

PEDAGOGICALLY MEDIATED YOUTUBE INTEGRATION FOR INTERACTIVE LEARNING IN EARLY CHILDHOOD EDUCATION

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ABSTRACT

This study aims to examine how YouTube channels are utilized as interactive learning media for children aged 4–5 years at TK PGRI Kartini Ledokombo, Jember. Although previous studies have confirmed the effectiveness of YouTube in improving children's motivation and learning outcomes, limited attention has been given to the pedagogical processes through which teachers select educational content, facilitate classroom interaction, and sustain children's engagement during learning. This study advances a pedagogically mediated digital learning perspective by conceptualizing YouTube as an interactive learning ecosystem rather than merely an audiovisual medium. Empirical evidence further shows that 11 of 15 children actively participated in classroom discussions, while 8 children successfully reconstructed learning content using their own words. This study employed a qualitative descriptive approach involving one principal, one classroom teacher, 15 children aged 4–5 years, and several parents selected through purposive sampling. Data were collected through classroom observations, semi-structured interviews, and document analysis, and analyzed using an interactive analysis model comprising data reduction, data display, and conclusion drawing. Source and method triangulation were applied to enhance the credibility of the findings. The findings indicate that effective YouTube integration depends on systematic instructional planning, teacher mediation, and continuous classroom interaction rather than the technological features of the platform itself. Children's positive responses were reflected in sustained attention, active participation, improved conceptual understanding, and collaborative communication. The study demonstrates that meaningful digital learning emerges through the dynamic interaction among teachers, learners, instructional design, and multimedia resources, providing a broader conceptual understanding of interactive digital pedagogy in early childhood education.

Keywords: Early Childhood Education; Interactive Learning; Pedagogical Mediation; Youtube Media.

ABSTRAK

Penelitian ini bertujuan untuk meneliti bagaimana channel YouTube digunakan sebagai media pembelajaran interaktif untuk anak-anak usia 4 hingga 5 tahun di TK PGRI Kartini Ledokombo, Jember. Meskipun penelitian sebelumnya telah mengonfirmasi efektivitas YouTube dalam meningkatkan motivasi dan hasil belajar anak-anak, perhatian yang sedikit telah diberikan pada proses pedagogis di mana para guru memilih konten edukatif, memfasilitasi interaksi di kelas, dan mempertahankan keterlibatan anak-anak selama pembelajaran. Studi ini mengajukan perspektif pembelajaran digital yang dimediasi secara pedagogis dengan mengkonseptualisasikan YouTube sebagai ekosistem pembelajaran interaktif alih-alih sekadar media audiovisual. Bukti empiris menunjukkan bahwa 11 dari 15 anak berpartisipasi aktif dalam diskusi di kelas, sementara 8 anak berhasil merekonstruksi konten pembelajaran menggunakan kata-kata mereka sendiri. Studi ini menggunakan pendekatan deskriptif kualitatif yang melibatkan seorang kepala sekolah, seorang guru kelas, 15 anak berusia 4 hingga 5 tahun, dan beberapa orang tua yang dipilih melalui

sampling purposif. Data dikumpulkan melalui observasi di kelas, wawancara semi-terstruktur, dan analisis dokumen, dan dianalisis menggunakan model analisis interaktif yang mencakup reduksi data, penyajian data, dan formulasi kesimpulan. Triangulasi sumber dan metode diterapkan untuk meningkatkan kredibilitas temuan. Temuan menunjukkan bahwa integrasi efektif YouTube bergantung pada perencanaan instruksional yang sistematis, mediasi guru, dan interaksi berkelanjutan di kelas, lebih dari sekadar karakteristik teknologi platform itu sendiri. Respon positif dari anak-anak tercermin dalam perhatian yang berkelanjutan, partisipasi aktif, peningkatan pemahaman konseptual, dan komunikasi kolaboratif. Studi ini menunjukkan bahwa pembelajaran digital yang bermakna muncul melalui interaksi dinamis antara guru, siswa, desain instruksional, dan sumber daya multimedia, memberikan pemahaman konseptual yang lebih luas tentang pedagogi digital interaktif dalam pendidikan anak usia dini.

Kata Kunci: Pendidikan Anak Usia Dini; Pembelajaran Interaktif; Media Pedagogis; Media Youtube.

