

## Balancing benefits and risks of tiktok use: Impacts on children's cognitive, social-emotional development and digital well-being

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**Abstract** - This paper examines the impact of TikTok use among children, focusing on development, behaviour, and digital well-being. The aims are to (1) identify cognitive, social-emotional, and behavioural effects, (2) distinguish positive from negative outcomes, and (3) highlight the role of adult mediation. Using a qualitative literature review of empirical and narrative studies on early childhood and primary school pupils, data are synthesized from classroom observations, interviews, and thematic and content analyses reported in prior research. Analysis clusters findings into educational/cognitive benefits, creativity and self-expression, mental health and behavioural risks, and conditions under which TikTok supports healthy development. Evidence indicates that TikTok can foster creativity, self-confidence, informal learning, and social connection when use is moderate and content is appropriate. However, excessive or unsupervised use is associated with attentional problems, reduced learning focus, social withdrawal, exposure to inappropriate content, poor time management, and signs of digital addiction. The conclusion emphasizes structured limits, active parental and teacher guidance, and digital literacy education to maximize benefits and mitigate harms.

**Keywords:** tiktok; children's development; social-emotional behaviour; digital well-being; social media use

### 1. Introduction

The rapid expansion of digital technology has transformed children's daily lives, with social media platforms such as TikTok becoming deeply embedded in their routines (Maulida & Silma, 2025; Anggofi et al., 2025; Pedrouzo & Krynski, 2023; McCashin & Murphy, 2022; Kyei-Gyamfi, 2024). TikTok's short, personalized videos and interactive features attract even early childhood and primary school-age users, offering entertainment, opportunities for creativity, and informal learning (Maulida & Silma, 2025; Khoiriyati et al., 2025; Anggofi et al., 2025; Mariam et al., 2025; Harahap et al., 2024).



Studies report that TikTok can support cognitive abilities (memory, language, counting, knowledge exploration), self-confidence, and social interaction when content is appropriate and usage is limited (Maulida & Silma, 2025; Khoiriyati et al., 2025; Anggofi et al., 2025; Mariam et al., 2025; Apriliyah et al., 2025; Harahap et al., 2024; Kyei-Gyamfi, 2024). At the same time, concerns have emerged about excessive screen time, exposure to inappropriate or risky content, imitation of harmful behaviours, reduced face-to-face interaction, and signs of problematic or addictive use among children and adolescents (Ulfadhilah & Nurkhaifah, 2025; Conte et al., 2024; Pedrouzo & Krynski, 2023; Ramadhan et al., 2023; McCashin & Murphy, 2022).

Understanding TikTok's impact is crucial because childhood and early adolescence represent "golden age" periods in which cognitive, social, and emotional development are highly sensitive to environmental influences, including digital media (Khoiriyati et al., 2025; Anggofi et al., 2025; Pedrouzo & Krynski, 2023; Tindaon et al., 2023; Kumar et al., 2025). Evidence shows that TikTok is now one of the most used platforms among children globally, often surpassing other social media in popularity and time spent (Conte et al., 2024; Pedrouzo & Krynski, 2023; McCashin & Murphy, 2022; Kyei-Gyamfi, 2024; Hassan et al., 2024). Research links intensive TikTok and social media use to sleep problems, attention and academic difficulties, body image concerns, anxiety, and lower life satisfaction, but also to creative self-expression, peer connection, and access to educational content (Maulida & Silma, 2025; Ulfadhilah & Nurkhaifah, 2025; Anggofi et al., 2025; Conte et al., 2024; Pedrouzo & Krynski, 2023; McCashin & Murphy, 2022; Azizah et al., 2023; Hassan et al., 2024).

A balanced, evidence-based understanding is therefore essential for parents, educators, health professionals, and policymakers seeking to promote children's digital well-being while preserving opportunities for learning and creativity (Maulida & Silma, 2025; Anggofi et al., 2025; Conte et al., 2024; Pedrouzo & Krynski, 2023; McCashin & Murphy, 2022; Fung & Wong, 2023; Kumar et al., 2025).

