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Geo-Statistical Analysis of Increasing Addiction to Electronic Gadgets and its Impact on Social Interaction in Everyday Geography of Delhi

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ABSTRACT

Social Interaction is the key to maintaining a healthy bond among people. In metropolitan cities like Delhi, the level of interaction among people depends on various factors and the survey aims to find the main factors responsible. Among these, one is the time spent on electronic gadgets like laptops, smart phones, TV's etc. by people of different age groups. The other factor is, the structure and style of different households, whether they are builder flats or properly planned societies. The two factors are interconnected and have a direct bearing on the levels of social interaction. The study is based on both primary and secondary data sources collected from various sources. As a methodological approach, the findings of the survey will incorporate various thematic and advanced Geo-statistical techniques like sampling plans, correlation coefficients, T-test, factor analysis, time series analysis, softwares like SPSS 16.0 and Q-GIS 3.8.2. The paper also suggests ways to enhance the level of social interaction at both individual and community levels like provision of well-maintained parks within a range of 50 m to 200 m from the residential areas, limiting the child's dependency on technology, and encouraging interaction through physical activities involving team work, awareness regarding importance of social interaction in the early stages of child development, observing a gadget free day every week or gadget free hour every day, organization of regular family trips and friend's get-together, improving the social set up of residential areas. The finding suggests that proper planning, maintenance, and decision-making in these areas can help in achieving and reviving the era of social interaction leading to a healthy workforce and creation of a sustainable society.

1. Introduction

In this digi-finitech and technologically advanced era, electronic gadgets have become an indispensable part of our lives, due to their multi-dimensional approach, and the ability to keeping us engaged by providing a large number of options for our daily needs and entertainment. At the global level, it keeps us virtually connected. The rapid advancement in technology has made many gadgets, a smartphone is one of them (Nishad and Rana, 2016). However, there is a dark side to the usage of such devices as smart phones, laptops, tablets, televisions etc, The use of electronic gadgets has increased to such an extent that they have started eating up our precious time and quite evidently at the cost of time devoted to social interaction, with family members and friends. In fact, these electronics have negative impacts on our lives in terms of isolation (going away from the physical world), thus, reducing the quality of the relationships with a less expressive generation (Lickerman, 2010). With the rapid pace of urbanization and advent of nucleated system of family, the issue is catching up a spatial identity. Moreover, the structure and style of the society and the planning of area is changing rapidly and seems to plays an important role in understanding this trend. At the outset, this phenomenon tends to be more pronounced in the top metropolitan cities of the nation with Delhi metropolitan region being no exception to this.

This emerging issue not only degrades the quality of social interaction but is also responsible for giving rise to various health problems that were initially not very profoundly observed among the people. The greater usage of electronic gadgets promotes isolation which has been supported by the fact that people actually have an issue while interacting with people. This also lays the foundation for exposure of people to depression since isolation and lack of communication are significant aspects of depression. Though, this is still an emerging issue, but if the present trend continues, then it will not take much longer for it to become a major problem, trapping us all. Our study identifies this impact of electronic devices on us and our levels of communication and aims to understand the causes involved, analyze the reasons behind this trend, find a pattern if any, in which the problem exists and give meaningful solutions to counter this problem and represent the same using various analytical techniques, to validate the findings.

The topic of the research has been carefully chosen, taking into account the present scenario, which reflects the declining levels of social interaction among the people. Greater the time devoted to electronic gadgets, lesser would be the time spent outside. Therefore, there is a complimentary relation between these two aspects. Since the electronic gadgets have a vast coverage, it sounds quite obvious to spend more time on them. This however, is achieved at the expense of social interaction. The world today is interconnected as a result of rapidly growing technology. This technology has tremendous hold over our lives. The

digital communication has negative impact on the face-to-face interaction leading to degradation in its quality. This evolving problem is borderless in nature and involves each one of us. People are more reliant on communicating with friends and family through technology, and are neglecting to engage personally (Drago, 2015). The use of the electronic devices has grown over the past few years due to several factors such as greater accessibility to these devices, and a dramatic technological advancement. Many studies analyzed the effects of mobile technology on human relationships. Technologies are evolving at a very rapid pace. The present age is the age of smart phones and as a result people feel that they do not need social interaction as an important part of their lives. Thus, it tends to affect the face-to-face communication between people in a very negative manner (Elsobeihi and Naser, 2017).

