

TIKTOK AS A SUPPLEMENTARY MEDIUM IN EDUCATIONAL CONTEXTS: AFFORDANCES, LIMITATIONS, AND PEDAGOGICAL IMPLICATIONS

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Abstract: Assimilations Here, the present research looks into the relevance of the TikTok application as a short video delivery platform in the context of educational delivery. This investigation uses a systematic literature review and is qualitative in nature aimed at examining the role of app specific features in informal learning through TikTok app short video content, algorithm-driven personalization, social media as they control the informal learning process. In general, the investigation has implications for the TikTok app as a useful educational tool that makes the educational material more widely accessible, promotes learners' independence and motivates users through entertaining contents, it even serves as an educational resource when aimed at the youth demographic and its tendency toward fast communication. But, the application of the TikTok app carries with it a host of disadvantages: wrong information sent through the application, the lack of in-depth information, as well as inherent distractibility. Compared to more similar kinds of services, such as Google Classroom and YouTube, this analysis demonstrates that "TikTok offers a great opportunity for capturing interest but does not offer new learning and information," they concluded.

Keywords: TikTok, digital media in education, informal learning, digital literacy, blended learning.

INTRODUCTION

Education is a category of planned and structured effort that is conducted to create a learning atmosphere, for the sake of students to actively create the necessary environment for the spiritual religiosity, self-control as well as personality and intelligence, noble morals and skills which will eventually be required by themselves and society. Abd Rahman, B. P., Munandar, S. A., Fitriani, A., Karlina, Y., & Yumriani, Y. This relationship between formal education and technology has never been static. The introduction of print textbooks, the arrival of broadcast media and, more recently, the advent of internet enabled devices with an ever-increasing number of new technologies, force educators, policymakers, and researchers to go back over the boundary of the classroom. What's

different about the present is not so much the rate of change, but the character of that change: learning is now a constant and promiscuous process in and out of formal and informal settings, and mediated by platforms whose ultimate function is largely outside in the domain of schooling.

TikTok stands as one of the more telling examples of this phenomenon. Launched internationally in 2018, the platform accumulated over one billion monthly active users within a few years, making it among the fastest-growing social applications in recorded history. Its architecture is built around brief, vertically oriented videos rarely exceeding three minutes and frequently much shorter accompanied by music, text overlays, visual effects, and an algorithmically curated feed designed to sustain continuous engagement. These features were conceived for entertainment and social expression. Yet, perhaps inevitably, educators, students, and self-appointed subject-matter enthusiasts began populating the platform with instructional content, study guides, and explainer videos, giving rise to the informal subculture sometimes identified as #LearnTok or #EduTok.

This migration of educational intent onto an entertainment platform raises questions that transcend novelty. Does the format genuinely serve learning, or does it merely simulate the appearance of intellectual engagement while delivering something shallower? Under what conditions does short-form video reinforce rather than replace deeper study? And how should formal educational institutions position themselves in relation to a medium they did not design and cannot fully control? These questions animate the present article.

The Indonesian context lends these questions additional weight. Indonesia is a geographically dispersed archipelagic nation with pronounced regional disparities in educational infrastructure. Digital media platforms have been embraced with a great deal of enthusiasm as a tool for bridging geographic and resource divides, but steady internet access is still patchy, and the pedagogical capacity to assess and implement new media tools varies markedly across institutional contexts. TikTok's swift spread in Indonesian youth culture and the significant enthusiasm with which student populations have engaged with educational content on the platform makes it a fertile ground for scholarly inquiry. This article does not treat TikTok as a pedagogical panacea, nor a direct threat to the standards of education. Instead, it considers the platform as a cultural and technical artefact, and its educational affordances and liabilities can only be appreciated contextually in terms of the particular learning goals of its users, learners and institutional environments that it operates in.

The article intends to achieve three related aims. It therefore starts by defining central characteristics of TikTok as these factors contribute towards educational use, and this is grounded in media studies, educational technology and cognitive psychology literature. Second, it considers the substantive opportunities and challenges that have been evident in empirical and theoretical analyses of TikTok and similar short-form media in educational settings. Third, it situates TikTok within the broader ecology of digital learning resources and thinks of ways in which it could be integrated productively with a larger set of more structurally robust tools. It's an ongoing conversation about equity and inclusion, as it acknowledges that any theory of digital media in education must understand the material conditions that determine who benefits and who doesn't.

