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The acute cognitive effect caused by short-form and long-form informative and non-informative social media video content

Den kortsiktiga kognitiva effekten av korta och långa informativa och icke-informativa videos på sociala medier

Nicole Högbom Fridén & Jacob Olivecrona

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Handledare: Kirill Elin

Examinator: Ilkka Salo

Abstract

This study investigated how the length of social media videos and content type influenced working memory and inhibition. A total of 40 participants aged 20-44 years were assigned to four different groups. They watched either a TikTok playlist with several short-form videos or a longer YouTube video containing informative or non-informative content. Before and after the viewing session, the participants completed three tasks: the Digit Span Task, the Flanker Task and the Corsi Block Task. They were also asked a few questions about age, gender, time spent on these types of videos and the type of content they usually consume. The hypotheses predicted that the groups with short-form videos and the groups with non-informative videos would perform worse than their counterparts. These were rejected when no significant differences in task performance were found between the groups when only compared to task results. However, when analyzing the Corsi Block Task with the questionnaire variables as covariates, a significant association was found between the Corsi post test and information type, $F(1, 31) = 4.19$, $p = .049$, $\eta^2 p = .12$. Our findings suggest that cognitive functions are possibly moderated by multiple interacting variables and further research is needed.

Keywords: short-form videos, long-form videos, informative, non-informative, working memory, inhibition, dual theory

Sammanfattning

Denna studie undersökte hur längden på videor på sociala medier och videornas innehållstyp influerade arbetsminne och inhibering. Totalt deltog 40 deltagare i åldern 20-44 år, vilka delades in i fyra grupper. Deltagarna fick se antingen en TikTok-spellista med ett flertal korta videor eller en längre YouTube-video, vilka innehöll informativt eller icke-informativt innehåll. Före och efter visningen genomförde deltagarna tre uppgifter: Digit Span Task, Flanker Task och Corsi Block Task. De blev även tillfrågade om ålder, kön, hur mycket tid de ägnar åt dessa typer av videor och vilken typ av innehåll de normalt konsumerar. Enligt hypoteserna förväntades grupperna med korta videos och grupperna med icke-informativt innehåll prestera sämre än deras motsvarande grupper. Resultaten visade inga signifikanta skillnader när man endast jämförde testernas resultat mellan grupperna. Däremot påvisades ett signifikant samband mellan Corsi Block Task och informationstyp när frågesvaren lades till som kovariater, $F(1, 31) = 4.19$, $p = .049$, $\eta^2p = .12$. Slutsatsen för detta arbete är att sambandet mellan sociala medier och kognitiva funktioner möjligtvis påverkas av flera olika variabler. Därav behövs ytterligare forskning för att förstå dessa samband.

Nyckelord: short-form videos, long-form videos, informative, non-informative, working memory, inhibition, dual theory

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The acute cognitive effect caused by short-form and long-form informative and non-informative social media video content

Short-form videos (SFV) is a globally growing form of entertainment. A vast number of people, both young and old, use it on a daily basis, with 766 million users active on TikTok daily in 2024 (Slotta, 2026). According to Slotta's compiled statistics, 73.3% of the user base consisted of the age group 18–35. The growing use of SFV has contributed to less interaction with traditional media, such as TV shows, especially among younger people. The videos are based on a personal algorithm designed to maximize engagement, taking the user's age and location into account, and varying content depending on how long a person watches a video or whether they "like" or save it (Reuters Institute for the Study of Journalism, 2025).

In connection with SFV, a large number of terms, trends and concepts have emerged, one of which is "brain rot," which was named the word of the year by Oxford University Press in 2024 (Oxford University Press, 2024). The definition refers to the perceived deterioration of cognitive functions that individuals attribute to overuse of SFV.

The present study investigates two related research questions. First, we examine whether SFV exposure affects cognitive functions differently than exposure to long-form videos (LFVs). Second, we examine the different effects of informative and non-informative content on these cognitive functions. As social media has become such a prominent part of everyday life, it is important to understand how this widespread phenomenon may influence cognition. To examine this, we conducted an experimental study and reviewed relevant research. The study focuses on two cognitive functions: working memory and inhibition. These will be described in the following sections. In addition, cognitive load and the dual theory of habituation and sensitization are discussed as potential theoretical frameworks for interpreting our findings.

SFV and cognition

With our experiment we want to explore if the length of social media videos affects working memory and inhibition by comparing longer videos to short-form videos (SFV).

Although the topic of SFVs and cognitive impact is relatively new, research has already gathered some evidence that this media format may be affecting cognitive functions such as attention, memory and inhibition. Findings have suggested that SFV correlates moderately with worse cognitive performance, especially performance regarding inhibition and attention (Nguyen et al., 2025). Further research on attentional deficits employing, among other tools,

electroencephalography (EEG) has found a correlation between SFV use and the P300 event-related potential. Individuals with high exposure to SFVs had a reduced P300 response, showing a potential effect on attentional processes (Walla & Zheng, 2024). The P300 ERP has been theorized to appear when one is presented with something surprising. When a novel event occurs, EEG can record a wave of activity after around 300 ms. The P300 has additionally been linked to memory and learning, since the strength of the P300 has been able to predict memory of said event and repeated exposure to novelty reduces surprise (Donchin, 1981), which also indicates that SFV might have an effect on learning abilities.

