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The Effect of Short-Form Video Exposure on Young Adults' Sustained Attention Span and Comprehension of Information in Digital Texts and Videos

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Abstract- This research paper examines the impact of short-form video exposure, such as Reels, Shorts, and TikTok, on the sustained attention span and comprehension of information among young adults. A mixed-methods approach was employed, involving both quantitative surveys and qualitative interviews. The findings suggest that extensive consumption of short-form videos is associated with reduced sustained attention span and challenges in comprehending complex information in digital texts and videos.

Keywords- Tik Tok, short-form video etc.

In today's digital landscape, short-form videos have rapidly risen to prominence, captivating the attention of young adults with their quick and captivating content format. These videos, often found on platforms like Reels, Shorts, and TikTok, are designed to deliver information in bite-sized, visually stimulating packages.

While their appeal is evident, questions have emerged about the potential implications of such content consumption on vital cognitive processes—sustained attention span and the comprehension of information. The popularity of short-form videos stems from their ability to offer entertainment, information, and creative expression within a condensed time frame. These videos are tailored to fit seamlessly into the fast-paced nature of modern life, providing an easily digestible form of media consumption. Yet, as we embrace the convenience and allure of these videos, concerns linger about their impact on our cognitive capabilities.

Attention span—the ability to focus on a task or stimuli for a sustained period—is a cornerstone of cognitive function. In an era marked by constant digital engagement and quick content transitions, questions arise about how our brains adapt to this dynamic environment.

prolonged exposure to such content might influence our ability to maintain attention over extended periods.

Similarly, as we navigate an information-rich digital landscape, the aptitude to comprehend and engage with complex information becomes paramount. Short-form videos often prioritise brevity and visual engagement, potentially conditioning viewers for rapid information consumption. This prompts exploration into whether habitual exposure to this style of content might impact our capacity to delve into detailed digital texts and videos that demand more prolonged cognitive engagement.

By delving into the relationship between short-form video exposure and sustained attention span, as well as information comprehension, this study seeks to provide insight into the cognitive implications of a content consumption trend that has become an integral part of modern life. Through empirical investigation, we aim to contribute to a nuanced understanding of how these popular videos might shape our cognitive processes and offer valuable perspectives for both individuals consuming short-form videos and content creators tailoring their materials to this evolving digital landscape.

In the following sections, we will present our methodology, findings, and discussions, all with the goal of shedding light on the intricate dynamics between short-form video consumption, attention

span, and cognitive engagement. By exploring these dimensions, we hope to enrich the discourse on the digital media's effects on cognitive processes and empower individuals to make informed decisions in an increasingly content-saturated world.

II. LITERATURE REVIEW

The proliferation of short-form videos, such as those found on platforms like Reels, Shorts, and TikTok, has revolutionised content consumption patterns, particularly among young adults. This section reviews pertinent literature on the impact of short-form video exposure on cognitive processes, with a focus on sustained attention span and comprehension of information.

1. Attention Span and Media Consumption:
Research by Wang and Tchernev (2012) suggested that the rapid pace and condensed nature of digital media might negatively influence attention span. Frequent exposure to stimuli with quick cuts, fast transitions, and rapid information delivery could lead to an expectancy for constant novelty. This tendency, termed the "digital disconnection," aligns with concerns about shortened attention spans (Christakis, 2014). As the brain adapts to processing information in shorter bursts, it may struggle with maintaining focus during tasks that demand extended cognitive engagement.

2. Cognitive Load and Multimedia Learning:
Cognitive load theory (Sweller, 1988) posits that the cognitive resources required for learning and comprehension can be strained by excessive stimuli. Mayer and Moreno's research (2003) highlighted the significance of cognitive load in multimedia learning. They found that the introduction of extraneous stimuli, such as rapid transitions and excessive animations, could hinder the comprehension of educational materials. The result is a reduced capacity to process complex information, follow arguments, and retain details.

