 whereas qualitative analysis reported that on an average majority of the young population was observed spending nearly `500 per month.

The undergraduate girls spent more on communication facilities than that of boys whereas boys spent more on internet browsing, buying mobile accessories and value added services than the girls.

The cell phone usage pattern of the boys and girls clearly showed that they used cell phone primarily to talk and secondly to SMS every day. It was also used for setting the alarm and to listen to the pre-recorded music. Internet browsing and playing games was on the fifth and sixth position in the 10 point list followed by clicking the pictures and listening to radio. Setting the reminder and watching a film were the tail-enders.

Gender-wise percentage of frequency distribution of undergraduate students performing various activities with cell phone everyday states that most of undergraduate boys talked on their cell phone every day as compared to more than four fifth of undergraduate girls. On the other hand, girls sent and received more SMSs than boys. Qualitative analysis confirmed this outcome.

Undergraduate boys used cell phone more than that of undergraduate girls for talking, playing games, accessing internet, putting alarm, listening to pre-recorded music on MP3, watching films on cell phone screens, and clicking pictures using cell phone camera. Undergraduate girls used their cell phones more for sending SMSs, listening to radio, and setting reminders as compared to undergraduate boys.
Discussion and Conclusion

Nearly one third of the undergraduate students spent more than 3 hours per day using their cell phones. About quarter of undergraduate students spent 2 to 3 hours on their cell phones and quarter of the total undergraduate students sent 1 to 2 hours per day on their cell phone. There was no gender difference found in the time spent pattern. The qualitative analysis underlined that maximum of their time was spent using cell phone. They were observed to be almost 24 X 7 online through their cell phone.

More than half of the undergraduate students had a tendency not to save the contact details with the original names. They preferred to save the contact details either with pet name, code name or favourite names. More than three fifth of boys followed this practice as compared to half of the undergraduate girls. Three fifth of undergraduate students saved contact details with different names. They did it for the sake of convenience and did not expressly have any intentions to mask the information of their contacts.

Nearly two fifth of the undergraduate students used ‘qwerty’ key pad while texting whereas nearly one fifth boys and less than one fifth girls used Devanāgari or/and Indian Script Fonts, that is boys used more of Indian scripts than that of girls.

Nearly three fourth of the undergraduate population was dangerously exposed to the electromagnetic radiations.

II. What impact the cell phone as a medium of communication had created on the communication pattern of the undergraduate students?

Maximum of the undergraduate students used missed call to communicate variety of messages without verbal or text message which could be taken as an electronic improvisation of the beating the drums in ancient times. The only difference was that this improvisation was a strictly one to one i.e. interpersonal communication and not a group communication.
The most common message contents to be communicated through missed call were – i) ‘less balance call me back’, ii) reply urgently to the SMS / emails; iii) reached home safely; iv) just to tease their friend; v) missing you, etc.

The SMS usage pattern was different for boys and girls. The primary purpose of sending SMSs by the boys were to share decent jokes and by girls were to greet on special occasions and vice versa.

It is also to be noted that more boys than the girls intended to use SMS to avoid unwanted conversation whereas girls were more into sharing thought of the day than boys. The girls sent less business cards though SMS than boys but were more concerned about the convenience of the receiver to talk as well as conveying inability to respond to voice call and hence using SMSes. Similarly, habit of sending SMSes was found more in girls than boys and more girls used SMSes to maintain secrecy. Both boys and girls sent jokes through SMS which were otherwise indecent to share; the percentage of boys was more by just 2.25%.

They took help of additional SMS containing short form of laugh out loud or a graphic showing a smiley to reduce the seriousness of the previous SMS. This practice was found more in boys than girls. They shared SMS containing bad language, indecent content and even sexually explicit content, with the students of opposite sex. Secondly they also shared indecent jokes with persons elder to them through the SMS communication. 12% more boys were engaged in such activities than girls.

In SMS, majority of undergraduate students used short forms of the spellings which were phonetically correct but grammatically incorrect, thus in a way they considered SMS text as a written communication but verbal communication that is spoken words. It is implied that they actually wanted to manage with the 160 character limit of SMS to express themselves.
Discussion and Conclusion

This point was also discussed in qualitative analysis that the size of the screen and the limitation of the characters to be texted cannot afford the luxury of grammatical, syntactical and other linguistic precisions like spellings. Thus the young generation was found using the abridged, condensed and so called distorted text language. It should be taken as one of the phases in the voyage of development of language.

