SOCIAL MEDIA AND MEMORY IN THE AGE OF INSTANT GRATIFICATION

Aoife O'Hanlon

Psychology, National College of Ireland

BAHPSYCHNCI3

Dr. Conor Thornberry

March 14th 2025

DECLARATION

Submission of Thesis and Dissertation

National College of Ireland

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(Thesis/Author Declaration Form)

Name: Aoife O'Hanlon

Student Number: 20487872

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Module:	Final Year Project		
Lecturer:	Dr Conor Thornberry		
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Social Media and Memory in The Age of Instant Gratification

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Additional Evidence:

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I'd like to begin by expressing my gratitude to my thesis supervisor Dr Conor Thornberry for his enthusiasm, warmth, and motivation throughout this process. Your kindness and encouragement for both my academic pursuits and future endeavours are so appreciated and have solidified my passion for the field of Psychology.

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matter what obstacle stood in my way, and words simply can't do justice for how much I appreciate you both.

ABSTRACT

Aims: This study was designed to determine if there was a positive correlation between social media usage and memory retention, more specifically if high levels of social media usage corresponded with low levels of memory retention. This study also examined if demographic factors such as age and gender play a role in memory retention and social media use. Additional research was implemented to test cognitive failures in relation to participants age. **Methods:** An online survey was administered to participants (N=110) in which they answered demographic questions, followed by the Social Media Usage Scale (SMUS), they then proceeded to perform a memory task (Recall Task), and finally the Cognitive Failures Questionnaire (CFQ). Anonymised data was then input into SPSS for data analysis. Many tests were run to test the previously mentioned aims and hypotheses. **Results:** Results showed slight but ultimately no significance when CQF scores and recall scores were tested against age, meaning the initial hypothesis was not supported. This was also true for gender, however this aligns with the hypothesis. Conversely, significance was found between SMUS scores and age, with older participants scoring lower than younger participants overall. This highlights the need for new means to be tested in the future.

Keywords: *social media use, memory retention, cognitive failures, age-groups*

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Social Media and Memory in The Age of Instant Gratification

There is a long history of concern regarding the influence of new technology on human cognition. Socrates is quoted as saying writing would "create forgetfulness in the learner's souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves" (Plato, 1980). Every day, there are almost 5 billion posts shared to Facebook, 500 million tweets shared to Twitter, 70 million pictures shared to Instagram, and 12 years worth of video shared to YouTube (Tamir et al., 2018). These statistics are staggering, especially if you compare these numbers to 2005, when only about 5 percent of users in the United States were actively using social media (Dalomba, 2022). It is no question that the growth of social media happened rapidly and unexpectedly, and we may not know the full extent of the impact for quite some time. As we can see from the statistics above, we are overwhelmed with information daily, and this abundance of information being shared to these platforms has the ability to overload one's cognitive ability and hinder one's capacity to encode memories effectively (Jai Bahal, 2023).

Cognitive Load Theory

Cognitive Load Theory (CLT), is a theory that was developed in 1988 by John Sweller. It states that our working memory can only hold a limited amount of information at any given time, and that instructional methods should avoid overloading it in order to maximize learning potential (Sweller, 1988). Whilst CLT in the past has mostly been discussed in an educational environment, we can also apply this theory to social media usage. According to CLT, the constant influx of posts, brief videos, and endless feeds has the potential to overload our cognitive resources, which can possibly lead to impaired memory retention. This statement is supported by Jai Bahals article, in which he states that social

media encourages the 'shallow processing' of information, which is less effective for memory retention than 'deep processing' (Jai Bahal, 2023).

Shallow Processing

Shallow processing can be described as thinking of information in a simple way; focusing on how something may look or sound without fully grasping what it actually means. In relation to social media, this can happen when we quickly scroll through feeds on Instagram, TikTok etc. A short glance at a headline or caption may prompt us to like a post, however this form of engagement is only surface-level at best, and it's unlikely that we will retain this information for long. This is highlighted is Ecker, Lewandowsky, and Tang's study which found that when people skim through information on social media, they often don't remember it well. They stated that 'shallow processing' can also cause misinformation to stick, as people aren't taking the time to think deeply about whether the information is true or not (Ullrich et al., 2010). This process contrasts greatly with deep processing.

Deep Processing

Deep processing is described as engaging with information in a more meaningful way, such as reading articles thoroughly, contemplating the consequences and even discussing them with others. This type of engagement means we are far more likely to retain this information more successfully. This process is highlighted in Roediger and Butlers study, in which they state that when we try to understand the information we are met with, whether it be by relating it to our personal experiences, reflecting or discussing with others, we are far more likely to remember that particular piece of information (Roediger & Butler, 2011).

“Digital Amnesia”

Shallow processing gives rise to another phenomenon called "digital amnesia". This phrase has been developed to describe when an individual often forgets information because they trust a digital device to store and remember it for them (Eble, 2016). While this is not a scientifically recognised term, recent research does support the idea that when we rely less on our cognitive abilities and more on external devices, such as mobile phones for storing and remembering information, we don’t build as many neural connections in our brain, which can lead to poor memory retention. A study from the Picower Institute for Learning and Memory at MIT highlights that synaptic plasticity is crucial for both our memory retention and our cognitive function. This is the process in which connections between neurons strengthen with learning and experience (Trafton, 2015).

Previous Research

Previous research has shown that heavy social media users perform worse on memory tasks compared to lighter users (Uncapher, 2017). Uncapher's study showed that heavy media multitaskers exhibit poorer performance in both working memory and long-term memory, indicating deficits in both short-term information manipulation and long-term information retention. While Uncapher's study supports the hypothesis that media multitasking impairs memory, other studies present contrasting results, particularly when focusing on different demographics. For instance, Primack et al. (2017) concentrated on young adults, highlighting a need to explore different age groups and backgrounds. Conversely, Kim and Han (2021) found that social media use in older adults was associated with improved cognitive functioning and decelerated cognitive decline, highlighting the importance of social connections in maintaining cognitive health in older age.