A. Introduction

Early childhood education is oriented toward creating learning experiences that allow children to build knowledge thru interaction with their environment, rather than merely receiving information from teachers. At the age range of 4–5 years, children are still at a developmental stage that relies on concrete experiences, so learning stimulation needs to be presented thru complementary visual, auditory, and kinesthetic representations (Mayer, 2024a). That approach aligns with the principles of child-centered learning, which places exploration, communication, and reflection activities at the core of the learning process (Carney, 2022). Therefore, the use of digital media in the context of play should be directed toward enriching children's learning experiences, not just simplifying the delivery of material (Fleer, 2022).

The development of digital technology presents new opportunities in

creating more contextual learning experiences for young children. Digital media can integrate text, images, sound, animation, and video, making previously abstract concepts easier to understand thru multisensory experiences (Yusuf & Darmasnyah, 2025). These characteristics are relevant to the learning needs of young children who have a relatively short attention span and find it easier to understand information thru visual stimuli or direct activities (OECD, 2021). Thus, the use of digital media is no longer seen as a complement to learning, but rather as part of a pedagogical design that supports the cognitive, language, social, and emotional development of children (Scott et al., 2023).

One of the digital media increasingly utilized in education is YouTube. Most children have been familiar with YouTube before entering formal education due to easy access thru family devices, and initially used it as a medium of entertainment before later

engaging with educational content (Rakiyah, 2021). Children's interaction with characters or narratives in videos that are contingent on their responses has been proven to promote better conceptual understanding compared to one-way presentations (Xu et al., 2022). The presentation of material thru a combination of moving images, sound, and demonstrations can enhance children's attention and engagement during the learning process (Noetel et al., 2021)

However, the effectiveness of YouTube does not solely depend on the quality of the videos used. Without adequate adult mediation strategies, exposure to digital media has the potential to present content that is not appropriate for a child's developmental stage and to reduce the quality of learning interactions (Fitzpatrick et al., 2023). This situation shows that the main challenge does not lie in the existence of the technology, but rather in how teachers manage that technology into safe and meaningful pedagogical practices (Meisaroh et al., 2025).

The urgency of this research is further strengthened when linked to the learning conditions at TK PGRI Kartini Ledokombo Jember. Initial observations indicate that teachers still predominantly use storybooks, worksheets, and verbal explanations in learning activities, while most students have become accustomed

to accessing YouTube thru their family environment. Nevertheless, the use of YouTube channels as interactive media in schools has not been systematically implemented, both in terms of content selection, implementation strategies, and the forms of support provided to children. This condition indicates that a study is needed not only to explain the benefits of YouTube as a learning medium but also to reveal how teachers manage channel selection, build learning interactions, and integrate digital media with the learning characteristics of 4–5-year-old children so that the learning experiences produced truly support their development.

Research on the use of YouTube in education shows that this platform can enhance student engagement thru the presentation of material that is visual, dynamic, and easy to understand. Responsive interaction between digital content and children also helps children understand complex concepts by combining verbal explanations with visual illustrations simultaneously (Rejeki et al., 2025). In the context of early childhood education, the audiovisual character provides stimuli that align with the learning characteristics of children who still rely on concrete experiences and observational activities (Faizin & Astuti, 2026). Nevertheless, most research still positions technology merely as a medium for delivering content, so the aspects of pedagogical interaction during the

learning process have not been deeply explored (Afriani, 2025).

In the context of early childhood education, previous research has also focused more on the influence of audiovisual media on learning motivation, language skills, and cognitive development in children. This focus provides evidence that digital media has great potential to support the learning process. However, the discussion on how teachers determine channels that align with learning objectives, manage interactions during video playback, and evaluate children's engagement is still relatively limited, as shown by several literature studies in the field of digital media in Early Childhood Education Institutions. In fact, these three aspects are crucial in determining whether digital media truly functions as an interactive medium or merely serves as a means of information delivery.

Starting from that condition, this research is directed to understand the utilization of YouTube channels as interactive learning media for children aged 4–5 years at TK PGRI Kartini Ledokombo Jember. The research not only captures the use of YouTube as an audiovisual medium but also examines how teachers select channels that align with children's developmental characteristics, integrate videos into learning activities, build interactions during the learning process, and identify

factors that support and hinder its implementation. Thus, this research is expected to provide a more comprehensive understanding of the pedagogical practices of using YouTube in early childhood education and to serve as a reference for teachers in developing more interactive, contextual, and developmentally appropriate digital learning.