Moreover, SFV usage has been associated with several forms of memory but with somewhat inconsistent results. Daily usage of SFV has suggested a correlation with worse working memory in young adolescents, although not in older ones. The same results applied to the adolescents' reliance on their personalized algorithm (Xu et al., 2023). According to these results, younger adolescents are more susceptible to negative effects by daily usage of SFV, although Nguyen et al. (2025) did not find age to interact with cognitive performance. They also found only a weak correlation between SFV and working memory performance (Nguyen et al., 2025), which supports other findings that have suggested no correlation between social media use and working memory (Lara & Bokoch, 2021).

Additionally, prospective memory has shown signs of being affected, both negatively and positively, meaning the ability to plan ahead and remember to do it. When comparing the platforms Twitter, YouTube and TikTok, participants engaging with the latter platform performed significantly worse on a prospective memory task, while participants engaging with the remaining two platforms did not indicate any differing results (Chiossi et al., 2023). Building upon the study by Chiossi et al., Barton and Smyth (2025) analysed how SFV context switching affected prospective memory. When participants were limited to a certain amount of context switching, they improved their prospective memory, while a group without such limitations had worsened prospective memory (Barton & Smyth, 2025). This could be linked to Nguyen et al's (2025) result of a strong correlation between SFV intensity and cognitive performance, as well as a moderate correlation with addiction. Collectively these results suggest a possible correlation between social media use and working memory in younger individuals, as well as both positive and negative correlations between SFVs and prospective memory. Given the indistinct observed results, it remains challenging to make a definite conclusion.

Preceding to cognitive control, the ability to manage impulsive behaviour, which has been studied at a neurological level. Findings through fMRI has found that the dorsal anterior cingulate cortex (dACC) and dorsolateral prefrontal cortex (dlPFC) shows less activation when participants are presented with a preferred algorithm of SFVs, although individual differences might be caused by the concentration of the neurotransmitter glutamate. These are two important brain areas of the cognitive control network (Hong et al., 2026), which indicates that SFVs might disrupt inhibitory functions. Furthermore, fNIRS results showed that young children with addictive tendencies toward digital devices have less dlPFC activation, as well as a less active premotor cortex and inferior frontal gyrus, when completing an inhibitory task. These results suggest a disruption to inhibitory control, which might cause developmental impairments (Ding et al., 2025). Lastly, daily usage of social media has been associated with diminished capacity for delay of gratification in both older and younger adolescents, which might indicate worse self-regulation (Xu et al., 2023), and other findings have found a correlation between problematic use of social media and inhibitory response functions (Gou et al., 2024).

Taken together, these findings imply that SFV and overall use of social media and digital devices have a potential effect on inhibitory control. Although research has also shown no correlation between social media use and inhibition (Lara & Bokoch 2021), indicating that the field is still somewhat inconclusive.

Content format and cognition

The second topic we are studying concerns how type of content affects our cognitive functions. The two types of content we have tested are informative and non-informative. We have defined informative content as videos containing facts, knowledge, history and anything that is meant to teach the viewer about a topic or skill. Non-informative content, however, is defined as entertainment videos meant to amuse the viewer, which includes memes, gaming, vlogs and other types of content that are meant to be easy-going and not thought provocative. We have specifically been interested in the “brainrot” type of content.

Although the field of different types of content remains limited, research has found (Su et al., 2025) that unintentionally viewing media content containing news is positively linked with cognitive elaboration. Cognitive elaboration is the ability to relate new information to memories of old information. Although, the factual knowledge about the news did not appear unless cognitive elaboration happened, and, additionally, engaging with the content increased this chain

reaction. This showed that accidentally observing news does not increase knowledge about the topic, unless it is cognitively elaborated . This has also been found to be the case for content about fitness and food, as memory for the viewed content was increased when commenting on it (Zimmerman et al., 2022).

Furthermore, information-processing has been suggested to increase when memes are paired with a caption about COVID-19 (Myrick, et al., 2022) which establishes further that news and information on social media potentially affects cognitive processing skills. Further proof of this has been indicated in a study (Bråten et al., 2025) examining the effect of reading news and cultural themes on dedicated websites, along with books. The results pointed to a positive correlation with reading comprehension, while also demonstrating that reading websites containing entertainment and social media did not have any effect on reading comprehension . Lastly, captions on memes relating to COVID-19 also elicited a decrease in COVID-19-related stress. This has been argued to be the cause of a reassurance to the viewers' own thoughts and feelings, as well as a way to change their perspectives on the situation (Myrick et al., 2022), showing that informative content might help support mental well-being.

Different types of entertainment (non-informative) content have demonstrated to have both desirable and undesirable effects, with meme-viewing creating more positive emotions and less information-processing (Myrick et al., 2022). Although, memes involving humans generated more information-processing compared to memes involving animals . A study by Gül (2025) at a Turkish university showed that all the participating students in their study had been affected by “brainrot”. The findings implied that the underlying reason, most of the time, was due to emotional factors such as boredom, relaxation and as a coping mechanism to avoid or disconnect from reality. Additionally, they found that this could cause the experience of attention issues and slower cognitive function, as well as problems with mental health, academics and their social life. It was also mentioned that the students had a difficult time when attempting to focus and memorize information . These findings suggest that despite the positive emotions created by memes, the cognitive toll that brainrot might have negative consequences. For instance, the entertainment format of gaming content has been found to influence the viewer's behaviour, both implicitly and explicitly. Moreover, the implicit response has also correlated negatively with self-efficacy, indicating that these participants had less certainty in their own abilities, as well as cognitive flexibility (Jitoku et al., 2024).

Collectively, this suggests that entertaining (non-informative) content leads to negative outcomes in the forms of attentional deficits, worse mental health and overall decreased cognitive evaluation, even though the content might elicit temporary positive emotions. On the other hand, informative content has shown to activate cognitive functions and potentially lower stress levels.