Slightly more than two fifth of the undergraduate students agreed that voice calling was more intense. Hence it can be said that they cherished it than the texting.

To stay connected was a felt necessity by one third of undergraduate students as they were calling people to remain in touch. About one third of undergraduate students used voice call to kill their time and nothing more. Nearly quarter of undergraduate students called to share the news. Only quarter of undergraduate students used voice call to attend emergency and only one fifth of undergraduates called to discuss study. The percentage of girls using voice calling to elevate their mood was more than the boys and 8% of undergraduate girls admitted that they kept calling out of habit as compared to about 3% boys. It can be said that girls were emotionally dependent on cell phone than boys and the percentage of habitual callers was more in girls than boys. The qualitative analysis confirms the above findings which stated that the undergraduates talked on cell phone for the sake of talking and staying connected. Most of the time voice calling was used as just a time-pass and to gossip without serious content as such.

More than two third of undergraduate boys and nearly three fifth of undergraduate girls were habitually clicking or shooting the pictures of important documents displayed on the notice boards, or power point presentation slides showed in the classrooms without going through them wherever they were displayed. More than half of the undergraduate population was found preserving such photos for future reference and also sharing them with their co-students.
Qualitative analysis recorded a certain oral and textual degradation of language of the undergraduates’ cell phone communication.

Cell phone as personal communication technology provides opportunity to manage the personal space with the personal screen in reasonably small size with the facility to delete the received content, immediately after reading it. This facility provides conducive environment to communicate reducing psychological barrier of hesitation to share the indecent content which is otherwise not possible due to the contemporary social and cultural restraints.

Secondly, most of the time such content is received and forwarded as it is. This facility relieves the SMS sender from typing the content i.e. any kind of physical and psychological involvement in the process of message creation and also to leave any physical evidence like handwriting on paper, hence the onus of the communicator is reduced to a great extent. This leads the communicator to adopt a casual approach towards content of the message to be communicated by pressing a button to forward without bothering for its consequences. This casual approach is resulting into openness and freedom in the communication pattern.

III. What was the intensity of cell phone addiction of undergraduate students of Pune city?

Half of the undergraduate boys and less than half of the undergraduate girls had a strong feeling that the quality of their life had improved because of cell phone. Nearly one third of the undergraduate students accepted that they would feel unwanted or ignored if they would not receive a call for even an hour or a day. Similarly more than one third of them had the realization of their anxiousness caused out of thoughts of probable missed calls when their cell phone is out of coverage area.
Discussion and Conclusion

Nearly half of the undergraduate boys felt helpless without a cell phone and they frequently kept checking their cell phone for miss call or SMS. On the other hand nearly three fifth of the undergraduate girls felt helpless without a cell phone and half of the undergraduate girls habitually kept checking their cell phone with the apprehension of missed call.

Average two fifth of them were invariably spending their time playing with their cell phone when they were alone. One third of undergraduate boys and more than quarter of the undergraduate girls were dependent of cell phone because firstly they were using it even if they could communicate with their friends face-to-face. Secondly, cell phone conversation was the frequent method they were using to counter loneliness and elevate the mood, and thirdly they were regularly cutting down their expenses on canteen, petrol and other minor vices like cigarette and other tobacco products, pubs etc.

Qualitative analysis pin pointed that the cell phone had almost begun to look like an extended body part of the undergraduate students. They could part with anything but their cell phones. They stuck to their phones like this gadget was the source of their oxygen intake. In other words, cell phone had become as essential as food, clothing and shelter to this generation. Cell phones had transitioned into personal assistants and they were the closest friend that anybody possesses. The shock and gloom that showed on one’s face when one’s phone was confiscated by teachers for using it during classroom sessions, was reminiscent of that. Also the frantic search for a charger or a power outlet was suggestive of how inseparable these students had become from their phones. Phones have made people more and more reclusive and isolated. The virtual world had become more active than the real one.

The undergraduates were exposed to 24 hours access to internet and also to social networking sites through mobile phones. In these formative years of their life they are in search of self image in the social circle. Instead of forming the self image in real world which is in a way very limited they appeared to form it on the social networking sites.
This virtual world could foster their hunger of having a larger than life image among the members of their social network but it took them away from the real world. Now through cell phone they could be online for 24 X 7. Thus they could carry this larger than life self image of the virtual world with them everywhere. The worst effect was that the young generation grew up looking forward to upgrade their technology instead of upgrading their lives.

