

Algorithmic Attention Fragmentation: How Short Videos Affect Teen Attention

Ananya Rasal

High School Education

Vikhe Patil Memorial School

Abstract

Short form videos are present everywhere today, especially on apps like TikTok and Instagram. These platforms constantly show users new personalized content designed to keep them engaged. While many studies have looked at screen time, fewer have examined how these algorithms themselves affect thinking.

In this study, I explored whether algorithm driven short videos affect attention, focus, and memory in teenagers. Sixty students were divided into three groups: - one watched algorithm based short videos, one watched the same videos without personalization, and one watched a longer, continuous video. After 20 minutes, they completed tasks to test attention, focus, and memory.

The results showed that students who watched algorithm-based content had more difficulty focusing, they switched tasks more often, gave up faster on difficult tasks, and remembered less after a delay. This suggests that the way content is delivered, not just what we watch, it can affect how our brains work.

Introduction

Over time, digital media has changed significantly. Instead of choosing what to watch, people are now shown content by algorithms. Apps like TikTok and Instagram continuously present short, personalized videos. While this makes them highly engaging, it may also affect how we focus.

Attention is important for learning and clear thinking. However, when we constantly switch between different types of videos, it becomes harder to stay focused. Research has shown that multitasking and interruptions can reduce attention and performance. Still, most studies do not clearly separate the effects of content from the way it is delivered.

In this study, I introduce the idea of **algorithmic attention fragmentation**, which refers to a reduced ability to maintain focus due to constant exposure to rapidly changing, personalized content.

Materials and Methods

Participants

Sixty teenagers between the ages of 14 to 18 participated in this study. They were randomly divided into three groups, with 20 participants in each group.

Experimental Design

There were three groups:

Group A watched short videos selected by an algorithm

Group B watched the same short videos in a fixed order without personalization

Group C watched one longer video without interruptions

Procedure

Each group watched their assigned content for 20 minutes. After this, they completed a set of tasks:

A test to measure attention

A task to measure how long they stayed focused on a difficult problem

A task to track how often they lost focus

A memory test immediately after viewing

A memory test again after 24 hours

Data Collection and Analysis

I recorded how accurate participants were, how consistent their reaction times were, how long they stayed focused, how often they got distracted, and how well they remembered information. The results were analyzed using a statistical test called ANOVA with significance set at $p < 0.05$.

Results

Attention

The group that watched algorithm-based videos showed lower accuracy and less consistent attention compared to the other groups.

Memory

The same group also performed the worst in the delayed memory test, meaning they remembered less after 24 hours.

Focus and Persistence

Participants who watched algorithm-driven content gave up faster on difficult tasks, showing lower persistence.

Discussion

The results show that algorithm-driven content can reduce attention and focus. Participants exposed to this type of content were more likely to get distracted, switch tasks often, and remember less information.

One possible reason is that fast, constantly changing content trains the brain to expect new stimulations all the time. This can make it harder to stay focused on a single task for a longer period.

These findings match earlier research, showing that multitasking and interruptions reduce focus. They also suggest that the design of digital platforms plays an important role in how we think and learn.

This is especially important for the students, as reduced attention and memory can affect learning and academic performance.

Conclusion

This study shows that algorithm-based short form content can negatively affect attention, focus, and memory in teenagers. As these platforms become more common, it is important to understand how they influence the way we think and learn.

References

- Daniel Kahneman (1973). Attention and effort.
John Sweller (1988). Cognitive load during problem solving.
Eyal Ophir, Clifford Nass, and Anthony D. Wagner (2009). Cognitive control in media multitaskers.
Gloria Mark, Daniela Gudith, and Ulrich Klocke. (2008). The cost of interrupted work.
Dr. Sophia Leroy (2009). Attention residue.
Tristan Harris (2016). How technology hijacks attention.
Henry L. Roediger III and Jeffrey D. Karpick (2006). Test-enhanced learning.