Neuroplasticity

Neuroplasticity, which is the brain's ability to change and form new connections, is crucial to memory retention. Engaging in challenging activities, such as solving problems or thinking critically, strengthens these connections and enhances our cognitive function (Kolb & Whishaw, 2015). However, passive activities like scrolling through social media do not. Instead, they may lead to weaker neural connections which can negatively impact our memory retention. The saying "use it or lose it" in neuroplasticity suggests that frequent use of neural pathways is necessary to maintain these strong connections. Research indicates that our reliance on our mobile phones and devices for information can reduce our ability to remember and process information. This low level of engagement can lead to poorer memory retention and cognitive decline (Carr, 2010). Another side of the impact of social media is the production of dopamine that comes with it. Frequent dopamine releases triggered by social media, such as ‘likes’, can mirror addiction. While these dopamine releases create short-term pleasure, they also reduce the brain's ability to sustain attention and engage in deep processing, both of which are essential for strong memory retention (Montag et al., 2019).

Conclusion

In conclusion, this review of the existing literature shows that there is a complex relationship between social media usage and cognitive function, particularly with memory retention. While heavy social media use and media multitasking appear to impair memory within the younger populations, the impact varies across different age groups. This contrast highlights the requirement for further research in order to understand the long-term cognitive effects of social media across different demographics. This is important so that we can in the future, find ways to reduce the possible adverse effects of social media, while still enjoying the many benefits.

RATIONALE, RESEARCH AIMS AND HYPOTHESES

The rapid rise of various social media platforms has transformed how we communicate, access information, and engage with content. As users frequently interact with an overload of information, there are concerns in relation to the cognitive effects, particularly on memory retention. Research has suggested that the nature of social media can encourage the "shallow processing" of information due to the immediate gratification it provides, which may impair ones ability to retain and recall information effectively (Jai Bahal, 2023).

Cognitive Load Theory (CLT) shows that an overload of information can negatively effect our working memory capacity (Sweller, 1988). With the over consumption of information from social media, there is a need to discover how different patterns of social media usage can correlate with memory ability. Understanding this relationship is essential, especially given the amount of time we spend on social media. This study aims to examine how different social media habits may impact memory retention. By exploring questions related to demographics, social media usage patterns, cognitive failures and memory performance, the research intends to help have a better understanding of the consequences of overconsumption.

Research Aims:

Aim 1: To explore the relationship between social media usage and memory retention among participants

Aim 2: To determine whether demographic factors (age, gender) have an effect on social media usage and memory retention in young adults.

Aim: To perform additional tests to investigate if demographic factors (age, gender, screen time, preferred app) show any significant findings in relation to CFQ scores.

Research Hypothesis:

Hypothesis 1: Higher SMUS scores will correlate with poorer performance on memory tasks, which means that increased social media usage leads to lower recall scores.

Hypothesis 2: Participants who score high on the CFQ will perform worse on memory tasks compared to those who score lower.

Hypothesis 3: Demographic factors such as age and gender will affect the relationship between social media usage, meaning that younger participants will obtain poorer results compared to older participants, while no significant differences in memory performance will be found based on gender.

METHODS

Participants

A total of 110 (N=110) participants took part in this study. 76 were female (69.1%) and 34 were male (30.9%), with ages ranging from (R=18-61). Participation was both voluntary and anonymous. Participation was obtained through convenience sampling, and subsequently snowball sampling by asking participants to share the study with friends/relatives who would fit the inclusion criteria. The recruitment process involved posting a survey link on different social media platforms, including Instagram, TikTok, and Facebook, to ensure a diverse range of participants. Inclusion criteria required that participants be at least 18 years old and use social media regularly. Exclusion criteria included individuals with diagnosed memory related conditions that could potentially affect their ability to complete the memory task. Informed consent was compulsory and was obtained through a digital consent form (Appendix 2) Participants were informed that they could withdraw from the study at any point before submitting their responses. No personally identifiable information was collected in order to maintain anonymity and confidentiality.

Measures and Materials

This study consisted of an online survey which obtained info from the participants based on the following: demographic information, social media usage, memory performance and cognitive failures, all of which can be located in the Appendices (see Appendix 3,4,5,6 respectively).

Demographics - Participants provided information about their age, gender, and weekly social media usage based on their screen time, which they retrieved from their phones settings. They were also asked to identify their most frequently used social media platform.

Social Media Usage Scale (SMUS) - This 22 item social media practice scale was developed by Lin, Wang, and Chen (2016), and was based on the Uses and Gratifications Theory (UGT) (Katz, Blumler, & Gurevitch, 1974). The SMUS includes 22 items, divided into five categories: social interaction, entertainment, information seeking, convenience, and social comparison. Participants self-reported using a Likert Scale ranging from 1 (never) to 5 (very often). The SMUS is a validated measure used in psychological research on social media habits.

Memory Task - Participants were shown a list of 15 words. They could take as long as they wanted to memorise these words. The words were adapted from a task list developed by Rose, R. J., & Sutton, L. T. (1996).

Cognitive Failures Questionnaire (CFQ) - The CFQ is a 25 item scale developed by Broadbent, D.E., Cooper, P.F., FitzGerald, P., & Parkes, K.R. (1982). This measure evaluated distractibility, forgetfulness, and false triggering. Participants self-reported using a Likert Scale ranging from 0(never) to 4 (very often). The CFQ is scored from 0-100.

Word Recall Task - After completing the CFQ, participants were asked to recall as many words as possible from the list provided earlier in the study. The recall task was used to measure short term memory performance and was presented without a time limit to reduce any pressure which may have altered the participants ability to recall the words.

Debrief Sheet - At the end of the survey, participants were provided with a debrief sheet explaining the study's purpose along with researcher contact details for further questions.

Design:

The quantitative study used a correlational design to examine the relationship between social media usage and memory retention. The independent variable (IV) was the level of social media engagement, as measured by the SMUS questionnaire. The dependent variable (DV) was memory performance, measured through the number of words correctly recalled in the memory task. The CFQ was used as an additional measure to explore potential links between cognitive failures and memory performance. The study did not involve any experimental manipulation. Data was collected in a single online session.