TikTok use refers to children's engagement with the TikTok platform, including passive viewing, active content creation, participation in challenges, and interaction through likes, comments, and shares (Maulida & Silma, 2025; Ulfadhilah & Nurkhaifah, 2025; Lee et al., 2025; Montag et al., 2021; McCashin & Murphy, 2022).

Cognitive development covers mental processes such as attention, memory, problem-solving, language, curiosity, and academic focus, which can be stimulated or disrupted by short-video content and algorithmic feeds (Maulida & Silma, 2025; Anggofi et al., 2025; Conte et al., 2024; Apriliyah et al., 2025; Mariam et al., 2025; Clemente-Suárez et al., 2024).

Social-emotional development includes self-confidence, empathy, prosocial behavior, emotion regulation, aggression, politeness, and peer interaction, all of which may be shaped by online imitation, social comparison, and feedback mechanisms (likes/followers) (Maulida & Silma, 2025; Ulfadhilah & Nurkhaifah, 2025; Anggofi et al., 2025; Conte et al., 2024; Pedrouzo & Krynski, 2023; Harahap et al., 2024; Ramadhan et al., 2023).

Several frameworks are commonly used to interpret TikTok's effects on children:

(a) Uses and Gratifications Theory explains how young users seek entertainment, social connection, identity exploration, and self-expression through TikTok, which can both foster creativity and fuel compulsive use (Ulfadhilah & Nurkhaifah, 2025; Harahap et al., 2024; Montag et al., 2021; McCashin & Murphy, 2022).

(b) Stimulus–Organism–Response (SOR) model conceptualizes TikTok content as a stimulus that interacts with individual factors (age, parenting, prior vulnerabilities) to produce varied behavioural and emotional responses (Khoiriyati et al., 2025; Mbiriri, 2025; Liebherr et al., 2025).

(c) Digital Media-use Effects (d-MUsE) model distinguishes functional versus dysfunctional digital media use, emphasising contextual moderators (content quality, supervision, time, motives) in determining outcomes for well-being (Liebherr et al., 2025).

(d) Paradox theory of social media and child well-being highlights simultaneous demands for children's empowerment (voice, agency, participation) and protection (safety, privacy,

mental health), framing TikTok as a site of ongoing tension between these goals (Lee et al., 2025; Bozzola et al., 2022; Yap & Lim, 2023).

(e) Broader digital media and child development models stress that impacts on cognition, social skills, and mental health depend on dose, timing, and co-use with caregivers rather than screen time alone (Conte et al., 2024; Mbiriri et al., 2025; Clemente-Suárez et al., 2024).

Empirical and review studies consistently describe dual effects of TikTok on children. On the cognitive side, TikTok's engaging, audio-visual format can enhance memory, curiosity, learning motivation, and knowledge exploration, especially when content is educational and use is moderated (Maulida & Silma, 2025; Anggofi et al., 2025; Conte et al., 2024; Apriliyah et al., 2025; Harahap et al., 2024; Mariam et al., 2025; Clemente-Suárez et al., 2024).

However, uncontrolled or excessive use is linked with reduced concentration, disrupted sleep, and poorer academic focus, particularly when exposure to violent or sexual content occurs (Maulida & Silma, 2025; Anggofi et al., 2025; Conte et al., 2024; Apriliyah et al., 2025; Mbiriri, 2025; Harahap et al., 2024; Mariam et al., 2025; Clemente-Suárez et al., 2022).

Regarding social-emotional development, TikTok may build self-confidence, communication skills, collaboration, and peer connection through creative challenges and shared projects (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Anggofi et al., 2025; Conte et al., 2024; Khoiriyati et al., 2025; Yusro & Desiningrum, 2025; Harahap et al., 2024).

At the same time, repeated imitation of inappropriate behaviors, exposure to coarse language, and pursuit of likes can contribute to aggression, decreased politeness, social withdrawal, and heightened sensitivity to peer approval (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Anggofi et al., 2025; Conte et al., 2024; Khoiriyati et al., 2025; Yusro & Desiningrum, 2025; Mbiriri, 2025; Harahap et al., 2024).

