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Google Effect and Long Term Memory: A Study on the Perception of Youth in Kerala

Abdul Gafoor Manningachali
University of Calicut, abdulgafoormc@gmail.com

Vinod V. M Dr
University of Calicut, vinodvmvinod@gmail.com

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Abdul Gafoor Manningachali,
Professional Assistant Gr.I,
C.H. Mohammed Koya Library
University of Calicut
abdulgafoormc@gmail.com

Dr. Vinod V. M.
Assistant LIbrarian
C.H. Mohammed Koya Library
University of Calicut
vinodvmvinod@gmail.com

Abstract

Memory is the process of maintaining information overtime. It is the mean through which human experiences are codified in brain and retrieved and utilized at the need. There are various models of memory put forwarded by different theorist. The Atkinson-Shiffrin model (also known as multi store model) is a prominent model, which asserts that human memory has three stages, which are sensory registry stage, short term memory stage and long term memory stage. Some of the information in the short term memory is transferred to long term memory store. The transfer of information from short term to long term memory is based on the rehearsal given to the particular information. The strength of long term memory trace in the brain is directly related to amount of rehearsal given in the short term store. Information and communication technology and its tools have simplified human life to a great extent. But the dependence on ICT and its tools may have some unhealthy impact on our life. The accessibility to World Wide Web has deeply influenced the way we seek information. The study tries find out whether Google effect has direct influence on long term human memory. The study is based on the primary data collected from the youth of Kerala. The findings show that Google effect has a direct influence on Long term Memory.

Key Terms: Google effect, Long term memory, Internet-Use, Information search

Introduction

Memory is the process of maintaining information overtime (Matline 2005). Memory is the mean through which human experiences are codified in brain and retrieved and utilized at the need. There are various models of memory put forwarded by different theorist. The Atkinson-Shiffrin model (also known as multi store model) is a prominent model, which asserts that human memory has three stages that are sensory registry stage, short term memory stage and long term memory stage. As per the theory, human memory can be classified into three categories that are sensory memory, short term memory and long term memory. Sensory memory is the short persistence of stimuli following the transduction. The purpose of sensory memory is to permit stimuli to be perceived, recognised and entered into short term memory. That stimulus which is given attention to be perceived is reached in the short term memory. Short term memory has the capacity for holding small amount of information in an active mode for a short period. Some of the information in the short term memory is transferred to long term memory store. The transfer of information from short term to long term memory is based on the rehearsal given to the particular information. The strength of long term memory trace in the brain is directly related with amount of rehearsal given in the short term store. Information and communication technology and its tools have simplified human life to a great extent. But the over dependence on ICT and its tools may have some unhealthy impact on our life. The accessibility to World Wide Web has deeply influenced the way we seek information. The study conducted by Sparrow and others (2011) on Google effect and memory indicates that internet has become a transactive memory device to which we turn for information than to our own mind. The dependency on such an external device is not without limitations from a long term point of view. A direct connection between dependency on an external device and deterioration of long term memory can be seen throughout the human history. The work 'Orality and literacy' by Walter J Ong emphases impact of technologising world on human life. Now, we may turn to the question how does the dependency on Google affect our long term memory? If we approach long term memory(LTM) from a Multi store model, (Atkinson-Shiffrin model) for an information to be stored for a long time, it needs to go through the stages of sensory memory and short term memory with attention and rehearsals. As we have the opportunity

to avail any information any time at our fingertips, the motivation for fully attending and rehearsaling is getting limited, which affects the LTM. The Consequences of losing LTM will be alarming as far as human life is concerned as it leads to loss of many precious gift of nature like individual autonomy and many intellectual capacities like analytical and reasoning skills, decision making skills etc. Thus the study try to shed light on the impact of Google effect on LTM of the youth in Kerala.

Objectives

The study was conducted to;

- Identify the frequency and purpose of use of mobile / internet by the youth of Kerala and
- To find out the effect of mobile / internet use on the long term memory of the youth of Kerala.

Scope and Limitation

Although Information and communication technology and its tools is playing a monumental role in making life easy and comfortable, it has made some deep-seated challenges to many hard earned gifts of man like human cognitive capacity, especially memory. This study is an attempt to unriddle the relationship between use of internet/mobiles for information searching and long term memory of man. The study focus on use of internet/mobile phones by youth and its impact on their long term memory. In the study context the 'Google effect' is considered as the overdependence on mobile / internet technologies by the youth for information management.