The qualitative analysis emphasised that Karl Marx’s famous quote ‘religion is the opium of the masses (German scholars prefer people),’ should also hold good for cell phone dependency of the undergraduate students. This statement was supported by the quantitative analysis that cell phone conversation gives four types of gratifications to the undergraduate students, out of which relaxation prevails over other types. Quarter of undergraduate students felt satisfied after a cell phone talk whereas quarter of boys felt relaxed after talking on cell phone as compared to slightly less than one third of girls. One fifth of them did not feel any special or noticeable change in their mood, hence felt neutral. More than one tenth of undergraduate students felt cell phone talking boosts self confidence. Equal percentage of undergraduate students found it as exhaustive. More than one tenth of them felt stimulated after talking on cell phone.

IV. What is the influence of cell phone use on the relationships with the family members and friends of undergraduate students in Pune?

This personal communication technology is responsible not only for the extension of the communication facilities to connect the people with never before ease; but also for the expansion of circumference of personal space and privacy. More than two fifth of undergraduate boys and less than half of the undergraduate girls did not appreciate their parents assessing their cell phone for whatever reason.
Discussion and Conclusion

Nearly two-fifth of undergraduate students did not like their parents and friends preventing them from excessive talking on the cell phone. Slightly more than quarter of undergraduate students was more comfortable talking to their parents on cell phone than face-to-face conversation. One third of undergraduate boys and more than two-fifth of undergraduate girls would hate if their parents use GPS tracking system to monitor their movements. One third undergraduate students used to get annoyed when their parents call them to know their locations.

The parent-child relationship is very fragile where on an average one third late adolescent population expected the parents to observe some constraints while interfering in their lives especially when it comes to the usage of cell phone. Qualitative analysis confirmed that cell phone usage behaviour of the undergraduates was one of the primary reasons to create tensions in the family. There was considerable increase in impatience and decrease in tolerance among the youngsters.

About three-fifth of undergraduate boys and girls were reported often talking and texting the people keeping their parents in dark that is they regularly hid their contacts from their parents. Almost equally percentage of undergraduate students was found regularly deceiving parents / relatives and / or friends on cell phone call about their location. It means they habitually lied on cell phone specifically about their location with their parents, relatives and friends. This finding was also confirmed in the qualitative analysis. The person who was present in person became insignificant once they received a call or SMS. This behaviour actually detached them from the process of developing personal relationship.

Two third of the undergraduate boys’ and half of the girls’ population regularly used cell phone to communicate indecent content (sexually explicit jokes/ content) with the population of same age and also to the elder generation. Personal Communication Technology blurred the gender distinction as well as the generation gap to some extent.
V. How do the undergraduate students use cell phone when they are alone and when they are in the public places?

Average two fifth of them were, invariably spending their time playing with their cell phone when they were alone.

In qualitative analysis the undergraduates were observed fiddling with their cell phone everywhere. It was used as a tool to escape from the uncomfortable / unwanted situations, like boring classroom sessions, group of friends discussing some unwanted topic, standing in a queue, travelling in the public transport etc. They found to be plugging in earphones and listening to music for prolonged periods of time, to escape the mood or situation they were in. 24X7 cell phone usage was liable for the expansion of the private space. The undergraduate students talked on phone regardless of the space. They even talked on such subject, which, otherwise they would not have discussed in the presence of others.

It confirms Green & Haddon (2009)'s (Green & Haddon, 2009) statement that personal technologies used in public space respatializes (that means rearranges or transforms the attributes related to space around) the public space. It is therefore clear that the mobile telephony has extended the personal space of the user. In other words, the personal space is now encroaching the social and public space.

The undergraduates did not hesitate to make or attend voice call in public functions, public places like roads, shops offices and even the places where the notices prohibiting cell phone use were explicitly displayed.
VI. Whether Indian society is experiencing the shift in power centre with reference to cultural values? For example, young generation is becoming a part of decision making process of the family and at times their opinion is given preference over the opinion of elders.