Working Memory

Previous research has already posited that excessive use of social media contributes to a deterioration of emotional working memory, executive functions and negative self-image (Yousef et al., 2025; Emadi Chashmi et al., 2023).

Working memory can be defined as "a brain system that provides temporary storage and manipulation of the information necessary for such complex cognitive tasks as language comprehension, learning, and reasoning. " (Baddeley et al., 2021, p 1). The multicomponent model of working memory is a broad theoretical and conceptual framework in which Baddeley and Hitch expand upon the notion that the mind processes information much like a computer does. As implied by its name, the multicomponent model of working memory's core is that it is an integrated system of several components, each component with its own specialized task.

The Central executive is imperative for directing attentional awareness, both external and internal attention, and controlling higher cognitive functions such as thinking and by extension making vital cognitive tasks possible, such as learning and reasoning (Baddeley, 1992). The central executive is the manipulator and organizer of information which is stored in the two different buffers, the visuospatial sketchpad and the phonological loop. As well as the awareness buffer which integrated information with long term memories (Baddeley et al., 2026). Manipulation is essential for processing of information, as well as inhibition of external stimuli and task switching.

The Visuospatial Sketchpad is another component of the multicomponent model of working memory. This component is in charge of storing visual information in the short term, imperative to perceive perceptual information when the original information is no longer available such as in the Corsi Block-Tapping Test (Corsi, 1972;Baddeley, 1992).

The Phonological loop is the component of the model responsible for remembering verbal information. The phonological store has a limited capacity to store auditory information and can be tested using the Digit Span Task (Baddeley, 1992).

As the multicomponent model of working memory contains several different specialized components, such as verbal working memory and visuospatial working memory we are interested in how these components in particular are affected by SFVs.

Inhibitory Control

To complete a task at hand, or to accurately hear your friend at a loud party, one must be able to suppress irrelevant information for proper execution. Inhibitory control therefore enables us to perform such executive functions through selective attention to suppress loud noises or annoying visual interferences (Diamond, 2013). Inhibitory control, or also commonly known as response inhibition, is central to our everyday life and research has already shown that increased SFV usage is associated with poorer inhibitory control (Nguyen et al., 2025). Furthermore, there is a relationship between working memory and inhibitory control. To suppress the correct cue for the correct context, one must have in mind what the goal is under the context of what is happening. Therefore, the better concentration, the less chance of committing an inhibitory error and in such working memory and inhibitory generally relies on each other to adequately perform executive functions (Diamond, 2013). As the “brain rot” content in the playlists used for the experiment, and in general, are characterized by fast paced attention-grabbing stimuli, we want to examine if SFVs acutely influence inhibitory control in our own experiment.

Cognitive Load Theory

Cognitive load theory is based on evolutionary principles and was originally intended to effectivize teaching methods, but much like Baddeley’s model, which cognitive load theory is based on, has spawned further implementations. The theory posits that the working memory’s capacity can become overloaded and in turn weaken the mind's ability to perform problem solving tasks and reduce learning efficiency, i.,e. The cognitive load effect (Sweller, 1988). The cognitive load is similar to mental fatigue, but not quite the same. The theory proposed by Sweller states that there are three main types of cognitive load, intrinsic, extraneous and germane load. Intrinsic refers to how complex a task or topic is, extraneous load to redundant stimuli and germane is the desirable amount of load to build cognitive schemas to facilitate learning (Sweller, 1988). While trying to understand the cognitive effects of SFV viewing lead some researchers to propose that the intense and fast paced context switching can overload both visuospatial and verbal working memory due to the high extraneous load (Siy et al., 2026).

Dual Theory of Habituation and Sensitization

In 1970, Groves and Thompson stated that two polarizing processes exist in the peripheral nervous system that also work together. These two are the systems of habituation and sensitization, meaning the decrease of response and the increase of response to stimuli, respectively. According to the theory, the systems of habituation and sensitisation work separately but integrate to produce a behavioural outcome (Groves & Thompson, 1970). This process is regulated by repetition and strength of stimulus, meaning that repeated exposure promotes habituation, as do weaker stimuli (Thompson, 2009).

Bashinski et al. (1985) discussed Groves and Thompson's theory and explained the two pathways, habituation and sensitization, leading to behaviour. Behaviour is, in a way, calculated by which pathway is more active when presented with a stimulus, meaning that you are either more sensitized or more habituated. The sum of these will determine the curve of reaction to a stimulus. According to Groves and Thompson, the intensity of stimuli is what is affecting these pathways, but Bashinski et al. (1985) conducted an experiment on infants' visual attention that demonstrated that complexity is a better alternative explanation and that a complex stimulus showed a longer sensitization process (Bashinski et al., 1985).

Nguyen et al. (2025) discussed this theory in their meta study and interpreted it as repetition of one stimulus leads to habituation of said stimulus but sensitisation of another stimulus. In their case, this was discussed as habituation toward SFVs which led to sensitization toward slower tasks that are in need of a larger amount of cognitive functions. In other words, Nguyen et al. argue that the dual theory can be used to describe the worsened memory, attention and problem-solving skills since the participants have gotten habituated to faster, constantly changing stimuli, resulting in a sensitized reaction to slower tasks (Nguyen, et al., 2025).

As for the reason why people continue to expose themselves to social media despite its possible negative effects might be due to its rewarding nature. Social media has been likened to a Skinner Box, meaning that it influences our reward system (Lindström et al., 2021). The behaviours exhibited, such as the liking mechanisms and social communication, are direct rewards that further promote interaction. Moreover, the habit of using social media has been positively correlated with habituation, as well as dependency of continuance, which also increases sensitization toward cues from social media, such as likes and notifications (Soror et al., 2022).