Review

Sparrow, Liu & Wegner (2011) conducted a study on "Google effect on memory: Cognitive consequences of having information on our finger tips". The study is based on four experiments. The findings of the studies indicate that when faced with difficult questions, people are tempted to think about computers. Googling is also affecting the individual's ability to recall information. The internet has become a form of primary external or transactive memory, where information is stored collectively outside ourselves.

Tara Brabazon (2006) conducted a study on "The Google effect: googling, blogging, Wikis and the flattening of expertise". The study discussed the consequences to librarians and teachers for the flattening of expertise, or the Google effect. It also addresses the social

choices about computer use and information literacy, and the intellectual choices we make in our professional lives as teachers and librarians. And the Investigator pointed out, the Google Effect raises stark questions about the value of reading, research, writing and scholarship.

Jessica Siler (2013) conducted a study on "Generation and the Google effect: Transactive memory system (TMS) preference across age. The objective of the research was to investigate whether TMS type varies across age groups. Data were collected from 53 individuals. The result of the study was not consistent with the findings of Sparrow. The findings did not show significance for TMS preference.

Methodology

This is a survey type study based on ninety samples selected randomly from the youth between the age of twenty and forty using mobile and internet for various purposes residing in the state of Kerala. Required data was collected by using a scale type questionnaire. 'Google forms' was used to create the questionnaire, and data was collected online using the respective 'e-mail ids' of the respondents. The data was consolidated by using open office 'Calc' and analysed with 'GNU PSPP'. Percentage and Chi-Squire methods were used in the data analysis to draw inferences.

Analysis

The analysis is carried out to find the influence of mobile and internet use on the long term memory of the youth residing in the geographical area of Kerala. Area of residence, gender and average time spent on mobile and internet were used as background variables for analysis. The cross section of the sample used in the study is presented below.

Area wise representation of the sample

In the study the place of residence of the respondents are classified in to two viz., Rural and Urban and their distribution is given in Figure No. 1.

Figure No. 1

Sample - Area Wise

Rural   Urban

34%

66%
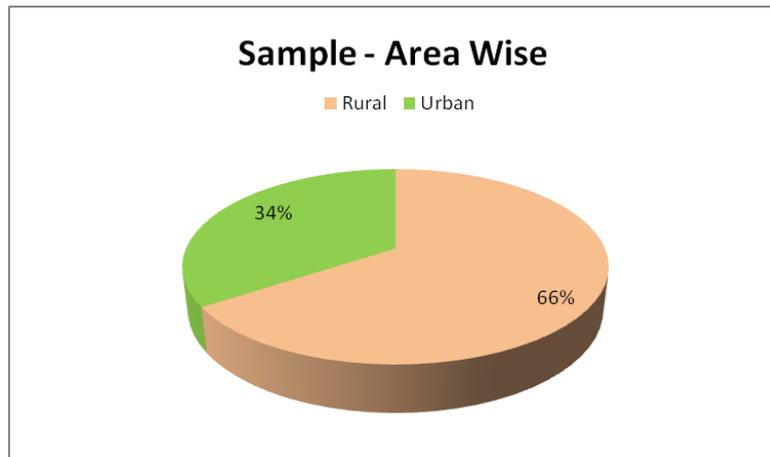
The above figure shows that 65.56 percent of the partcipants are from rural area while 34.44 are from urban areas. Though the number of users is more from the rural areas, adequate representation has been given to mobile and internet users from urban area as well.

Gender wise representation of the sample

The gender wise distribution of the sample is shown in the Figure No. 2

Figure No. 2

Sample - Gender Wise

Male   Female

49%

51%
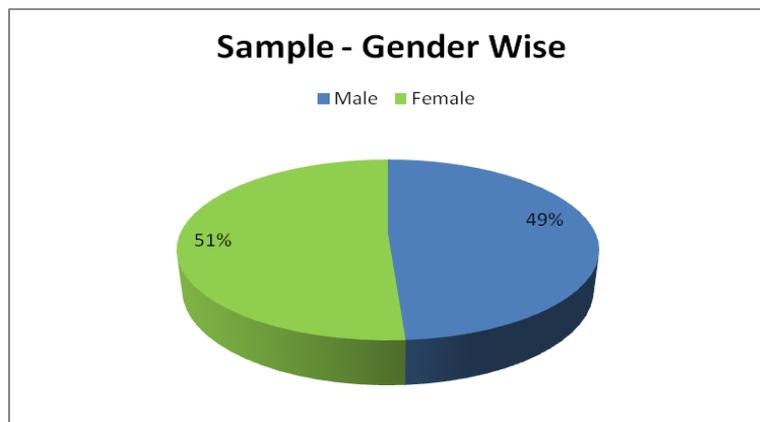
The gender wise distribution of sample clearly shows that more or less same representation has been given to both male and female as their percentages are 48.89 and 51.11 respectively.