Procedures:

The study was conducted entirely online using Microsoft Forms, as it was simple to use and access for all participants. Participants were recruited entirely online. Upon clicking the survey link, participants were first presented with the information sheet followed by the consent form (see Appendix 1&2 respectively). Participants could only proceed with the study once they provided consent to do so. Once consent was given, participants then answered questions regarding their age, gender, weekly screen time, and preferred social media app (see Appendix 3). They were then brought to the Social Media Usage Scale (SMUS) questionnaire (see Appendix 4) and asked to answer the questions based on the past 6 months. Questions included “How often do you use social media to connect with others” and “How often do you feel jealous after comparing yourself to others on social media?”. Using a Likert scale, the answers were marked from (1-Never) to (5-Very Often). This task was administered to evaluate the participants social media usage. Once all questions were answered, participants were shown a list of 15 words (see Appendix 5) which were adapted from a task list developed by Rose, R. J., & Sutton, L. T. (1996). This activity was not timed, and participants could take as long as needed to memorise this word list, in no particular

order. Once participants felt ready to continue, they proceeded to the Cognitive Failures Questionnaire (CFQ) (see Appendix 6). They were asked again to base answers on the past 6 months. Questions included “Do you read something and find you haven’t been thinking about it and must read it again?”, and “Do you find you forget people’s names?”. The CFQ consisted of 25 questions, all of which were also self-reported using a Likert scale, with (0-Never) and (4-Very Often). When the CFQ was completed, participants were asked to recall as many words as possible from the previous list, in no particular order, using as much time as they need. Participants were then presented with the debrief sheet (see Appendix 7) which detailed the purpose of the study and the aims and hypotheses. It also informed them again of their anonymity, and that as their answers have been submitted they cannot be retrieved as there is no identifiable information. Researcher and supervisor contact information were also provided. Data analysis spanned over a week or so, and once an adequate amount sample size was obtained the data was downloaded and stored on my computer to begin data analysis.

Data Analysis:

The participants anonymous data was downloaded to a Microsoft Excel file, which was then imported to SPSS for data analysis. The dataset was then cleaned to ensure analysis could take place, and variables were defined. Reversed scored items on both the SMUS and CFQ were calculated, and the total scores for both measures were computed. Descriptive statistics were ran to summarize demographic data. Pearson correlation analyses were conducted to explore the relationships between SMUS scores, CFQ scores, recall scores. In order to determine if CFQ and memory scores would differ between age groups (Old and Young) and SMUS scores, T-Tests were performed. To determine if CFQ and memory scores would differ across screen time and preferred social media apps, ANOVA’s were performed. The relationship between Age and SMUS scores were tested using Pearson correlations, and

the same test was ran for Memory Scores against CFQ scores. Additional measures were ran to investigate if SMUS scores were related to CFQ scores and Memory Scores, while controlling for gender and age.

Ethical Considerations

Ethical approval for this study was obtained from NCI's Ethics Committee (see Appendix 8). The Psychological Society of Ireland's code of ethics was also consulted. There are no risks or benefits involved in taking part of this study, and this was relayed to participants (see Appendix 1). All participants provided informed consent, and no personally identifiable data was collected to ensure confidentiality. Participants had the right to withdraw at any point during the study by simply closing their browser, and without penalty, before submission. Participants were made aware of this throughout in the information sheet and consent form (see Appendix 1,2) and this information was relayed in the debrief sheet (see Appendix 7). All information was kept strictly confidential and anonymous, as participants cannot be linked to any answers. All data was securely stored in compliance with NCI's data retention policy, and subsequently will be destroyed after 5 years. Participants anonymised data was also uploaded to a secondary data repository to facilitate validation and replication, in line with Open Science best practice and conventions. Participants were also informed in the information sheet and debrief sheet (see Appendix 1,7) that their answers may be used should this study be published. They will also have to provide consent for this in the consent form (see Appendix 2).

RESULTS

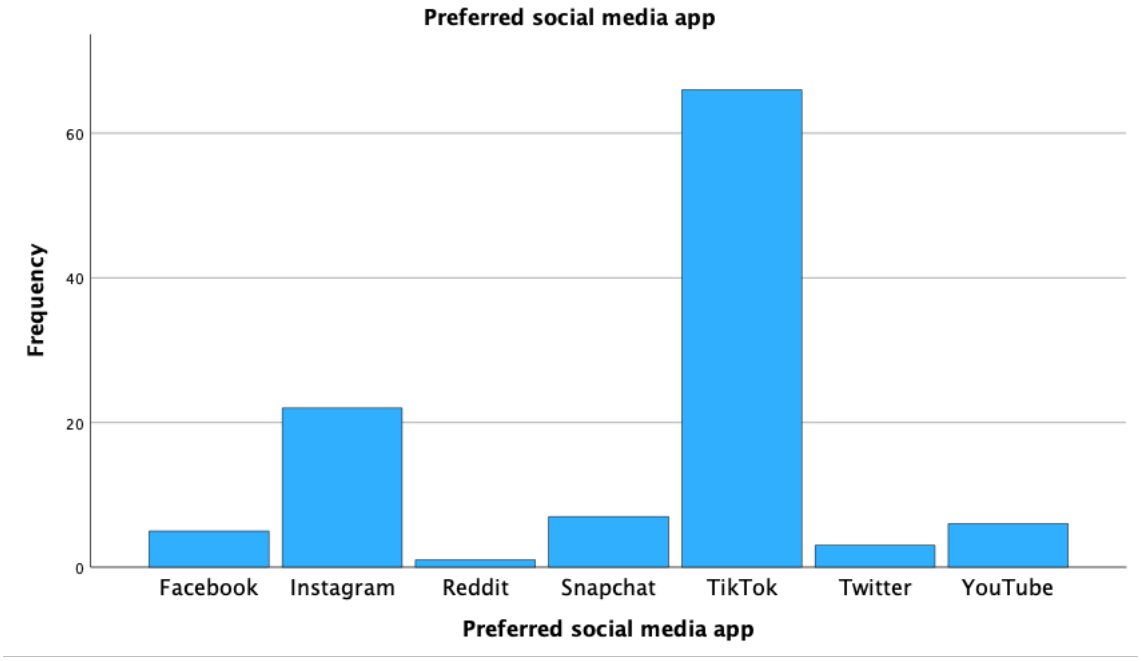
Descriptive Statistics:

To begin, descriptive statistics were ran for the following: age, gender, social media usage (SMUS scores), cognitive failures questionnaire (CFQ scores), and recall scores. The sample consisted of 110 participants (N=110) with 76 being female (69.1%) and 34 being male (30.9%). The average age was (M=26.96, SD = 11.04) and ranged from (R=18-61). SMUS scores averaged (M=53.05, SD = 6.42), CFQ scores averaged (M=48.49, SD = 11.99), and recall scores averaged (M=5.4, SD = 3.78). The higher SMUS scores suggest that the sample overall shows frequent social media usage, while the cognitive failure scores indicate only a slight level of self-reported cognitive failures. In terms of social media habits, 34.5% of participants reported spending 4-6 hours weekly on social media, while 16.4% reported more than 15 hours. Notably, TikTok was reported as being the most preferred platform (60%), followed by Instagram (20%).

Table 1: *Descriptive statistics, N=110*

Variable	Min.	Max.	M.	Std. D
Age	18	61	26.96	11.042
SMUS Scores	32	66	53.05	6.419
CFQ Scores	21	81	48.49	11.990
Recall Scores	0	15	5.40	3.776

Table 2: *Histogram showing frequency of preferred social media apps*



Independent samples t-tests:

Next, Independent samples t-tests were ran in order to compare younger and older participants on their CFQ and SMUS scores. The data showed that while younger participants (M = 49.05) scored higher than older participants (M = 44.93) on the CFQ scores, the difference was non-significant, (p = .218). This could indicate possible trends that should be investigated further should the study be replicated, possibly using new scales

Younger participants had significantly higher SMUS scores (M=54.05) than older participants (M = 46.67) (p < .001), indicating that younger individuals engage more with social media. This means that Hypothesis 3 can be supported by the data, 'demographic factors such as age and gender will affect the relationship between social media usage'.

A very slight difference can be seen with recall scores, with younger participants averaging scores of (M = 5.84) which is slightly higher than then older participants (M =

4.63), however no significance was found (p = .052). However, the significance is quite slight, suggesting that there is potential for future studies to further explore. As the recall score difference approaches significance, there is evidence of a potential age-related decline in memory performance. This finding aligns with the literature that highlights cognitive decline with age, as well as the Hypothesis.

One-Way ANOVA

A one-way ANOVA investigated Hypothesis 1, 'Higher SMUS scores will correlate with poorer performance on memory tasks, which means that increased social media usage leads to lower recall scores'. Results showed no significant differences among groups (p = .262**)**

Next CFQ scores were tested against preferred social media apps. The ANOVA showed to be non-significant (p = .875), suggesting that preferred social media app does not influence cognitive failures for this particular sample set.

Two-Way ANOVA

A two-way ANOVA was ran in order to determine the interaction between age groups, (defined as younger and older), and social media usage levels on recall scores. Results showed no significance for age groups, (p = .065)**,** however scores did approach significance. This should be further investigated in future studies. Social media usage levels also showed no significance (p = .531).

Correlation

Pearson correlations was utilised to test several relationships. First we tested SMUS scores against CFQ scores. A weak but positive correlation was recorded between the two,

with SMUS scores correlating positively with CFQ scores (p = .002) which indicates that higher social media usage can lead to more cognitive failures. Age was negatively correlated with recall scores, (p < .001). The link between SMUS scores and CFQ scores aligns with cognitive overload theories (Sweller, 1988). implying high social media users may experience poorer memory retention and are more susceptible to cognitive failures.

Table 3: *Correlation*

		Age	SMUS TS.	CFQ TS.	Recall S.
Age	Pearson C.	1	-.459**	-.153	-.107
	Sig. (2-tailed)		<.001	.111	.264
	N	110	110	110	110
SMUS	Pearson C.	-.459**	1	.106	.010
	Sig. (2-tailed)	<.001		.269	.919
	N	110	110	110	110
CFQ	Pearson C.	-.153	.106	1	-.054
	Sig. (2-tailed)	.111	.269		.577
	N	110	110	110	110
Recall	Pearson C.	-.107	.010	-.054	1
	Sig. (2-tailed)	.264	.919	.577	
	N	110	110	110	110

*** Correlation is significant at the 0.01 level (2-tailed).*

Regression Analysis

A multiple regression analysis examined age, gender, SMUS scores, and CFQ scores against recall scores. The was no significance found ($p = .136$). SMUS scores ($p = .505$) and CFQ scores ($p = .182$) also did not significantly predict recall scores.

Again, age slightly approached significance ($p = .139$), meaning there could be potential cause to investigate age further should this study be replicated. Future research could explore additional cognitive scales, possibly aimed more towards older participants, or incorporate environmental factors.

DISCUSSION

In the current study, the aim was to investigate the relationship between social media use and memory retention. More specifically, if higher levels of social media usage would negatively impact one's memory. This study has provided valuable insight into these aims, highlighting potential trends that should be further investigated in future studies, notably between age groups and social media usage. The sample had an average age of 26.96 (M=26.96, SD=11.04). Social media usage was relatively high, 34.5% of participants reported spending 4-6 hours per week, and 25.5% spent 7-10 hours. A staggering 60% of participants identified TikTok as their preferred social media platform. The data also shows the average SMUS score (M=53.05, SD=6.42) and the CFQ score (M=48.49, SD=11.99). The results showed that there was no significant correlation of SMUS scores on the Cognitive Failures Questionnaire (CFQ) or the recall task. This suggests that within the sample used, social media usage did not directly impact scores.