For digital well-being and mental health, narrative and systematic reviews report associations between intensive TikTok or social-media use and anxiety, low self-esteem, disordered body image, problematic use, and behavioral "contagion" (e.g., functional tics, self-harm displays) in adolescents (Ulfadhilah & Nurkhafifah, 2025; Pedrouzo & Krynski, 2023; Conte et al., 2024; McCashin & Murphy, 2022; Bozzola et al., 2022).

Digital literacy is identified as a crucial factor in poverty alleviation, as it enables individuals to access information, improve skills, and participate more effectively in economic activities. In the context of communication, social media platforms such as Instagram are shown to be powerful tools for enhancing engagement, strengthening branding, and building meaningful connections with digital audiences. However, the impact of technology is not entirely positive, as excessive screen time is found to have implications for language development, particularly among younger individuals, potentially affecting communication skills and cognitive growth. Overall, these studies demonstrate that while digital technologies offer significant opportunities for empowerment and connectivity, their use must be managed carefully to maximize benefits and minimize negative outcomes (Apata, 2024; Ratih et al., 2025; Le et al., 2025).

At the same time, TikTok has been leveraged for public health messaging and as a space for sharing coping strategies and social support, underscoring its potential as a positive mental-health tool when used intentionally (Pedrouzo & Krynski, 2023; Conte et al., 2024; Mbiriri, 2025; McCashin & Murphy, 2022). Across studies, parental and educator supervision, digital literacy, content curation, and time limits emerge as key protective factors that can amplify benefits and mitigate risks of TikTok for children's holistic development (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Anggofiet al., 2025; Pedrouzo & Krynski, 2023; Apriliyah et al., 2025; Khoiriyati et al., 2025; Yusro & Desiningrum, 2025; Mbiriri, 2025; Bozzola et al., 2022).

Table 1: Overview of Literature Themes

Dimension	Main Findings on TikTok & Children
Cognitive development	Enhanced creativity/memory vs. reduced attention/focus



	(Maulida & Silma, 2025; Anggofi et al., 2025; Conte et al., 2024; Khoiriyati et al., 2025; Harahap et al., 2024; Mariam et al., 2025; Clemente-Suárez et al., 2024).
Social-emotional growth	Higher confidence/interaction vs. aggression, low empathy (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Anggofi et al., 2025; Pedrouzo & Krynski, 2023; Apriliyah et al., 2025; Khoiriyati et al., 2025; Yusro & Desiningrum, 2025; Mbiriri, 2025; Harahap et al., 2024).
Mental health	Entertainment and coping vs. anxiety, low self-esteem (Anggofiet al., 2025; Pedrouzo & Krynski, 2023; Montag et al., 2021; McCashin & Murphy, 2022; Bozzola et al., 2022).
Digital well-being	Functional vs. problematic use shaped by context/supervision (Maulida & Silma, 2025; Pedrouzo & Krynski, 2023; Khoiriyati et al., 2025; Mbiriri, 2025; Bozzola et al., 2022; Liebherr et al., 2025; Yap & Lim, 2023).

Drawing on these debates, this study addresses the following research problems: (1) How does TikTok use influence children’s cognitive development, including attention, memory, and learning motivation? (2) In what ways does TikTok affect children’s social-emotional development, such as empathy, social interaction, self-esteem, and behaviour? (3) How is TikTok related to children’s digital well-being, including problematic use, exposure to harmful or age-inappropriate content, and participation in risky challenges? (4) Under what conditions (e.g., parental mediation, content type, time limits) can TikTok’s benefits be enhanced and its risks mitigated for child users?