Time spent on Internet / Mobile wise distribution of the sample

For the study purpose the time spent by an individual on mobile and internet per day has been divided into four categories i.e., less than two hours, two to four hours, four to six hours and more than six hours and their respective representation is given below.

Figure No. 3

Sample - Time Spent Wise

■ <2   ■ 2 to 4   ■ 4 to 6   ■ >6

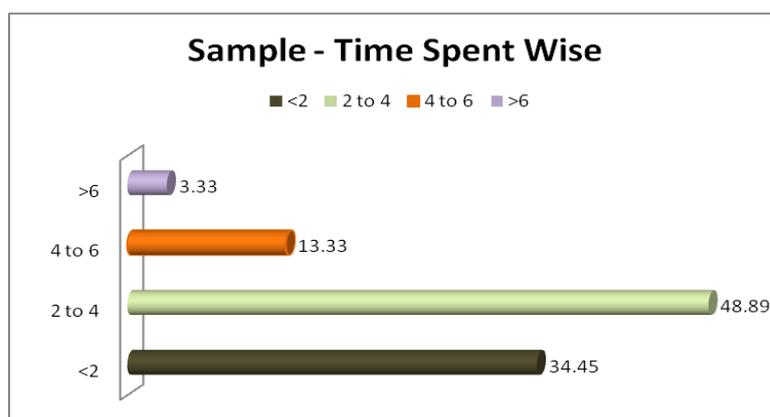|	
>6	3.33
4 to 6	13.33
2 to 4	48.89
<2	34.45

Figure No. 3 clearly shows that 65.55 percent (48.89+13.33+3.33) of the youth are using mobile / internet for more than two hours a day. The number of users using the same for more than four hours is 16.66 percent (13.33+3.33). The data clearly shows the dependence of the youth on mobile / internet.

Frequency and purpose of use of Internet / Mobile Phones

The youth is supposed to use internet / mobile for different purpose. The purpose for using internet / mobile has been categorised in to six and their frequency is given in the table below.

Table No. 1

Frequency and Purpose of Internet / Mobile Use

| Purpose	Most Frequently	Frequently	Less Frequently
Information check	17.78	36.67	**45.56**
Doubt Clearing	**51.11**	42.22	6.67
Validity Checking	25.56	**51.11**	23.33
Source of Information	30.00	34.44	**35.56**
Organise Personal Information	16.67	22.22	**61.11**

Data presented in the table clearly shows that 93.33 percent (51.11+42.22) of the youth use internet / mobile for clearing doubt frequently and most frequently and it shows their

dependence on the modern communication technologies. 64.44 percent (30+34.44) of the youth use these technologies frequently or more to find the information sources they need. For checking the validity of information also they depend heavily on internet and mobile as their respective percent put together is 76.67 (25.56+51.11). For checking information also, internet and mobile are the preferred by the youth as their accumulated percentage is 54.45 (17.78+36.67). Apart from the use for organising personal information, the reliance on these technologies by the youth is quite evident.

Use of Internet/Mobile for instant information checking and its effect on Long Term Memory

Thanks to the evolution of information society, men of modern era are leading an information centric life. The excessive dependence on a external tool like internet for our day to day life related information may destroy the invaluable human cognitive capacity especially memory power. Many of the greatest achievements of man are by products of human memory and such other capacity which may vanish if not used frequently. A life style which weakens capacities like memory can lead to a reverse evolution and man may become a 'lesser man'.

