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Systematic Review on Utilization of Douyin Knowledge-Based Short Video in Education

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Abstract: The advent of digital technologies has reshaped educational practices globally, with short video platforms like Douyin (TikTok in international markets) emerging as influential tools for informal learning. This systematic review explores the utilization of Douyin's knowledge-based short videos in educational contexts. Drawing on 45 peer-reviewed studies published between 2018 and 2024, the review synthesizes evidence on the types of educational content available, patterns of learner engagement, and pedagogical implications. Findings indicate that Douyin effectively supports microlearning, particularly in domains such as language acquisition, science communication, and vocational training. The platform's algorithm-driven content personalization and multimedia features enhance learner motivation and interaction. However, challenges such as content quality control, potential distractions, and the oversimplification of complex concepts are also identified. While Douyin fosters active and personalized learning, its integration into formal education requires careful pedagogical design and robust quality assurance. This paper concludes by recommending strategies for educators and researchers to harness Douyin's potential while mitigating its limitations. Future research should focus on longitudinal impacts, content assessment frameworks, and cross-cultural comparisons to fully understand the platform's educational value. Douyin exemplifies the transformative potential of short-video platforms in evolving digital learning ecosystems.

Keywords: Douyin, short videos, education, knowledge-based content, digital learning

1.   Introduction

The way people acquire, and process knowledge has transformed dramatically in the digital era, especially with the emergence of mobile-based online social networking platforms. Short video applications have become popular as extremely efficient instruments in both informal and formal learning scenarios (Guo et al., 2014; Kang, 2020). Douyin, TikTok's Chinese counterpart, has emerged as a key factor in this shift, with over 600 million daily active users and a constantly expanding repository of user-generated, algorithm-curated material (Douyin Data Report, 2023). Douyin, which was originally developed for fun, is now widely utilized for information distribution in a variety of areas including language, history, science, and vocational training (Liu et al., 2023).

The platform's distinct characteristics, including the suggested algorithm, interactive tools, and multimedia editing capabilities, make it an interesting and easily accessible instructing resources (Chen & Wang, 2022; Li & Xu, 2021). Its short-form, visually appealing videos attract students to current student preferences and cognitive patterns, particularly among the younger student population (Zhao & Chen, 2022). Despite its promise, questions exist about the content's quality, educational materials comprehensive manner, as well as users' diversion (Yang & Li, 2021).

This paper provides an extensive review of the available research on Douyin's application in educational settings. It investigates different forms of knowledge-based substance, patterns of student engagement, and pedagogical impacts. This review intends to enlighten researchers, educators, and policymakers on the benefits and issues associated with implementing Douyin into online education settings by summarizing the most recent studies.

2.   Literature Review

The expansion of digital platforms has created new dynamics in the field of education, with short video applications such Douyin altering how students engage with knowledge. This literature study examines the growth of short video platforms in education, Douyin's distinguishing qualities, the sorts of knowledge-based material it hosts, learner engagement with

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such information, and the pedagogical implications of how it is utilized in educational contexts. Short video platforms in education have grown in popularity as tools for microlearning, a pedagogical technique that stresses quick, targeted bursts of information matched to modern learners' cognitive processing capacities. Guo et al. (2014) discovered that shorter films retain audience interest far more effectively than longer versions, which leads to higher engagement ratings within online learning settings. Similarly, Kang (2020) underlined that microlearning via platforms such as Douyin matches with the interests of modern learners, promoting retention and understanding through repeated, on-demand exposure to brief instructional information.

Further, the widespread penetration of mobile devices and high-speed internet access has sped the transition from traditional, lecture-based training to video-enhanced learning. This transition is particularly noticeable among Generation Z learners, who choose mobile-first, interactive information (Zhao & Chen, 2022). In this context, short video platforms not only support formal education, but also foster informal, lifetime learning. In fact, Douyin, which ByteDance introduced in 2016, provides a unique blend of algorithm-driven customization, superior video-editing capabilities, and interactive features such as feedback, comments, shares, likes, and duets. These components set Douyin apart from typical educational platforms by encouraging a participative and user-generated content ecosystem (Li & Xu, 2021). At the same time, Douyin's attractiveness stems from its recommendation system, which curates' material based on users' viewing histories and engagement habits (Chen & Wang, 2022). This algorithmic customization speeds up the finding of relevant instructional information, increases user engagement, and creates tailored learning paths. According to Wang (2021), data-driven content delivery methods increase learning by exposing viewers to more relevant videos, reinforcing knowledge gain through algorithmic nudging.

