Effects of Smartphone on Attention Span of Youth

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Abstract

Today we use the term 'New Media' to refer to media forms and media content that are created and shaped by changes in technology. Thus computer usage, Internet and smart phones are all categorized as New Media. With the advent of digital age, a lot has changed for youth especially, students. They are more engaged with media technologies than ever. Though media is making them modern, educated and updated but there is negative side to this too. The effects of new media especially Smartphone is a hot topic for researchers. Lots of studies have been done in this area but it is mostly qualitative. Hence a need arises to find effects of Smartphone use and also quantify it at the same time. This study focuses on short term effects of Smartphone usage on attention span of youth. It would help in understanding whether there is a relation between increased Smartphone usage and decreased attention span. With the help of Secondary Data Analysis and Survey method, an attempt was made to find out the duration and type of Smartphone usage. Further application of Attention Span Test was done to assess whether the duration of Smartphone use and attention span are correlated or not.

Keywords: *Attention Span, Correlation, Smartphone, Social Networking, Psychological*

INTRODUCTION

In this Digital era people, irrespective of gender and age are becoming techno- savvy. The use of New Media especially Smartphone has reached to such an extent that it is now

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worrying doctors, parents and intellectuals of various fields. Smart phones are having a great impact on youth which is evident from the researches done in this context. Douglas Rushkoff in his book 'Playing the future: What we can learn from Digital Kids' has coined the term 'Screenager' which refers to young people who are in their 20s and have an aptitude for using computers and Internet. The youth of today are consuming media content at a very fast rate and are spending considerable amount of time on screens (on an average two hours of screen time per day). They split their enormous media time among many activities such as social networking, viewing video, exchanging instant messages, viewing graphics and photos, listening to music, watching TV, playing games, looking up things and catching up on the news- often simultaneously. They have exposure to various screens such as television, laptop, tablet and computer. But Smartphone use is of utmost importance as it is the most popular medium.[1] Even the kids are not spared from the effects of Smart phones as parents use screen time on smart phone as an incentive or reward for their kids. Although at first it may seem harmless to give children such motivation as due to this parents get some spare time for work or for themselves and it gives their kids some distraction for a while. But recent studies by BMC Obesity Journal suggest that rewarding kids with screen time leads to addiction and more screen time.

There is evidence that a higher level of screen time is associated with adverse effects on health. Heavy screen time has been linked with reduced physical activity, poor social skills, obesity, sleep problems and also behavioral and emotional problems such as irritability, aggression, anxiety, depression and social isolation. Youth are reporting physical problems such as irritated and dry eyes, neck/ shoulder pain, headaches and fatigue. But the biggest concern is effect on cognitive skills. Smart phones are causing real damage to minds as there has been a significant decrease in average attention span leading to poor academic or work performance. Due to this people are unable to focus on a task, miss out on important information and get distracted easily. In cases of excessive usage, research has shown that it is impairing the ability to remember, dampening creative thinking and leading to "cognitive errors" like forgetting meetings and walking into people. Thus it is giving rise to 'Digital Dementia'.

Apart from attention span, even in general there are various other effects of Smart phones such as total dependence on technology, learning wrong habits, early maturity, violence, aggression, following trends blindly etc. Such effects have been known through qualitative studies done in this regard. But there is also a need to conduct more quantitative study to find out its exactness. Hence a study needs to be carried out to find out effects of

1 https://www.americanpressinstitute.org/wp-content/uploads/2013/09/NIE_Fitting_into_their_lives.pdf

Smartphone usage on youth in quantitative terms. Quantitative studies have been conducted on the impact of Smart phones on the youth worldwide, including countries like USA, Britain, Japan, China, Norway, Finland, and Middle East. This study would give quantitative proof regarding effects of Smartphone usage and hence would be more valuable and authentic. This study may help the youth (especially students) to understand that self-restraint is necessary in using Smartphone otherwise it may affect their learning and problem solving abilities. The present study holds a major significance in present times as there is a general perception around the world that the youth are using Smart phones in excess and that it is affecting them negatively. So one of the assumptions considered for testing in this study is that the usage of Smartphone and attention span are correlated and the increase in Smart phone usage decreases retention ability. The research was done with the aim of finding out relation between screen time or screen usage and attention span.

RESEARCH OBJECTIVES

- To study demography of Smartphone Users.
- To study type and duration of Smartphone usage.
- To study whether duration of Smartphone use and Attention Span are related or not.