Out of 78% of boys who get the opportunities to explain to their elders, 71.4% boys’ opinions are sought and valued by their parents and 61.3% boys’ opinions surpassed the elders’ opinions. Similarly out of 71% of girls who got the opportunities to explain to their elders 67.4% girls’ opinions were sought and valued by their parents and 66% girls’ opinions surpassed the elders’ opinions. This shows that, the position of the teenage boys and girls in the family.

Secondly, less than half of undergraduate boys and nearly half of undergraduate girls regularly played with their cell phone while interacting with parents or elderly members of the family. This behaviour is against the prevalent social behavioural norms and communication pattern. This indicates that they undermined the elders. The norm was to restrain from any other activity which distracts the attention while interacting with elders. The parents felt proud in confessing that their children did not listen to them, do not adhere to their instructions or ignore their suggestions.

It could be inferred that use of cell phone has blurred the gender distinction as well as the generation gap to some extent.

Following were a few more highlights of the consolidated analysis:

- An insatiable hunger of cell phone use was found in undergraduate students.
- The youngsters involved in multiple relationships were found using mobile phones to deal with their multiple girl/boyfriends. The examples of deceitful behaviour with the lover using mobile phones resulting into serious crimes like murder appeared to be rare cases at present but their number would certainly grow in future.
Discussion and Conclusion

- Advertising campaigns designed to target the undergraduate students had practically no impact on them
- The privacy provided by cell phone was responsible to change the traditional, cultural and behavioural set, and also to homogenize the nation into one. This would necessitate educationists, teachers, parents and social scientists to revisit teaching pedagogies, content and evaluation systems and look at their students more holistically – not just as domain learners at the tender undergraduate stage.

5.3 Limitations of the Study:

This study was restricted to the reported and observed behaviour of undergraduate students in Pune, as reported by them and observed by people around them who reported these observations to the researcher. These observations were restricted to the time frame September 2010 to September 2012. Thus it could not be generalised. The Personal Communication Technology is ever developing field thus the results are restricted to the technology which was available during the data collection. The Personal Communication Technology developed after this time frame does not form the part of this study.

This research was carried out within the span of 2 years and was restricted only to the undergraduate students of University of Pune. The topic was delimited for the sake of making it practically achievable with the given time frame. A self-imposed deadline is a two edged weapon: it has strength in a way as it keeps the zeal and motivation to complete the work in time without any procrastination and a limitation as it provides a restricted space and time to go in depth. The researcher tried to meet the golden mean and explore as much as possible.
The topic was interdisciplinary and hence the research was at times dependent on scholars of other disciplines, for example Psychology. The psychologist she was consulted had a psychological focus and the researcher had to mould the topic as per her requirement i.e. communication research. She designed her objectives specifically to research upon communication perspective and impact cell phone on communication behaviour of undergraduate students. Hence, the questionnaire took a long time to be finalized.

By the time the final draft of questionnaire came into existence, it was February and most of the colleges affiliated to University of Pune had announced their preparation leave. Thus, the researcher had to consider only 5 colleges to take the samples for data collection instead of 10 colleges as previously decided.

The sample design had to be purposive sampling as the main objective of the study was to assess and analyse the impact of cell phone usage on the behavioural pattern in general and communication pattern in particular of the undergraduate students. Thus it was necessary for the samples to use the cell phone. Hence the sampling design was deliberately chosen as purposive sampling.

Since it was preliminary examination period, the students initially were not willing to spare the time. But then on the request of their Principals and other faculty members they cooperated.

To collect the data 250 boys and 250 girls, the researcher decided to take 300 boys and 300 girls’ data to be on safer side. With the help of the investigators she could get 305 boys and 277 girls. The girls were not willing to participate in the survey. Their inhibition was probably because of the social and cultural restrictions or an apprehension of misuse of information they would share. But after repeated requests and after going through the questionnaire they cooperated.
The results of the study are with the specific reference to the undergraduate students studying in the colleges affiliated to University of Pune. This may prove to be of help to gain a preliminary idea on how cell phone usage has impacted the behaviour and communication as well as relationships of late adolescents of India in general, and of Pune in particular.

Although it took a long time for the researcher to finalise the questionnaire to be comprehensive, she felt at the end that there is much more to investigate. This feeling of incompleteness gives a sense of picking motivation to work her for future research project.

