



Online Social Media Addiction on Working Memory

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ABSTRACT

Online Social Media Addition among Adolescents is a concern of the emerging generation. With addiction being generalised from just psychoactive drugs and drugs altering the blood-brain barrier, to dependency, obsession and compulsive behaviour which interfere with the everyday activities of life. This study focuses on online addition and *Working Memory* among individuals aged 16 to 24. A between-group design was used to collect data from 60 participants, with 30 having social media addiction and 30 not having addiction. *The General Health Questionnaire*, *Bergen Social Networking Addiction Scale*, and *PGI Digit Span Test* were used to assess variables such as addiction, *Working Memory*, and demographic details. The study hypothesized that there would be a difference in working memory between those with and without addiction and between males and females in the addiction group. The results showed that there is *No Significant Difference* in *Working Memory* Digit forward and total Digit span score among individuals with and without addiction, inferred from the 't test. Therefore, the study concludes that individuals working memory is *not affected* by *OnlineSocial Media Addiction*.

Keywords: Online Social Media Addition, Working Memory, *PGI Digit Span Test*, *Bergen Social Networking Addiction Scale*. Gender Difference.

INTRODUCTION

Social Media

“Social media is the collective of online communications channels dedicated to community-based input, interaction, content-sharing and collaboration.”(Rouse, n.d.) Social networking

is web based accumulation of online communication channel devoted to group information, movement, sharing of content and support.

Online networking's are Personal Computer liaised advances that guide the creation and circulation of data musings, livelihood interests and other type of deceleration by means of virtual group and system.

Addiction

Addicts are unable to regulate their actions, medications, or substances they use. Their habit could eventually become hazardous. As it were, enslavement may allude to a substance reliance (e.g., drug addiction) or behavioral enslavement (e.g., betting enslavement). Addictions don't just include physical things we consume, like drugs or alcohol, but may also incorporate anything, such conceptual things as betting to seemingly innocuous items, like chocolate.

Social Networking Addiction

Addictions are about achieving a goal. Due to how they make them feel, some people are lured to addictive drugs or activities. Humans, by their very nature, have a strong desire to connect with others and a persistent sense that they don't belong anywhere. People now have more ways than ever to do this thanks to social media. Three hundred sixty-five days a year, twenty-four hours a day, you have access to the environment around you. It is quite easy to go to from everywhere.

A social networking addict in that sense would be someone who has an excessive need to utilize social media, such as obsessively monitoring Facebook status updates or spending hours "stalking" people's Facebook accounts.

The process of forming a memory involves encoding, storing, retaining and subsequently recalling information and past experiences. For us to recall events, facts or processes, we have to commit them to memory. Memory, according to cognitive psychologist Margaret W. Matlin, is the "process of retaining information over time."Vidaković, S. (2020). Others have described it as the capacity to choose our future course based on our prior experiences.

Long-term memory usually replaces short-term memory with important memories. For longer-term storage, information can be moved in a number of ways to long-term memory. Information can be committed to long-term memory through repetition (such as studying for a test or taking steps repeatedly until walking comes naturally), association with other previously learned information (such as remembering a new acquaintance by associating her name with an image of the green jewel), or any combination of these methods.

Although technically speaking working memory refers to the entire theoretical framework of structures and processes used for the temporary storage and manipulation of information, of which short-term memory is only one component, it is frequently used synonymously with short-term memory.

Working and short-term memory appear to be fundamentally influenced by the central executive region of the prefrontal cortex, which is located near the front of the brain. In addition to acting as a temporary repository for short-term memory, it also "calls up" information from other parts of the brain when it is required for present thought processes. The neural loop that handles language processing is known as the "phonological loop," which makes use of Broca's region as a sort of "inner voice" that repeats word sounds to help us remember them. The "visual loop" functions as a visual scratch pad by stimulating brain regions near to the visual cortex. These two scratch pads serve as a temporary storage for data till the subsequent job clears it.

A study aimed to explore gender specific reasons for continuance. The survey consisted of 488 users which showed that both men and women were motivated by the ability to self enhance, however there existed some gender differences. The research contributes in strategic information system literature with regard to utilization of social media by individuals and associations. It provides data as to how women are driven by relational use, while men use it gain information of general nature. (Krasnova, Veltri, Eling & Buxmann, 2017).