DEFINITION

Attention is defined as the behavioral and cognitive process of selectively concentrating on a discrete aspect of information, whether deemed subjective or objective, while ignoring other perceivable information. And Attention span refers to the amount of time we can focus on a task before we start to “zone out”.

THEORETICAL FRAMEWORK

Multi-Store Model - It was proposed by Richard Atkinson and Richard Shiffrin in 1968. This model suggested that information exists in one of 3 states of memory: the sensory, short-term and long-term stores. Information passes from one stage to the next the more it is rehearsed in our minds, but can fade away if enough attention is not paid to it.

Decay Theory- The term “decay theory” was first coined by Edward Thorndike in his book The Psychology of Learning in 1914. Decay theory proposes that memory fades due to the mere passage of time. Information is therefore less available for later retrieval as time

passes and memory, as well as memory strength, wears away.

REVIEW OF LITERATURE

Pulikotil (2010) explored the Internet addiction among the university students and indicated that the highest exposure to Internet brought about decrease in the pro social behaviors and cultivation of human relations in the sphere of higher education in the study area. *Vidyachathoth et.al. (2014)* evaluated the Internet addiction among undergraduate medical students in Mangalore and reported a significantly positive correlation between the Internet addiction test scores and the negative effect scores. *Kanwal and Anand (2003)* studied the Internet addiction among the students and observed that the use of Internet lead to delay of work and loss of sleep. *Wang, Chen, and Liang (2011)* in their study showed that there was a negative aspect to college students' uses of social media and sites. After data analysis researcher concluded that the college students were likely to be affected by social media including the grades and their result.

Miller (1956) in his study concluded that people tend only to be able to hold, on an average, 7 chunks of information (plus or minus two) in the short-term memory before needing to further process them for longer storage. *Peterson and Peterson (1959)* conducted a study to give memory decay theory. In this experiment employing a Brown-Peterson task, participants were given a list of trigrams - meaningless lists of 3 letters (e.g. GRT, PXM, RBZ) - to remember. After the trigrams had been shown, participants were asked to count down from a number, and to recall the trigrams at various periods after remembering them. Whilst almost all participants were initially able to recall the trigrams, after 18 seconds recall accuracy fell to around just 10%. Peterson and Peterson's study demonstrated the brevity of memories in the short-term store, before decay affects the ability to recall them.

RESEARCH METHODOLOGY

A Quasi Experimental Design was used for the study. The present study is Quantitative as well as Qualitative research that aims to explore and quantify the effects of Smartphone use on attention span. Smartphone was considered as the medium for the purpose of study. Varanasi City of Uttar Pradesh was chosen as the study area for the study. Students from Banaras Hindu University at Masters and PhD level were taken as the sample for the study.

The number of respondents was 40 and was basically youth in the range 17- 32 years. The study is psychological and focuses on individual effects and so only a small sample was

taken to assess effects of Smartphone on attention span. For the analysis of data, Correlation and Average was used. Survey Method was applied and data was collected by sending Google Forms link of Questionnaire to the respondents via SMS. Convenience Sampling was used for the purpose of data collection.

Procedure- Questionnaire was prepared using Google Forms. The link was sent to the respondents through message. The questionnaire had 6 questions. The last question was a link that directed to the Website of Psychology Today which had a test on Attention Span. The respondents were supposed to give that test and write the score in the questionnaire. Later the data was analyzed and statistical test of correlation was applied for further investigation.

DATA ANALYSIS AND INTERPRETATION

Table 1 Showing Gender of Respondents

Gender	Frequency	Percent
Female	19	47.5
Male	21	52.5
Total	40	100.0

Table 1 Shows Gender of Respondents. 47.5% were female and 52.5% were male.