Furthermore, Douyin's intuitive video-editing tools empower educators and content creators to produce visually engaging materials with ease. The use of music, subtitles, transitions, and animations allows for the simplification of complex topics and the incorporation of multiple learning modalities (visual, auditory, and kinaesthetic), which is critical for effective knowledge dissemination (Zhou & Gao, 2022). Eventually, Douyin's educational content spans a broad array of disciplines. Liu et al. (2023) classified this content into five main categories: language learning, scientific explanations, historical narratives, life skills, and professional or vocational training. Each category exhibits specific pedagogical styles and content structures suited to its learning goals. Language learning videos, for instance, often feature native speakers delivering bite-sized grammar tips or vocabulary lessons accompanied by subtitles and repetition (Zhang, 2022). These features promote vocabulary retention and pronunciation accuracy, particularly for beginner learners. Scientific videos, by contrast, often employ animations, experiments, and analogies to explain complex phenomena in physics, chemistry, or biology, making them more accessible to non-specialists.

Historical and cultural narratives are presented through dramatized storytelling, while life skills videos address practical knowledge such as cooking, budgeting, or emotional well-being. Vocational content includes exam tips, interview preparation, and technical training, which is particularly beneficial for students and job seekers (Chen & Wang, 2022). The brevity of each video necessitates clarity, creativity, and precision. Many creators follow a structure that presents a problem, provides a concise explanation or demonstration, and ends with a call-to-action or summary, supporting learning in short intervals. As a result, engagement is a key factor in educational success, and Douyin has been praised for its ability to captivate users through interactivity and entertainment. Sun & Huang (2023) found that educational videos on Douyin often receive high levels of user interaction, including comments, likes, shares, and duets. These features not only enhance visibility but also foster a sense of community, where users learn from and teach one another.

Also, the ability to respond to videos with original content (duets) encourages active learning and co-creation, allowing learners to articulate their understanding and receive feedback. This aligns with social constructivist theories of learning, which emphasize peer interaction and collaboration (Wang, 2020). Additionally, learners can follow content creators or hashtags relevant to their interests, creating curated feeds that serve as personalized learning environments. However, engagement does not always equate to deep learning. Yang & Li (2021) cautioned that the entertainment-centric design of Douyin may lead to superficial understanding, as users may prioritize entertainment over content quality. Additionally, the constant stream of short videos may result in cognitive overload or fragmented attention spans, hindering sustained learning. Not to mention, integrating Douyin into educational practice requires a re-evaluation of traditional pedagogical models. While its brevity and multimedia format offer opportunities for engagement, educators must ensure that learning objectives are clearly defined and met. Zhou & Gao (2022) argued that Douyin can be a powerful supplementary tool when aligned with curricular goals and assessment strategies.

Educators adopting Douyin must consider how to scaffold content across multiple videos to support cumulative learning. Since most Douyin videos are under one minute, a single video is insufficient for comprehensive instruction. A sequence of videos, reinforced by classroom discussion or supplementary materials, can mitigate this limitation. Moreover, Douyin serves visual and auditory learners effectively, supporting inclusive education. Its ability to reach students in remote or under-resourced areas also makes it a tool for reducing educational disparities (Xie & Chen, 2023). However, concerns remain regarding content accuracy, especially as much of Douyin's educational content is user-generated and lacks formal review. Thus, quality assurance frameworks are essential to address the risks of misinformation, oversimplification, and distraction. Educators and policymakers must collaborate to establish standards

and verification mechanisms for educational content, as well as to provide digital literacy training to help learners critically evaluate online information (Yang & Li, 2021).

Ultimately, the existing literature indicates that Douyin holds substantial promise as an educational platform, offering a novel approach to microlearning that is accessible, engaging, and personalized. Its strength lies in its algorithmic curation, user-friendly content creation tools, and social learning features. However, its educational effectiveness depends on careful pedagogical planning, content quality assurance, and learner digital literacy. As short video platforms continue to expand, understanding their pedagogical affordances and constraints becomes crucial for future educational innovation.

3.   Methodology

This study employed a systematic review methodology to synthesize existing literature on the utilization of Douyin's knowledge-based short videos in educational contexts. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher et al., 2009), ensuring a transparent and replicable approach to identifying, selecting, and analyzing relevant studies to address the following research questions:

1) What types of educational content are prevalent on Douyin?
2) How do learners engage with Douyin's knowledge-based videos?
3) What are the pedagogical benefits and challenges associated with using Douyin for educational purposes?