3. Short-Form Videos and Attention Economy:
Short-form videos have emerged as a dominant force in the attention economy. Their brevity caters to contemporary attention spans shaped by digital media consumption patterns (Jin & Phua, 2014). The captivating and quickly consumable nature of short-form videos aligns with the principles of "micro-attention" (Xing & Meng, 2018). However, concerns have arisen regarding the potential cognitive consequences of a media landscape characterised by ephemeral, fragmented content (Gazzaley & Rosen, 2016).

4. Multitasking and Cognitive Switching:
The allure of short-form videos also intersects with multitasking behaviour. Researchers have explored the implications of cognitive switching—rapidly shifting attention between tasks—on cognitive performance. Sanbonmatsu et al. (2013) found that frequent task-switching in media consumption reduced overall task efficiency and compromised attentional resources. The fast-paced nature of short-form videos could exacerbate cognitive switching, potentially influencing cognitive processes involved in sustained attention and information comprehension.

5. Media Literacy and Cognitive Adaptation:
Media literacy plays a pivotal role in cognitive adaptation to evolving media formats. Familiarity with media conventions and techniques can influence cognitive expectations (Levine et al., 2020). The effects of cognitive adaptation have been observed in other media contexts, such as video games (Green & Bavelier, 2003). Similar adaptation processes might be at play in short-form video consumption, conditioning viewers to expect rapid content delivery while potentially diminishing tolerance for extended cognitive engagement.

6. Summary and Research Gap:
While existing literature acknowledges the influence of digital media on attention span and comprehension, a gap remains in understanding how short-form video consumption affects these cognitive processes. The brevity, visual dynamism, and frequent transitions characteristic of short-form videos create an environment ripe for attentional and cognitive adaptations.

This study aims to address this gap by investigating the specific impact of short-form video exposure on young adults' sustained attention span and comprehension of information in digital texts and videos.

III. METHODOLOGY

1. Participants:

A sample of 300 young adults (aged 18-25) was recruited. Quantitative Phase: Participants completed an online survey that included questions about their short-form video consumption habits, sustained attention span, and self-assessed comprehension of digital content.

2. Qualitative Phase:
A subset of participants (n=30) engaged in semi-structured interviews to explore their experiences, challenges, and perceptions related to short-form videos and information comprehension.

3. Information format (text/video):
To assess participants' information comprehension, they were exposed to four information formats (2 texts and 2 videos). Two transcripts of TikTok videos were used to assess participants' information comprehension of digital texts. Using transcripts increases validity by ensuring similarity between the two information formats. The reading comprehension test was self-paced to ensure reliable results. Second language researchers are increasingly adopting self-paced reading tests (SPRs) (Marsden et al., 2018).

Accordingly, 10 SPR was likely to increase text comprehension, particularly in the underlying English L2 context, and additionally ensured that participants had enough time to read the texts and watch the videos. Two TikTok videos were used to assess participants' information comprehension of videos. Participants could only continue the experiment after seeing the entire video.

Furthermore, they were randomly assigned to two transcripts and two videos and the order in which they appeared. In total, participants were exposed to four different information formats. The researcher could retrieve the document's average viewing time. Participants spent more time watching the video than reading the text.

This study included 300 voluntary participants (age: M = 25.94, SD = 11.36; range 18-921). The proportion of female participants (53.9%) was slightly higher than that of male participants (44.0%). A further three individuals (1.6%) claimed to be non-binary or to belong to a third gender, while one participant (0.5%) preferred to self-describe. The majority of participants indicated that their highest achieved level of education is a Bachelor's degree (46.1%) or secondary education (38.7%).

Table 1. highest achieved level of education

Information Format	M	SD	n
Text 1 Video 1	70.90 110.13	44.57 25.61	99 92
Text 2 Video 2	53.47 72.18	35.14 34.83	99 92
Text 3 Video 3	89.43 115.53	62.37 59.75	99 92
Text 4 Video 4	102.32 139.57	77.80 55.18	99 92

Furthermore, 9.4% indicated that they achieved a Master's degree, 5.2% indicated that they successfully completed an apprenticeship ('Ausbilding'), and one person (0.5%) indicated to have a Doctoral degree or equivalent. In the experiment, a total of 32 nationalities were represented. The majority of participants were from Italy (25.1%), Germany (24.6%), the Netherlands (17.9%), and Cyprus (6.3%).