A study conducted to find the gender influence, collective self esteem and group identity among older adolescents social network site (SNS) use motivations. The study aimed to assess the motives for use of social network sites, collective self-esteem, group belonging and gender effects among older adolescents. The most important motivation for SNS use was to communicate with peer group. Females who felt negative with their social group used SNS as an substitute to communicate with other group members. Males likely state negative collective self-esteem and SNS usage for social compensation and social identity gratifications. (Barker, 2009)

A study was carried out to look into the possibility of abuse and the existence of internet addiction. To categorize the subjects, they employed a diagnostic questionnaire (DQ) that was established and modified to meet the criteria for pathological gambling. Among which existed 396 dependents and 100 nondependents. Behavioral and functional usage differences were observed using qualitative analyses. (Young, 2009)

A study conducted among health university students in Bengaluru city on facebook addiction. It aimed to find out the burden of facebook addiction. 400 students were enrolled, out of which 61 males and 38 females showed high risk behavior, 12 males and 17 females had facebook addiction. The study concluded that one-third of the study population was observed having high risk behavior and burden of facebook addiction. (Ramesh Masthi, Sonakshi & Cadabam, 2015)

Working Memory

The study investigated the link among internet addiction, mobile phone use and the occurrence of cognitive failures in daily life. The survey among 210 participants was conducted using online cognition scale, the problematic mobile phone use scale and cognitive failures questionnaire. Results showed that individuals with lower working memory control and attention control have lesser resilience to digital media. (Hadlington, 2015)

A study conducted on 24 individuals with internet addiction, 28 individuals with ADHD, 17 individuals with internet addiction and ADHD and 26 normal individuals were assessed. Stop-signal task and 2-back task was administered on all participants. The results indicate that individuals with internet addiction and internet addiction comorbid with ADHD may have impairment in working memory and inhibition related to internet stimuli. (Nie, Zhang, Chen & Li, 2016)

Gender Difference.

A study among 50 males and 50 females were asked to perform spatial and verbal working memory test along with three-dimensional mental rotation and spatial visualization. While there were no gender-related differences in spatial short-term memory, there was a direct sex-related influence on the ability to rotate objects in three dimensions, and this effect was not blocked by spatial working memory. (Kaufman, 2007)

Study using laboratory tasks was conducted which attempted to identify the cognitive components that would show females and males had differential effects. No sex difference was observed with respect to accuracy however the processing speed has sex differences in visuospatial working memory. (Loring-meier, 1999).

Methodology

The aim of the study was to find the Effect of Online Social Media Addiction on Working Memory. The objective of this study was to find the Effect of Online Social Media Addiction on Working Memory with regards to individuals aged between 16 to 24 years of age and to study the males and females in the Addiction group. A between-group design was used while collecting data from subjects as all the participants had to answer all the tests corresponding to the variables that were chosen for this study.

Hypothesis

H1a-The two groups with and without Addiction differ on Working Memory.

1b-The Males and Females in the Addiction group differ on Working Memory.

Variables

Independent variables: Online Social Media Addiction and Gender.

Dependent variable: Working Memory.

Sampling

Purposive sampling method was used wherein the experimenter approached the participants and asked if they'd like to participate in the study. If they agreed to do so the experimenter proceeded with the questionnaire and DS test. The target sample consisted of individuals aged between 16-24 years. A total size of the sample consisted of 60 individuals, where 30 had Online Social Media Addiction and 30 had no Online Social Media Addiction.

Tools used

General Health Questionnaire GHQ-28 (Sterling, M., 2011).

Bergen social networking addiction scale

PoGI Digit Span

Administration

General Health Questionnaire (GHQ-28). For the GHQ administration, the instructions were given in detail at the beginning of each test. Here the instructions were quite self-explanatory; therefore the participants read the instructions and answered all the question on the following page by simply placing a tick (✓) on the answer which they related the most. It was necessary that the participants focused on the existing complaints in the recent past. It was important to answer all the questions and doubts were clarified.

Bergen social media addiction scale (BSMAS). For the BSMAS administration, the instructions were given in detail at the beginning of each test. Here the instructions were quite comprehensive; therefore the participants read the instructions and answered all the questions on the following page by placing a tick (✓) on the answer which they related the most. The self-report assessment uses statements with a 5-point response format ranging from very rarely (1), rarely (2), sometimes (3), often (4) and very often (5). It was important to answer all the questions and doubts were clarified.

PGI Digit Span. It has two sub-tests. For the Digit Span administration, the researcher gives verbal instructions to the participants. The researcher instructs the individual to listen carefully to the set of numbers that would be called out. After each set of numbers the participant is asked to repeat in the same order. For the second subtest, the participant is instructed to repeat the numbers backward. The test is stopped after two consecutive errors in the subset.