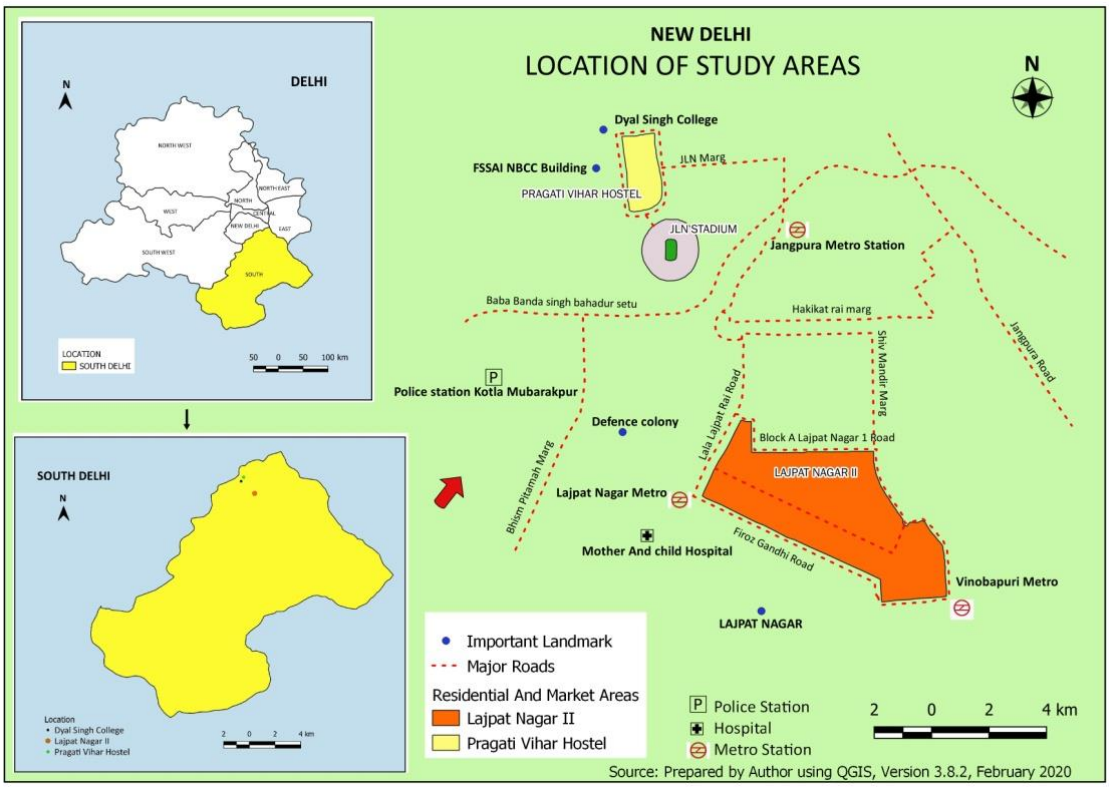
This inclination to gadgets has affected people of all age groups thus creating a generation gap. In this connection, McGrath (2012) has analyzed the impact of new media technology within a household, on people of different age brackets. He emphasized prevalence of a growing "digital divide" between the "masters" of technology or the younger generation and the "amateurs" of technology, or the elder generation, thus, decreasing the ease of communication. People are more reliant on communicating with friends and family through technology, and are neglecting to engage personally (Drago, 2015). The problem has been further aggravated by the poor planning of residential areas or the housing facilities. Traditionally, people living in properly planned or well developed societies, the one which offers recreational spots for the residents within its premises, like society park, club, gym or swimming pool and which organizes society events, giving people an opportunity to get involved in these events, have better levels of social interaction, since they have multiple things in which they can participate, or at least they have alternative options other than spending time on the electronic devices. On the contrary, people living in, 'not so efficiently planned areas' or an area that lacks a properly planned and maintained society, have low levels of interaction. This can be attributed to the fact that since the areas are not planned properly, people do not prefer to come out and instead sit at homes and seek fun using these gadgets.

A few researches have been done on the use and application of electronic gadgets and equipment and the role of social media in countries like Netherlands and other western world countries. However, in India, this is still an emerging issue and therefore there have not been many researches done in this field. Moreover, the spatial planning of areas has not been given due importance which needs investigation and geographical analysis.

2. Geographical Profile of the Study Areas

To understand the role of space in determining the nature and varying levels of social interaction among people, the surveyor chose two contrasting areas both situated in South Delhi i.e. Pragati Vihar Hostel (PVH) and Lajpat Nagar, Phase II.

Figure 1: Location of Study Areas in Delhi



2.1. Pragati Vihar Hostel (PVH)

Pragati Vihar Hostel is geographically located at 28.59º North latitude and 77.22º East longitude and situated at Lodhi Estate, near Dyal Singh College in South Delhi. It contains six blocks, A – F, with approximately 170 houses, having a public park for every single block (see fig.2). This residential complex is inhabited by high grade government officers and their families. It presents a

clear picture of a well laid-out housing society without any dearth of open public spaces like parks and open gyms (see fig. 3(a) and 2(b)).

