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Short-Form Video Platforms and Changing Patterns of Knowledge Consumption

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Abstract

Short-form video has evolved from an entertainment format into an important environment for encountering news, educational explanations, health information, professional advice, cultural knowledge, and public affairs. TikTok, Instagram Reels, and YouTube Shorts offer highly visual, personalized, rapidly changing streams of information that can lower the effort required to discover unfamiliar topics. At the same time, the compressed structure of these platforms may encourage fragmented attention, incidental exposure, simplified explanations, limited source checking, and surface-oriented learning. This study investigates how increasing reliance on short-form video may alter the processes through which users discover, comprehend, retain, verify, and extend knowledge.

Because verified participant-level data were not supplied, the study adopts an explicitly simulation-based design rather than presenting synthetic observations as completed empirical research. A modeled sample of 720 adult digital-media users was divided into low-, moderate-, and high-reliance short-form-video groups. Five dimensions of knowledge consumption were evaluated: knowledge-discovery efficiency, immediate comprehension, delayed retention, source-verification tendency, and deep-learning orientation. The simulation indicates a nonlinear pattern. Greater dependence on short-form video is associated with higher modeled discovery efficiency and immediate comprehension, while delayed retention, verification behavior, and deep-learning orientation decline as dependence becomes stronger. These results are consistent with emerging scholarship showing both the educational usefulness of short videos and concerns regarding surface learning, analytic thinking, context switching, and information quality.

The study argues that short-form video should not be understood simply as either an educational benefit or a cognitive threat. Its value depends on whether brief video serves as an entry point into deeper inquiry or becomes a substitute for sustained knowledge construction. A balanced model of "discover briefly, verify externally, learn deeply" is consequently proposed for educational institutions, creators, platforms, and information users.

Keywords: short-form video; TikTok; Instagram Reels; YouTube Shorts; knowledge consumption; digital learning; information behavior; media literacy

1. Introduction

Digital knowledge consumption has undergone a significant shift from deliberate information retrieval toward continuous exposure within personalized media environments. Earlier online information

practices generally required users to formulate a search query, select among visible sources, open a webpage, and spend sufficient time reading or watching the selected material. Short-form video platforms reorganize this sequence. Content is increasingly presented through continuous recommendation feeds in which the platform selects the next informational item before the user explicitly requests it. Consequently, knowledge acquisition may begin not with a question but with an algorithmically generated encounter. O'Brien, Davoudi, and Nelson's recent scoping review characterizes TikTok as an increasingly important information space and demonstrates that information behavior on the platform includes seeking, encountering, evaluating, creating, and sharing information.

This transformation is especially significant because short-form platforms have become meaningful environments for news and public-affairs exposure. Pew Research Center reported in September 2021 that one-fifth of U.S. adults regularly received news on TikTok, compared with 3% in 2020; among adults under 30, the proportion reached 43%. Reuters Institute analysis of young news audiences similarly found that visual platforms occupy a substantial role in the news routines of younger audiences and that TikTok use has grown sharply among people aged 18–24. These developments suggest that short-form video is no longer peripheral to knowledge consumption. It increasingly sits alongside search engines, news websites, educational platforms, podcasts, books, and long-form video as a gateway to understanding events and ideas.

The format provides clear informational advantages. Short videos reduce entry costs, combine audio and visual explanation, allow creators to contextualize unfamiliar concepts rapidly, and can make specialist knowledge approachable to users who might not initially engage with lengthy material. Educational research has documented beneficial applications in disciplines ranging from chemistry to nursing and medicine. Poza-Méndez and colleagues reported positive educational outcomes from a TikTok-supported learning intervention in nursing education, while Wali found that short educational videos could support engagement and learning in undergraduate pharmacology. Short content can therefore operate productively as a form of microlearning, revision, conceptual introduction, or motivational entry point.

The benefits nevertheless coexist with important cognitive and informational concerns. Otto's 2022 comparative investigation found that short-video use was associated with greater preference for surface learning and that participants learning through short videos performed less well on knowledge acquisition than those receiving text-based material in the experimental component. Jiang and Ma likewise reported experimental evidence linking TikTok use with reduced analytic thinking, while Chiossi and colleagues found that rapid context switching in a TikTok condition impaired prospective-memory performance compared with other experimental conditions. These findings challenge the assumption that greater exposure to informational content automatically produces deeper knowledge.