Collectively, the rewarding nature and habituation effect makes social media attractive for its users and the ability to stop might be difficult on a neural level, which might further increase sensitization for slower tasks.

Purpose and research questions

The previously done research has mainly been interested in one type of media, either just SFVs, social media as a phenomenon or one type of content, with the exception of Myrick et al. (2022) and Bråten et al. (2025). We want to broaden this by comparing different lengths and content.

The purpose of this study is to explore a relatively new field and discover potential relationships between length of content and cognitive functions, as well as relationships between type of content and cognitive functions. Our research questions for this study are:

1) *How does the length of social media videos affect working memory and inhibition?*
2) *How does the type of social media content affect working memory and inhibition?*

We will test two hypotheses based on previous research:

- **H1**: The groups with SFVs will perform worse on the post tasks compared to the groups with longer videos.
- **H2:** The groups presented with non-informative videos will have worse post results compared to the informative groups.

Method

Participants

A total of 40 participants (*M* = 24.0*, SD*= 3.99) of whom 21 were females and 19 were males. The sample consisted of the age span 20-44 years old and all participants were recruited through convenience sampling. The majority of the participants consisted of university students at Lund university. The remaining participants were students at Malmö university or working. All participants were living in southern Sweden at the time of the experiment

Material

The material used for this experiment was two TikTok playlists, one for SF-non-informative (15 min, 64 videos) and one for SF-informative (15 min, 22 videos), as well as two YouTube videos, one LF-non-info (16 min & 24 sek, end at 16 min & 8 sek) and one LF-info (15 min & 59 sek). These playlists and videos are linked in the appendices. The tasks

used to examine working memory were the Digit Span Task and Corsi Block Task, and the task used for inhibition was the Flanker Task (Stoet, 2010, 2017). The Corsi Block Tapping Test also had a part two which consisted of the same test but with the reverse tapping direction.

Digit Span Task https://www.psytoolkit.org/c/3.7.0/edit?e=Digit_span

Flanker Task https://www.psytoolkit.org/c/3.7.0/edit?e=Flanker

Corsi Block Task https://www.psytoolkit.org/c/3.7.0/edit?e=Corsi_block

The SF-non-info playlist was curated through one of the writers personal TikTok feed by selecting videos that were under 60 seconds long and deemed to have no inherent relevance to science or otherwise informative in any specific sense, from the “for you” page. Videos were also excluded if they were deemed inappropriate, shocking or insensitive. The videos were also subjectively picked to be as humorously diverse as possible, to elicit the feeling for the participants that the playlist felt random, as picked through by the TikTok algorithm itself.

The SF-info playlist was curated through the feed of a new TikTok account, created for this purpose. The criteria for this playlist was also videos that were under 60 seconds long but this playlist’s videos had a longer average duration in comparison to the SF-non-info. All videos in this playlist were deemed to fit the “informative” criteria and had a common theme of popular science videos. Videos we deemed to be of higher quality than others we excluded to refrain from using the same few creators' videos. Again, this was done to elicit the feeling of an algorithm working for the participants.

The LF-non-info video was picked because it fit the criteria of not containing any information that was considered valuable to the authors. The video's premise was three people baking a cake where one was blindfolded, another one’s mouth was duct taped and the last person was wearing noise cancelling headphones with music on loud volume.

The LF-info video consisted of a psychology lecture on the difference between perception and sensation. It contained zero cuts and was just a man explaining these two concepts in front of a white board.

All three of the cognitive tasks used were grabbed from the free library from the open source and free site Psytoolkit, where there are both user made tasks and official tasks, meaning they were created by Gijsbert Stoet (Stoet, 2010, 2017). Moreover, all three tasks used were from the official library.

We wanted to assess the effect of SFVs and LFVs on working memory and therefore we selected tests that encompassed both visual working memory and verbal working memory, as well as inhibition. The cognitive tests chosen were picked because of their well-tried test re test reliability (Liu & Murao, 2025). In assessing our demographic we wanted to examine the effect on ordinary adults to strengthen our validity as the capacity of working memory improves during adolescence and often rapidly declines as we approach senescence, thereby we minimize our potential outliers and potential confounders (Wingfield et al., 1988).

Procedure

Initially the experiment took place in several different group rooms at the university. Due to a decline in participants, home visits were conducted. In doing so some loss of validity and reliability is to be expected. All other aspects of the experiment were kept as constant as possible. As such as having the volume on the playlists at 50% for all the participants on a HP computer with a refresh rate of 60hz and a resolution of 1920 x 1080 pixels and an equivalent amount of volume on a macbook pro M2 2022 computer, with a refresh rate of 60 hz and a resolution of 2560 × 1664 pixels. The same brightness, maximum amount, was always used. We did not account for diurnal rhythm of major stress response systems, as testing varied between participants from 10 am to 8 pm. Ancova was used as the method of analysis where the scores obtained from the four different tasks was the dependent variable.

The experiment always had one participant present at a time and one or two of the authors present. The participants were handed a paper with information about the procedure, and a consent form. They were also informed that the experimenters would be sitting behind them to make sure they would not be disturbed, although their behavior would not be analysed. After they signed their consent to this information they started with the Digit Span Task followed by the Flanker Task and Corsi Block Task. The authors took note of the score which the website showed at the end of every test. When these tasks were complete, they were handed either a TikTok playlist or a YouTube video, depending on which group they were randomly assigned. Immediately after when their playlist or video was finished, they completed the same three tasks in the same order once again. Following this the participants were asked about their age, gender and social media habits. We formulated our own questionnaire for this essay (see appendix B). After explaining the difference between SFC and LFC they were asked to estimate the amount of minutes per day that they watched short form content. Afterwards they were asked to estimate

the amount of minutes per day that they watched long form content. The authors then asked the participants about their type of content that they usually consumed. The authors then subjectively classified the content as informative, non informative or creative. If unsure, the authors asked follow up questions about their specific type of content. The total time of the introduction, videos, testing and the questions averaged 45 minutes.