Interestingly, the data showed that instead of social media usage or age like hypothesised, gender was a common factor among CFQ scores, with women reporting more cognitive failures than men. While this could reflect genuine differences in cognitive function, it's interesting to note that it may also stem from differences in self-reporting styles (Cross et al., 2021)

Previous Research:

Previous research has shown that high levels of screen time has been negatively associated with cognitive performance, particularly working memory and attention span (Cain et al. 2016). Similarly, Ophir et al. (2009) found that heavy media multitaskers performed worse on recall tasks compared to low media multitaskers, supporting the idea that excessive social media usage may contribute to cognitive overload.

Similarly to the previous study, Orben et al. (2019) conducted a large-scale analysis and found small, inconsistent associations between screen time and cognitive function, suggesting that individual differences and compounding factors play an important role. The present study found that recall scores were relatively the same among high social media users. While this does not align with (Ophir et al. 2009), the current study did not examine multitasking behaviour, which may be examined in future studies surrounding this topic.

Additionally, the preference for TikTok (60%) among participants reflects a shift in digital consumption patterns. Research conducted a mere 7 years ago predominantly focused on platforms such as Facebook and Instagram, as TikTok wasn't as mainstream as it is today. (Twenge et al., 2018), TikTok's short and algorithm based content may uniquely impact attention and memory retention, an area that warrants further investigation.

The initial Hypothesis at the beginning of this research project that stated that social media usage would affect memory scores wasn't supported by the collected data. Neither the one-way ANOVA or the two-way ANOVA showed significant effects on recall scores. This suggests that social media alone doesn't necessarily impair memory. It's possible that a different method for obtaining the data from participants should be employed in future research, such as a longitudinal study. It's also possible that the way in which we engage with social media is more predictive of our memory retention, rather than total screen time. For example, passively scrolling through TikTok may have different cognitive outcomes than actively engaging with educational content on YouTube (Yang et al., 2022).

TikTok was recorded as being the most preferred app among participants (N=60%). There could be many reasons for this, one being the way in which participants were recruited, which was all online. It's possible that TikTok, known for its algorithm, spread to more people than other social media sites. Another reason could be TikTok's short and quick

content style. This feature may reflect changing attention patterns or preferences among social media users (Smith, 2023). Future research could explore whether platform styles may influences cognitive outcomes.

Notably, younger participants reported significantly higher social media use than older participants. This could also be a result of the sample size containing far more younger participants than older participants. Future research might benefit from redirecting scales or recruitment toward older adults to obtain more diverse results. It could also indicate that younger people are more immersed in social media. However, age didn't significantly affect cognitive failures or recall scores. This challenges the initial Hypothesis about age-related cognitive decline and suggests that social media habits may not explain those differences (Zhang & Zhou, 2020).

Future Studies:

Future research could benefit from investigating the impact of emotional engagement with social media. Content that provokes strong emotional responses, both positive and negative, may influence cognitive performance differently. For example, emotionally charged content could enhance memory for that content (Chiossi, et al. 2023).

Additionally, catering to older demographics could offer quite valuable insights. The data showed that significance was approached throughout the study, just not quite, so exploring this could offer some interesting results should they be investigated differently in the future. Since social media use is increasing among older adults, and studying how they engage with these platforms, and if cognitive impacts differ from younger users should be considered. Exploring whether age-related cognitive decline interacts with social media habits could uncover patterns missed in younger samples (Zhang & Zhou, 2020).

Finally, longitudinal studies should be implemented in future studies. Tracking participants social media habits and cognitive performance over time as opposed to a single survey like the current study, would help to clarify whether the level of social media use causes cognitive changes or whether people with certain cognitive styles are just more drawn to social media. This method of collecting data would offer interesting insight into what the current study has already set a solid foundation for.

Limitations:

Age:

While the sample size is significantly large (N=110) it is not as diverse as anticipated, with the average age of the participant being (M=26.96). Further research should aim to focus on older individuals, or integrate a larger sample of older participants, as the average age of this sample size could have possibly skewed the results.

Phrasing of data collection question:

Upon further inspection of the survey that was presented to participants, it's possible that the question regarding screen-time could have been asked more clearly, as the phrasing of this question could have easily been misinterpreted by many individuals. Instead of checking their social media screen time for the week, it's quite likely that they could have checked their screen time for that particular day. It should also be mentioned that data collection spanned over a week, so accurate screen time data could only be ensured if participants completed the survey at the end of the week, which they were not instructed to do. Should this study be replicated, this method of data collection should be rectified by

giving more clear instructions on how to obtain their weekly social media use. Alternatively, we could ask participants to complete a longitudinal survey, which would consist of multiple surveys over a period of time whilst recording their screen time each time, to garner a more realistic, average result and explore the trends that seemed to begin to emerge in the current study.

Scales:

Another limitation were the scales used. Specifically the Social Media Usage Scale (SMUS). The SMUS has been criticised because social media use is so complex, different people have various different uses and ways they engage with social media, and the questions asked don't particularly accommodate this (van Uden-Kraan et al., 2018). It's also been argued that the SMUS does not account for societal/cultural or demographic factors, such as age, that may have an effect on an individual's social media use (Livingstone, 2017) (Kirschner & Karpinski, 2010). Self-report measures like the SMUS and CFQ can also often susceptible to bias, as individuals might over/underestimate their social media use or cognitive failures. Future studies could benefit from new measures such as providing phone activity logs or longitudinal cognitive tests

Shallow vs Deep Processing:

As stated earlier, the possibility that it's actually the way in which we engage with social media that is more predictive of our memory retention, rather than total screen time, should be investigated in future studies in order to identify the effects of shallow versus deep processing on memory scores in the context of social media The current study did not test for passive vs active engagement, as this could have led to cognitive overload for the participants

had there been too many measures used, leading to participants dropping out of the study prematurely.

CONCLUSION

While the findings of this study provide valuable insights into the relationship between social media usage, memory retention, and demographic factors such as age and gender, the initial hypotheses were proven to be not supported by the collected data. This emphasises the ever evolving nature of social media.

The lack of significant results regarding gender and memory retention aligns with prior research, suggesting that gender may not play a pivotal role in these cognitive processes. Additionally, the non-significant relationship between cognitive failures and age challenges existing assumptions, indicating that more nuanced factors may contribute to cognitive performance beyond age alone.