Figure 2: Layout of Pragati Vihar Hostel

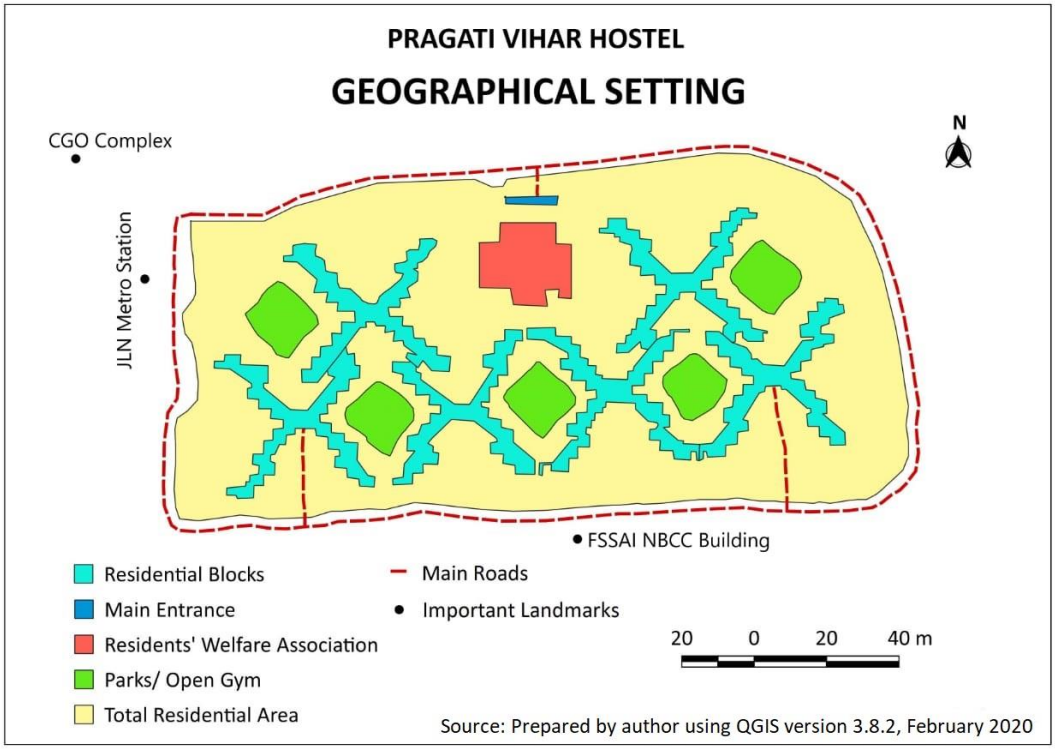


Figure 3: Glimpse of Pragati Vihar Hostel (PVH)

Fig. 3(A)

Fig. 3(B)

Source: Captured by the surveyor, September, 2019

The PVH also has a proper *Resident's Welfare Association*, which looks into the maintenance of the public spaces as well as the organization of events and festivals at regular intervals, encouraging the participation of its members. A major highlight of the area was the peaceful environment surrounding the locality which seemed very conducive for physical and social activities.

2.2. Lajpat Nagar, Phase II

Lajpat Nagar, Phase II is situated near Defence Colony locality in South Delhi, very close to the Lajpat Nagar Metro Station, with a geographical coordinate lying at 28.56º North latitude and 77.24º East longitude. It contains approximately 130 houses and is spread across a much greater area as compared to Pragati Vihar Hostel (see fig.4).

Figure 4: Layout of Lajpat Nagar – Phase II

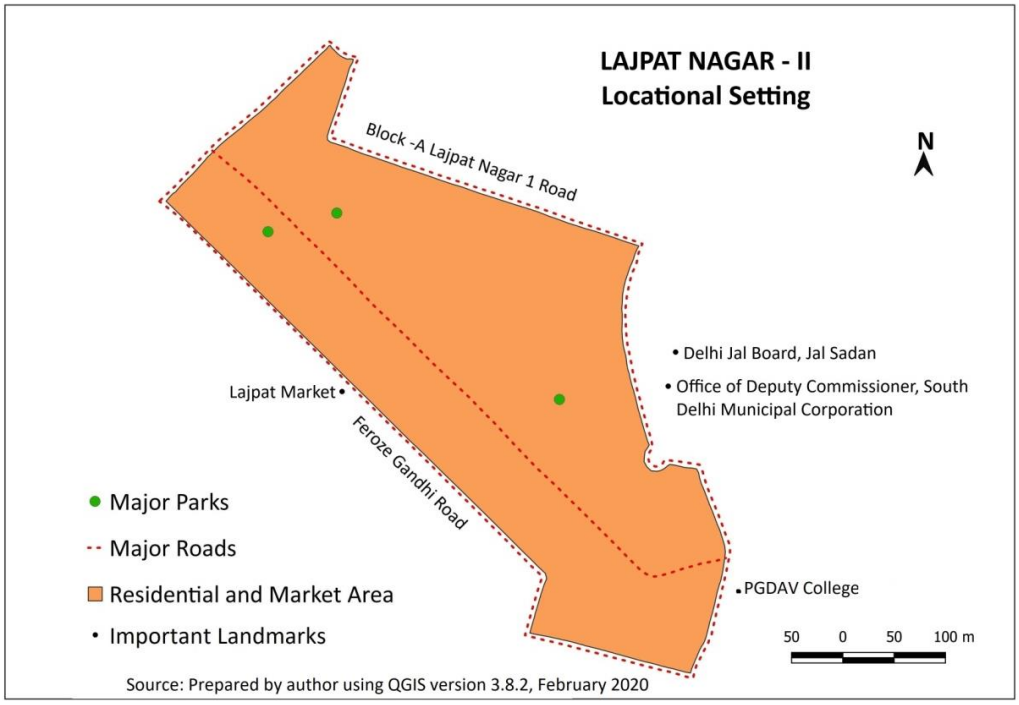


Figure 5: Glimpses of Lajpat Nagar, Phase II

Fig. 5(A)

Fig. 5(B)

Source: Captured by the surveyor, September, 2019

The residential and market areas do not have a well distinguished space to which they are meant to be confined and can be seen set up next to each other and alternatively throughout the region (see fig. 5a). The area was quite congested and crowded with unsystematic parking of the vehicles which hindered the free and easy movement of people (refer fig 5b). The area is dominated by both big and small shops selling a variety of products and thereby assumes a greater significance as a market place and not a residential area. There are a few parks in this area; however, they are poorly maintained, with an evident absence of a good ambience. It manifests the unplanned structure of the society in accordance to its residential aspects. Also, the area lacks an active association responsible for the residents' welfare and improvement of the mismanaged surroundings.