Analysis

In this 2x2 ANCOVA between-subjects design the participants were randomly assigned to a group using Google's random number generator with the exception of the last few participants to fill in the last slots to ensure that the number of participants in every group was the same. ANCOVA was chosen as the method of analysis with each participant's pre-test score entered as a covariate and the corresponding post-test score as the dependent variable. We used the pre-tests as covariate controls for individual differences in a baseline performance, thereby decreasing unexplained variance. We then planned to do an ANCOVA for each of the cognitive tests as well as testing a larger model with more covariates. We did so by splitting the groups from comparing 10x10x10x10 to merge the groups to compare long form versus short form and informative vs non-informative, i.e., we compared 20x20 twice.

Ethics

This study was conducted in accordance with the Lund university guidelines for ethics. All participants signed a consent form (see appendix B) before the start of the experiment. The participants had the right to abort their participation at any time without giving any explanation for doing so. Furthermore, all data from the participants were anonymised by being assigned an ID number instead of their full name. All raw data from the participants will be deleted after the publication of the paper.

Use of AI

We have asked AI for advice on a few occasions. The websites used were ChatGPT and Claude, and they were used to ask for advice on potential directions when planning the experiment / brainstorming, formatting references, as well as help with JAMOVI functions, such as splitting groups, creating filters and coding gender into binary to make certain data analysis possible. When finishing our drafts we ask for an evaluation of our text and tips on how to improve, although no copy and paste was used. The advice we got was only used to get feedback and all changes made were done by the authors.

Results

A series of ANCOVA was conducted for each of the independent variables, as well as two extended ANCOVAs to highlight the significant result as well as the marginally significant result.

Table 1

Participants' test scores for the pre tests

	Digit_pre	Flanker_pre	Corsi_pre	Corsi_rev_pre
N	40	40	40	40
M	5.45	35.2	6.4	4.92
Mdn	5	38	6.5	5
SD	1.08	48.2	1.3	1.44
Min	4	-109	3	2
Max	8	180	9	8

Note. Flanker test score was calculated as the average of the incongruent trials - congruent trials in milliseconds. Corsi_rev is the second part of the Corsi block task with the reverse tapping direction.

Table 2

Participants' tests scores for the post tests

	Digit_post	Flanker_post	Corsi_post	Corsi_rev_post
N	40	40	40	40
M	5.85	36.9	6.78	5.35
Mdn	6	39.5	7	6
SD	1.05	42.4	0.92	1.82
Min	4	-59	5	2
Max	8	120	8	8

Table 3

ANCOVA for the post test scores for the digit span task

Digit_post	*Sum of squares*	*df*	*MS*	*F*	*p*
Group	2.31	3	0.77	1.06	.38
Digit_pre	14.34	1	14.34	19.86	<.001
Residuals	25.26	35	0.72		

Prior to the analysis, the assumptions for ANCOVA were checked. The assumption of homogeneity of regression slopes was met, as the interaction between group and covariate was not significant, $F(3, 32) = 0.15$, $p = .930$. The covariate did not differ significantly between groups, $F(3, 36) = 0.24$, $p = .868$. Homogeneity of variances was confirmed with Levene's test, $F(3, 36) = 1.10$, $p = .363$, and the residuals were normally distributed according to the Shapiro–Wilk test, $W = .974$, $p = .478$.

ANCOVA of the Digit Span Test with the pretest as a covariate and the groups as fixed factors showed no significant effect between the four different groups. $F(3, 35) = 1.06$, $p = .38$. The pre test was a significant predictor of the post test $F(1, 35) = 19.86$, $p < .001$

Table 4

ANCOVA for the post test scores for the flanker test

Flanker_post	*Sum of squares*	*df*	*MS*	*F*	*p*
Group	4991	3	1664	0.94	.43
Flanker_pre	3742	1	3742	2.11	.16
Residuals	62035	35	1772		

The assumption of homogeneity of regression slopes was met, as the interaction between group and covariate was not significant, $F(3, 32) = 0.50$, $p = .683$. The covariate did not differ significantly between groups, $F(3, 36) = 2.34$, $p = .090$. Homogeneity of variances was confirmed with Levene's test, $F(3, 36) = 1.91$, $p = .145$, and the residuals were normally distributed according to the Shapiro–Wilk test, $W = .981$, $p = .738$.

ANCOVA of the flanker task with the pre test as a covariate and groups as fixed factors was neither significant between the groups, $F(3, 35) = 0.94$, $p = .43$, or between the pre test and post test, $F(1, 35) = 2.11$, p = .16.

Table 5

ANCOVA for the post test scores for the Corsi block task

Corsi_post	*Sum of squares*	*df*	*MS*	*F*	*p*
Group	4.77	3	1.59	2.16	.11
Corsi_pre	1.12	1	1.12	1.52	.23
Residuals	25.78	35	0.74		

The assumption of homogeneity of regression slopes was met, as the interaction between the group and covariate was not significant, $F(3, 32) = 1.40$, $p = .262$. The covariate did not differ significantly between groups, $F(3, 36) = 1.08$, $p = .371$. Homogeneity of variances was confirmed with Levene's test, $F(3, 36) = 2.22$, $p = .102$, and the residuals were normally distributed according to the Shapiro–Wilk test, $W = .954$, $p = .105$.