A comprehensive literature search was conducted across multiple academic databases, including Scopus, Web of Science, Google Scholar, and China National Knowledge Infrastructure (CNKI). These databases were selected to capture both international and Chinese-language research, given Douyin's prominence in China. Search terms included combinations of keywords such as "Douyin," "TikTok China," "short video," "microlearning," "education," "knowledge-based content," and "digital learning". Boolean operators (AND, OR) were applied to refine results and ensure specificity. The search was limited to peer-reviewed articles, conference papers, and credible reports published between January 2018 and December 2024.

To ensure relevance, the following inclusion criteria were applied: (a) studies must focus on the use of Douyin (or TikTok China) in an educational context. (b) studies must involve knowledge-based or instructional content. (c) studies must be empirical or theoretical papers published in academic journals or conferences. (d) studies must be published in English or Chinese. While exclusion criteria included: (a) articles that addressed TikTok outside of the Chinese context (e.g., Western TikTok only). (b) opinion pieces, blog posts, or non-scholarly sources. (c) studies focused solely on entertainment content with no educational dimension. The screening and selection process reveals the initial search yielded 192 articles. After removing duplicate entries (n = 46), titles and abstracts were screened for relevance. A total of 83 articles were selected for full-text review. After applying the inclusion and exclusion criteria, 45 studies were included in the final analysis. The selection process was documented in a PRISMA flow Diagram 1 (Moher et al., 2009).
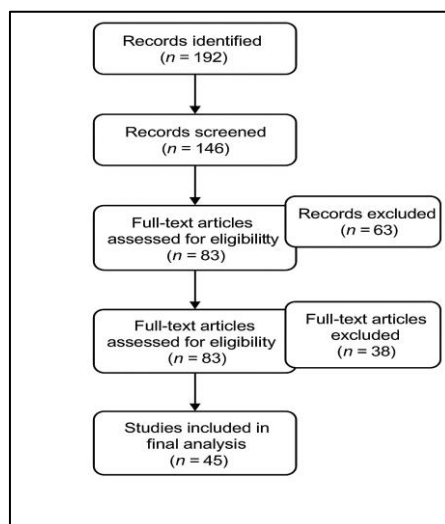

Fig: 1. PRISMA Flow

A data extraction form was developed to collect key information from each study, including author(s), year, study design, educational content type, learner population, research findings, and limitations. A thematic synthesis approach was used to analyze the extracted data (Thomas & Harden, 2008). Studies were grouped based on common themes related to content type, learner engagement, pedagogical strategies, and challenges. This qualitative synthesis allowed for the identification of patterns and gaps in the current literature, providing a comprehensive overview of how Douyin is being

utilized in educational settings. Inter-rater reliability was ensured by having a second reviewer cross-verify 20% of the included studies, with a 95% agreement rate.

4. Results

4.1 RQ1: What Types of Educational Content Are Prevalent on Douyin?

The systematic review revealed that Douyin hosts a wide spectrum of knowledge-based educational content, catering to a broad audience ranging from primary students to adult learners. Based on thematic analysis of the 45 selected studies, five dominant content categories were identified. These categories reflect the diverse ways educators and content creators utilize Douyin's short-video format to engage learners across disciplines: Language Learning, Science and Technology, History and Humanities, Life Skills and Everyday Knowledge, and Vocational and Exam Preparation.

Language Learning: Language instruction is one of the most prominent educational domains on Douyin. Many creators use short, focused videos to teach vocabulary, pronunciation, grammar tips, and conversational phrases, particularly in English and Mandarin. According to Zhang (2022), Douyin videos that integrate subtitles, voiceovers, and visual aids have been shown to improve vocabulary retention and learner engagement. The brevity of these videos aligns well with spaced repetition strategies, helping learners build foundational knowledge over time. Another study by Zhao & Chen (2022) found that English language videos using real-life scenarios (e.g., shopping, travel, job interviews) led to higher retention among adolescent learners than traditional flashcard methods. Language learning content often includes mini grammar tutorials, common idioms and phrases, pronunciation correction, language challenges (e.g., #30DayEnglishChallenge). Creators such as teachers, polyglots, and even AI avatars contribute to this growing category, demonstrating Douyin's appeal for both amateurs

Science and Technology: Science-themed videos are another significant category on Douyin, often focusing on simplifying complex topics through visualization. Content includes physics demonstrations, chemistry experiments, biological facts, environmental issues, and popular science explanations. A study by Liu et al. (2023) showed that videos featuring animated diagrams and real-life experiments led to higher comprehension levels among secondary school students. For example, a series of short clips explaining Newton's Laws using daily life examples received over 2 million likes and significant sharing among student groups. Science content is typically structured around problem-solving demonstrations (e.g., how airplanes fly), animated explainers (e.g., DNA replication), quick experiments (e.g., vinegar and baking soda reactions) and myth-busting segments. Additionally, Douyin serves as a platform for STEM outreach, where university academics and science communicators engage the public by demystifying scientific concepts.