The current study faced many limitations. Namely self reported scales, a large but mainly young sample size, issues regarding the wording of questions and not researching active vs passive engagement in social media, which may possibly be an indicator of the variables being tested. Regardless of these limitations, this study offers a solid foundation for future research. Expanding the sample, incorporating more diverse demographics, or employing longitudinal designs may result in more diverse data.

In conclusion, this research project contributes to the ongoing discussion surrounding technology's role in our everyday cognitive functioning, particularly among different age

groups. Future studies should aim to explore different measures, such as different scales, different methods of recruiting participants, and perhaps a different design style such as longitudinal or even qualitative , to obtain a more diverse sample pool. By doing this, both the general population and researchers can deepen their understanding of the cognitive impacts of social media usage in an increasingly digital world, while still enjoying the benefits.

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APPENDICES

Appendix 1:

Participant Information Leaflet

Social Media's Effect on Memory in the age of Instant Gratification

You have been invited to take part in this research study. Before deciding whether you wish to participate, please take the time to read through this document in full, as it explains what is involved in this research, and what is involved for you. Any questions you have regarding the research or the information provided can be answered by myself, so please feel free to contact me using my contact information provided below.

What is my study about?

My name is Aoife, and I am currently a final year student in the Bachelor of Arts (Honours) program in National College of Ireland. As part of my final year project, I must carry out an independent research study. The research project that I am carrying out aims to investigate, what is Social Media's Effect on Memory in the age of Instant Gratification? The research will be conducted by me, and supervised by Conor Thornberry, a lecturer at National College of Ireland.

What will taking part in the study involve?

If you choose to take part in this research, you will be asked to complete a short, questionnaire which will enquire about your current age, what age you began using social media, your preferred social media app, and how often, on average per day you would spend on social media. This will be followed by a sequence of memory tasks, which will take

approximately 20 minutes to complete. The total length of the experiment is expected to be about 30 minutes. The testing will occur online, so you may complete it fully in your own time, and you will be provided with a link to this task if you wish to participate. The duration of the study will be from data collection in November 2024 until I submit my project in March, but you will only be required to participate in the memory tasks and questionnaire, nothing else will be required from you after.

Who can take part?

You are eligible to take part in this study if you are above the age of 18, use social media in your day-to-day life, are not diagnosed with any attention deficit/memory disorders. You must have access to a phone/computer.

Do I have to take part?

Participation in this study is completely voluntary. You can chose to withdraw at anytime, and there will be no consequences. If you choose to participate, you still have the right to withdraw from this study at any given time during this study. However, once the data has been submitted, it will no longer be possible to withdraw from the study, as your data will be anonymous and therefore unidentifiable. Again, please feel free to contact me if you have any questions regarding this information.

What are the risks and benefits of taking part?

There are no direct benefits or risks of taking part in this research study, however the data collected will be of great help to my research.

Will taking part be confidential and what will happen to my data?

All responses and data collected in this study will be 100% anonymous and strictly confidential. Responses to the questionnaire and tasks will be stored securely in a password protected file on my computer. Only myself and my supervisor will have access to the data. This data will be retained for 5 years in accordance with the NCI data retention policy. Any data collected and subsequently published will be strictly confidential. Anonymised data will be stored on NCI servers in line with NCI's data retention policy. Anonymised data will also be uploaded to a secondary data repository to facilitate validation and replication, in line with Open Science best practice and conventions

What will happen to the results of the study?

The results of this study will be presented in my final dissertation for National College of Ireland, which will be submitted for grading.

Thank you for taking the time to read this information sheet, any further questions can be addressed to me or my supervisor using the contact information below.

Who should you contact for further information?

Researcher: Aoife O'Hanlon

Email: X20487872@student.ncirl.ie

Supervisor: Dr. Conor Thornberry

Email: conor.thornberry@ncirl.ie

Appendix 2

Participant Consent Form

Social Media's Effect on Memory in the age of Instant Gratification

- I voluntarily agree to take part in this research study.
- I am over the age of 18.
- I am not currently diagnosed with an attention deficit/memory disorder.
- I understand that even if I agree to participate at this time, I have the right to withdraw at any point during the study.
- I understand that I can no longer withdraw my data from the study once my answers have been submitted.
- I have had the nature of the study explained to me by the researcher, and I have had the opportunity to ask any questions I have about the study.
- I understand that I will not benefit directly from participating in this study.
- I understand that all the data I provide for this research will be treated confidentially.
- I understand that my data will be anonymous in the published research.
- I understand that my data will be used in the results of this dissertation.
- I consent for my anonymised data to be uploaded to a secondary data repository to facilitate validation and replication, in line with Open Science best practice and conventions.
- I understand that a signed copy of this consent form, along with the scores from the tasks I will fill out will be kept secure and private by the researcher, and will be

securely retained by the researcher for a period of 5 years in line with NCI's data retention policy.

- I understand that I am free to contact the researcher to seek further clarification and information on this study at any time.

I fully consent to all of the above statements and to taking part in this study, and understand what is being asked of me ☐

Appendix 3:

Demographics

Gender:

☐Male

☐Female

☐Non-Binary

☐Prefer Not to Say

☐Prefer to Self-Describe

If you selected “Prefer to Self-Describe” please do so below:

_____

Age:

☐

Social Media Usage

For this section of the study, please refer to your screen time located in your settings.