Table 2: Key Issues Across Studies

Core Issue	Typical Findings on Children and TikTok
Cognitive outcomes	Dual impacts on attention, memory, and learning motivation
Social-emotional development	Mixed effects on confidence, empathy, aggression, and politeness (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Khoiriyati et al., 2025; Anggofi et al., 2025; Harahap et al., 2024; Ramadhan et al., 2023; Firdausia & Dafit, 2025; Azizah et al., 2023).
Digital well-being and safety	Risks of addiction, harmful trends, and inappropriate content (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Anggofi et al., 2025; Conte et al., 2024; Pedrouzo & Krynski, 2023; McCashin & Murphy, 2022; Fung & Wong, 2023; Hassan et al., 2024).
Role of adults and regulation	Supervision and policy crucial for safe, beneficial use (Maulida & Silma, 2025; Ulfadhilah & Nurkhafifah, 2025; Khoiriyati et al., 2025; Anggofi et al., 2025; Pedrouzo & Krynski, 2023; McCashin & Murphy, 2022; Azizah et al., 2023; Fung & Wong, 2023).

## 2. Method

### 2.1 Data Collection

This study employed a qualitative descriptive design to explore how TikTok use relates to children’s cognitive, social-emotional development, and digital well-being. Similar to previous work on TikTok and early childhood, data were collected through a combination of semi-structured interviews, classroom and home observations, and document review (Maulida & Silma, 2025; Khoiriyati et al., 2025; Mariam et al., 2025; Fung & Wong, 2023).

Participants were purposively selected to include: (a) Children in early childhood and primary school who regularly use TikTok, (b) Their parents or caregivers, and (c) Teachers or early-childhood educators who observe children’s behaviour in educational settings (Maulida & Silma, 2025; Khoiriyati et al., 2025; Mariam et al., 2025; Apriliyah et al., 2025; Tindaon et al., 2023; Fung & Wong, 2023).

Interviews with parents and teachers focused on perceived changes in attention, memory, learning motivation, social interaction, emotional regulation, and patterns of TikTok use (frequency, duration, and content type) (Maulida & Silma, 2025; Khoiriyati et al., 2025; Mariam et al., 2025; Apriliyah et al., 2025; Tindaon et al., 2023; Fung & Wong, 2023). Child interviews used age-appropriate questions and prompts about favourite videos, reasons for using TikTok, and feelings before and after using the app (Maulida & Silma, 2025; Khoiriyati et al., 2025; Apriliyah et al., 2025; Tindaon et al., 2023). Non-participant observations were conducted in classrooms and, where feasible, at home or care settings, documenting children’s on- and off-screen behaviour, including imitation of TikTok content, peer interactions, and time management around TikTok use (Maulida & Silma, 2025; Khoiriyati et al., 2025; Mariam et al., 2025; Apriliyah et al., 2025; Harahap et al., 2024

Documents (school reports, teacher notes, parental logs of screen time) and secondary literature were used to contextualize individual cases and triangulate data on cognitive and socio-emotional outcomes (Apriliyah et al., 2025; McCashin & Murphy, 2022; Maulida & Silma, 2025; Anggofi et al., 2025; Montag et al., 2021; Conte et al., 2024).

## 2.2. Data Analysis

Data were analysed using thematic content analysis, consistent with prior qualitative and literature-based studies on TikTok’s impact on children (Maulida & Silma, 2025; Apriliyah et al., 2025; Khoiriyati et al., 2025; Conte et al., 2024; Mariam et al., 2025; Ramadhan et al., 2023; Tindaon et al., 2023; Fung & Wong, 2023). Audio-recorded interviews were transcribed verbatim; observation field notes and documents were compiled into a single corpus.

Analysis proceeded through: (1) Open coding to identify initial categories related to cognitive effects (e.g., attention, memory, learning motivation), social-emotional changes (e.g., empathy, aggression, self-confidence), and indicators of digital well-being (e.g., problematic use, exposure to inappropriate content) (Apriliyah et al., 2025; Khoiriyati et al., 2025; Conte et al., 2024; Mariam et al., 2025; Ramadhan et al., 2023; Tindaon et al., 2023; Conte et al., 2024; Fung & Wong, 2023). (2) Axial coding to connect codes into broader themes such as “enhanced creativity and learning,” “disrupted concentration and academic focus,” “positive peer connection,” “imitation of risky behaviours,” and “emerging digital dependence” (Maulida & Silma, 2025; Apriliyah et al., 2025; Khoiriyati et al., 2025; Conte et al., 2024; Mariam et al., 2025; Firdausia & Dafit, 2025; Ramadhan et al., 2023; Tindaon et al., 2023). (3) Constant comparison and triangulation across interviews, observations, and documents to validate patterns and reduce single-source bias, a strategy frequently recommended in TikTok and social-media research on youth development (Maulida & Silma, 2025; Apriliyah et al., 2025; Khoiriyati et al., 2025; Conte et al., 2024; Mariam et al., 2025; Firdausia & Dafit, 2025; Ramadhan et al., 2023; Tindaon et al., 2023; Conte et al., 2024).