Figure 1

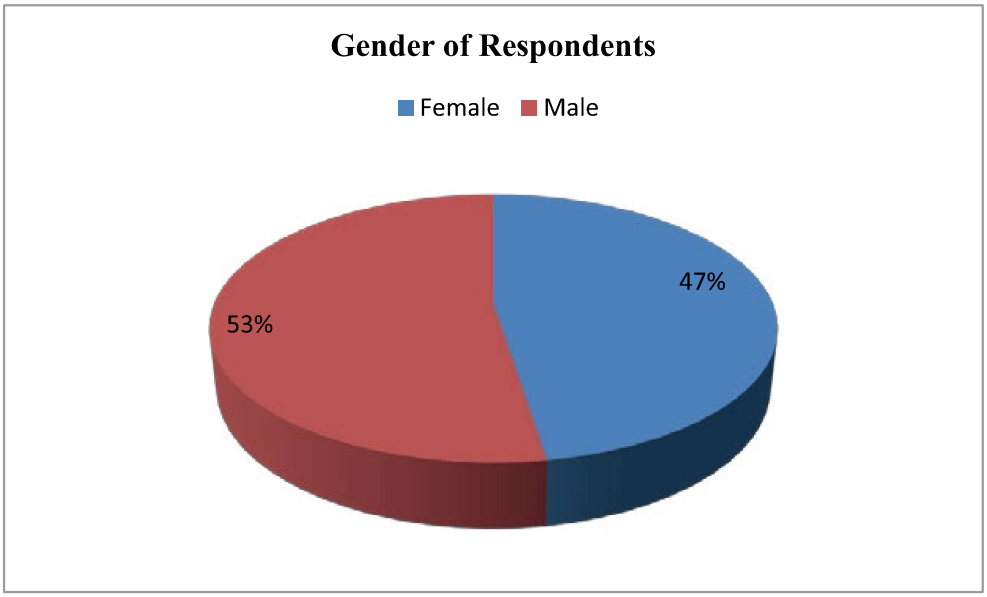


Table 2 Per Day Usage of Smartphone

Duration	Frequency	Percent
Half an hour	1	2.5
1 hour	2	5.0
2 hour	5	12.5
More than two	32	80.0
Total	40	100.0

Table 2 Shows per day usage of Smartphone. 5% used it for duration of around 1 hour, 12.5% for about 2 hours and 2.5% for just half an hour. 80% of respondents used it for more than 2 hours. Thus it is clear that a majority of the people are spending a considerable amount of time on the screens of Smart phones.

Figure 2

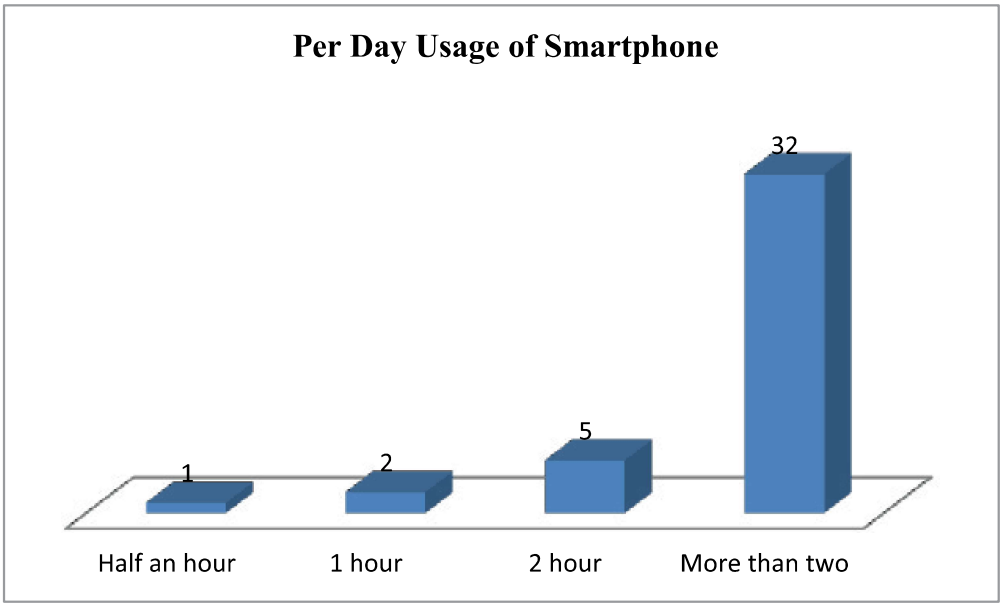


Table 3 Showing Activities Youth Perform on Smart phones

Activity	Frequency	Percent
Playing Games	7	17.5%
Listening to Music	19	47.5%
Surfing Internet	34	85%
Messaging and Chatting	26	65%
Others	17	42.5%