if you cannot access screen time, please provide an estimate

1. Based on your weekly screen time*, how often do you use social media?

☐ less than 1 hour

☐ 1-3 hours

☐ 4-6 hours

☐ 7-10 hours

☐ 11-15 hours

☐ more than 15 hours

2. Based on your weekly screen time*, what social media app do you use most?

☐ TikTok

☐ Instagram

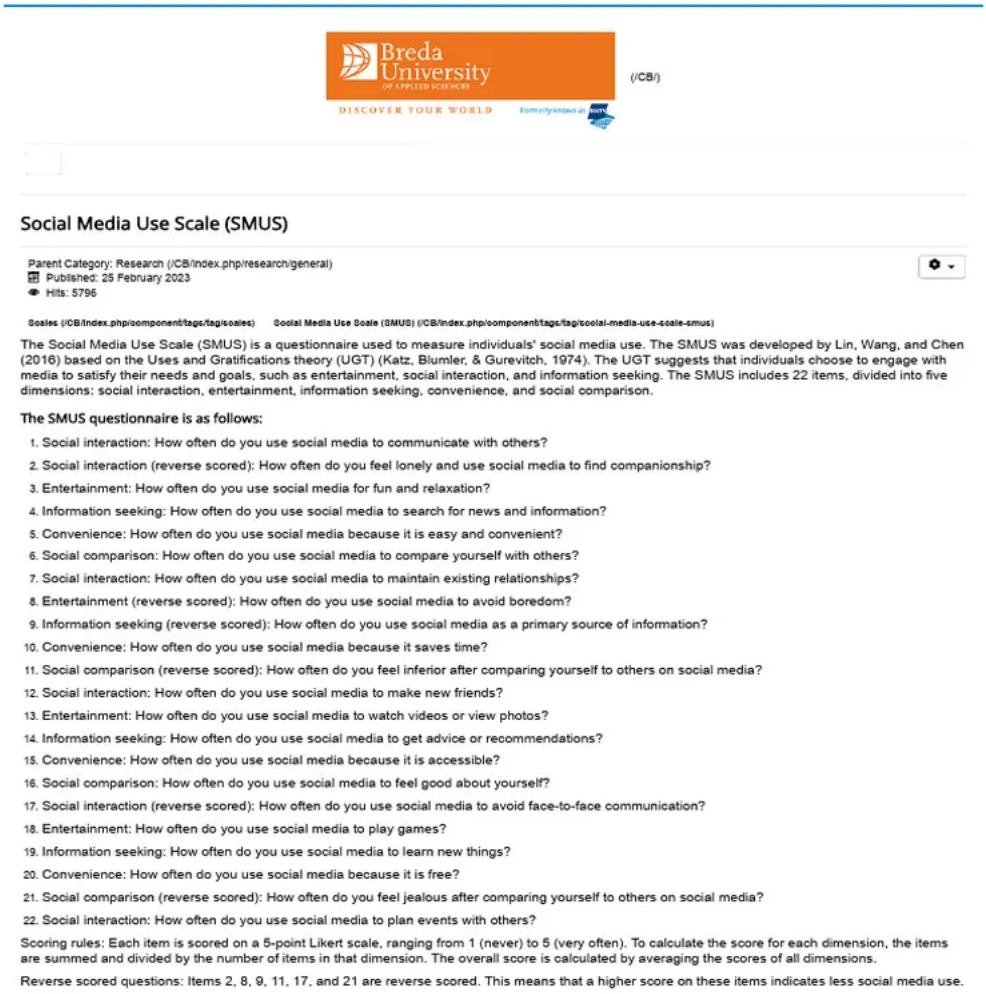
☐ Facebook

☐ YouTube

☐ Other

Appendix 4:

Social Media Usage Scale (SMUS)



Breda University OF APPLIED SCIENCES
DISCOVER YOUR WORLD
(/CB/)

Social Media Use Scale (SMUS)

Parent Category: Research (/CB/index.php/research/general)
Published: 25 February 2023
Hits: 5796

Scales (/CB/index.php/component/tags/tag/scales) Social Media Use Scale (SMUS) (/CB/index.php/component/tags/tag/social-media-use-scale-smus)

The Social Media Use Scale (SMUS) is a questionnaire used to measure individuals' social media use. The SMUS was developed by Lin, Wang, and Chen (2016) based on the Uses and Gratifications theory (UGT) (Katz, Blumler, & Gurevitch, 1974). The UGT suggests that individuals choose to engage with media to satisfy their needs and goals, such as entertainment, social interaction, and information seeking. The SMUS includes 22 items, divided into five dimensions: social interaction, entertainment, information seeking, convenience, and social comparison.

The SMUS questionnaire is as follows:

1. Social interaction: How often do you use social media to communicate with others?
2. Social interaction (reverse scored): How often do you feel lonely and use social media to find companionship?
3. Entertainment: How often do you use social media for fun and relaxation?
4. Information seeking: How often do you use social media to search for news and information?
5. Convenience: How often do you use social media because it is easy and convenient?
6. Social comparison: How often do you use social media to compare yourself with others?
7. Social interaction: How often do you use social media to maintain existing relationships?
8. Entertainment (reverse scored): How often do you use social media to avoid boredom?
9. Information seeking (reverse scored): How often do you use social media as a primary source of information?
10. Convenience: How often do you use social media because it saves time?
11. Social comparison (reverse scored): How often do you feel inferior after comparing yourself to others on social media?
12. Social interaction: How often do you use social media to make new friends?
13. Entertainment: How often do you use social media to watch videos or view photos?
14. Information seeking: How often do you use social media to get advice or recommendations?
15. Convenience: How often do you use social media because it is accessible?
16. Social comparison: How often do you use social media to feel good about yourself?
17. Social interaction (reverse scored): How often do you use social media to avoid face-to-face communication?
18. Entertainment: How often do you use social media to play games?
19. Information seeking: How often do you use social media to learn new things?
20. Convenience: How often do you use social media because it is free?
21. Social comparison (reverse scored): How often do you feel jealous after comparing yourself to others on social media?
22. Social interaction: How often do you use social media to plan events with others?

Scoring rules: Each item is scored on a 5-point Likert scale, ranging from 1 (never) to 5 (very often). To calculate the score for each dimension, the items are summed and divided by the number of items in that dimension. The overall score is calculated by averaging the scores of all dimensions.

Reverse scored questions: Items 2, 8, 9, 11, 17, and 21 are reverse scored. This means that a higher score on these items indicates less social media use.