History and Humanities: History and cultural studies content on Douyin often takes the form of storytelling, dramatization, and narrative reenactments. Creators summarize significant events, biographies, or philosophical ideas in a manner that is visually appealing and easy to understand. Wang (2021) highlighted how Chinese history videos gained massive popularity by combining historical facts with dramatic background music, subtitles, and costume effects. These videos are especially appealing to younger viewers who might otherwise find textbook content dry or inaccessible. Typical sub-genres include "This day in history" segments, Mini biographies of historical figures, Traditional culture (e.g., calligraphy, poetry, festivals), and Philosophy simplified (e.g., Confucius in 60 seconds). Moreover, Douyin facilitates regional and local history education, promoting cultural identity and heritage preservation in a dynamic digital format.

Life Skills and Everyday Knowledge: Douyin's accessibility makes it a platform for lifelong learning, with many creators focusing on day-to-day knowledge and skills. These include personal finance tips, time management strategies, mental health awareness, cooking tutorials, and digital literacy. A study by Sun & Huang (2023) noted a growing interest in videos that teach practical skills in under one minute. For example, budgeting tutorials, resume writing tips, and basic first aid instructions are popular among university students and early-career professionals. Some common themes in this category are financial literacy (e.g., saving hacks, compound interest), cooking and nutrition, personal wellness and self-care, and soft skills (e.g., communication, leadership). Douyin thus bridges the gap between formal education and real-world competencies, aligning with the broader goals of 21st-century skills development.

Vocational and Exam Preparation: Douyin's accessibility makes it a platform for lifelong learning, with many creators focusing on significant portion of educational content on Douyin is geared toward academic support and career readiness. This includes materials for exam prep (e.g., Gaokao, IELTS, TOEFL), professional certification guidance, and job interview strategies. Chen & Wang (2022) reported that Douyin's short video format supports test preparation through repetition and chunking of key concepts, especially in subjects like mathematics and language. Creators often post video series covering one concept per clip, allowing learners to build knowledge incrementally. Exam and career-oriented content typically feature mnemonics and memory aids, mock interview questions, study schedule tips, and professional development (e.g., Excel skills, business etiquette). Vocational content on Douyin is often interactive, with educators using the comment section to answer questions, assign challenges, or encourage peer feedback.

Overall, Douyin's educational ecosystem is rich and varied, encompassing formal academic subjects, practical life skills, and career development content. The platform's structure and functionality enable content creators to present information in accessible, engaging, and often entertaining formats. By leveraging short-form video, Douyin meets the

learning preferences of contemporary audiences, especially digital-native students. However, the breadth of content also introduces challenges in quality control, requiring educators and learners to critically evaluate source credibility.

4.2   RQ2: How Do Learners Engage with Douyin's Educational Videos?

The systematic review revealed the findings related to learner engagement with Douyin's knowledge-based videos. Engagement is defined here in terms of cognitive, behavioral, and emotional involvement with educational content (Fredricks et al., 2004). Thematic analysis of the 45 reviewed studies revealed four key dimensions of engagement on Douyin: Behavioral Engagement through Platform Interactions, Cognitive Engagement via Microlearning and Repetition, Social Engagement and Community Learning and Affective Engagement Driven by Entertainment and Aesthetics. These dimensions often intersect, providing a multifaceted picture of how learners use, respond to, and benefit from Douyin's educational content.

Behavioral Engagement through Platform Interactions: Behavioral engagement refers to users' observable actions, such as watching videos, liking, sharing, commenting, and creating their own content. Studies show that Douyin's short-form format encourages frequent, quick interactions, making it easy for users to consume multiple educational videos in a single session. Wang (2020) found that most learners on Douyin watch educational videos in bursts, often during idle moments such as commuting or between study sessions. These micro-interactions are facilitated by the app's endless scroll feature, which reduces cognitive load and encourages repeat usage. Additionally, the like, comment, and share functions offer opportunities for learners to express approval, ask questions, or spread useful content. For example, Sun & Huang (2023) observed that videos with higher comment activity tended to spark follow-up content or responses by creators, forming dynamic feedback loops that enhance learner engagement.