The ANCOVA for Corsi Block Task was not significant either with the group difference at $F(3, 35) = 2.16$, $p = .11$. The pre test covariate was also not significant with the post test, $F(1, 35) = 1.52$, $p = .23$

Table 6

ANCOVA for the post test scores for the reverse Corsi block task

Corsi_rev_post	*Sum of squares*	*df*	*MS*	*F*	*p*
Group	2.59	3	0.86	0.26	.85
Corsi_rev_pre	12.13	1	12.1	3.66	.06
Residuals	113.40	35	3.32		

The assumption of homogeneity of regression slopes was met, as the interaction between the group and covariate was not significant, $F(3,32) = 1.40$, $p = .261$. The covariate did not differ significantly between groups, $F(3,36) = 1.33$, $p = .279$. Homogeneity of variances was confirmed with Levene's test, $F(3, 36) = 0.28$, $p = .843$, and

the residuals were normally distributed according to the Shapiro–Wilk test, $W = .977$, $p = .586$.

The Corsi Block Task but with the reverse direction was not significant either for the groups $F(3,35) = 0.26$, $p=.85$. The reverse Corsi Block Task pretest was also not a significant predictor of the post test $F(1, 35) = 3.66$, p =.06.

Table 7

The extended ANCOVA for the post corsi block task

Corsi_post	*Sum of squares*	*df*	*MS*	*F*	*p*	η^2p
Content	1.36	1	1.36	1.78	.19	0.05
Information type	3.22	1	3.22	4.19	.049	0.12
Age	0.001	1	0.001	0.001	.98	0.000
Gender	0.30	1	0.30	0.39	.54	0.01
Corsi_pre	0.27	1	0.27	0.36	.55	0.01
Minutes SFV	0.67	1	0.67	0.87	.36	0.03
Minutes LFV	1.54	1	1.54	2.01	.17	0.06
Content*Information type	0.73	1	0.73	0.95	.34	0.03
Residuals	23.77	31	0.77			

Note. Content refers to SFV + LFV , information type refers to info + non info.

Homogeneity of variances was confirmed with Levene's test, $F(3, 36) = 1.71$, $p = .183$, and the residuals were normally distributed according to the Shapiro–Wilk test, $W = .972$, $p = .418$.

The Extended ANCOVA for the Corsi Block Task with all the answers from the participants questionnaire added to the model as covariates, these questions also included age and gender. This linear regression model was made with the SFV and LFV groups in two groups instead of the original four, these were in turn added as fixed factors. The extended ANCOVA showed a weak but significant value of $F(1, 31) = 4.19$, $p = .049$, $\eta^2p =.12$. The estimated marginal means showed that the informative group scored higher on the Corsi Block Task (M=7.08, SD= 0.20) than the non-informative group (M=6.48, SD=0.20)

Table 8

The extended ANCOVA for the post digit span test

Digit_post	*Sum of squares*	*Df*	*MS*	*F*	*p*	*η²p*
Content	2.36	1	2.36	3.45	.07	0.10
Information type	0.23	1	0.23	0.33	.57	0.011
Age	0.21	1	0.21	0.31	.58	0.010
Gender	0.41	1	0.41	0.60	.44	0.02
Digit_pre	11.83	1	11.83	17.27	< .001	0.36
Minutes SFV	0.001	1	0.001	0.001	.96	0.00
Minutes LFV	2.70	1	2.70	4.00	.06	0.11
Content*Information type	0.01	1	0.01	0.02	.89	0.001
Residuals	21.20	31	0.68			

In conjunction with the main analysis, the assumptions for ANCOVA were checked. Homogeneity of variances was confirmed with Levene's test, $F(3, 36) = 1.08$, $p = .371$. The Shapiro–Wilk test indicated a slight deviation from normality, $W = .944$, $p = .046$. However, the QQ-plot that was visually inspected showed that the standardised residuals followed the expected linearity (see appendix D).

Another extended ANCOVA with split groups for the digit span task with the the answers from the questionnaire as covariates in the same fashion as table 7. Information type is not significant $F(1, 31) = .33$, $p = .57$. However, content is marginally significant at $F(1, 31) = 3.45$, $p = .07$.

Discussion

Firstly, when analysing the effect pre-test and post-test had on the different groups (table 1, 2, 3 and 4) we found no significant result. The only significance was seen when comparing the pre- and post-Digit Span Test, which is not indicative to support either of our hypotheses. . This means that our hypotheses can be disregarded, and further details regarding each research question and theory will be discussed in the following sections.

Research question 1

Our first research question concerned the length of social media videos, and our results indicated no correlation with this and working memory or inhibition. None of the tests were significant when the groups were compared, ultimately informing us that cognition is not affected differently when watching LFVs on YouTube or multiple TikTok SFVs.

Previous research has found a correlation between SFVs and worsened inhibition and attention (Nguyen et al., 2025; Walla & Zheng, 2024; Hong et al., 2026). We did not find this trend in our own results, however, we did find that neither long-form or short-form content had any effect. Other studies have demonstrated that social media use, especially problematic, might have negative correlations with inhibitory control (Ding et al., 2025; Xu et al., 2023; Gou et al., 2024), which, together with our results, might suggest that the length of video content is not the variable of interest, but the usage.