5.4 Scope for Further Research:

The present study focuses on the analysis of impact of cell phone usage on the behavioural pattern of undergraduate students in general and the communication pattern in particular. Being interdisciplinary, this research has explored the pattern of cell phone usage by the late adolescents and its impact on their attitude and behaviour which directly affects the social, cultural, and psychological aspects of their life. This study was primarily focused on how cell phone communication patterns impacted the family interactions as well as social interactions on how it affected the relationships of the undergraduate students. Thus, this study will provide the foundation to the topics related to impact of cell phone usage on society, culture, language, child-parent relationship, and of course human communication pattern.

While analyzing and concluding the data received from this research, the researcher realized that there is a lot of scope for further study and investigation. The researcher with her limited sense of understanding of related disciplines suggests the scope for research on cell phone and youth as follows:
a. The present study reveals that the percentage of boys saving contact details with different names in the phone book of their cell phone with an intention to hide the information from inquisitive friends is 8% more than girls doing so with the same purpose. This study could not find the actual reason behind concealing information from inquisitive friends on whether it is just to maintain privacy or is it to curb hidden the competitor in disguise of a friend among their friend circles. This needs to be investigated in detail.

b. Habit of putting reminder notes everyday in cell phones is found in only 22% boys and 25% girls. This can be interpreted in following possibilities: a) more than 75% undergraduate boys and girls rely on their memory and remember the ‘to do’ list; b) only 24% of the teenagers are organized enough to use reminders to be prompted to do the tasks in time or c) More than three fourth of the undergraduate population is not serious about their everyday responsibilities. As this study falls in the discipline of Behavioural Science, the researcher could not figure out the exact reason and hence she feels that more research is required to reach the conclusion.

c. Overall qualitative and quantitative analysis tells that SMS language is responsible for the degradation of overall usage of language. There is a scope to analyse in detail the impact of SMS language on written communication and the future of written communication or impact of Information Technology language usage for the faculty of linguistics.

d. The content analysis of cell phone conversations by late adolescent boys talking to boys, girls talking to girls, and boys talking to girls can be researched upon like content generation and usage of media by the young generation.

e. Slightly more than 41% undergraduate students take into account cell phone set as one of the qualities of personality. To confirm this statement more research is required under the faculty of psychology.
f. Does carrying information containing contact details of the people to be contacted and a device to contact at any given point of time give a kind of strength and a feel of safety? What are the implications of the availability of information of the person and device to contact on the person’s ability to deal with adverse or unsafe condition? These questions need extensive investigation.

g. There is immense scope of cultural studies while exploring the impact of cell phone on Indian family values as well as cultural values as the researcher could identify that the line of gender distinction and generation gap is eroding. Assessment of the effects of cell phone interactions on other socio-cultural boundaries of behaviour and casual approach towards communication is needed. It is also important to study whether this erosion of gender distinction and generation gap is carried forward and can be seen in actual day-to-day behavioural patterns of undergraduate students especially with opposite sex and elderly people.

h. Instead of taking down notes on paper or memorizing important information, the young generation is more prone to store it in their cell phone. In a way, one can say that a cell phone is responsible for expanding the personal space and shrinking the written space. The long term impact of such a practice may result in reducing the ability of in-depth comprehension and analytical approach in thoughts and expression in the formative years of late adolescence. As much as it can be considered handy it is an easy and a time saving way to store the information, this act eliminates the prospect of writing thereby reducing the motor skills that is coordination of voluntary muscles of finger and hand controlled by brain which includes not only the skill of how to write but also the skill of what to write. Will cell phone usage to store information in the form of typed text and/or photographs create hindrance for ability to memorize? These aspects also need more research.
Discussion and Conclusion

i. What are the achievable measures the parents must take to save their children from becoming a cell phone addict? A million dollar question needs to be answered; hence more attention is required to be paid.

The research would like to reinforce the importance of communication technology. Whilst it is advancing in personal communication technology, it needs to be used with discretion.

5. 5 Utility of the Study:

The present study can be useful for communication scholars, socio-cultural scientists, behavioural scientists, parents, teachers and professors constantly interacting with the young generation, cell phone manufacturing companies, cell phone connection service provider companies, and even for general public who is interested in upgrading their general awareness.

“We’re lonely, but we’re afraid of intimacy. And so from social networks to sociable robots, we’re designing technologies that will give us the illusion of companionship without the demands of friendship.”- Sherry Turkle, Cultural Analyst.

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