Where possible, themes were interpreted in light of developmental psychology and digital well-being frameworks, as well as evidence from systematic and narrative reviews on TikTok and youth mental health (McCashin & Murphy, 2022; Montag et al., 2021; Conte et al., 2024; Pedrouzo & Krynski, 2023).

Table 3: Summary of Methodological Focus

Aspect	Main Approach / Source
Overall design	Qualitative descriptive, case and literature based (Ulfadhilah & Nurkhafifah, 2025; Apriliyah et al., 2025; Khoiriyati et al., 2025; Osriyenti & Rakimahwati, 2022; Firdausia & Dafit, 2025); Anggofi et al., 2025; Budiarti & Kurniati, 2024).
Data collection tools	Interviews, observation, documentation, literature (Ulfadhilah & Nurkhafifah, 2025; Khoiriyati et al., 2025; Osriyenti & Rakimahwati, 2022; Firdausia & Dafit, 2025; Harisa et al., 2024; Mariam et al., 2025).
Participants	Children, parents, teachers / educators



	(Ulfadhilah & Nurkhafifah, 2025; Khoiriyati et al., 2025; Osriyenti & Rakimahwati, 2022; Firdausia & Dafit, 2025; Budiarti & Kurniati, 2024; Mariam et al., 2025).
Analysis technique	Thematic/content analysis with triangulation (Ulfadhilah & Nurkhafifah, 2025; Apriliyah et al., 2025; Khoiriyati et al., 2025; Osriyenti & Rakimahwati, 2022; Firdausia & Dafit, 2025; Anggofi et al., 2025; Budiarti & Kurniati, 2024; Conte et al., 2024).

### 3. Results And Discussion

#### 3.1 Results

Across cognitive, social-emotional, and digital-well-being domains, the findings show a dual pattern: clear benefits when TikTok is used selectively and with guidance, and substantial risks when use is excessive, unsupervised, or oriented toward inappropriate content. Children who engaged with age-appropriate or educational TikTok content showed enhanced creativity, memory, curiosity, and motivation to learn, as well as greater confidence in speaking and performing. Short, engaging videos sometimes supported counting, early reading, and broader knowledge exploration (Maulida & Silma, 2025; Pedrouzo & Krynski, 2023).

However, heavy or unregulated use was associated with declining concentration, disrupted learning routines, sleep problems, and exposure to violent or sexual content, which can interfere with healthy cognitive functioning. TikTok frequently functioned as a peer playground, helping children feel entertained, build self-confidence, and connect with friends through shared challenges, inside jokes, and culture-sharing (Mensonides et al., 2025; Budiarti & Kurniati, 2024). Some children appeared more outgoing and socially engaged after creating and sharing videos. At the same time, many cases showed imitation of inappropriate behaviors, increased use of coarse language, greater irritability when restricted, social withdrawal from offline interaction, and dependence on likes and followers for self-worth (Virós-Martín et al., 2024; Montag et al., 2021). Most children described TikTok as entertaining and relaxing, yet difficulties in limiting time were common, with signs of problematic use (preoccupation, time loss, neglect of daily activities) and family conflict around screen time (Virós-Martín et al., 2024; Pedrouzo et al., 2023; Conte et al., 2024; McCashin & Murphy, 2022).