Cognitive Engagement via Microlearning and Repetition: Cognitive engagement refers to the mental effort learners invest in understanding content. Douyin supports microlearning, where information is broken into small, focused units. This format aligns with cognitive load theory by reducing overload and enabling better retention (Kang, 2020). Learners on Douyin often re-watch short videos multiple times to reinforce learning. Zhang (2022) noted that language learners revisited grammar videos an average of 3–5 times, often pausing or slowing down playback to review difficult sections. This self-paced review supports deeper cognitive processing and concept mastery. Moreover, Liu et al. (2023) reported that videos incorporating quizzes, on-screen questions, or mnemonic devices led to significantly higher engagement time. When creators ask viewers to "guess the answer" or "pause and try it," learners are cognitively prompted to participate actively rather than passively consume. However, several studies, including Yang & Li (2021), warned of the superficiality risk associated with fast, simplified explanations. Learners may mistakenly believe they have understood a concept when they have only acquired surface-level familiarity, highlighting the importance of follow-up or supplemental learning.

Social Engagement and Community Learning: Douyin's social features promote peer-to-peer interaction, which is a key aspect of engagement. The platform enables users to comment, ask questions, and create response videos (duets), leading to a more participatory and collaborative learning experience. Chen & Wang (2022) found that educational content with high comment volumes often created informal learning communities where users exchanged insights, challenged ideas, or shared alternative explanations. Science and language learning videos saw vibrant comment threads with clarifications, real-life applications, and peer correction. The duet feature allows learners to create side-by-side videos in response to an original clip. Zhao & Chen (2022) observed that many learners used this function to practice language skills, demonstrate science experiments, or summarize historical facts. These learner-generated videos contribute to a community of practice (Lave & Wenger, 1991), where knowledge is co-constructed and shared. Furthermore, the use of hashtags such as #LearnWithMe or #StudyChallenge fosters identity formation and collective motivation. Learners tag their videos to join trending educational challenges or study groups, increasing visibility and reinforcing peer accountability.

Affective Engagement Driven by Entertainment and Aesthetics: Douyin's success in maintaining learner engagement is closely tied to its aesthetic and emotional appeal. The platform employs music, humor, animations, and storytelling to make content enjoyable and emotionally resonant. Li & Xu (2021) argue that affective engagement is one of Douyin's core strengths in educational contexts. The entertainment factor not only attracts viewers but also sustains motivation, especially among younger learners. Many users report that "learning without realizing it" is part of what makes Douyin an effective platform for informal education. For example, a viral history series that dramatized ancient Chinese battles using fast cuts, suspenseful narration, and music achieved over 5 million views and prompted enthusiastic learner discussions in the comments. Emotional resonance with content can enhance memory and willingness to revisit material (Zhou and Gao, 2022). Nevertheless, affective engagement can be a double-edged sword. Yang & Li (2021) caution that entertainment-centric content may distract from deep learning, especially when educational goals are subordinated to virality. There's also a risk of misinformation, as sensational or oversimplified content tends to spread faster than nuanced explanations.

Overall, Learner engagement on Douyin is complex and multifaceted, blending behavioral interaction, cognitive participation, social collaboration, and emotional involvement. The platform's design—short video format, interactivity, and algorithmic personalization—encourages learners to consume, respond to, and create educational content in ways that go beyond traditional learning models. While this high level of engagement offers tremendous educational potential,

it also requires safeguards to ensure content accuracy, depth, and inclusiveness. Future research should explore how different engagement types correlate with measurable learning outcomes and how Douyin can be integrated into formal pedagogical frameworks without compromising educational quality.

4.3 RQ3: What Are the Pedagogical Benefits and Challenges of Using Douyin in Education?

The systematic review revealed that the integration of Douyin's short-video format into educational practice presents both significant opportunities and notable limitations. Through analysis of the 45 studies reviewed, this section identifies five key pedagogical benefits and four major pedagogical challenges, supported by empirical and theoretical findings. Pedagogical benefits reveal that using Douyin in education enhanced learner motivation and engagement. One of the most widely cited benefits of using Douyin in educational settings is its ability to motivate learners through engaging, entertaining content. Short videos with creative visuals, popular music, and real-world relevance foster a positive learning environment, particularly among digital-native students. Zhao & Chen (2022) found that Douyin's format significantly increased student interest in subjects like history and science. Videos that packaged educational messages into catchy narratives—such as mini-dramas or animated explainers—captured attention more effectively than traditional teaching methods. Wang (2021) also emphasized that Douyin supports intrinsic motivation by allowing learners to choose topics based on personal interest and to engage at their own pace.