Overall, this section tried to explain the characteristics features and differences prevalent in both the study areas and thus, best justified the very essence and criteria of our present research.

3. Nature of Problems

Following are the two major research gaps in the study that needs to be addressed.

- The impact has not been studied spatially. The problem might show spatial variations depending on the area that is surveyed. However the spatial factor was not taken into consideration in any of the reports or article. The planning of a region and the structure of houses might have a strong influence on the levels of social interaction of people.
- Quantification of the data has been missing altogether, which forms an important part of a survey, validating and providing meaning to the findings of the research..

4. Objectives of the study

The present study has the following objectives:

1. to study the trend in increasing reliance on electronic gadgets.
2. to examine and compare the levels of social interaction among people living in well planned societies and poorly planned societies.
3. to evaluate its growing impact on the people of different age groups.
4. to analyze the current trend or scenario and to frame meaningful and innovative solutions to address the problem.

5. Hypothesis

The hypothesis of the study states-

"Lesser the time spent on electronic gadgets, and better the quality of housing facilities or planning of a region, greater will be the levels of social interaction among people."

6. Materials and Method

6.1 Sources of Data Collection

The study is based on a combination of both primary and secondary data sources to fulfill the basic aims and objectives and to test the hypothesis. The major sources of primary data collected includes Questionnaire, Observations Survey, Interview Method and Field Photograph. The questionnaire comprised a set of 21 questions including both open and closed ended questions. Interview was conducted to understand the perceptions of the respondents. During survey, few observations were made, especially while commuting, which gave us an insight and helped in the better understanding of the theme of research. Field photograph supported the ground reality. Apart from major reliability on the primary sources, few secondary sources were also referred. Published Reports, Official Govt. Records, Library archives, Articles etc. relevant to the topic were reviewed and data gathered to validate and provide authenticity to the results obtained. Data on electronic gadgets penetration and smart phone usage has been gathered from IMRB I-Cube 2015-October 2015, All India Estimates.

6.2 Analytical Techniques and Methodology

Justifiable combinations of both quantitative and qualitative methods and techniques have been employed in tabulating, analyzing and evaluating the data. As a methodological approach, both thematic and geo-statistical techniques have been used like sampling plans, correlation coefficients, T-test, factor analysis, time series analysis for future prediction, pie diagrams etc. Softwares like SPSS 16.0 will extract the result and Q-GIS 3.8.2 is used to map the spatial attribute and results obtained. A combination of cartographic techniques, thematic mapping and statistical methods has been employed to provide a new realm to the findings of the survey. The major quantitative methods used for analysis of data included sampling techniques, correlation coefficient, t-test, factor analysis etc. Pie-diagram was used largely to reflect the perception of the respondents. Each of them and their results obtained are discussed below:

a) Simple Random Sampling

Out of the broader types of sampling procedure, Simple Random Sampling method has been chosen for the study, since the population was homogenous in nature and there were no specific criteria of selection of respondents. Also, it is less tedious, less time consuming, cheaper and more efficient. The total number of houses in the two study areas was 170 and 130 approximately. Hence, primary data was collected from 17 and 13 sample houses which form 10% of the population representing the ideal size of sampling.

b) Students' "T-Distribution": Hypothesis Testing

Once the sampling method is decided we begin to test the null hypothesis stated in the beginning. "Students' T-Test Distribution" as a parametric test has been applied since the sample size is less than 30 being 17 for PVH and 13 for Lajpat Nagar II respectively. Results between 95% $_{(0.05)}$ and 99% confidence level $_{(0.01)}$ are accepted and anything falling below, is rejected. On calculation, the following results were obtained.

Lajpat Nagar II
T-score $_{(\text{calculated value})}$ = 4.8
Tabulated value $_{(0.05)}$ = 2.18
Tabulated value $_{(0.01)}$ = 3.06
Degrees of freedom (13-1)

Pragati Vihat Hostel
T-score $_{(\text{calculated value})}$ = 4.9
Tabulated value $_{(0.05)}$ = 2.12
Tabulated value $_{(0.01)}$ = 2.92
Degrees of freedom (17-1)

For, Pragati Vihar Hostel, the t-score of 4.9 at (n-1) 17-1=16 at degrees of freedom obtained was more than the tabulated value of 2.12 $_{(0.05)}$ and 2.92$_{(0.01)}$. Similarly, for Lajpat Nagar also, the t-score 4.8 at (n-1) 13-1=12 degrees of freedom calculated was more than 2.18 $_{(0.05)}$ and 3.06 $_{(0.01)}$ at 95% and 99% confidence level. Hence, for both the surveyed areas, the H_o stands to be rejected. Thus, there is sufficient evidence to conclude that the level of social interaction among the residents, who heavily rely on gadgets (Lajpat Nagar-II), is lesser than those who use it not so frequently (as in PVH).

c) Karl Pearson's Product Moment Correlation (r)

The present study attempts to show the relation between 'time spent on electronic gadgets and time spent outside' using Karl Pearson's Product Moment Correlation Coefficient method**.** Coefficient of Correlation (denoted by 'r') refers to the intensity of the relationship between any two variables usually X and Y, in which one is an independent and the other is a dependent variable. It is interesting to find that a contrasting result was obtained for the two localities between 'number of hours spent on electronic gadgets' (treated as independent variable i.e. X) and 'number of hours spent outside at places like parks' (taken to be dependent variable i.e. Y).