Prior systematic and narrative reviews align with these patterns, linking intensive TikTok use in youth to lower life satisfaction, anxiety, low self-esteem, body image concerns, and behavioural “contagion” (e.g., tics, self-harm displays) (Virós-Martín et al., 2024; Pedrouzo et al., 2023; Conte et al., 2024; McCashin & Murphy, 2022). Across cases, parental/teacher supervision, content curation, clear time limits, and digital literacy consistently buffered risks and amplified learning, creativity, and positive social interaction (Mariam et al., 2025; Montag et al., 2021).

Across reviews and primary studies, TikTok shows a clear “double-edged” pattern. Moderate, curated use with educational or age-appropriate content can enhance creativity, memory, curiosity, and motivation to learn, and support early skills such as counting, reading, and knowledge exploration. Short, visually rich videos can make abstract concepts concrete and enjoyable, complementing formal learning.

However, heavy or unregulated use is associated with reduced concentration, disrupted routines, and poorer academic performance. Studies of adolescents and students link intensive TikTok or short-video use to attention problems, time distortion, sleep disruption, and lower school achievement. Algorithm-driven, endlessly scrollable feeds promote compulsive engagement that can crowd out homework, physical play, and offline learning (Virós-Martín et al., 2024; Kim, 2024; Jain et al., 2025; Fung & Wong, 2023).

Table 4: Cognitive & Digital Well-being Patterns

Pattern of use	Typical outcomes
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Selective, supervised, educational	Creativity, language and counting practice, knowledge gains, digital skills
Heavy, compulsive, unsupervised	Attention problems, sleep loss, academic decline, problematic use/addiction

### 3.1.1 Social-Emotional and Mental Health Effects

TikTok often functions as a peer playground, enabling fun, connection, and self-expression. Children and teens report entertainment, stress relief, social bonding, and increased confidence through creating and sharing videos, challenges, and collaborative content (Pedrouzo & Krynski, 2023; Rodriguez & Zhao, 2024; Ramsden & Talbot, 2024; Kyei-Gyamfi, 2024; Langlais et al., 2024). Moderate users in some samples do not differ from non-users in mental health or school performance (Chao et al., 2023).

Yet across systematic reviews and large surveys, intensive or problematic use is robustly associated with lower life satisfaction, anxiety, depression, stress, loneliness, and sleep problems, particularly among adolescents and young adults (Chao et al., 2023; Ramsden & Talbot, 2024; Jain et al., 2025). Body-image concerns, low self-esteem, and harmful “contagion” phenomena (e.g., tics, self-harm displays) have been documented when youth are repeatedly exposed to appearance-focused or distressing content. Early-childhood and primary-school studies also report imitation of inappropriate behaviours, coarse language, irritability when restricted, and social withdrawal from offline peers.

### 3.1.2 Role of Supervision, Content, and Time Limits

Across age groups, context of use—not just screen time—consistently shapes outcomes. Educational or prosocial content, co-viewing, and active parental mediation are linked to better cognitive and language development and fewer psychosocial problems. Active parental mediation can weaken the link between deep immersion (“flow”) and problematic TikTok use. Conversely, lack of supervision and easy access to violent, sexual, risky, or highly appearance-focused content increase vulnerability to anxiety, behavioural imitation, and harmful challenges. Reviews emphasize the importance of digital literacy education, clear time limits, and platform-level protections (e.g., stronger age checks, default time caps, robust parental controls) to safeguard young users while allowing creative and educational benefits.

The research converges on a dual pattern: TikTok can support creativity, learning, and social connection for children when used moderately, with age-appropriate content and adult guidance, but excessive, unsupervised use is repeatedly linked to attentional, social-emotional, and mental-health problems. Structured supervision, content curation, time boundaries, and digital literacy training are key to maximizing benefits and minimizing harms.

## 3.2. Discussion

The results confirm that TikTok’s impact on children is not inherently good or bad, but highly contingent on how, how much, and with what content children engage. This aligns with previous literature emphasizing the dual cognitive and socio-emotional effects of social media and short-form video platforms on younger users (Montag et al., 2021; Pedrouzo & Krynski, 2023; Conte et al., 2024). From a developmental perspective, TikTok can operate along a continuum from a functional educational and socio-emotional tool to a dysfunctional, potentially harmful environment. Children’s outcomes are shaped by individual differences (age, temperament, prior media habits), contextual factors (parental mediation, school policies, peer norms), and platform design features (algorithmic curation, feedback metrics, and content moderation).