Table 3 Shows activities youth perform on Smart phones. For 17.5% respondents,

playing games was one of the activities that they performed on their Smartphone while 47.5% used their Smartphone for listening to music. 85% respondents surfed internet with their Smartphone while 65% did Messaging and Chatting as one of the tasks with their smart phone. 42.5% carried out 'Other' activities such as voice calling, clicking pictures, calculation etc on their phone. These activities were put in 'other' category as they are either-important, unavoidable, momentary or have little cognitive value. The above data shows that a majority of the respondents used their Smartphone for surfing Internet which includes tasks like searching information, downloading movies and songs, studying, watching videos, checking mail and replying to the notifications/ messages on Social Media accounts. A few of the respondents used their smart phone to play games such as Candy Crush, Temple Run, PUBG etc. Almost half of the respondents listened to music on their smart phones and more than half of the respondents did message and chatting on Smart phones using applications such as WhatsApp, FB Messenger etc.

Figure 3

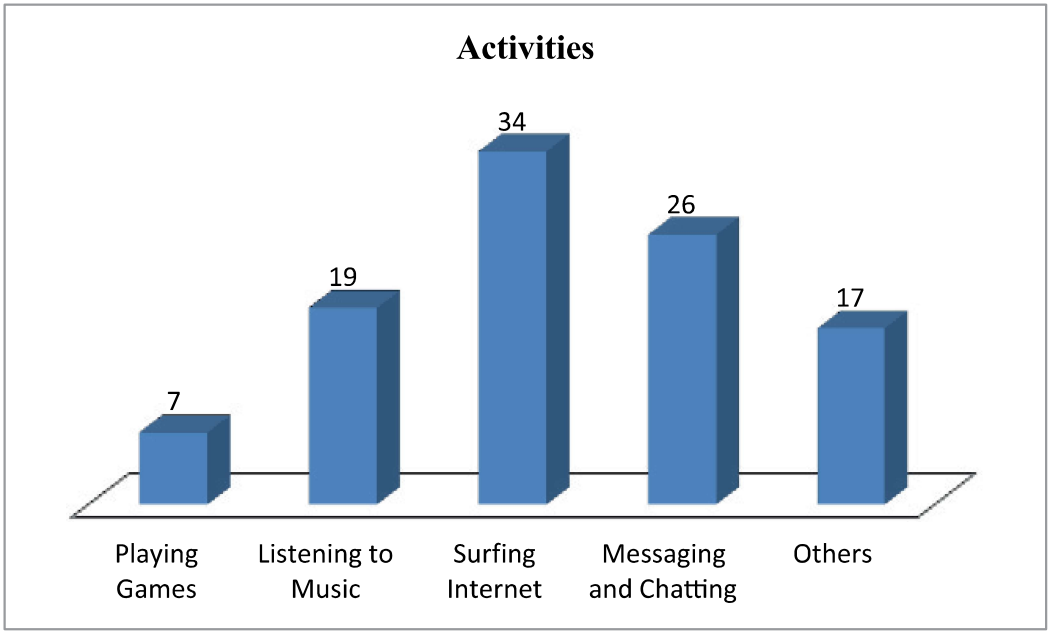
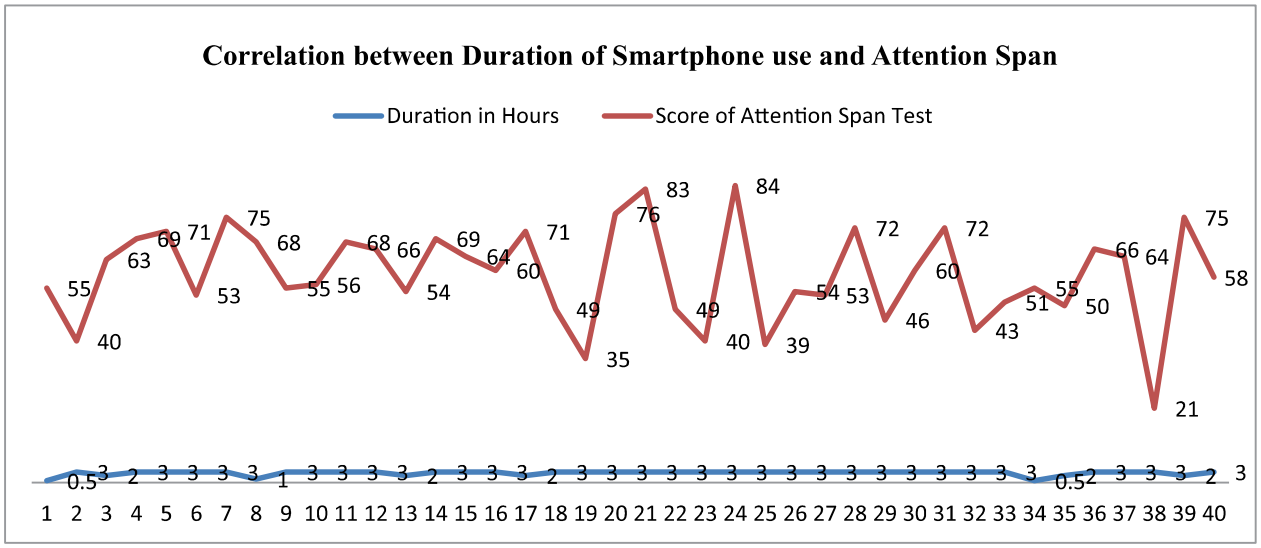


