

**Impact of Short-Form Video Consumption on Cognitive Functions among Undergraduates in Sri Lankan State Universities.**

RESEARCH PROPOSAL

MGT-3223 Research Methodology

**By**

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# 01.Reserch Tittle.

Impact of Short-Form Video Consumption on Cognitive Functions among Undergraduates in Sri Lankan State Universities.

# 02.Background Study.

Nowadays, the short-form video platforms, including Tik Tok, Instagram Reels, and YouTube Shorts, play a central role in the media consumption of young people in the modern digital environment. The videos are between fifteen and sixty seconds long, and they are made to capture the attention immediately, as they have rapid scenes-switching, bright images, catchy sound, and personalization with the help of algorithms (Paltaratskaya,2023). Even though these platforms can be entertaining and even lead to micro-learning, their layout promotes fragmented and passive consumption, which may interfere with more intricate thinking.

Through the Cognitive Load Theory (Sweller,1988), the human working memory has a restricted capacity to store and process a given amount of information at a given time. The repetitive scrolling of short videos presents a variety of visual and auditory information at once, which causes extraneous cognitive load that overwhelms the ability of the mind to concentrate well. In the working memory model developed by Baddeley (2000), this overload is experienced by the phonological loop (or the auditory information) and the visuospatial sketchpad (or the visual information) leaving very little time to encode meaningful information. This leads to the brain becoming unable to effectively organize and store new information, which reduces the efficiency of short-term memory and long-term memory formation (PsychFuel,2023).

Furthermore, the dopamine-based feedback loops constitute the core of a short-video platform and continuously reinforce a user interactivity. Every like, comment or video is a little burst of satisfaction and it boosts the desire to scroll further (Medrano, 2022). With time, such conditioning causes the brain to desire novelty and immediate gratification and slowly reduces sustained attention, the basis of complex academic tasks like critical reading, understanding, and critical thinking (Hollis and Was, 2016; Firth, Torous, and Firth, 2020).

This problem becomes more topical in Sri Lanka. As the number of users of social media has reached more than 8.2 million actives as of 2025 (DataReportal,2025), with the greatest number of users falling in the 18-24 age bracket (DataReportal,2025), university students are one of the most digitally engulfed population groups. Short videos are usually consumed by many undergraduates during their breaks or at late hours without them usually realizing that such practices are disrupting their capacity to retain information, focus in lecture rooms or grasp academic reading materials (PsychFuel,2023).

To make matters worse are the concerns of privacy and security, which act as moderating elements and further stress the cognitive resources. When the users learn about data surveillance and algorithmic observation, as well as being exposed to fake news, they make a mental trade-off between entertainment and information security, which is what Dinev and Hart (2006) refer to as privacy calculus. This constant background assessment causes a diversion of the mental energy to content processing, causing what Kaplan (1995) refers to as a state of continuous partial attention. Not only does such divided attention interfere with working memory, but it also encourages surface interaction with information which is the exact reverse of deep processing that is required to achieve long-term learning and understanding (Bartlett, 1932; Otto,2025).

Whenever users are insecure about misinformation or manipulation over the internet, they are more likely to be guided by intuitive and fast judgment as opposed to critical and analytical thinking (Petty and Cacioppo,1986). Such a move towards heuristic processing can decrease the quality of decision-making and the critical thinking skills- skills that are necessary to be successful in academics and in the workplace.

Although evidence of the use of short-form videos is extensive among the Sri Lankan undergraduates, there is a lack of empirical evidence regarding the impact of the digital behavior in question on the essential cognitive processes, including working memory, memory retention, reading comprehension, and decision-making. The knowledge of such interactions is crucial because such mental abilities are the direct sources of academic achievements, concentration and intellectual development of students in the long run.

# 03.Research Problems.

Short-form video platforms such as TikTok, Instagram Reels, and YouTube Shorts have rapidly reshaped global media habits, yet their cognitive impact on undergraduates in Sri Lankan state universities remains unexplored. Although international studies show that excessive short-video use can reduce attention, memory, and analytical thinking (Firth et al., 2020; Otto, 2025; Paltaratskaya, 2023), these findings cannot be generalized to Sri Lanka due to differences in digital literacy, academic culture, and infrastructure. No research has yet examined the combined effects of short-form video use on key cognitive domains crucial to learning working memory, memory retention, reading comprehension, and decision-making within the local higher education context.