Figure 4

Information Checking - Effect on LTM

Yes: 50   No: 36.67   Can't Say: 13.33
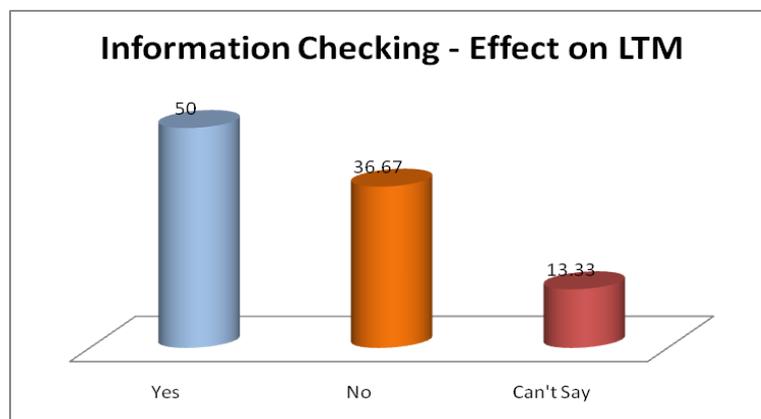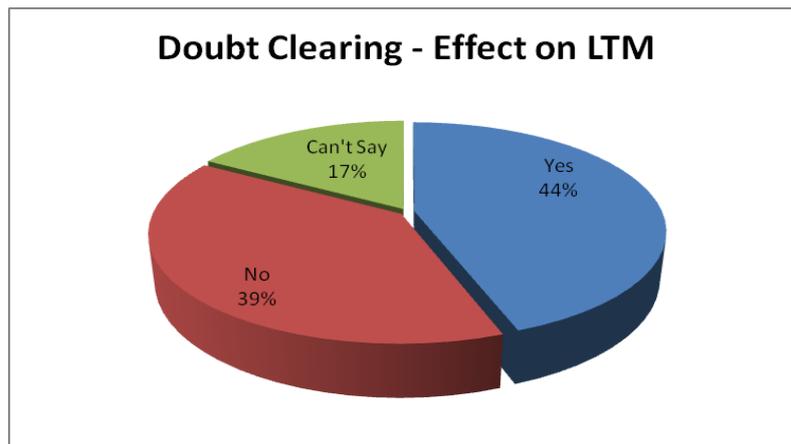
*LTM – Long Term Memory

The above figure indicates that the adverse effect of depending on Google for information checking on long term memory. 50 percent of sample says that use of Google for instant information checking affect their long term memory. This may be because people are not willing to do the rehearsal work necessary for passing for information from short term memory to long term memory. This lack of motivation for rehearsal may destroy the invaluable cognitive capacity of man.

Use of Internet/Mobiles for instant doubt clearance instantly and its effect on Long

Term Memory

Internet/mobile phones are used for clearing the doubts which arise in us frequently. If we do some recollection, reflection, thinking or analysis we can clear many of the doubts which may arise in our minds. The advantages of the use above said process is that they can increase the knowledge base of the person. Instead of spending time for such processes, we tend to move into internet for clearing the doubts which may give one only information and not knowledge or understanding.

Figure 5

As shown by figure 5 above, 44.44 percent of youth perceives that frequent use of Google for instant doubt clearance adversely affect their long term memory. This may be due to the belief that if they need the information again they can visit internet, so no need to take it to the memory.

Use of internet for ensuring the validity of information and its effect on Long Term Memory

A firm conviction is the result a successful learning process. Knowledge can give a conviction whereas information cannot. Usage of internet to check the validity of knowledge we already know leads to break down of our conviction and thereby it can leads to minimisation of the applicability of a particular information.

Figure No. 6

Validity Checking - Effect on LTM

Can't Say — 16.67
No — 44.44
Yes — 38.89
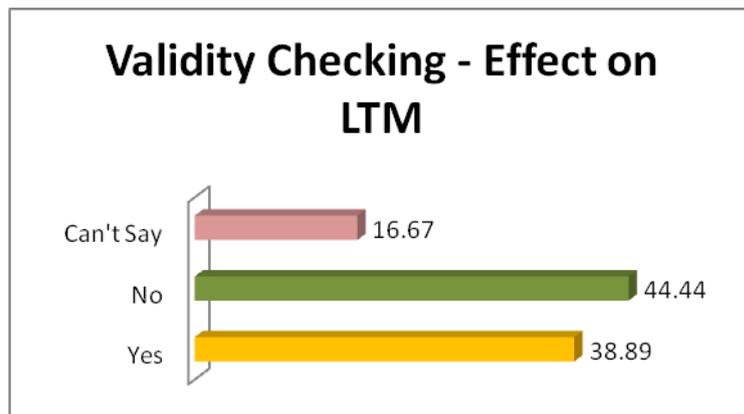
Data presented above clearly indicates that 38.89 % of the youth in Kerala are feeling the effect of validity checking of information on their LTM and 44.44 % are yet to feel the effect.

Effect of Using Internet as Source of Information on Long Term Memory

Plato had scared that the writing may leads to the dependency of man on an external devices.(******) Centuries after, the fear of Plato is proven relevant. The dependency on Google / internet as a source of information may have a solid effect on LTM.