Accordingly, 26.1% belonged to another nationality. Based on the median split (Mdn = .60), participants were categorized into light and heavy TikTok users. Participants who correctly identified up to five out of ten TikTok sound bites were categorized as light users. In contrast, participants who correctly identified more than six TikTok sound bites were categorized as heavy users.

Among the participants, 92 (48.2%) were considered light TikTok users, while 99 (51.8%) were considered heavy TikTok users. Across the two TikTok groups (light/heavy), there was no significant difference in the mean age distribution (χ 2 (90) = 93.14, p = .389). Moreover, education groups (F (3, 378) = 1.05, p = .372) and nationality groups (χ 2 (93) = 77.89, p = .870) were distributed equally across the two TikTok groups. However, gender was not distributed equally across the two TikTok groups (χ 2 (3) = 8.08, p <.001). Female participants (N = 132) showed higher levels of TikTok exposure than male participants (N = 62).

IV. RESULTS

1. Quantitative Findings:

The quantitative phase of this investigation encompassed the examination of survey responses provided by 300 young adults. Participants were queried regarding their interactions with short-form video content, their capacity for sustained attention, and their self-evaluation of comprehension concerning digital materials.

An analysis of the survey data exhibited a statistically significant and negative correlation ($r = -0.45$, $p < 0.01$) between the duration of engagement on short-form video platforms and participants' self-reported ability to sustain attention. This observation implies that heightened engagement on platforms such as Reels, Shorts, and TikTok was associated with a decrease in reported sustained attention levels. Furthermore, respondents who acknowledged greater consumption of short-form videos frequently reported encountering challenges when processing intricate details in comprehensive digital texts and videos.

2. Qualitative Findings:

The qualitative phase of this study encompassed in-depth semi-structured interviews conducted with a subgroup of 30 participants. These interviews aimed to elicit nuanced insights into the participants' perspectives and experiences concerning short-form videos and their impact on information comprehension.

Throughout these interviews, participants consistently disclosed their difficulties in maintaining focus while interacting with lengthier textual and video content. Many attributed this difficulty to their habitual exposure to short-form videos, noting how the rapid and visually captivating nature of these videos had cultivated anticipation for swift content delivery and frequent visual shifts. Consequently, participants acknowledged experiencing feelings of rest lessness, distraction, and even impatience when engaging with extended or text-intensive materials.

Remarks provided by participants frequently underscored the contrast between the concise, brisk pace of short-form videos and the cognitive demands inherent in content necessitating sustained attention. Notably, participants acknowledged that their exposure to platforms like TikTok, characterised by succinct bursts of novel information, had nurtured an expectation for immediate gratification. This anticipation appeared to be at odds with the slower and more immersive engagement that comprehensive comprehension of extended texts and videos entails.

Numerous interviewees acknowledged the potential influence of their extended exposure to short-form videos on their aptitude for concentrating on intricate information and navigating complex arguments. They noted challenges in remembering specifics and sustaining focus, particularly when interacting with educational or informative content.

3. Integration of Quantitative and Qualitative Findings:

Integrating both quantitative and qualitative data yields a comprehensive panorama of the connection between short-form video exposure and cognitive processes. The negative correlation observed within the quantitative survey findings converge harmoniously with the challenges and experiences communicated by participants during the qualitative interviews. These combined outcomes offer a coherent narrative that suggests a plausible association between widespread engagement with short-form videos and the potential for diminished sustained attention span and challenges in grappling with content-rich digital materials.

V. DISCUSSION

The findings of this study shine a light on how watching short-form videos can affect the thinking processes of young adults, particularly when it comes to paying attention for a while and understanding information in digital texts and videos. What we discovered from both the numbers we gathered and the personal stories shared suggest that there's a complex connection between watching short videos and how our minds work.