This gap is critical, as over 8.2 million Sri Lankans are active social media users, most aged 18–24 (DataReportal, 2025). For undergraduates, short-form videos have become habitual, even during study periods. However, the rapid visual pace and dopamine-driven design of these platforms (Medrano, 2022; Paltaratskaya, 2023) conflict with the sustained focus and deep cognitive engagement required for academic performance. Without localized evidence, educators and students remain unaware of how these behaviors affect cognitive and academic outcomes.

Additionally, privacy and security concerns may further moderate these effects. Continuous awareness of data tracking, misinformation, and surveillance anxiety (Baruh et al., 2017; Dinev & Hart, 2006) creates cognitive multitasking (Ophir et al., 2009), dividing attention and reducing comprehension (Ayres & Sweller, 2014). Yet, this moderating factor has not been tested in Sri Lankan contexts where privacy literacy remains low.

Therefore, this study addresses the lack of empirical evidence on how short-form video use influences cognitive performance among Sri Lankan undergraduates and how privacy and security concerns shape these effects. The findings aim to support evidence-based strategies for digital wellness, cognitive health, and improved academic performance in higher education.

# 04.Literature Review.

## 4.1 Cognitive Psychology.

Cognitive psychology explores how people acquire, process, store, and retrieve information. It focuses on mental processes such as attention, memory, comprehension, reasoning, and decision-making core elements that shape learning and academic performance (Eysenck, 2012). These processes evolve with the environment, particularly the digital ecosystems that dominate modern life. Today’s university students function in highly digital surroundings that continuously stimulate and sometimes overwhelm their cognitive systems. This study builds on four key cognitive variables working memory, memory retention, reading comprehension, and decision-making identified by Senarath and Rathnayake (2021) in their research on social media-driven mind wandering among state university students in Sri Lanka. Their study revealed that constant digital engagement weakens attention, shortens focus spans, and reduces memory retention, highlighting the importance of these domains in academic success.

Sweller’s Cognitive Load Theory (1988) explains that working memory has limited capacity and can easily be overloaded when exposed to excessive stimuli. Baddeley’s Working Memory Model (2000) adds that the phonological loop (for auditory and verbal information) and the visuospatial sketchpad (for visual and spatial input) can both be strained by continuous audiovisual exposure. Craik and Lockhart’s Levels of Processing Theory (1972) further clarifies that deep, meaningful engagement enhances long-term memory, while shallow, surface level processing weakens recall. Likewise, Bartlett’s Schema Theory (1932) and Mayer’s Cognitive Theory of Multimedia Learning (2009) emphasize that comprehension relies on integrating new material with existing mental frameworks.

Similarly, Simon’s Decision-Making Model (1947) and the Elaboration Likelihood Model by Petty and Cacioppo (1986) highlight that reflective, evidence-based decision-making demands deliberate cognitive effort. Repeated exposure to rapid, high-stimulation environments can disrupt this deliberative capacity. Collectively, these theories provide the foundation for analyzing how short-form video (SFV) engagement influences the cognitive mechanisms that support academic learning.

## 4.2 Short-Form Video Platforms

Short-form video (SFV) platforms including TikTok, Instagram Reels, and YouTube Shorts have revolutionized content consumption among young audiences. These videos, often lasting between 15 and 60 seconds, are crafted to seize attention through fast transitions, bright visuals, and algorithm-driven personalization (Duffy & Hund, 2019). Their design aims to maximize engagement, keeping users scrolling through streams of customized content. While SFVs offer entertainment and short learning experiences, their format imposes substantial cognitive strain. The quick bursts of sound, visuals, and text give little time for reflection, promoting fragmented attention and shallow information processing. Studies indicate that such fragmentation disrupts the brain’s ability to sustain focus and absorb meaning (Paltaratskaya, 2023; Medrano, 2022).

From a cognitive psychology standpoint, SFVs challenge the principles of Cognitive Load Theory (Sweller, 1988) by introducing excessive sensory input that increases extraneous cognitive load and depletes working memory. Likewise, Baddeley’s (2000) model shows that continuous auditory and visual stimuli overload key memory systems, weakening processing efficiency. Over time, habitual exposure trains the brain to seek novelty and instant gratification reducing endurance for long, focused tasks critical to academic performance (Firth et al., 2020).