RESEARCH METHODS

This research employs a qualitative research approach based on a descriptive-analytical approach. Instead of producing new empirical data through fieldwork and experimentation, research draws on existing literatures to create a more sophisticated interpretation of the educational impact of TikTok use. This method of analysis works well here as we aim to go beyond objective measurement towards charting the terrain of available knowledge, highlight points of convergence and tension in the literature, and provide an account that serves as an argumentative tool for a more substantive scholarship on the matter.

Data were collected via a systematic review of sources across several types of studies: peer-reviewed journal articles including educational technology, media studies and cognitive psychology; policy and institutional reports published by UNESCO and the OECD; empirical research into social media and academic achievement; and practitioner studies on blended learning and digital pedagogy. Databases referenced were Scopus, Google Scholar, ERIC and national repositories in the Indonesian educational context. Search terms were developed iteratively, integrating platform-specific descriptors (“TikTok,” “short-form video”) with educational and cognitive keywords (“learning outcomes,” “attention,” “motivation,” “digital literacy,” “informal learning”). There were two stages to the analytical process. This process included the review of source materials in the main stage to identify recurrent themes, arguments, and empirical findings regarding TikTok educational dimensions. In the second stage, these themes were grouped into a consolidated framework of analysis in which the platform's structural characteristics, its potential benefits, documented limitations, its relationship with comparator

platforms, and the circumstances in which it is possible to achieve its educational benefits are further classified as “Themes”.

The analysis stayed focused up until this point on the “context-specificity” aspect: results from one educational or cultural context were never presumed to extend universally or smoothly to others. The descriptive identification given to this method is commensurate with an intention to describe the current knowledge carefully before advancing interpretive assertions. This exercise is not passive; descriptive synthesis in qualitative research can only take place when researchers need to apply an active interpretive judgement about which evidence is credible, how the competing claims relate to one another, and what the accumulated record means for practice and policy. The findings here are presented as scholarly views rather than final conclusions.

RESULTS AND DISCUSSION

TikTok’s Structural Features and Their Educational Significance

Any assessment of TikTok as an educational medium should start with analysis of the platform’s key structural features, for this structure rather than any natural property of the content is fundamentally informing the conditions of learning. There are three things that deserve special attention: the brevity of units of content, algorithmic personalization, and the structure of social interaction. The most obvious characteristic that sets TikTok apart is its focus on short-form content. The original design cap of fifteen seconds was lifted over time by the platform, but the cultural norms and standards of user behavior continue to favor concision. Videos running longer than two minutes do not get attention from the audience in a feed engineered to reward fast scanning. This brevity is a mixed blessing for the purposes of instruction. On one side, the requirement to compress information forces content creators into clarity and prioritization: a well-crafted TikTok explanation of a scientific concept or historical event must distill its subject to its most communicable core. This act of distillation has genuine pedagogical value, both for creators who must deeply understand material to condense it effectively, and for viewers who receive focused, accessible expositions. On the other side, the same brevity that enforces clarity also enforces incompleteness. Complex topics resist reduction to ninety-second summaries without sacrificing the nuance, qualification, and contextual grounding that distinguish genuine understanding from the illusion of familiarity.

TikTok's algorithmic personalization engine operates on a scale and with a sophistication that sets it apart from many comparator platforms. The system continuously refines its model of each user's

preferences based on watch time, repeat viewing, shares, comments, and an array of behavioral signals, delivering an increasingly tailored feed. For learners with well-developed subject interests, this mechanism has the potential to function as an informal tutoring system, surfacing relevant content across a range of related topics without requiring deliberate search. However, the same mechanism can calcify into what media scholars have described as a filter bubble—a self-reinforcing loop in which the user's existing knowledge and preferences determine the content they encounter, limiting exposure to perspectives and domains that fall outside the algorithm's model of their interests. The educational implications of algorithmic personalization thus depend heavily on whether learners actively interrogate and expand the parameters of their content consumption.

The platform's social interaction features comments, duets, stitching, and the capacity to respond to others' content with one's own video create conditions for peer-to-peer knowledge exchange that have few obvious parallels in traditional educational media. Students who engage with educational content on TikTok are not passive recipients; they may challenge, extend, correct, or recontextualize what they encounter. This participatory quality resonates with constructivist accounts of learning that emphasize the social construction of knowledge. At the same time, the norms governing social interaction on TikTok do not uniformly favor careful intellectual engagement; the platform's culture rewards entertainment value, emotional resonance, and social performance as much as accuracy or analytical depth.

Affordances and Benefits for Learning

Within these structural parameters, TikTok offers a range of educational affordances that have been documented across the literature. These benefits are most consistently observed when TikTok is understood not as a replacement for formal instruction but as a complement to it.