In addition, SFVs have shown effects on working memory and prospective memory (Xu et al., 2023; Chiossi et al., 2023) while also contradicting these effects in other studies (Nguyen et al., 2025; Lara & Bokoch, 2021). Other results have suggested that this effect is driven by other variables, such as limitations and intensity (Barton & Smyth, 2025; Nguyen et al., 2025), as well as platform (Chiossi et al., 2023). The latter variable indicates that memory should be affected more by SFVs than longer videos, although this was not mirrored in our experiment. However, the lack of effect might be caused by the limitations the participants faced when viewing their SFV playlist, since they were forced to watch through all videos to the end and were not allowed to scroll.

As scrolling past videos with a simple swipe of a finger, as soon as they no longer satisfy the viewer, is the primary way the average user on the platforms we have discussed uses them, some validity concerns arise. Some have already posited that the act of the scroll, i.e., switching from one video to the next, has an effect on attention, meaningfulness and satisfaction (Tam &

Inzlicht, 2024). In this experiment we can not account for this and there could be an effect of this context switching which we did not explore. We discussed this trade-off when designing the experiment and decided to use our own curated playlists as we hypothesized that there was a greater risk for confounding effects if the participants scrolled across their own algorithm-curated feed because of the small sample size.

To conclude, the current study found no indication that the length of social media videos are affecting memory and inhibition, which is in agreement with some studies while contradicting others. Although, possible confounds might be the reason for this, such as usage and limited scrolling. We therefore suggest further research to be done to take these confounds into consideration.

Research question 2

The results for our second research question, which aimed to find out how information type affects cognition, also showed an insignificant result on all tests when only testing a correlation with the different groups. Although, when testing the Corsi Block Task results with split groups and all our additional questions as covariates, we found a significant effect, $p = .049$. Albeit it is a weak significance with the possibility of a type 1 error, the effect size showed a result of $\eta^2p = .12$, which is a medium, approaching a large effect. This could point us in a direction for another experiment or for other researchers to pursue, while having in mind that there are reservations to consider the possible moderating effect of confounders.

While previous research has found a positive correlation between cognitive functions and informative content (Su et al., 2025; Myrick et al., 2022; Bråten et al, 2025), our results state that inhibition does not have the same pattern, while working memory does show this positive indication. Although, these positive correlations have been found to be moderated by interactive behaviours (Su et al., 2025; Zimmerman et al., 2022), which our participants were not allowed to exhibit. Since our significant result was only found when adding all covariates, we believe that the correlation is not only due to the type of content but to a pattern of multiple factors of which we cannot fully identify.

As working memory capacity can become overloaded by extraneous cognitive load, there could be reason to speculate that the rapid task switching and in turn the higher extraneous load embossed by non-informative content may be exacerbating visuospatial working memory deficits.

Furthermore, non-informative content has been found to correlate negatively with attention and cognitive evaluation (Myrick et al., 2022; Gül, 2025; Jitoku et al., 2024), which our results do not mirror. However, non-informative content has instead demonstrated a larger effect on mental well-being, with usage causing temporary positive outcomes (Myrick et al., 2022; Gül, 2025) while long-term effects include worse mental health (Gül, 2025; Jitoku et al., 2024). On the other hand, informative videos have indicated to potentially ease stress (Myrick et al., 2022).

Taken together, no previous research has specifically studied working memory and inhibition, but have still suggested that there is some cognitive effect caused by type of content. Possible effects on the test could have been detected in the non-informative groups, since this type of content has been connected to attentional deficits. However, our own results only show a correlation to working memory, not inhibition, which indicates that the participants most possibly did not focus less on the tasks. Possible confounds which should be taken into consideration in further research is that of mental health, since it is frequently tied to this topic.

Dual theory

According to the dual theory of habituation and sensitization, repetition to a stimulus should generate habituation. This means that the participants watching the longer videos should be habituated to the people and topic involved, while the participants watching the TikTok playlists would not have the same habituation effect because of the constant changing of videos. Therefore, we would expect the latter participants to be more overstimulated which would result in worse test results. This was not the case, since we did not see an effect between the "length of videos" groups.

Simultaneously, the participants watching the non-informative videos were expected to become habituated to the high stimulation presented in the longer video and the TikTok playlist, which would develop a sensitized reaction to the slow tasks, which was posited by Nguyen et al (2025). This was also not shown in our results.

As to the current study, the dual theory of habituation and sensitization could not help us explain the results.

Confounds and further investigation

Although we did not find any significant results based on our groups, we did find that something was affecting the Corsi Block Task performance when comparing different content types. The additional questions we asked the participants covered age, gender, time spent on

SFVs a day, time spent on LFVs a day and what type of content they consumed. Previous research has found a correlation between informative content viewing and cognitive functions (Bråten et al., 2025), which might suggest that long-term viewing of this type of content might have an effect. We would recommend future studies of the long-term effects of watching informative and non-informative content, instead of the short-term effects, as was the focus in this experiment.

One possible confounder that we did not ask about is that of mental health, which has been indicated to be a consequence of frequent social media use (Gül, 2025). Another one could be the behavioural interaction towards the content (Su et al., 2025; Zimmerman et al., 2022). Both of these should be taken into consideration in the future to broaden our understanding of social media engagement and not just the content itself.

Even though our results were insignificant when comparing the length of videos, previous research has found possible confounds that might have to be more controlled in future studies. One of these confounds is age, which has been found to both have an effect (Xu et al., 2023) and not have an effect (Nguyen et al., 2025) on working memory. Although, the age effect was only shown in younger teenagers (Xu et al., 2023), which is not the same demographic we have studied. This leaves us with an inconclusive speculation about the possible role age might have in this result, however, this needs to be studied further.