A weak positive correlation of 0.181 was obtained between the two chosen variables in Pragati Vihar Hostel. This actually shows that the time spent on both the activities has a fairly equitable distribution among the residents of PVH. The time spent on electronic gadgets and the time spent outside is more or less balanced, with some cases showing slight variations in which the time spent on electronic gadgets is much less as compared to the time spent outside. Contrary to this, Lajpat Nagar, Phase II gave a negative correlation of -0.266 establishing the fact that if the time spent on electronic gadgets increases, then the time spent outside will be reduced. The opposite of the situation doesn't hold relevance in this case, as most of the respondents gave a unanimous answer that the time spent by them on electronic gadgets was far more than the time that they spent outside.

The results clearly showed the disparity between the two variables in a true sense and highlighted the fact that the time spent on both the activities had a great contrast. The results of the two areas manifested two aspects; firstly, how the amount of time spent on electronic gadgets influences the social interaction and, secondly, how the housing facilities or accommodation facilities of different areas play a role in determining the levels of social interaction.

d) Factor Analysis

As a statistical method, Factor Analysis is attempted to describe the variability among observed and correlated variables in terms of a potentially lower number of unobserved variables called factors. The results were obtained using SPSS 16.0 (Statistical Package for Social Sciences) software. The two most dominant factors influencing the rates of social interaction identified were 'excessive usage of electronic devices' and 'lack of properly planned societies' accounting for 58.62% and 31.03% respectively. Their factor loadings were more than 0.8 with eigen value being above 1, thus, showing their dominance over other factors and worth retaining. Their cumulative percent of variance recorded was almost 90% explaining and determining the level of social interaction.

7. Results and Discussion

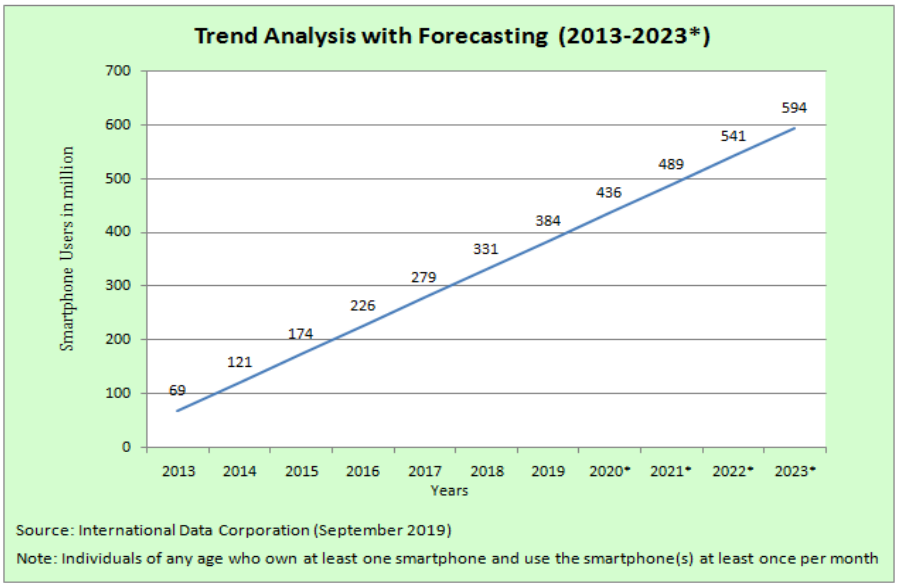
7.1. Theorizations and Qualitative Analysis

The qualitative analysis is based on interactions, observations and experiences. While, travelling in Delhi, many theorizations were formulated. These are further analyzed and discussed.

A. Perspectives and Trends in Temporal Variation

Interacting with the people, attention was drawn to a well-defined generation gap of which majority of them complained to have created and isolation among people. On one hand there are the young, finitech literate populations who are always seen sticking to their electronic gadgets and on the other we have the more experienced aged population with a demarcated *'gadget-o-use'* gap created due to ease and being tech-savvy at their availability and use. It was found that the number of smart phone users has been constantly increasing in India over the past 7 years. It jumped massively from 76 million in 2013 to almost 382 million in 2019 and is expected to reach 594 million (approx.) by 2023*. The below line graph (fig. 6) depicts this increasing trend. Least square method using the linear equation (y=a+bx) has been used for forecasting the increasing penetration in India for four consecutive years i.e. 2020, 2021, 2022 and 2023 using time series analysis.

Figure 6: Smart Phone Penetration in India (2013 – 2023*)



The positive change in trend in the usage of smartphones is majorly attributed to some basic reasons (by the respondents). These may also be cited as the reasons for adaptation to smart gadgets which in a way provides them an escape from social interaction that led to the coining of the term '***Adaptation-Scape to Social Interaction'***. These are discussed as:

1. Greater advancement in technology which has flooded the markets with electronic gadgets available at a much cheaper rate.
2. Expansion of online channels and programmes.
3. Increasing urbanization which has resulted in huge migration from the rural areas.
4. Creation of more and more nucleated families along with the poor planning of residential societies in many areas.

However, it is to be noted that this trend was not to be found a decade ago. At that time, the ownership as well as the time spent on them was very limited and the few electronic gadgets at several occasions brought people together instead of pushing them apart. Due to this limited ownership, people were exposed to a greater social life and interacting with friends and family, engaging themselves in sports in order to seek fun and entertainment. Hence the levels of social interaction were higher.