The motivational dimension of TikTok's educational role is among the most frequently noted. Learners who report disengagement with conventional instructional materials textbooks, lecture slides, extended reading assignments often describe the platform's short videos as more immediately inviting. This is partly a matter of format (visual and auditory stimulation are combined in ways that printed text cannot replicate) and partly a matter of social framing: content that circulates on a platform primarily associated with entertainment and social connection carries a different affective charge than the same information presented in a classroom or study guide. When motivation represents a barrier to learning, TikTok's capacity to lower the threshold of initial engagement may have practical value,

even if it does not resolve the deeper challenge of sustaining concentration through more demanding material.

The platform's accessibility temporal, spatial, and financial constitutes a second category of benefit. Unlike formal educational resources that presuppose enrollment, attendance, or purchase, TikTok content is available to anyone with a compatible device and internet connection, at any time, from any location. For learners in contexts where formal educational provision is inadequate, uneven, or inaccessible due to geographic, economic, or logistical barriers, this openness represents a meaningful expansion of learning opportunity. The Indonesian context, in which millions of students in rural and remote regions face persistent gaps in educational infrastructure, illustrates the potential relevance of freely accessible digital content, though it also underscores the irony that internet connectivity a prerequisite for that content remains scarce in precisely those areas where formal provision is weakest. TikTok also supports the development of digital literacy and content-creation skills in ways that more passive media do not. When students produce educational content for the platform explaining a concept, demonstrating a procedure, or curating information on a topic they engage in a form of learning by teaching that research has consistently associated with deeper understanding and longer retention. The process of translating knowledge into a format comprehensible to a general audience requires the producer to identify gaps in their own understanding, make choices about emphasis and sequence, and anticipate the misunderstandings an audience might bring. These are metacognitive processes of considerable educational value, and TikTok's low production barriers make them accessible to students who lack the technical resources or institutional support required for other forms of knowledge production.

Finally, TikTok's interactive features create conditions for informal learning communities that extend beyond the institutional boundaries of formal education. Comment threads beneath educational videos frequently develop into substantive discussions in which users ask questions, offer corrections, share related resources, and explore applications of the ideas presented. These exchanges replicate some of the features of the seminar or tutorial in a decentralized, asynchronous format that removes the social pressures associated with formal classroom participation. For learners who are reluctant to speak in class or who find the pacing of formal instruction misaligned with their cognitive rhythms, these informal communities may provide an alternative or supplementary space for intellectual engagement.

Limitations and Risks

The benefits described above are real, but they are accompanied by limitations and risks that must be addressed if TikTok is to serve educational purposes responsibly. These concerns operate at different levels—structural, informational, cognitive, and ethical—and they cannot be resolved through optimistic deployment alone.

The most structurally embedded limitation concerns the mismatch between the platform's content format and the demands of complex learning. As noted above, TikTok's brevity norms favor the communicable over the complete. This creates a systematic pressure toward oversimplification that is particularly problematic in domains characterized by interdependence, qualification, and nuance—which is to say, most academic disciplines. A chemistry concept reduced to a thirty-second video may convey a memorable illustration while omitting the conditions, exceptions, and underlying principles that give the concept its meaning. A historical event narrated in a minute-long clip may achieve emotional impact while suppressing the contextual complexity that makes historical understanding worthwhile. Learners who encounter these condensed representations without access to more thorough treatments risk developing confident but incomplete mental models—a form of epistemic overconfidence that can be more difficult to correct than outright ignorance.

The credibility problem compounds this structural issue. TikTok's content creation and distribution system imposes no professional or disciplinary gatekeeping. Any user may produce and circulate educational content regardless of their qualifications, and the platform's ranking mechanisms prioritize engagement metrics over accuracy. Research examining health-related content on TikTok—a domain where the consequences of misinformation are tractable and severe—has found substantial rates of factual error, with popular videos sometimes achieving millions of views while conveying clinically inaccurate information. While the stakes of misinformation in other subject areas may be less immediately apparent, the underlying dynamic applies broadly: the platform's architecture does not distinguish reliably between accurate and inaccurate educational content, and learners without strong prior knowledge in a domain are poorly positioned to make that distinction themselves. This places an obligation on digital literacy education that many institutional frameworks are currently ill-equipped to fulfill.