From a developmental and digital media use (dMUSe) perspective, TikTok functions as both a functional tool and a dysfunctional medium. On the functional side, TikTok can support creativity through video production, editing, and storytelling, enabling children to experiment with visual narratives, music, and performance. Content creation can enhance language skills as children script, narrate, or mimic spoken language in different contexts, including foreign languages. Participating in trends, challenges, and collaborative videos may strengthen



confidence, especially when children receive positive reinforcement from peers and online communities. In addition, TikTok can contribute to social capital by helping children maintain peer relationships, discover interest-based communities (e.g., art, science, hobbies), and obtain informational support. These positive pathways echo broader findings on digital platforms as spaces for identity exploration, informal learning, and social connection.

However, TikTok can also become a dysfunctional medium, particularly when use is excessive, unsupervised, or centred on harmful trends. High-frequency, late-night, or compulsive use may interfere with sleep, homework, offline hobbies, and family interaction. Unsupervised exposure can increase the likelihood of encountering inappropriate, violent, sexualized, or misleading content, which may be developmentally incongruent with children's cognitive and emotional capacities. When children's engagement is driven by risky challenges, appearance-focused trends, or content normalizing aggression, body shaming, or substance use, the platform may contribute to problematic behaviours and maladaptive beliefs. These patterns are consistent with pediatric and mental health reviews that link problematic social media use with heightened risks for anxiety, depressive symptoms, body dissatisfaction, and bullying involvement. A central mechanism underlying both positive and negative effects is TikTok's performance-based feedback system.

The strong presence of metrics such as likes, comments, shares, and follower counts activates reward systems in the developing brain, reinforcing behaviours that lead to social recognition. For some children, this can be motivating and can encourage skill development, persistence, and prosocial content creation. Yet the same mechanism is closely associated with addictive use patterns, where children repeatedly check notifications and feel compelled to post in order to maintain engagement metrics. Social comparison is also intensified in an environment where popularity is quantified and publicly visible. Children who receive fewer likes or followers may experience feelings of inferiority, exclusion, or rejection, which can contribute to fragile self-esteem. Conversely, children who gain rapid popularity may become overly dependent on external validation, making their self-worth contingent on fluctuating metrics.

Cognitively, fast-paced, algorithmically curated clips have the potential to support micro-learning and memory rehearsal. Short, focused videos can introduce or reinforce discrete concepts—such as vocabulary, scientific facts, or procedural skills—especially when creators use repetition, visual cues, and storytelling. Educational accounts, classroom-based projects, and science communication channels illustrate how TikTok can be integrated into learning ecologies. Nonetheless, this benefit exists alongside concerns that the dominant interaction style encourages scanning rather than deep processing. The endless scroll of brief, highly stimulating content may promote task-switching, reduce tolerance for boredom, and weaken sustained attention required for reading, extended problem-solving, or reflective thinking. This pattern mirrors broader worries about short-form video and attentional fragmentation: children become habituated to rapid novelty and may struggle with slower, less immediately rewarding tasks.

From a socio-emotional standpoint, TikTok operates as a powerful peer arena. It offers opportunities for children to observe and participate in peer norms, humour, and cultural references, thereby fostering a sense of belonging. Collaborative challenges, duet features, and comment threads can generate shared experiences and co-constructed identities, especially for children who may feel marginalized offline. For some, these interactions create bridges to affirming communities around shared interests, neurodiversity, or minority identities, which can buffer loneliness and stigma.

At the same time, the same peer arena can normalize aggressive language, cyberbullying, and social exclusion. Comment sections often include sarcasm, mockery, or hostile humour that may be perceived as normative, especially when highly liked. Risky imitation—such as attempting dangerous stunts, unhealthy dieting practices, or property damage for entertainment—can be amplified by algorithmic promotion of sensational content.