The central issue is therefore not whether short-form video contains knowledge, but how the architecture of short-form consumption changes the process by which knowledge is constructed. Existing studies have often examined platform use, educational effectiveness, problematic use, news encounters, or cognitive outcomes separately. The present paper integrates these strands by distinguishing five stages of knowledge consumption: discovery, immediate comprehension, retention, verification, and deep inquiry. Through an explicitly labeled simulation, it develops a model explaining

why greater short-form-video reliance may simultaneously improve informational reach while weakening some dimensions of knowledge quality.

2. Objectives of the Study

2.1 To Examine Changes in Knowledge-Discovery Behavior

The first objective is to determine how dependence on short-form video may change the way individuals encounter new information. Particular attention is given to the transition from deliberate search toward algorithmically mediated discovery, incidental exposure, and personality-driven explanation.

2.2 To Evaluate Knowledge Quality Across Different Levels of Reliance

The study compares modeled differences in immediate comprehension, delayed retention, source verification, and deep-learning orientation among users with low, moderate, and high reliance on short-form video for informational purposes.

2.3 To Develop a Balanced Knowledge-Consumption Framework

The final objective is to identify a sustainable role for short-form video within contemporary learning ecosystems. Rather than treating brief video as a replacement for books, articles, lectures, research papers, or long-form educational media, the study evaluates its potential function as the first stage of a broader knowledge pathway.

3. Review of Literature

3.1 From Intentional Search to Algorithmic Knowledge Encounter

Traditional models of information behavior commonly emphasize purposeful information seeking. Short-form platforms complicate this model because informational exposure often emerges within entertainment-oriented feeds. Hendrickx's qualitative study of young adults' experiences on Instagram and TikTok found that participants frequently valued social-media news because it was quick and convenient, while active news seeking was less common than incidental encountering.

Zhao, Perloff, and Gearhart extend this perspective through research on political news consumption on short-form platforms. Their study of 781 U.S. voters found that incidental encounters can develop into more intentional engagement and information-seeking behavior. Short-form video therefore does not eliminate intentional information behavior. Instead, it may reposition intentional search later in the knowledge-consumption process.

This transition can be represented as:

Traditional pattern: Need → Search → Source Selection → Consumption → Interpretation

Short-form pattern: Algorithmic Encounter → Initial Interest → Rapid Interpretation → Optional Verification → Optional Deeper Search

The difference is significant. In the second pattern, users may learn about topics they would never have independently searched for. At the same time, the decision to progress from initial exposure to deeper inquiry remains optional.

O'Brien, Davoudi, and Nelson's review further supports viewing TikTok as a genuine information environment rather than merely an entertainment channel. Their review of 49 publications demonstrates the breadth of information practices now taking place within the platform.

3.2 Educational Potential and Microlearning Advantages

Short-form educational content can be especially effective when the learning objective is narrowly defined. Concepts, demonstrations, memory prompts, vocabulary, procedural reminders, and introductory explanations can often be communicated effectively through brief multimedia presentations.

Hayes and colleagues demonstrated the potential of TikTok for scientific public engagement by using short videos to contextualize chemistry concepts for audiences outside conventional classroom settings. Kauffman, Weisberg, and Fishman similarly discussed TikTok's emerging potential for radiology education, illustrating the expansion of short-form educational communication into specialist professional fields.

Poza-Méndez and colleagues subsequently evaluated TikTok as a teaching and learning method in nursing education using a quasi-experimental design. Their work provides evidence that carefully designed platform use can support theoretical-practical knowledge acquisition rather than functioning only as informal entertainment.

Recent systematic-review literature also indicates that TikTok has been employed across multiple higher-education disciplines, although implementation conditions and learning outcomes vary. The educational literature therefore does not support a categorical claim that short videos are inherently unsuitable for learning.

Their instructional effectiveness depends on content complexity, pedagogical design, prior knowledge, active engagement, integration with other resources, assessment expectations, and whether users subsequently elaborate on the material.

3.3 Cognitive Fragmentation, Surface Learning, and Verification Risk

The strongest concern emerges when short-form consumption moves from supplementary learning to dominant information architecture.