The cognitive dimension of TikTok's limitations has attracted attention from researchers in psychology and neuroscience. Rosen and colleagues have documented that exposure to notifications and ambient social media activity, even when the primary activity is not social media use, measurably degrades

performance on tasks requiring sustained attention. Studies more directly focused on TikTok usage patterns have found associations between heavy platform use and reduced scores on assessments administered immediately after use, compared to conditions in which access was restricted. From a cognitive load perspective, the platform's architecture—designed to sustain engagement through novelty and variety—may be poorly aligned with the requirements of learning tasks that demand the consolidation of information in working memory and its transfer to long-term storage. Put more directly: the mental habits reinforced by extended TikTok use may be partly incompatible with the mental habits that difficult learning requires.

Ethical and equitable concerns represent a further category of limitation that the educational technology literature has sometimes underweighted. Data privacy considerations are particularly acute for student populations, whose behavioral data is collected and retained in ways that users rarely fully understand or consent to in a meaningful sense. The potential for exposure to inappropriate or distressing content in a feed that cannot be fully controlled by individual users or their institutions is a genuine risk, particularly for younger learners. Access inequity—the gap between students with reliable device access and fast internet connections and those without—means that TikTok-based learning strategies, if implemented as though access were universal, may exacerbate rather than mitigate existing educational disparities. These concerns are not arguments against engaging thoughtfully with TikTok in educational contexts, but they are arguments against uncritical enthusiasm.

Comparative Positioning: TikTok Within the Digital Learning Ecosystem

Understanding TikTok's educational role requires situating it within the broader ecology of digital learning platforms rather than evaluating it in isolation. Three comparator platforms are particularly instructive: YouTube, Google Classroom, and dedicated educational platforms such as Khan Academy or Coursera.

YouTube shares TikTok's video-based format but differs from it in ways that matter educationally. YouTube content is not subject to TikTok's brevity pressure: creators may produce videos of any length, and the platform's culture supports extended tutorials, lecture series, and documentary-style explorations that have no real equivalent on TikTok. YouTube's search and organization features are also better calibrated to intentional learning behavior; users can seek out specific topics, access playlists organized around a curriculum, and move through structured sequences of related content. TikTok's algorithmic feed is designed to surface content the user did not specifically seek, which is

useful for serendipitous discovery but poorly suited to directed study. For learners working through a defined curriculum or developing competence in a specific domain, YouTube's architecture offers advantages that TikTok cannot easily replicate. That said, TikTok's social features and community dynamics—the stitching, dueting, and comment-thread cultures that develop around popular educational accounts—create a form of learner participation that YouTube's more passive viewing model does not readily foster.

Google Classroom and comparable learning management systems occupy a different position in the ecosystem entirely. These platforms are designed for institutional use, providing scaffolded environments in which teachers can assign tasks, track completion, manage grading, and facilitate structured discussion. Their affordances are oriented toward accountability, sequence, and assessment—properties that TikTok lacks by design. The integration of TikTok content into a Google Classroom environment represents one of the more promising models for bridging the motivational accessibility of informal media with the organizational and evaluative capacities of formal systems. A teacher might assign a relevant TikTok video as an introductory stimulus before a unit, inviting students to interrogate its accuracy or completeness using information gathered from more rigorous sources. Alternatively, a creative assignment might ask students to produce TikTok-style explainer videos as a demonstration of their understanding of course material, combining the content-creation benefits described earlier with the accountability structure of a formal assessment. These hybrid uses allow educators to leverage TikTok's motivational affordances without ceding pedagogical control to an entertainment platform.

Dedicated educational platforms such as Khan Academy or Coursera offer yet another point of contrast. These platforms are built around learning objectives and structured progressively to support mastery over time. Their content is produced by credentialed educators, reviewed for accuracy, and organized into coherent sequences that reflect considered pedagogical design. What they often lack—and what TikTok supplies in abundance—is the social immediacy and low-friction engagement that characterizes informal media. Learners who find dedicated educational platforms dry or demanding may encounter the same material on TikTok in a form that feels less alienating. The challenge is that encountering material is not the same as learning it, and the affective accessibility of TikTok content can create a false sense of mastery that structured platforms, with their built-in assessment mechanisms, are better positioned to correct.

The comparative analysis suggests that TikTok is most educationally productive when it functions as an entry point a space in which learners develop interest, encounter unfamiliar ideas, or consolidate accessible introductions to topics they are developing more systematically elsewhere. As a standalone learning environment, its structural features impose constraints that limit its capacity to support the kinds of learning that most formal educational objectives require.