Figure 7

Source of Information - Effect on LTM

Yes   No   Can't Say

16.67
53.33
44.44
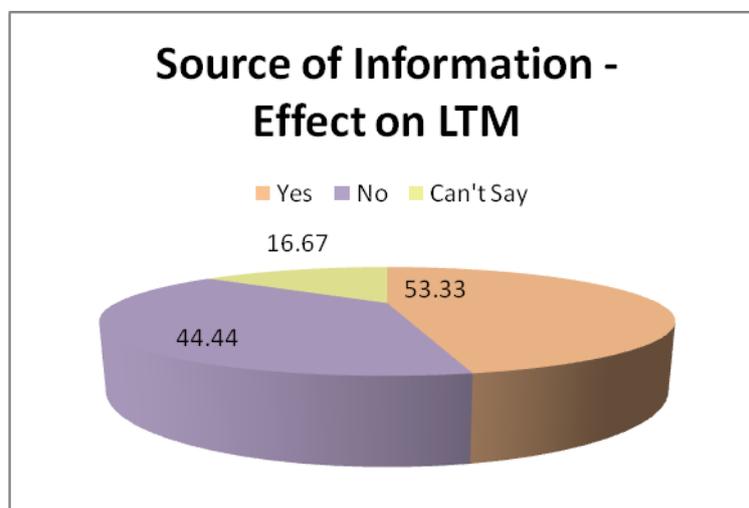
Data presented above shows that the frequent use Google as a source of information have adverse effect on their long term memory of 53.33 percent of the youth of Kerala and 17.78% are not sure of effect. The percentage who say it affect on long term memory is really high, which indicates the Google effect and its impact of long term memory.

Effect of using internet/Mobile for Organising Personal Information on Long Term

Memory

Self awareness and self organisation are considered very important skills necessary for a happy life. The invasion of internet in these areas may have an adverse impact on the quality of human life. Perceptions of the youth relating to this area are presented below.

Figure No. 8
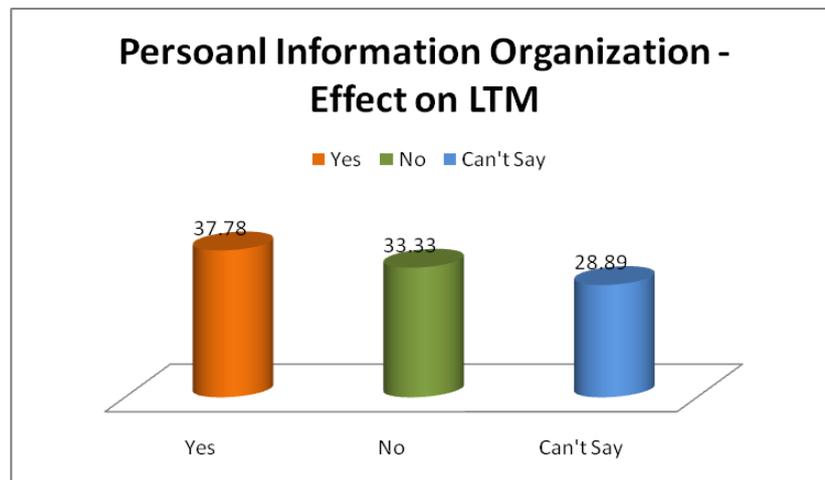
Data presented above indicates that 37.78 percent of the sample agrees that use of internet /mobile based self organisation applications have a negative effect on their long term memory. 33.33 percent are of the opinion that it is not affecting the LTM and the rest i.e., 28.89% are yet to form an opinion about it.

Even though Chi-Square test were carried out to find the relations if any, between the classificatory variable like Gender, Area of residence, Time spent on Internet / Mobile and their Frequency of use and 'Long Term Memory', the association is not found statistically significant as the 'p-value' in all cases are above the accepted level of 0.05. It clearly shows that irrespective of the background and use pattern of the youth, Internet / Mobile use is adversely affecting the 'Long Term Memory' of the youth in Kerala.

Conclusion

Human memory has always played a pivotal role in the development of human beings from the very beginning. In that era the accumulated human experiences were passed from generation to generation mainly thorough human memory. The invention of writing and printing has helped the human beings to have an external device to keep their amalgamated knowledge. Even both formal and informal educations are memory centred. But the information technology revolution is causing a paradigm shift in human memory. The

effects of such changes are found in the studies like Sparrow, Liu & Wegner (2011). The present study also confirms those worst fears as the youth in Kerala also shows a similar trend. Unless counter strategies are initiated immediately, our youth are also likely to waste the most precious gift mankind has ever got.

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