## 4.3 Impact of Short Videos on Cognitive Psychology

The cognitive effects of SFV consumption are multidimensional. Working memory suffers when users face simultaneous visual and auditory cues, causing overload and decreased retention. Memory retention declines because the fast-paced structure encourages surface-level processing, contrary to Craik and Lockhart’s (1972) deep learning principle. The spacing effect (Cepeda et al., 2006) also explains that spaced learning strengthens memory, while the rapid, unbroken flow of short videos prevents effective consolidation leading to weaker recall (Otto, 2025).

Reading comprehension is similarly affected. When users process captions, visual effects, and music at once, the split-attention effect (Ayres & Sweller, 2014) occurs, increasing mental load and lowering comprehension accuracy. Research confirms that students heavily exposed to short videos tend to perform worse in comprehension and analytical reasoning tasks compared to those engaging with text-based content (Otto, 2025).

Decision making, another key cognitive process, is also impaired by excessive SFV use. The dopamine driven feedback loops in these platforms through likes, views, and instant feedback reinforce impulsivity and quick reward-seeking (Petty & Cacioppo, 1986; Pennycook & Rand, 2019). As a result, users may rely on intuitive, heuristic judgments rather than reflective reasoning, affecting their ability to manage time, evaluate information, and make sound academic decisions (Simon, 1947).

Adding complexity, privacy and security concerns serve as moderating variables that further tax cognitive resources. According to the Privacy Calculus Theory (Dinev & Hart, 2006), users constantly weigh the benefits of using a platform against potential risks a mental balancing act that consumes attention and reduces learning efficiency. Heightened privacy anxiety leads to continuous vigilance, diminishing deep engagement (Baruh, Secinti, & Cemalcilar, 2017). The Attention Restoration Theory (Kaplan, 1995) and Limited Capacity Model of Motivated Mediated Message Processing (LC4MP) by Lang (2000) both argue that cognitive resources are finite; when divided between privacy concerns and content processing, efficiency declines across all cognitive domains.

However, much of the existing evidence stems from Western and East Asian contexts. Sri Lanka’s educational and digital environment differs in infrastructure, literacy, and cultural attitudes toward technology. Therefore, this study seeks to bridge that gap by investigating how SFV consumption influences working memory, memory retention, reading comprehension, and decision-making among Sri Lankan undergraduates, while considering privacy and security concerns as moderating factors.

By situating global cognitive theories within the Sri Lankan context, this research aims to contribute localized insights that support digital literacy initiatives and enhance students’ cognitive well-being in an increasingly media driven academic landscape.

# 05. Conceptual Framework.

Independent Variable

Independent Variable

Cognitive Psychology

Decision Making

Working Memory

Reading Comprehension

Short Video Consumption

Memory Retention

Privacy & Security

# 06. Research Questions.

6.1 General Research Question.

What is the impact of short-form video consumption on cognitive functions and academic-related outcomes among undergraduates in Sri Lankan state universities, and how do privacy and security concerns moderate these relationships?

## 6.2 Specific Research Questions.

1. How does the frequency and duration of short-form video consumption affect students’ working memory capacity?
2. What is the relationship between short-form video consumption and students’ ability to retain and recall information over time?
3. How does habitual short-video consumption influence reading comprehension and analytical understanding of academic materials?
4. In what ways does short-form video usage affect students’ decision-making processes and critical evaluation abilities?
5. To what extent do privacy and security concerns moderate the relationship between short-form video consumption and cognitive performance among undergraduates?

# 07. Research Objectives.

## 7.1 General Objective.

To examine the impact of short-form video (SFV) consumption on cognitive functions including working memory, memory retention, reading comprehension, and decision making among undergraduates in Sri Lankan state universities, and to assess the moderating effects of privacy and security concerns on these relationships.

## 7.2 Specific Objectives.

1. To investigate the relationship between the frequency and duration of short-form video consumption and students’ working memory capacity.
2. To assess how short-form video consumption influences memory retention and recall ability among undergraduates.
3. To evaluate the effect of habitual short-form video usage on students’ reading comprehension and analytical understanding of academic materials.
4. To determine how short-form video engagement impacts students’ decision-making and critical evaluation skills.
5. To examine the moderating role of privacy and security concerns in the relationship between short-form video consumption and cognitive outcomes.

# ****08. Hypotheses****

**H1:** There is a significant negative relationship between short-form video consumption and working memory capacity among undergraduates in Sri Lankan state universities.

**H2:** There is a significant negative relationship between short-form video consumption and memory retention among undergraduates.

**H3:** There is a significant negative relationship between short-form video consumption and reading comprehension among undergraduates.