Xu and colleagues investigated adolescent behavior on short-video applications and found associations between daily use, reliance on algorithmic recommendation, aspects of cognitive functioning, and academic performance. Jiang and Ma's experimental research similarly concluded that TikTok use can hinder analytic thinking under the conditions tested.

Chiossi and colleagues provide another important mechanism: rapid context switching. Their controlled experiment compared TikTok, Twitter, YouTube, and a no-activity condition while participants performed a prospective-memory task. Performance deteriorated significantly under the TikTok condition, suggesting that rapidly changing audiovisual contexts can impose costs on the ability to retain intended actions.

Otto's 2019 research connects these concerns directly with learning. Short-video use was associated with lower rational thinking and stronger surface-learning orientation, and text-based learning

produced better knowledge-acquisition performance than short-video material in the reported experiment.

The literature consequently reveals a central research gap. Studies demonstrate both educational opportunity and cognitive risk, but fewer models explain how different dimensions of knowledge consumption move in opposite directions as dependence on short-form content increases. The present study addresses this gap through a multidimensional simulation.

4. Research Methodology

4.1 Research Design and Synthetic Sample

The research adopts a quantitative simulation-based comparative design. No real participant dataset is claimed.

Table 1: Simulation Design and Measurement Structure

Methodological Component	Specification
Research design	Simulation-based comparative study
Total modeled sample	720 digital-media users
Low-reliance group	240
Moderate-reliance group	240
High-reliance group	240
Primary independent variable	Reliance on short-form video for acquiring knowledge
Knowledge environments considered	TikTok-style feeds, Reels-style feeds, Shorts-style feeds
Main dependent dimensions	Discovery, comprehension, retention, verification, deep-learning orientation
Measurement scale	Standardized simulated score from 0–100
Analytical method	Cross-group descriptive comparison and pattern analysis
Status of numerical results	Synthetic; not observations from actual participants

The modeled groups do not represent medical or psychological classifications. They are analytical categories constructed to examine theoretically plausible changes as the role of short-form video increases within an individual's overall information diet.

4.2 Operationalization of Knowledge Consumption

Knowledge-discovery efficiency measures how easily users encounter useful ideas, concepts, explanations, or events that were not previously known to them.Immediate comprehension measures the

extent to which users believe or demonstrate that they can understand the principal message shortly after consuming the content.Delayed knowledge retention refers to the ability to preserve the principal informational content beyond the immediate viewing period.

Deep-learning orientation represents willingness to progress beyond the short video by reading extended material, comparing sources, taking notes, asking questions, or studying related concepts.Together, these dimensions allow knowledge consumption to be treated as a process rather than as a simple count of informational videos watched.

4.3 Simulation Logic, Quality Controls, and Ethical Position

The simulation was designed around relationships documented in the literature rather than arbitrary claims. Positive assumptions concerning discovery and engagement were informed by studies demonstrating educational and informational applications of short-form media, while declining retention, verification, and deep-learning scores at high reliance levels were modeled conservatively in light of research concerning surface learning, analytic reasoning, context switching, and cognitive functioning.

The numerical values are illustrative and do not estimate population prevalence, causality, or effect size.A future empirical version should employ a preregistered longitudinal or randomized design, validated knowledge tests, objective platform-usage records where ethically permissible, delayed recall assessments, verification-behavior tasks, and controls for education, age, prior knowledge, reading habits, digital literacy, and socioeconomic characteristics.No institutional ethics approval or participant consent is claimed because no human participants were recruited for this simulated analysis.

5. Analysis

5.1 Changing Knowledge Outcomes Across Reliance Levels

The simulation identifies a striking divergence between access-oriented and depth-oriented knowledge outcomes.