Figure 7: Free environment around PVH (L) as compared to a surrounding full of rush in Lajpat Nagar II (R)

Fig. 7(A)

Fig. 7(B)

Source: Captured by the surveyor, September, 2019

B. Analyzing the Spatial Variation

During the survey, it was found that space played a dominant role in determining the varying levels of social interaction and consequently, the amount of time spent on electronic gadgets by the residents of an area. The residents of PVH, living in a better planned and well-maintained society, are able to devote a larger share of their time to interact with each other as compared to the residents of Lajpat Nagar II (refer fig. 7(a) and 7(b)). Greater number of parks and an impressive maintenance of the public spaces in PVH become a pull factor for the people towards socially interacting with fellow residents and cutting short their time spent on electronic gadgets (refer fig. 8 (a)). The active functioning of the Residents' Welfare Association looking into this maintenance and the organization of various events and programs for all residents at regular intervals also promotes the cause.

On the other hand, apart from the fewer and poorly maintained public spaces, Lajpat Nagar, phase II is found to be heavily crowded for most part of the day (see fig. 8 (b)). The commotion is generally at peak in the evenings which also is the time residents believe the most convenient to spend outside their homes. This renders them unwilling to go out and interact. Absence of a welfare association discourages unity among the residents, leaving them with an individual identity instead of common one which in turn severely affects the social and cultural cohesion. The residents also complain of regularly experiencing noise and air pollution in their locality which hinders their interaction.

Figure 8 A and B: A park in PVH (L) versus Lajpat Nagar II (R)

Fig. 8(a)

Fig. 8(b)

Source: Captured by the surveyor, September, 2019

C. Spatial Variation through Numbers: Primary Survey

It was found that while there are 5 gadgets usage per family in PVH, the average goes up to 7 gadgets per family in Lajpat Nagar II. 41% of the respondents strongly agreed, 47% agreed and only 12% disagreed in PVH while 49% strongly agreed, 43% agreed and a mere 8% disagreed in Lajpat Nagar when asked that whether or not the excessive use of electronic gadgets reduces social interaction among people. 76% of the respondents agreed and 24% disagreed in PVH on being asked that whether or not well-developed societies increase the levels of social interaction among residents while 83% of the respondents agreed and 17% disagreed in Lajpat Nagar II. It is also interesting to establish that 83% respondents in PVH while only 39% in Lajpat Nagar II confirmed of having their own social group in the localities.

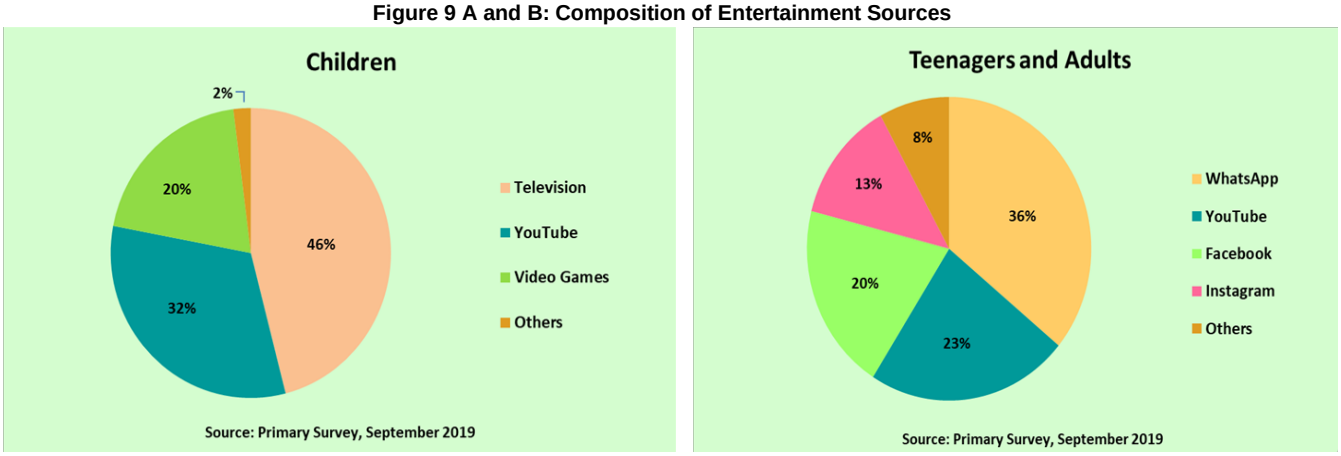
7.2 Impact on Different Age Groups

The use of electronic gadgets is increasing rapidly, among people of all age groups. The focus of the study was on four major age groups (in years) viz; children (below 13), teenagers (13-19), adults/working population (19-59) and senior citizens (above 60). It was found that the levels of social interaction and usage of electronic gadgets varied among different age groups. The teenagers and young adults spend more time on smart gadgets as compared to children and senior citizens. In terms of spending time outside in public places like parks, society clubs and gyms, the children followed by adults dominated the scenario. The teenagers comprise of a larger portion of respondents who prefer the time spent on electronic gadgets over social interaction. Contrary to this, senior citizens had a completely different opinion as they wanted to spend more time at public places.

7.3 Popular and Most Preferred Sources of Entertainments

Figure 9 attempts to show and depict the most popular sources of entertainment and social media sites among the children, teenagers and adults of both the surveyed areas.