Pedagogical Integration and the Role of Digital Literacy

The literature consistently points toward blended learning as the framework most likely to realize TikTok's educational potential while containing its limitations. Blended learning, as theorized in educational technology scholarship, combines the affordances of digital media with those of conventional pedagogical practice, leveraging each where it is strongest. Within this framework, TikTok occupies a specific and bounded role: it is a platform for initial engagement, motivational activation, and informal community-building, not a vehicle for the sustained, scaffolded instruction that remains the core of formal education.

For this integration to be effective, both educators and students require digital literacy competencies that go beyond basic platform navigation. The concept of digital literacy, as it has developed in media studies and educational research, encompasses several interrelated capacities: the ability to evaluate the credibility of digital sources; an understanding of how platform algorithms shape information exposure; awareness of the economic and political interests that govern platform behavior; and the capacity to engage with digital content as a critical, active interpreter rather than a passive consumer. In the context of TikTok specifically, digital literacy means being able to ask not only "what is this video telling me?" but also "who made this, why, and what might they have left out?" questions that the platform's design does not naturally prompt.

Educator preparation represents a persistent structural barrier to productive TikTok integration. OECD reports on digital pedagogy have emphasized that the effective use of new media tools in education requires more than familiarity with the tools themselves; it requires the capacity to align media selection with specific learning objectives, design activities that exploit the affordances of the chosen medium, and assess whether the resulting learning experience has advanced the intended outcomes. Many educators currently lack formal training in these competencies, and professional development programs have not uniformly kept pace with the rate of platform proliferation. Institutional investment in educator preparation—including structured opportunities to develop, trial, and critically evaluate

digital media-integrated lessons—is a prerequisite for the kind of thoughtful deployment that the research base supports.

At the student level, the cultivation of metacognitive awareness is equally important. Students who understand how TikTok's algorithm works and how it may be confirming their existing knowledge while filtering out perspectives that would challenge or extend it are better positioned to use the platform as a tool for deliberate learning rather than a passive entertainment medium. Integrating media literacy instruction into formal curricula, rather than assuming that digital natives possess this awareness by default, is a practical step that many educational systems have been slow to take.

CONCLUSION

This article has examined TikTok's role in educational contexts through a descriptive-analytical synthesis of existing literature. The picture that emerges is neither straightforwardly positive nor straightforwardly negative. TikTok is a platform with genuine educational affordances: it lowers the motivational threshold for content engagement, supports flexible and self-directed learning, enables informal peer-to-peer knowledge exchange, and creates conditions in which students can develop content-creation skills with genuine pedagogical value. These benefits are real, and dismissing TikTok's educational role on the grounds of its entertainment origins would be both intellectually hasty and practically counterproductive in an environment where students are already using the platform extensively.

At the same time, TikTok's structural features its brevity norms, its engagement-optimizing algorithm, and the absence of credentialing mechanisms for content producers create conditions that are poorly aligned with many of the core demands of formal education. Deep learning, as cognitive psychologists and educational researchers have documented it, requires sustained attention, iterative encounter with challenging material, and the construction of interconnected conceptual structures over time. TikTok's architecture optimizes for none of these things. The platform is structurally better suited to sparking interest than to sustaining inquiry.

The most productive educational stance toward TikTok is one of deliberate, bounded integration within a broader pedagogical ecology. When educators use TikTok as one component of a blended learning strategy alongside more structurally robust platforms, conventional instructional methods, and formal assessment frameworks its motivational and accessibility advantages can be realized

without surrendering the depth that learning requires. This integration demands digital literacy from students, pedagogical creativity and platform understanding from educators, and institutional frameworks that provide both the freedom to experiment and the accountability structures to evaluate whether experiments are working.

For future research, several directions merit attention. Longitudinal studies examining the relationship between sustained TikTok use and academic performance outcomes across different subject areas and learner populations would provide empirical grounding for claims that currently rest more on theoretical inference than on systematic evidence. Comparative analyses of blended learning models that incorporate TikTok versus those that do not would help identify which specific integration strategies are most effective and under what conditions. Research attentive to equity dimensions—examining whether and how TikTok-integrated pedagogical approaches affect learners differently depending on their socioeconomic status, geographic location, and prior access to digital infrastructure—would help ensure that enthusiasm for the platform's affordances does not obscure its potential to reinforce existing educational disparities.

TikTok is a window through which some students, for the first time, encounter ideas and subject areas that will shape their intellectual lives. That this window exists at all accessible, low-cost, and socially animated in ways that formal education rarely manages is worth acknowledging. The task for educators and researchers is to ensure that what students see through that window leads somewhere, and that the journey from encounter to understanding is supported by frameworks the platform alone cannot provide.

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