Analysis

To analyze the data after scoring, SPSS 20 was used. Basic descriptive and inferential statistics (t test) was computed to infer the data. The given scores are totaled, and are interpreted according to standardized norms. The scores was further analyzed and discussed.

Results

Data analysis with spss for result were obtained

Table 1 shows the difference in digit forward, digit backward and total digit span score of individuals with and without social media addiction.

	N	Mean	t	Sig. (2-tailed)
Digit forward	30	7.13		
	30	7.10	.065	.948
Digit backward	30	5.97		
	30	5.30	2.015*	.049
Digit span	30	13.10		
	30	12.40	1.046	.300

*p>0.05

This table presents the difference in digit forward, digit backward and total digit span score of individuals with and without social media addiction. To explore the differences, ‘t’ test was carried out; the results indicate that there is no significant difference in digit forward and total digit span score among individuals with and without addiction (t=; p>0.05) . While, there is a significant difference in digit backward among the individuals with and without addiction (t=2.015; p<0.05) which is significant at 0.05 level. The individuals in the group with addiction have performed better than the individuals without addiction.

Table 2 shows the difference in digit forward, digit backward and total digit span of males and females with addiction.

	N	Mean	t	Sig. (2-tailed)
Digit forward	15	6.87		
	15	7.33	-.615	.544
Digit backward	15	4.93		
	15	5.67	-1.765	.089
Digit span	15	11.80		
	15	13.00	-1.324	.196

This table presents the difference in digit forward, digit backward and total digit span score of males and females with addiction. To explore the difference, ‘t’ test was carried out, the results indicate that there is no significant difference in digit forward, digit backward and total digit span score among males and females with social media addiction.

Discussion

The purpose of the study was to examine contribution of online social media addiction on working memory. It was conducted on general population via purposive sampling. Two

groups were considered, individuals with and without social media addiction across both the genders.

There is substantial disagreement regarding whether some online users are developing Internet addictions similar to those developed by others with drugs or alcohol, which have been shown to impede academic performance, social interactions, and professional lives. (Young, 2009). However, the contemporary scientific literature addressing the addictive qualities of social networks on the Internet is relatively scarce. (Griffiths, 2013).

H1: The two groups, with and without Addiction differ on Working Memory.

The results of the study showed that there is no significant difference in working memory Digit forward and total digit span score among individuals with and without addiction, inferred from the 't' test. The hypothesis 1a is thus rejected with respect to forward and total but not backward, i.e. the two groups, with and without Addiction differ on Working Memory and indicates that the performance of working memory is not affected due to social media addiction. This result contradicts with the precedent research findings which have stated that different activities on different platforms (SNS) positively affect the working memory (Alloway, 2012) . Another research finding have stated that Internet addiction disrupts nerve wiring in the brains of teenagers, causing a level of brain damage usually seen in heavy substance abusers (Waugh, 2012).

H1b: The Males and Females in the Addiction group differ on Working Memory.

The results of the current study showed that there is no significant difference among males and females of the social media addiction in working memory, inferred from 't' test. Hypothesis 1b is thus rejected, i.e. The Males and Females in the Addiction group differ on Working Memory and is indicative that the working memory is not affected in males or females in the addiction group. This results complies to the preceding research study that stated that there is no sex difference in the accuracy of the working memory performance (Loring-meier, 1999). It is complies with the previous research which that both men and women did not have significant difference in verbal working memory task (Harness, 2008).which could imply that working memory may not have gender barrier.

Conclusion

The purpose of the research study was to find the effect of social media on working memory. Hypothesis 1a stated that, "The two groups with and without Addiction differ on Working Memory". This hypothesis was rejected , as there was no significant difference in working memory among individuals with and without addiction.

Hypothesis 1b stated that "The Males and Females in the Addiction group differ on Working Memory." This hypothesis was also rejected, as there was no significant difference among males and females of the addiction group in working memory.

Therefore, the study concludes that individuals working memory is not affected by online social media addiction. It was also understood that males and females with addiction did not show any significant difference in working memory.

Limitations

- The limitation of the study is the sample size which was very small.
- The study did not assess the duration of addiction
- The sample was a mixed sample of students and working individuals

Implications

- The study explored that social media addiction had no significant impact on working memory.
- Studies on social media addiction has dearth of research.

Recommendations

- Further research studies can include other variables such as depression, anxiety due to social media addiction.
- Studies in future can consider comparison of social media addiction to substance addiction.

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