Figure 9 A and B: Composition of Entertainment Sources

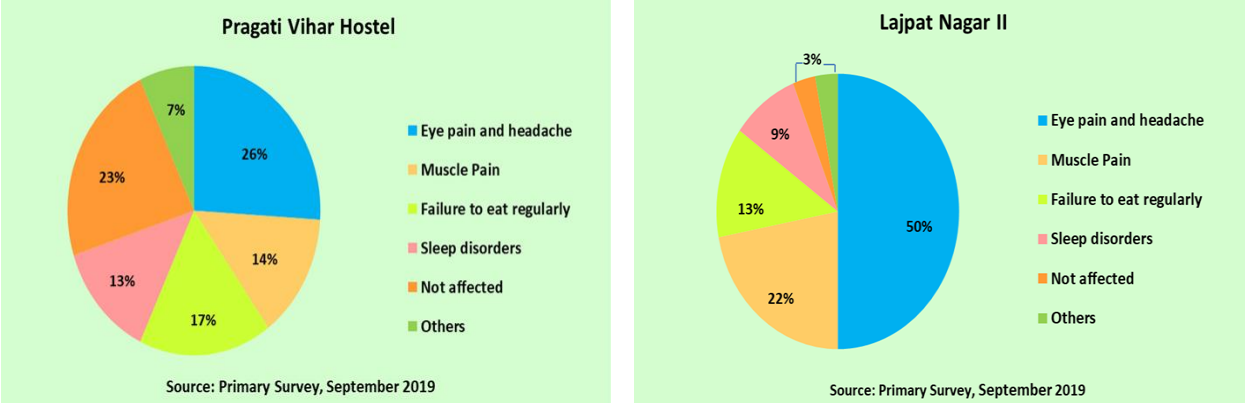


It is evident from fig. 9(a), that the most popular source of entertainment among the children is Television, accounting for nearly 46% (i.e. approximately half of the population) followed by YouTube (32%) and video games, having a proportion of nearly 20%. Fig 9(b) depicts that social networking sites emerged as the most popular source of entertainment among the teenagers and adults of the surveyed areas with WhatsApp, accounting for nearly 36%. The next popular entertainment means was found to be YouTube and Facebook, accounting for 23% and 20%, followed by Instagram and Others (Twitter, LinkedIn etc.) with 13% and 8% respectively.

7.4 The Emerging Health Problems and Psychological Impacts

While on one hand, these gadgets are making our lives more convenient, on the other hand-usually the darker and more dominant side-reliance on electronic gadgets like smart phones, gaming devices, computers etc. has moderate to severe health and psychological impacts on people of all age groups. Figure 10 shows a comparative analysis of the emerging health issues faced by the residents. Many respondents agreed facing problems of headache, eye pain, muscle pain and sleep disturbances frequently. 69% of the respondents in PVH agreed that electronic gadgets are having a negative impact on their health while 31% disagreed. In Lajpat Nagar II, a staggering 92% of the respondents agreed to the same question while 8% of the respondents denied. Figure 10 (a and b) gives us an insight of the common health problems faced by the respondents. Eye pain and headache emerged as the most common problem faced by the residents being as high as 50% in Lajpat Nagar and 26% in PVH. However, it is interesting to note that almost 23% of the respondents in well-structured and well maintained PVH reported not to have been affected by any health problems as such, since they spent little time on electronic gadgets and instead preferred to spend time outside. In general, the other problems noted were muscle pain, failure to eat regularly and sleep disturbances.

Figure 10 A and B: Comparative Analysis of Health Problems faced



The grim reality of increasing reliance on smart gadgets tends to be even harsh on mental health of people facing a psychological problem. Cell phone addiction is found to be negatively correlated with academic performance due to increased impatience, more restless and poor memory (Baert et al., 2018) and (Lepp et al., 2015). Excessive use of smartphone paired with negative attitude and dependency on gadgets may increase the risk of anxiety and depression (Rosen et al., 2013, Thomée et al., 2011). Thus, it is correct to say that there exists a strong correlation between the excessive use of gadgets and psychologically driven health issues such as anxiety leading to sleep deprivation, depression leading to irregular & unhealthy food habits. These problems are more noticeable among the teenagers who are often attracted towards the false charisma of electronic gadgets and the 'virtual social world'. Adolescents are at high risk of being smartphone addicts (Cha and Seo, 2018). They are becoming victims of depression and adults are developing a more aggressive behavior. However, the negative impacts noted are more profound among children. Children aged 6-17 years, were often exceeding their gadget usage time limit by stressing on demanding extra time exhibiting the first signs of addiction (Wahyuni and Benito, 2019). They are found to be less sensitive towards people and their issues and find it hard to sympathise or empathise with their ordeals. It can therefore be concluded that the high usage of electronic gadgets has exacerbated both the physical and psychologically related negative impacts on all age groups.

8. Major Findings

Our research led us to various interesting theorizations and results on which our findings are based. The major findings of the study can be summarized as:

1. Through our observations and day to day experiences during survey, it is established that electronic gadgets have become a quintessential part of our daily lifestyle and people heavily relied on it for their daily functioning (see below fig. 11).