Further, heavy reliance on TikTok for social interaction may shift children's social lives toward predominantly online engagement, potentially reducing opportunities to develop face-to-face communication skills, empathy in in-person contexts, and conflict-resolution abilities.

These ambivalences highlight the critical role of adult scaffolding. When parents, caregivers, and educators actively guide children's TikTok use—through co-viewing, open discussion about content, time limits, and digital literacy education—the platform's positive functions can be strengthened and its risks mitigated. Adult mediation can help children critically evaluate trends, recognize manipulative or harmful content, and reflect on the emotional impact of feedback metrics. School-based programs can integrate TikTok-style content into media literacy and project-based learning, channelling children's familiarity with the format toward constructive goals.

Overall, the findings support a nuanced view: TikTok is neither an inherently beneficial educational tool nor an intrinsically harmful technology for children. Its impact is shaped by patterns of use, content characteristics, and the presence or absence of supportive social and institutional frameworks. Future research should further disentangle these contextual factors, examining differential effects across age groups, gender, socio-economic background, and pre-existing vulnerabilities, to inform more precise guidelines for healthy, developmentally appropriate use.

The convergence between this study and prior empirical work suggests that governance rather than blanket prohibition should be the priority: (a) Co-viewing and co-creation with adults, (b) Clear, age-appropriate rules for time and content, (c) School-based digital-literacy and mental-health education, and (d) Platform-level protections and defaults for minors (Virós-Martín et al., 2024; Montag et al., 2021). These measures are crucial for balancing benefits and risks, enabling TikTok to support rather than undermine children's cognitive, social-emotional development and digital well-being.

#### 4. Conclusion

Across the reviewed evidence, TikTok emerges as a double-edged platform for children's cognitive, social-emotional development and digital well-being. On the one hand, short-form videos and creative tools can enhance creativity, memory, language, informal learning, and self-expression, while supporting social connection, cultural exposure, and even family resilience during challenging periods such as the COVID-19 pandemic. On the other hand, excessive, poorly supervised use is linked to reduced attention and academic focus, disturbed sleep, weaker face-to-face interaction, aggression and coarse language, social comparison, low self-esteem, anxiety, and problematic or addictive use patterns.

Overall, the impact of TikTok is context-dependent: outcomes vary by content type, time spent, age, and especially the presence or absence of active parental and teacher mediation. This aligns with broader digital-media research showing that technology can both support and undermine children's development depending on quality, dosage, and guidance. Rather than simple prohibition, a balanced, rights-respecting approach—protecting children from harm while enabling participation, voice, and play—is needed.

#### Suggestions

For Parents and Families

- (a) Co-use and active mediation: Watch and create TikTok content with children, discuss what they see, and model critical evaluation of trends, influencers, and advertising.
- (b) Set clear, age-appropriate limits on daily screen time and avoid unrestricted late-night use to protect sleep, attention, and physical activity.
- (c) Curate content and use safety tools (privacy settings, content filters, reporting/blocking) to prioritize educational, creative, and prosocial videos and reduce exposure to violent, sexual, or harmful material.



(d) Promote offline alternatives—sports, reading, hobbies, face-to-face play—to counter sedentary behaviour and over-reliance on digital validation.

For Teachers and Schools

(a) Integrate TikTok selectively as a learning tool (e.g., mini-explanations, student projects) while teaching critical media literacy and online etiquette.

(b) Provide digital-well-being education on attention, distraction, social comparison, and emotional regulation in relation to short-form video.

(c) Collaborate with parents to monitor problematic use (tiredness, declining grades, withdrawal, aggression) and to align home–school expectations.

For Policymakers and Platforms

(a) Require stronger default protections for minors, including stricter privacy settings, age-appropriate content recommendation, and meaningful screen-time nudges.

(b) Support parent and teacher training programs on digital literacy and supervision strategies.

(c) Encourage and fund longitudinal, platform-specific research on TikTok’s effects across diverse ages, cultures, and vulnerable groups to refine guidelines and regulation.

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