Table 2: Simulated Knowledge-Consumption Scores by Short-Form Video Reliance

Knowledge Dimension	Low Reliance	Moderate Reliance	High Reliance	Observed Simulated Pattern
Knowledge-discovery efficiency	58	72	84	Strong increase
Immediate comprehension	64	72	76	Moderate increase
Delayed knowledge retention	76	69	59	Progressive decline
Source-verification tendency	73	64	52	Strong decline
Deep-learning orientation	78	68	54	Strong decline

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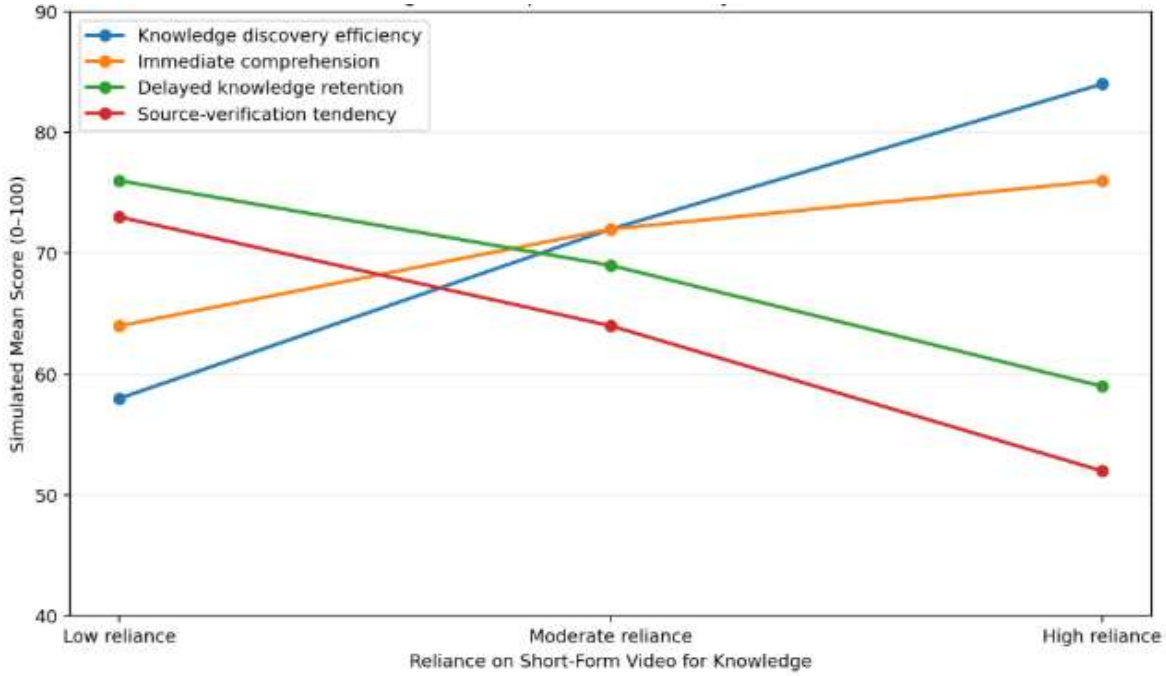
Note: Scores range from 0 to 100. All data are simulated and must not be interpreted as observed participant results.

The largest positive difference occurs in knowledge-discovery efficiency. High-reliance users receive a modeled score of 84 compared with 58 among low-reliance users. This reflects the capacity of recommendation systems to expose users rapidly to large numbers of topics.Immediate comprehension also increases, but more modestly. This distinction is important because understanding the central claim of a 30- or 60-second explanation is not equivalent to acquiring a durable conceptual model.

The opposite pattern appears in delayed retention. The modeled score decreases from 76 among low-reliance users to 59 among high-reliance users. Source verification declines from 73 to 52, while deep-learning orientation declines from 78 to 54.

5.2 Graphical Pattern of Knowledge Consumption

Graph 1:Simulated Knowledge-Consumption Outcomes by Short-Form Video Reliance



The graph demonstrates that reliance on short-form video does not produce a single uniformly positive or negative outcome.The two upward lines represent speed-oriented informational benefits. Users discover more topics and achieve relatively efficient immediate comprehension.

The downward lines represent knowledge-consolidation risks. As reliance becomes dominant, modeled retention and verification decline.The point of greatest analytical interest is therefore the moderate-reliance group. Short-form video appears most useful when it operates alongside other knowledge sources rather than displacing them.

5.3 Knowledge Breadth Versus Knowledge Depth

The simulation supports a distinction between knowledge breadth and knowledge depth.

Short-form platforms are particularly well suited to breadth because recommendation systems can expose users rapidly to science, politics, finance, health, culture, technology, history, language, professional knowledge, and social issues within a single session.

Depth requires different cognitive activities. Understanding a contested historical event, economic policy, scientific mechanism, medical issue, or philosophical argument often requires evidence comparison, definitions, causal reasoning, qualifications, methodological understanding, and sustained attention.