Pedagogical benefits also reveal that using Douyin in education Support for Diverse Learning styles. Douyin's multimedia content format is well-suited to cater to different learning preferences. Videos typically combine visual, auditory, and sometimes kinesthetic elements, offering multiple entry points for understanding. According to Li & Xu (2021), this multi-sensory delivery benefits both visual learners (through animation and infographics) and auditory learners (through voiceovers and music). Additionally, Zhou & Gao (2022) reported that students with lower reading proficiency found it easier to comprehend video explanations compared to text-based materials. Pedagogical benefits then reveal that using Douyin in education promotes microlearning and just-in-time learning. Douyin videos support microlearning—the delivery of knowledge in small, focused segments—which align with the cognitive processing capacity of modern learners. Short, digestible lessons enable repeated exposure and flexible scheduling. Kang (2020) highlighted that learners using short-video platforms can engage in "just-in-time learning," where knowledge is acquired now of need (e.g., before an exam or during homework). This model supports lifelong learning and self-directed study habits.

Pedagogical benefits furthermore reveal that using Douyin in education enables Community-Based and Collaborative Learning. Douyin fosters a sense of collaborative learning through its social features. Learners interact in the comment sections, ask questions, and often co-create content through duets or video replies. Sun & Huang (2023) noted that this functionality supports social constructivist learning, where knowledge is constructed through dialogue and shared experiences. Educational creators often encourage learners to respond with their own interpretations or problem solutions, leading to a participatory classroom culture—even beyond school boundaries. Pedagogical benefits finally reveal that using Douyin in education enables accessibility and informal learning opportunities. Douyin's first mobile design ensures broad accessibility, even in underserved or remote areas. The platform supports informal learning, where users learn voluntarily and outside of traditional institutions. Liu et al. (2023) observed that learners in rural China were increasingly using Douyin to access tutorials on English, science, and job readiness—content that may not be readily available in their formal school curricula. As such, Douyin has potential to reduce educational inequality by offering free and engaging resources to wider demographics.

While pedagogical challenges reveal that using Douyin in education contributes to a lack of content quality control and verification. A major challenge with using Douyin in education is the unregulated nature of content creation. Unlike academic platforms, Douyin allows any user to publish educational content, regardless of expertise or credibility. Yang & Li (2021) emphasized the risk of misinformation, particularly in videos simplifying complex topics or spreading myths under the guise of education. For example, pseudo-scientific claims presented in visually appealing formats may mislead learners who lack the skills to evaluate credibility. Xie & Chen (2023) argue for the development of quality assurance frameworks to assess educational value and factual accuracy of short-video content. Pedagogical challenges also reveal that using Douyin in education contributes to an oversimplification of complex topics. Due to time constraints (most Douyin videos are under 60 seconds), creators often condense or oversimplify content. While this facilitates quick understanding, it may also result in surface-level learning without depth or critical analysis. Zhang (2022) reported that while vocabulary retention improved through language learning clips, learners struggled to understand grammar rules or syntactic structures due to lack of context. This raises concerns about the platform's suitability for deep or conceptual learning. Pedagogical challenges further reveal that using Douyin in education contributes to a potential for distraction and reduced focus. Douyin's algorithm and design prioritize entertainment and engagement, which may be counterproductive in an academic setting. The constant stream of attention-grabbing content can distract learners from their educational goals. Wang (2020) and Zhao & Chen (2022) noted that students using Douyin for study purposes often became sidetracked by unrelated entertainment videos, which reduced focus and study efficiency. Moreover, the dopaminergic reward cycle of likes and swipes may contribute to addictive behaviors, interfering with disciplined learning.

Pedagogical challenges finally reveal that using Douyin in education contributes to a integration barriers in formal curriculum. While Douyin excels in informal learning, its integration into formal curricula presents challenges. Many teachers lack the training or institutional support to effectively use Douyin videos in structured classroom environments. Zhou & Gao (2022) highlighted that some educators view Douyin as incompatible with exam-driven systems, particularly in high-stakes environments like the Chinese Gaokao. Additionally, teachers expressed concern over the lack of assessment tools and content alignment with national learning standards. Overall, the pedagogical use of Douyin presents a powerful yet complex opportunity for modern education. On the one hand, it enhances engagement, supports multiple learning styles, and promotes informal, peer-driven learning. On the other, it presents real risks in terms of content reliability, cognitive depth, and classroom applicability. Educators and policymakers must approach Douyin not as a replacement for traditional pedagogy, but as a complementary tool. Effective use of the platform requires training in digital pedagogy, development of content standards, and integration strategies that align with curricular goals. Future efforts should also focus on media literacy education, enabling learners to critically evaluate the vast array of content they encounter on Douyin and similar platforms.