Figure 11: Prisoners of Cell Phones (Delhi Metro)

Source: Captured by the surveyor (random click), 30th September, 2019

2. There were largely two factors influencing the levels of social interaction: i) the amount of time spent on electronic gadgets and ii) the role of housing and accommodation societies (planned or unplanned housing complexes).
3. Spatial Variations were reflected through the survey.
4. Correlation coefficient obtained for the two surveyed areas revealed a contrasting result manifesting the fact that the amount of time spent on electronic gadgets and the spatial structure of housing facilities plays a significant role in determining the levels of social interaction.

5. While, travelling in Delhi, a well-defined generation gap was noticed in the use of electronic gadgets.
6. The impact of electronic gadgets on levels of social interaction varies not only spatially but also temporally and from one age group to another.
7. Among all, teenagers and young adults were found to be more attracted towards social networking sites and the false charisma of electronic gadgets and the 'virtual social world' as compared to children and senior citizens.
8. Eye pain and headache, sleep disturbances, muscle pain and failure to eat regularly are the major emerging health problems noticed with a higher proportion in Lajpat Nagar II.

9. Concluding Remarks

Our heavy reliance on electronic gadgets is very much a reality and is becoming a bigger problem day by day. It has brought us to a point where it is seeming to make our lives simpler, it is indeed exposing us to a situation more complex. It has not been a problem of the past but is very much emerging as a problem in front of our eyes. The adults and the senior citizens who have experienced this transition in a relatively short span of time stand testimony to this fact and their perceptions and opinions are must to understand the gravity of the issue.

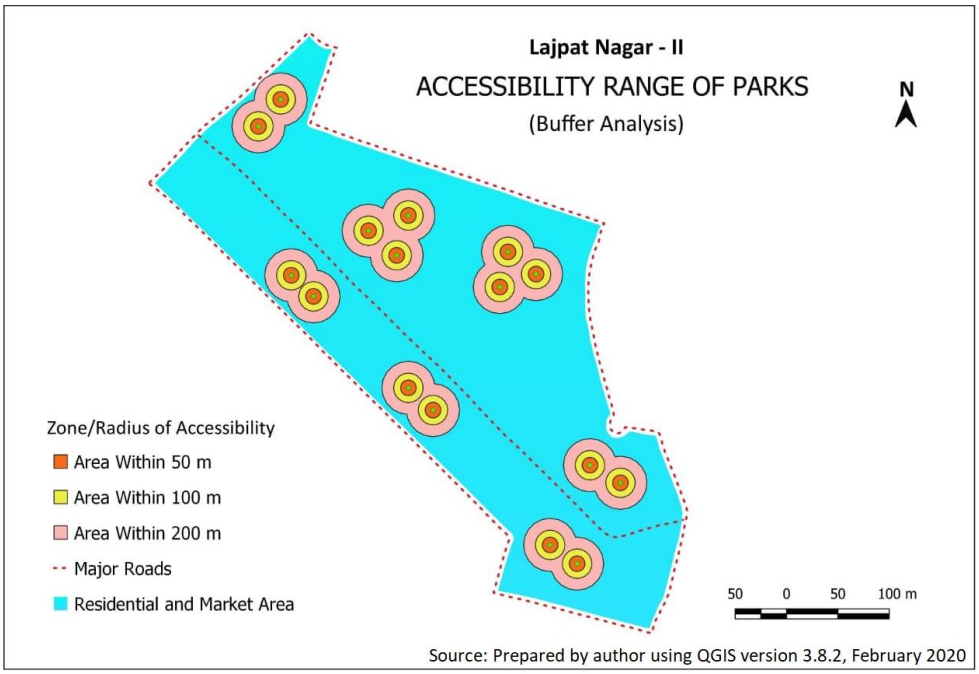
The negative impact on health in addition to the exacerbation of psychological negative impacts and our shrinking ability to interact physically and socially with people is a product of this heavy reliance on electronic gadgets on which we must be open our eyes as early as possible. Also, an alarming sign is the inclination of the youth and teenagers towards this trend, greater than any other age group. Finally, we should also understand the role of space in determining the varying levels of social interaction and should always promote a cohesive social structure even if we are deprived of the best social infrastructure or conditions to do so. The Government can also have a decisive say in improving the social set up of residential areas and should deeply focus on the proper planning and maintenance of the same.

10. Suggestions

Based on the detailed study and survey conducted and the findings gathered, the present research proposes few suggestions:

1. Residential areas across Delhi should be equipped with well-maintained parks within a range of 50 m to 200 m as proposed by the residents. The below map shows the proposed location of parks in Lajpat Nagar area.

Figure 12: Accessibility of Parks through Buffer Analysis



2. The awareness regarding the importance of social interaction should find its way to the early stages of child development encouraging him/her to interact through physical activities involving team work.
3. A similar kind of a platform should be provided to the adults and the senior citizens for interaction.
4. We can restrict ourselves from using electronic gadgets by spending a gadget free day every week or gadget free hour every day barring the usage in times of emergency.
5. It should be brought to the parents' knowledge that a little more patience would be required of them in order to limit their child's dependency on technology as opposed to giving in easily to their children's demands.
6. More family and friends get together should be organized especially family trips. Family members should have their lunch/ dinner together during the course of which the use of electronic gadgets should be strictly prohibited.

Thus, in a nutshell, it is established that the study conducted has very well justified the aims and objectives of the research and thus the hypothesis thereby stands true. Hence, it is established and can be safely concluded that increasing reliance or addiction to electronic gadgets is having a negative impact on the levels of social interaction well postulated through both quantitative and qualitative validations.

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