6. Discussion

6.1 Short-Form Video as a Gateway Rather Than a Complete Knowledge System

The findings support a balanced interpretation of contemporary short-form media.

The format's greatest educational strength lies in knowledge initiation. It can attract attention to an unfamiliar concept, explain basic terminology, demonstrate a procedure, summarize an event, provide memory cues, and motivate further investigation.This interpretation is consistent with educational studies demonstrating that short video can support engagement and learning when integrated into structured instruction.

Problems become more likely when the gateway becomes the destination.A learner who sees a brief explanation of inflation and subsequently reads economic analysis has used short video differently from someone who treats a single creator's 40-second explanation as sufficient understanding of monetary policy.The same principle applies to medicine, law, history, politics, science, investment, and public policy.The critical variable is therefore not merely screen time. It is the relationship between short-form exposure and subsequent cognitive activity.

6.2 Algorithmic Personalization and the Restructuring of Curiosity

Short-form platforms also influence *what* users become curious about.

Traditional knowledge seeking begins largely with personal intention. Recommendation feeds distribute part of that agenda-setting function to algorithms.This can have substantial benefits. Individuals may encounter disciplines, perspectives, professionals, research findings, cultures, and educational opportunities outside their existing knowledge.Yet algorithmic discovery can also produce asymmetric knowledge environments. Topics capable of generating immediate attention may receive greater visibility than topics that are equally important but less visually dramatic.

Hendrickx's research illustrates how young people increasingly experience news as something embedded within wider social-media routines rather than as a discrete informational activity. Zhao and colleagues similarly demonstrate that political news on short-form platforms may first be encountered incidentally before motivating active engagement.Consequently, modern media literacy must include algorithmic literacy.

Users should understand that a personalized feed is not a neutral summary of what is most important, accurate, or representative. It is an individually curated information environment shaped by platform systems and previous interaction signals.

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6.3 Building a Healthier Knowledge-Consumption Model

The appropriate response is neither rejection of short-form media nor uncritical educational adoption.

A more sustainable model is:

Discover Briefly → Pause → Identify the Source → Verify Externally → Expand the Topic → Reflect → Retain

Under this model, a short video performs the function it performs best: attracting attention and providing an accessible conceptual entry point.Long-form resources subsequently provide evidence, context, qualification, comparison, and deeper reasoning.Educational institutions can operationalize this model by asking students to begin with a short educational video but then trace its claims to scholarly literature. News organizations can link brief explanatory videos to complete reporting and source documents.

Health professionals can accompany concise videos with evidence-based resources.Content creators can distinguish established evidence from opinion and explicitly identify sources.Platforms can improve source visibility and make pathways toward extended contextual material easier to access.Users can adopt a simple personal rule: the higher the consequence of a claim, the less acceptable it is to rely on one short video as the final source of knowledge.This principle preserves the accessibility benefits of short-form communication while protecting the deeper processes required for reliable knowledge.

7. Conclusion

Short-form video platforms are not merely shortening media content. They are changing the architecture through which people discover and construct knowledge.

TikTok, Instagram Reels, YouTube Shorts, and comparable environments convert informational consumption into a continuous stream of brief, personalized, audiovisual encounters. Current evidence shows that these environments have genuine educational and informational potential. They can introduce difficult concepts, broaden access to expert communication, encourage incidental discovery, support microlearning, and make knowledge more approachable.The same architecture can create limitations when rapid consumption replaces sustained inquiry. Experimental and observational scholarship has raised concerns regarding surface learning, analytic thinking, cognitive functioning, context switching, and knowledge acquisition under certain conditions of short-video use.

The present simulation captures this tension. As modeled reliance on short-form video increases, knowledge-discovery efficiency improves from 58 to 84 and immediate comprehension rises from 64 to 76. At the same time, delayed retention decreases from 76 to 59, source verification from 73 to 52, and deep-learning orientation from 78 to 54.These scores are illustrative rather than empirical estimates, but the pattern establishes a testable proposition for future research: short-form video may increase the breadth and speed of knowledge acquisition while excessive dependence may weaken some processes required for depth, verification, and durable understanding.The most productive future knowledge ecosystem will therefore not require individuals to choose between short and long media.

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