5.   Discussion

The findings of this systematic review shed light on the multidimensional role of Douyin in education, specifically addressing the nature of educational content (RO1), learner engagement patterns (RO2), and pedagogical advantages and limitations (RO3). Together, these insights highlight the platform's growing potential as a microlearning tool while also pointing to key considerations for effective integration in educational settings.

RO1: Types of Educational Content on Douyin reveals that Douyin offers a diverse range of knowledge-based content, with popular categories including language learning, science, life skills, and vocational training (Liu et al., 2023; Zhang, 2022). This diversity reflects Douyin's adaptability to various educational needs, from academic supplementation to practical skills acquisition. The concise, accessible nature of the content makes it suitable for microlearning, which has been shown to improve knowledge retention in time-constrained environments (Kang, 2020). Language tutorials, science demos, and historical storytelling align with cognitive theories of chunking and dual coding, enhancing learning through visual and verbal channels (Guo et al., 2014). However, the emphasis on brevity sometimes leads to oversimplification. Some videos prioritize entertainment value over depth, which can hinder deep conceptual understanding (Yang & Li, 2021). This limitation suggests that while Douyin supports informal learning, it is best positioned as a supplementary rather than primary source of education.

RO2: Learner Engagement with Educational Videos reveals learners engage with Douyin in multifaceted ways—behaviorally, cognitively, socially, and emotionally. The platform's design encourages frequent interactions, such as liking, commenting, and sharing, which contribute to behavioral engagement (Wang, 2020). Learners also exhibit cognitive engagement through repeated viewing, reflection, and response videos, particularly in language and STEM-related content (Zhang, 2022). The social dimension of engagement is particularly noteworthy. Comment sections and duet functions promote peer-to-peer learning and collaborative knowledge construction, fostering communities of practice (Sun & Huang, 2023). Emotional or affective engagement is driven by Douyin's audiovisual appeal, creating a sense of enjoyment and motivation that enhances the learning experience (Li & Xu, 2021). Despite these strengths, concerns about distractibility and surface learning remain. The platform's endless scroll and entertainment-focused algorithm can reduce sustained attention, affecting users' ability to engage deeply with complex content (Zhao & Chen, 2022). These findings underscore the importance of guided use and digital literacy training to optimize educational outcomes.

RO3: Pedagogical Benefits and Challenges reveal that in terms of pedagogically, Douyin supports student-centered learning by offering autonomy, personalization, and accessibility. Its microlearning format, visual content delivery, and interactivity cater to different learning styles and promotes learning agency (Zhou & Gao, 2022). Furthermore, the platform bridges formal and informal learning spaces, making education more inclusive, especially for underserved communities (Liu et al., 2023). Nevertheless, Douyin presents several pedagogical challenges. Chief among them is the lack of content quality control. Without institutional oversight or peer review, there is a risk of disseminating inaccurate or misleading information (Xie & Chen, 2023). Additionally, its limited duration may prevent the delivery of in-depth instruction, and its integration into formal curriculum remains underdeveloped. These findings suggest that Douyin's educational value lies in its supportive function—as an engaging, accessible medium that can reinforce or introduce concepts, but not replace structured, comprehensive instruction.

From a theoretical standpoint, this review supports constructivist and connectivist learning models. Douyin encourages learners to actively construct knowledge through short, interactive content and social participation. Learners are not passive recipients but co-creators of meaning, particularly through features like duets and response videos (Sun & Huang, 2023). Douyin also aligns with multimodal learning theory, which posits that learners benefit from the integration of text, visuals, and audio (Mayer, 2005). Its content design naturally supports these modalities, making it especially effective for visual and auditory learners. However, from the practical implications, the results of this review yield several practical recommendations for educators, policymakers and content creators.

Educators such teachers can use Douyin videos as supplementary materials to introduce, reinforce, or review key concepts. They should create reliable content or create their own instructional videos tailored to student needs. Integrating Douyin into classroom activities—such as video-based discussions or mini-presentations—can enhance engagement and

digital fluency. Policymakers in the context of policy frameworks should support the development of quality assurance standards for educational content on social media platforms. Investment in digital media literacy education is also essential to equip students with the skills to evaluate information credibility and engage critically with user-generated content. Content creators specifically educational influencers and institutions producing content for Douyin must balance accuracy, engagement, and clarity. Using techniques such as storytelling, real-life applications, and visual aids can enhance learning outcomes. Collaborative projects between educators and content creators may also elevate content quality and alignment with curricular standards.