Appendix 5:

Word List adapted from Rose, R. J., & Sutton, L. T. (1996). Primacy and Recency Task

Dream

River

Butter

Ocean

Salary

Sugar

Board

College

Night

Bottle

Death

Doctor

Child

Month

Forest

Horse

Grass

Anger

Market

Winter

Appendix 6:

The Cognitive Failures Questionnaire (Broadbent, Cooper, FitzGerald & Parkes, 1982)

The following questions are about minor mistakes which everyone makes from time to time, but some of which happen more often than others. We want to know how often these things have happened to your in the past **6 months**. Please circle the appropriate number.

	Very often	Quite often	Occasionally	Very rarely	Never
Do you read something and find you haven't been thinking about it and must read it again?	4	3	2	1	0
Do you find you forget why you went from one part of the house to the other?	4	3	2	1	0
Do you fail to notice signposts on the road?	4	3	2	1	0
Do you find you confuse right and left when giving directions?	4	3	2	1	0
Do you bump into people?	4	3	2	1	0
Do you find you forget whether you've turned off a light or a fire or locked the door?	4	3	2	1	0
Do you fail to listen to people's names when you are meeting them?	4	3	2	1	0

Do you say something and realize afterwards that it might be taken as insulting?	4	3	2	1	0
Do you fail to hear people speaking to you when you are doing something else?	4	3	2	1	0
Do you lose your temper and regret it?	4	3	2	1	0
Do you leave important letters unanswered for days?	4	3	2	1	0
Do you find you forget which way to turn on a road you know well but rarely use?	4	3	2	1	0
Do you fail to see what you want in a supermarket (although it's there)?	4	3	2	1	0
Do you find yourself suddenly wondering whether you've used a word correctly?	4	3	2	1	0
Do you have trouble making up your mind?	4	3	2	1	0
Do you find you forget appointments?	4	3	2	1	0
Do you forget where you put something like a newspaper or a book?	4	3	2	1	0
Do you find you accidentally throw away the thing you want and keep what you meant to throw away – as in the	4	3	2	1	0

example of throwing away the matchbox and putting the used match in your pocket?					
Do you daydream when you ought to be listening to something?	4	3	2	1	0
Do you find you forget people's names?	4	3	2	1	0
Do you start doing one thing at home and get distracted into doing something else (unintentionally)?	4	3	2	1	0
Do you find you can't quite remember something although it's "on the tip of your tongue"?	4	3	2	1	0
Do you find you forget what you came to the shops to buy?	4	3	2	1	0
Do you drop things?	4	3	2	1	0
Do you find you can't think of anything to say?	4	3	2	1	0

(Broadbent, D.E., Cooper, P.F., FitzGerald, P., & Parkes, K.R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. British Journal of Clinical Psychology, 21, 1-16.)

Appendix 7:

Participant Debriefing Sheet

I would like to thank you for taking the time to participate in this study. Your data will benefit the completion of my dissertation.

What was being studied?

As previously stated, this study is investigating Social Media's Effect on Memory in the age of Instant Gratification, the aim of which was to investigate if there is a correlation between prolonged social media use and poor memory retention.

What was the studies hypothesis?

We withheld the studies hypothesis from you, to avoid any bias in your scoring. The hypotheses of this study were as follows:

Hypothesis 1: Higher SMUS scores will correlate with poorer performance on memory tasks, which means that increased social media usage leads to lower recall scores.

Hypothesis 2: Participants who score high on the CFQ will perform worse on memory tasks compared to those who score lower.

Hypothesis 3: Demographic factors such as age and gender will affect the relationship between social media usage, meaning that younger participants will obtain poorer results compared to older participants, while no significant differences in memory performance will be found based on gender.

I now plan to investigate these hypotheses by comparing the collected data**.**

How will my data be used?

Your data will be collected and compared with the data of the other participants, these results will be transferred on to a statistical software called SPSS. The results of this will be used in my final dissertation for National College of Ireland, and in the future may be submitted for publishing to a scientific journal. Anonymised data will be stored on NCI servers in line with NCI's data retention policy. It is envisaged that anonymised data will also be uploaded to a secondary data repository to facilitate validation and replication, in line with Open Science best practice and conventions.

Is my data anonymous?

Your data is completely anonymous, and at this point, you are unable to withdraw your data from the study, as it is completely anonymous and cannot be linked back to you.

Useful contact information:

If you have any further questions regarding this study or information regarding your data, feel free to contact me or my supervisor on the following:

Researcher: Aoife O'Hanlon

Email: X20487872@student.ncirl.ie

Supervisor: Dr. Conor Thornberry

Email: conor.thornberry@ncirl.ie

Appendix 8:

National College of Ireland
Mayor Street, IFSC, Dublin 1, Ireland

Coláiste Náisiúnta na hÉireann
Sráid an Mhéara, IFSC
Baile Átha Cliath 1, Éire

Tel: +353 1 449 8500
Fax: +353 1 497 2200
email: info@ncirl.ie
Website: www.ncirl.ie

Date: 12/11/2024

Ref: Ethics Approval Number: 12112024x20487872

Proposal Title: *Social Media's Effect on Memory in the Age of Instant Gratification*

Applicant: Aoife O'Hanlon

Dear Aoife,

Thank you for your application to the NCI Psychology Ethics Filter Committee, and for responding to clarification requests related to the application. I am pleased to inform you that the ethics committee has approved your application for your research project. Ethical approval will remain in place until the completion of your dissertation in part fulfilment of your BA Honours Degree in Psychology at NCI.

Please note that:

- Students are responsible for ensuring that their research is carried out in accordance with the information provided in their application.
- Students must abide by PSI ethics guidelines in completing their research.
- All procedures and materials should be approved by the supervisor prior to recruitment.
- Should substantial modifications to the research protocol be required at a later stage, a further amendment submission should be made.

Sincerely,

Dr Robert Fox
Chairperson, Psychology Ethics Filter Committee

Ethics Committee members: *Dr Robert Fox (representative on the NCI Research Ethics Subcommittee), Dr Michelle Kelly, Dr Amanda Kracen, Dr Conor Nolan, Dr Lynn Farrell, Dr Fearghal O'Brien, Dr David Mothersill, Dr Michele Kehoe, Dr Barry Coughlan, Dr Conor Thornberry, Dr Brendan Cullen, Cassandra Murphy, Eden Bryan.*