Other possible confounds that have been found in previous research are limitations to scrolling (Barton & Smyth, 2025), intensity and addiction (Nguyen et al., 2025). Further research should be done with consideration of individual habits, as well as unnatural limitations. Even biological differences could work as confounders, such as glutamate concentrations (Hong et al., 2026).

Limitations

This study has had a large amount of limitations that might have affected the results. The first of these is the time limitation. Initial ideas were discussed in late February, although the real planning of the experiment started in late April, giving us about a month to complete the study. This is not ideal and has most certainly affected the credibility of our results.

Our reliability has also been affected since we gathered our participants though a convenience sample. This means that the participants were all friends and family, with most

being students at Lund University. In addition, our sample size was relatively small, and taken together with the former, our results cannot be generalized.

Most experiments were conducted in a group room at Lund University, although not all of them in the same room and a few were completed in someone's home. We are therefore not sure what environmental differences might have affected the results.

The Flanker Task we conducted only contained 50 trials. Other researchers advise on using 100 or more trials, to improve test re-test reliability and improve power (Stoet, 2017). Indeed, out of the cognitive tests we administered, the pre-Flanker Task was the least significant predictor of the post test, $F(1, 35) = 2.11$, $p = .156$, compared to the other two tests.

Furthermore, there might have occurred some demand characteristics, which describe the phenomenon of participants in survey or experimental studies behaving differently than they would outside of a laboratory setting. The participants might behave in a way that they believe puts them in a good light or rooting for the researcher to find what he or she may be looking for. As the term “brainrot” is now a common buzzword, especially among young adults, certain participants may be susceptible to demand characteristics as they quite easily can figure out what the experiment is about and in turn perform worse when they realize they are watching “brain rot content”. As one of our participants said during the post test, “I feel brain rotted right now”, and indeed performed worse than in the pre test for that particular task. There is also the possibility of the informative groups performing better because they feel more intelligent after watching popular science videos and in turn more confident to perform better in the post tests.

Conclusion

We did not find proof that the length of social media videos or type of content had an immediate effect on working memory and inhibition. One significant result, and a marginally significant result was shown when a split of the groups was conducted with all of our questionnaire answers added to the linear model as covariates, which indicates one or more confounds. While reviewing previous research together with our own we have reached the conclusion that there might not be a singular variable affecting how social media correlates with cognitive functions. Instead, the effect is based on a combination of individual differences which need careful investigation to fully understand. Therefore we encourage the community to pursue research in this increasingly prevalent phenomenon.

Författarnas bidrag i uppsatsen

J.O och N.H.F designade och planerade studien tillsammans och experimenten utfördes till största del tillsammans. En del av experimenten skedde på egen hand, men ungefär lika många utfördes av båda författarna. J.O bidrog mest i dataanalysen i JAMOVI tillsammans med handledaren K.E, men resultatet analyserades och tolkades tillsammans av J.O och N.H.F.

Uppsatsen har skrivits tillsammans med olika fokusområden. J.O blev ansvarig för att skriva om working memory, inhibitory control, cognitive load theory, metod, resultatdelen och delar av diskussionen. Samtidigt blev N.H.F ansvarig för att skriva om tidigare forskning inom området, dual theory of habituation and sensitization, syfte och frågeställning, större delen av diskussionen samt slutsatsen och abstract. Resterande områden skrevs tillsammans. Båda parter har bidragit med feedback till varandra och stöd vid behov. Texten har alltså skrivits med ett gott samarbete.

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Appendicies

Appendix A

Short-Form Non-Informative:

https://www.tiktok.com/@cipciok6969ok/collection/SHORTNONINFO-7625621158821497622?is_from_webapp=1&sender_device=pc (requested access)

Short-Form Informative:

https://www.tiktok.com/@user1817410149165/collection/Informative-7624515152959802134?is_from_webapp=1&sender_device=pc (requested access)

Long-Form Non-Informative: https://youtu.be/5KP1726bIvQ?si=mdbCbJchbcLqfLOS

Long-Form Informative: https://www.youtube.com/watch?v=mwkZU-n9kQ4

Appendix B

Questionaire

1. Hur gammal är du?
2. Vad skulle du beskriva dig som?
    a. Man -
    b. Kvinna
    c. Icke-binär / annat
    d. Föredrar att inte säga
3. Hur många timmar om dagen spenderar du med att scrolla igenom korta videos, såsom Tiktoks, Instagram Reels och Youtube Shorts?
4. Hur många timmar om dagen spenderar du på att kolla på längre videos, alltså över 15 minuter långa videos? exklusive TV-serier.
5. Vilken typ av innehåll kollar du på sociala medier?

Appendix C

Samtycke

Tack för att du vill delta i vårt experiment! Vi är ute efter att undersöka 18-35 åringar och deras påverkan av videor och innehåll på sociala medier.

Du kommer att utföra fyra test och sedan bli visad en spellista med korta Tiktok-videor i 15 minuter. Efteråt kommer du att utföra samma fyra test igen.Vi kommer att sitta bakom dig och vi kommer inte att störa dig under tiden du tittar. Vi kommer inte analysera ditt beteende, så oroa dig inte över det och fokusera på testerna.

I undersökningen kommer vi även ställa några frågor. Allt inom undersökningen är strikt konfidentiellt och ingen deltagare kommer att kunna identifieras i vår uppsats. Du kan även vägra eller avsluta undersökningen när som helst utan förklaring eller konsekvenser.
Har du några frågor?

Samtycker du till detta?

Namnförteckning

_____

Namnförtydligande

_____

Appendix D

Q-Q-diagram of the extended digit span model (Table 8).