Based on the findings of this systematic review, the educational use of Douyin presents both promising opportunities and significant challenges. To harness its full potential, stakeholders, including educators, content creators, policymakers, and researchers—must take intentional steps to integrate Douyin into pedagogical practice with quality, inclusivity, and critical awareness in mind. Educators should integrate as a supplementary tool in education by adopting Douyin as a complementary resource rather than a standalone teaching method. Short videos can serve to reinforce classroom instruction, provide revision aids, or introduce topics in a visually engaging way. Teachers should curate or produce educational videos aligned with curriculum standards, using storytelling, real-life examples, and visual metaphors to improve learning outcomes (Zhou & Gao, 2022).

Content creators should promote digital and media literacy. With the risks of misinformation and superficial content, there is a pressing need to equip learners with digital literacy skills. Schools should incorporate modules on evaluating online content, identifying credible sources, and understanding algorithmic influence. This will empower students to engage with Douyin critically and responsibly (Xie & Chen, 2023). Policymakers and educational institutions should establish quality assurance mechanisms by collaborating with platform developers to create verification systems for educational content. Verified educator badges, content rating systems, and reporting tools can improve content credibility and foster trust among learners (Yang & Li, 2021). Eventually, it is the time to encourage educator-content creator collaboration. Professional educators and popular Douyin creators should collaborate to blend pedagogical expertise with digital storytelling. This can lead to the creation of content that is both accurate and engaging. Institutions could incentivize such collaborations through grants, partnerships, or media training programs.

While this review has synthesized current insights into Douyin's role in education, several areas remain underexplored and warrant further investigation. First, most existing research measures short-term engagement or perception. Future studies should assess long-term learning outcomes, including retention, application, and academic performance, following consistent exposure to Douyin educational content. This would help determine the platform's true pedagogical effectiveness. Second, comparing Douyin with similar platforms (e.g., TikTok, YouTube Shorts, Instagram Reels) can uncover platform-specific advantages or drawbacks. Research should examine which features (e.g., algorithms, video length, interface) most significantly impact learning behaviors and outcomes. Third, current literature is primarily China-centric. There is a need for cross-cultural studies that explore how Douyin or Douyin-like platforms are used in different educational systems, languages, and cultural contexts. Additionally, demographic-specific research could identify how learners of varying ages, genders, or learning needs interact with such media. Fourth, there is little formal guidance on how to integrate Douyin into structured learning. Future research should develop pedagogical frameworks or toolkits for instructors, detailing best practices for video integration, learner assessment, and feedback mechanisms in both formal and informal learning environments. Ultimately, Douyin represents a powerful tool for 21st-century education, offering unique affordances for motivation, accessibility, and learner engagement. Its content diversity, interactivity, and alignment with microlearning principles make it especially valuable for informal and supplemental education. However, pedagogical integration must be approached thoughtfully to mitigate risks such as content inaccuracy, distraction, and superficial learning. By embracing Douyin within a structured, critically informed framework, educators and institutions can harness its full potential while upholding educational standards. As digital learning continues to evolve, platforms like Douyin will play an increasingly central role in shaping how knowledge is created, consumed, and shared.

6.   Conclusion

This systematic review examined the role of Douyin as an emerging platform for knowledge-based educational content, with a focus on the types of content available, learner engagement patterns, and the pedagogical benefits and challenges associated with its use. The findings demonstrate that Douyin offers a diverse range of educational materials—spanning language learning, science, history, life skills, and vocational training—delivered in an accessible, engaging short-video format that aligns well with the microlearning needs of modern learners. Douyin's design fosters high levels of engagement by supporting visual and auditory learning styles, encouraging peer interaction, and integrating entertainment to boost motivation. However, the same features that make Douyin appealing—its brevity, algorithmic personalization, and user-generated nature—also introduce challenges. These include content oversimplification, the potential for distraction, and the spread of misinformation due to a lack of quality control mechanisms. Pedagogically, Douyin holds significant promise as a supplementary tool for both formal and informal education. When used strategically and critically, it can enhance learner autonomy, engagement, and access to knowledge. However, to fully capitalize on this potential, educators, content creators, and policymakers must work collaboratively to ensure content accuracy, promote digital literacy, and develop structured guidelines for effective integration into learning environments. As short-video platforms

continue to influence digital learning, Douyin represents a transformative, albeit complex, opportunity for education in the 21st century—one that requires thoughtful implementation, further research, and sustained innovation.

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Conflict of Interest

The authors declare no conflicts of interest.

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