Figure 4 Showing Correlation between Duration of Smartphone use and Attention Span



58.8 was calculated as the average score of 40 respondents on total score of 100 which shows that the attention span of youth is almost average or below average. On applying Correlation, it was found that the Correlation between Attention Span and Duration of Smartphone use is -0.05109 which means that there is a weak downhill negative linear relationship between the two variables. This shows that even though less, but prolonged use of Smart phones does affect Attention Span. This difference is not negligible but noticeable and thus it should be a big concern for the youth. These results will compel the researchers to conduct further studies in this direction to investigate and find concrete evidence regarding the concept and also to validate the findings of this study.

CONCLUSION AND DISCUSSION

The present study was conducted to find a relation between duration of Smartphone use and Attention Span. This research holds a lot of relevance in present times as it would help people to know whether there is an effect of Smartphone usage on attention span or not, and if it is so, then to what extent. Such research has been done all around the world and so the study was conducted in Indian context keeping the youth as the sample. This in turn would make them aware about their excess Smart phone usage habits and how they should use self-restraint. Also this study directly helps correlate the fact that excess use of Smartphone and New media in general drains the learning, attention span and retention ability of brain for short duration.

The results from the study reveal that there is a gradual decline in attention span among the respondents in general as most of the respondents scored only half out of the total score in the Attention Span Test. Also the test revealed that respondents easily get distracted by background noise and other people's conversations and are sometimes late for work or an appointment. Respondents also felt that they were sometimes daydreaming at work and jumped from task to task because they couldn't focus long enough to finish one task completely. The respondents said that they didn't mind dealing with boring and repetitive tasks but they needed break from time to time. On being given a situation that they are on the phone with a friend and their favorite TV show starts, most respondents felt that they wouldn't be able to pay attention to the conversation. The respondents felt that while reading a book or magazine, sometimes they re-read the same paragraph or skipped ahead which shows lack of concentration and focus. They also agreed that they have barely had a knack for noticing details like typos in a document. The respondents said that they sometimes lose their patience and in times of conversation they feel the urge to interrupt. In this context one of the drawbacks of the study that should be highlighted is- the questionnaire of Attention Span Test was general in nature not specifically talking about experiences related to media use and thus only weak correlation was established by the test. Further refining and specifying of questions and a focused study would definitely reveal more data in favor of the query. Also it should be noted that an inability to pay attention for an extended period of time could be a result of fatigue, a medication side-effect, or a personal issue bothering the mind or in worst case scenarios Attention Deficit Disorder. Thus hasty generalization of the findings in other spheres of life should be avoided. Instead more investigation and studies should be carried out to confirm the results.

The research has a lot of scope and it can be extended in many areas or domains. The study can be expanded in near future to find whether increase in time of exposure to Smart phones is directly proportional to decrease in attention span or not. The future study can include teenagers, adults and elder people to find out how much they are affected by the usage of Smart phones. A study dealing with other variables like retention, recognition, learning, observation, problem solving ability and response time can be carried out from the perspective of media to establish certain hypothesis. This study can be extended to other mediums like print media and electronic media. Data can be analyzed to find whether gender and age play a role in increasing the effects of Smartphone on attention span. Separate analysis of scores of males and females can be compared to find out the difference in terms of effects. This study will yield better results when psychological tests like Short Term Memory Test are applied after immediate Smartphone use so as to establish direct correlation between duration of usage and decrease in attention span.

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