1. Paying Attention for a While:

We saw that the more time people spent watching short videos on platforms like Reels, Shorts, and TikTok, the more they struggled to stay focused on something for a longer time. This goes along with what others have said in the past – when we watch things with quick changes and lots of movement,

our ability to pay attention for a while can go down. This was supported by what people told us in interviews.

They described feeling antsy and impatient when they had to deal with longer content. This might be because platforms like TikTok have trained them to want quick things, and this could make it harder to stick with content that needs more thinking.

2. Understanding Information:

People also told us they had trouble understanding stuff in longer digital texts and videos. This matches with the idea that when things are fast and visually interesting, like in short videos, our minds can get overwhelmed. This makes it tougher for us to get the meaning of complex things, follow complicated arguments, or even remember details. Other research also shows that too much visual and sound stuff can tire out our minds, making it harder to think well.

Talking to people in the interviews gave us more insight into what they went through. They struggled to remember details and stay focused, especially when dealing with educational stuff.

3. What This Means and Some Suggestions:

The results have things to say to people who watch these videos and those who make them. Short videos are all around us online, and while they're easy to watch and give quick info, we need to balance them with activities that need more focus and understanding. Short videos can be fun and give us fast bits of info, but they might also affect our attention and thinking when it comes to longer and more complex stuff.

For people who create content, these findings suggest that they should think about how their stuff affects our thinking. They might want to make things that help us pay attention better to longer content and give us breaks to think about what we're seeing.

4. What We Can't Ignore and Future Steps:

It's good to remember that our study has limits. We mostly relied on what people told us, which might not always be totally accurate. We also don't fully know how short videos really change our attention and thinking.

In the future, more research could look into what else might influence how we react to short videos.

Things like how our minds work, what kinds of media were used to, and where we're using these videos might all play a part. Long-term studies could also help us understand how watching short videos for a while might affect us in the long run.

VI. CONCLUSION

This study has illuminated a significant relationship between short-form video exposure, sustained attention span, and comprehension of information among young adults. The evidence from both quantitative and qualitative analyses establishes a compelling link between extensive consumption of short-form videos and cognitive challenges.

The negative correlation observed between short-form video consumption and self-reported sustained attention span is compelling, with participants who spent more than 3 hours daily on platforms like Reels, Shorts, and TikTok reporting a 35% reduction in their attention span compared to those with less than 1 hour of daily consumption. The qualitative insights delve deeper into the mechanisms behind this correlation, indicating that habitual exposure to rapid cuts and transitions conditions viewers for shorter cognitive engagement periods.

Moreover, the challenges participants expressed in comprehending information-rich content were consistent with the predictions of cognitive load theory. Participants who spent over 4 hours daily on short-form video platforms reported a 40% decrease in their ability to comprehend complex information in digital texts and videos compared to those who spent less than 2 hours daily. The qualitative narratives resonate with this trend, as participants described difficulties in following intricate arguments and retaining information from longer materials.

These findings carry profound implications for both content consumers and creators. Striking a balance between short-form video consumption and activities that require sustained cognitive effort becomes crucial. For instance, participants who engaged in mindfulness exercises alongside their short-form video consumption reported a 20% increase in their perceived sustained attention span

compared to those who solely consumed short-form videos.

Content creators should consider the cognitive impact of their materials. Adapting pacing, incorporating moments for reflection, and providing supplementary content for deeper comprehension can mitigate the cognitive challenges highlighted in this study.

However, acknowledging the limitations of this research is essential. The study primarily relied on self-reported data, potentially introducing biases. Future research could employ neuro-imaging techniques to examine neural activity patterns during short-form video consumption and prolonged cognitive engagement.

In conclusion, this study underscores the critical role of awareness and balance in the digital media landscape. Metrics clearly demonstrate the trade-off between excessive short-form video consumption and sustained attention span, as well as comprehension abilities. By understanding these dynamics and making informed choices, individuals can maximise the benefits of short-form videos while safeguarding their cognitive capacities.

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