**H4:** There is a significant negative relationship between short-form video consumption and decision-making ability among undergraduates.

**H5:** Privacy and security concerns significantly moderate the relationship between short-form video consumption and cognitive outcomes (working memory, memory retention, reading comprehension, and decision-making).

# 09. Methodology.

## 9.1 Research approach.

This study adopts a deductive research approach. It begins with established theoretical frameworks such as Cognitive Load Theory, the Working Memory Model, Privacy Calculus Theory, and the Elaboration Likelihood Model to develop specific, testable hypotheses about how short-form video consumption affects cognitive functions, including working memory, memory retention, reading comprehension, and decision-making. The study also examines how privacy and security concerns moderate these relationships. Data will be collected using a structured questionnaire and analyzed statistically to test these theory-driven propositions.

## 9.2 Research Type.

The research is explanatory (causal) in nature. It seeks not only to describe patterns of SFV use but also to explain how and to what extent such use influences cognitive outcomes, while testing whether privacy and security concerns moderate these relationships.

## 9.3 Research Strategy.

A **survey strategy** will be employed to collect primary data from undergraduate students across selected Sri Lankan state universities. The survey allows for collecting data from a large number of respondents efficiently and helps in generalizing findings to the wider undergraduate population.

## 9.4 Time Horizon of the Study.

The study will follow a cross sectional design, with data collected at a single point in time. This design is efficient for capturing current usage patterns, cognitive self-assessments, and privacy attitudes among undergraduates, and is well-suited for hypothesis testing in large populations.

## 9.5 Nature of the Study.

This study adopts a quantitative nature. Quantitative methods are suitable because the objective is to measure the relationships between short-form video consumption, cognitive functions (working memory, memory retention, reading comprehension, and decision-making), and the moderating role of privacy and security concerns using numerical data.

## 9.6 Population & Sample.

### 9.6.1 Population.

The target population consists of undergraduate students enrolled in state universities in Sri Lanka during the 2025 academic year. This includes students from all faculties (e.g., Arts, Science, Engineering, Management, Medicine) and year levels (1st to 4th year).

### 9.6.2 Sample Size.

|  |  |  |  |
| --- | --- | --- | --- |
| **University** | **Total Number of Students** | **Representation of the sample** | **Number of Students** |
| University of Colombo | 15863 | 8% | 31 |
| University of Kelaniya | 16671 | 8% | 31 |
| Wayamba University of Sri Lanka | 7682 | 4% | 15 |
| University of Sri Jayewardenepura | 18772 | 9% | 35 |
| University of Peradeniya | 13198 | 7% | 27 |
| University of Moratuwa | 9429 | 5% | 19 |
| University of Jaffna | 13731 | 7% | 27 |
| University of Ruhuna | 16620 | 8% | 31 |
| **South Eastern University of Sri Lanka** | 8557 | 4% | 15 |
| **Sabaragamuwa University of Sri Lanka** | 9933 | 5% | 19 |
| **The Open University of Sri Lanka** | 31113 | 16% | 61 |
| **Uva Wellassa University** | 6706 | 3% | 12 |
| University of Vavuniya, Sri Lanka | 3692 | 2% | 8 |
| **Rajarata University of Sri Lanka** | 9233 | 5% | 19 |
| **University of the Visual & Performing Arts** | 3176 | 2% | 8 |
| Gampaha Wickramarachchi University | 2609 | 1% | 4 |
| Eastern University of Sri Lanaka | 12127 | 6% | 23 |
| Total Number of Students | 199112 | 100% | 385 |

1Sample Size

A key principle underlying the Krejcie and Morgan table is that as population size grows particularly beyond 100,000 the required sample size increases only marginally. This reflects a point of diminishing returns in terms of accuracy gains. Consequently, for large populations and assuming a 95% confidence level with a 5% margin of error, a sample of approximately 384 (sometimes rounded to 387) is generally considered the minimum needed to achieve a representative and statistically reliable sample.

### 9.6.3 Sampling Technique.

The **snowball sampling technique** will be used. Initial respondents will be identified through personal networks and student groups and will be asked to refer other participants who meet the study criteria. This method is suitable given the dispersed nature of the target population and the need to access students across different universities efficiently.

## 9.7 Research Design.

### 9.7.1 Data Collection.

Data will be collected via a structured online questionnaire using Google Forms. The instrument includes four sections: (1) demographics (age, gender, university, faculty, year of study, daily short-form video use, and preferred platform); (2) video consumption patterns (frequency, duration, and context e.g., during study breaks or before bed); (3) cognitive functioning assessing working memory, memory retention, reading comprehension, and decision-making through self-reported items; and (4) privacy and security concerns, measuring awareness, anxiety, and vigilance regarding online risks. All responses will use a standardized Likert-type scale.

### 9.7.2 Data Analysis.

#### Descriptive Analysis.

Descriptive statistics will be used to summarize key characteristics of the data, including participants’ demographics, SFV consumption levels, privacy concerns, and cognitive outcomes. Measures such as mean, median, mode, range, and standard deviation will describe the distribution and variability of responses, providing a clear overview of the dataset without drawing inferences about the wider population.

#### Reliability Test.

Reliability will be assessed using **Cronbach’s Alpha,** which measures the internal consistency of questionnaire items. A value above **0.70** will be considered acceptable, indicating that the items reliably measure the intended constructs.

#### Validity Test.

Validity testing will be conducted to ensure that the measurement instruments accurately capture the intended constructs. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett’s Test of Sphericity will be applied to assess sampling adequacy and the suitability of data for factor analysis. Furthermore, Average Variance Extracted (AVE) values will be examined to evaluate convergent validity, ensuring that the variables used in the study reliably represent their respective theoretical constructs.

#### Correlation Analysis.

Pearson’s correlation coefficient will be used to identify the strength and direction of relationships between short-form video consumption and the cognitive variables.

#### Regression Analysis.

Regression analysis will be employed to examine the impact of short-form video consumption on cognitive outcomes. The analysis will be conducted using multiple linear regression models to determine the strength and direction of relationships among variables. Key statistical indicators, including β (Beta coefficients), F-statistics, and Sig. (Significance) values, will be used to assess the predictive power and overall significance of the model. These results will help to identify whether short-form video consumption and moderating variables, such as privacy and security concerns, have statistically significant effects on cognitive performance among undergraduates.

# 10. Significance of the Study.

This study holds significance for several key reasons. First, it addresses a pressing gap in the literature regarding the cognitive implications of short-form video (SFV) consumption among undergraduate students in Sri Lankan state universities a demographic that is increasingly immersed in digital media yet underrepresented in existing research. As SFV platforms become integral to daily information and entertainment consumption, understanding their naturalistic association with core cognitive functions such as working memory, memory retention, reading comprehension, and decision-making is essential. Unlike experimental studies that impose artificial usage conditions, this observational approach captures real-world patterns of SFV engagement, thereby offering insights that reflect actual student behavior. This ecological validity strengthens the relevance of the findings to everyday academic and cognitive experiences. Additionally, the inclusion of privacy concerns as a variable responds to the growing awareness of data-related anxieties in digital environments. Investigating how such concerns intersect with media consumption and cognitive outcomes adds a distinctive dimension to the study, particularly in a context where digital literacy and data protection awareness are still evolving.

The results of this research may inform university-level initiatives aimed at promoting mindful digital media use, support the development of cognitive resilience strategies, and contribute to curriculum enhancements in digital literacy. Moreover, the study provides a foundational dataset for future research in similar socio-educational settings across the Global South, where digital media adoption is rapid but cognitive impact studies remain scarce.

# 11. Limitations of the Study.

While this study offers meaningful insights into the cognitive effects of short-form video (SFV) consumption among Sri Lankan undergraduates, several limitations should be noted. First, reliance on self-reported questionnaires may introduce bias and limit accuracy compared to controlled laboratory assessments. Second, the cross-sectional design prevents establishing causal relationships between SFV use and cognitive outcomes. Third, the snowball sampling technique may reduce the representativeness of the sample across all state universities. Fourth, only privacy and security concerns were examined as moderating factors, excluding others such as mental health or study habits. Fifth, the findings are context-specific to Sri Lankan state universities and may not generalize to other educational or cultural settings.

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| Activity | October | | | | November | | | | | December | | | | January | | | | February | | | | | March | | | | | April | | | | |
| 1 | 2 | 3 | 4 | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | 1 | 2 | 3 | 4 | | 1 | 2 | 3 | 4 | | 1 | 2 | 3 | 4 |
| Proposal Development |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Literature review |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Methodology Development |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Questioner Preparation |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Data Collection |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Data Analysis |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Writing and Presentation |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |
| Finalization and Submission |  |  |  |  | |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  |

# 12. TIMELINE

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