B. Methods

This study employed a qualitative descriptive approach to explore how YouTube channels were utilized as interactive learning media for children aged 4–5 years at TK PGRI Kartini Ledokombo, Jember. This design was selected because it enables researchers to obtain an in-depth, contextually grounded understanding of educational practices while capturing participants' experiences and classroom interactions without manipulating the learning environment, an approach that is considered rigorous when reliability and validity are contextualised to the setting under study (Rose & Johnson, 2020). The research participants consisted of the school principal, the Group A classroom teacher, children aged 4–5 years, and several parents, who were purposively selected based on their direct involvement in the implementation of YouTube-assisted learning.

Data were collected through classroom observations, semi-structured interviews, and document analysis to obtain comprehensive information from multiple sources. Observations focused on children's learning engagement, teacher–student interactions, and the integration of YouTube into classroom activities. Semi-structured interviews were conducted with the principal, teacher, and parents to explore their experiences, perceptions, and instructional practices, an approach chosen for its capacity to balance a consistent line of inquiry with the flexibility to pursue emerging issues during the conversation. Documentary evidence, including lesson plans, learning media, children's developmental records, and classroom documentation, was examined to support and corroborate the findings obtained from observations and interviews.

The data were analyzed using an interactive analysis model, involving data reduction, data display, and conclusion drawing carried out continuously throughout the study to identify patterns and generate meaningful interpretations of the implementation of YouTube as an interactive learning medium (Miles et al., 2014). To ensure the trustworthiness of the findings, source and method triangulation were employed by comparing evidence collected from different participants and multiple data

collection techniques, and by documenting the analytic process transparently so that the interpretations could be traced back to the underlying data (Cloutier & Ravasi, 2021). Continuous verification of the findings throughout the analysis process further enhanced the credibility of the interpretations and ensured that they accurately reflected the actual classroom context.

C. Result and Discussion

1. Utilization of YouTube Channels as Interactive Learning Media for Children Aged 4–5 Years

The findings indicate that the utilization of YouTube channels at TK PGRI Kartini Ledokombo was implemented through a structured instructional process that integrated careful planning, guided classroom implementation, and continuous learning evaluation. Rather than selecting videos based solely on attractiveness, the teacher deliberately considered learning objectives, children's developmental characteristics, language simplicity, and the relevance of the content to the planned instructional outcomes. As the teacher explained, "I select videos that correspond to the intended learning outcomes, children's age, the learning materials, and language that is easy for children to understand." Classroom observations further confirmed that the

teacher prepared instructional facilities, including a laptop, projector, speakers, and internet connection before the lesson, while the selected YouTube content was aligned with children's cognitive readiness and the daily learning objectives. These findings demonstrate that the use of YouTube was embedded within deliberate pedagogical planning rather than functioning as an incidental digital resource.

The implementation phase also reflected a highly interactive instructional pattern. Learning activities consistently began with apperception to activate children's prior knowledge, followed by video presentation, guided observation, questioning, classroom discussion, and individual evaluation. Observation data revealed that the teacher frequently paused the video to provide additional explanations, encourage children to respond to questions, and stimulate discussion before continuing the playback. This instructional sequence illustrates that YouTube was not positioned as a substitute for classroom teaching but rather as a pedagogical medium that enriched teacher-child interaction. Instead of passively receiving audiovisual information, children were continuously encouraged to observe, communicate, express opinions, and relate the video content to their own experiences, creating an instructional environment characterized by active

participation and reciprocal communication.

These classroom practices suggest that the educational value of YouTube emerged primarily from the way teachers mediated children's interaction with digital content. The combination of visual representation, narration, animation, and sound naturally attracted children's attention; however, sustained learning occurred because teachers continuously redirected that attention toward meaningful cognitive engagement through questioning, clarification, and collaborative dialogue. Consequently, multimedia elements functioned as instructional stimuli, whereas teacher facilitation transformed children's initial curiosity into conceptual understanding. This finding indicates that children's learning experiences were shaped not merely by exposure to digital media but by the quality of pedagogical interaction surrounding its use.

This pattern can be understood through the perspective that meaningful multimedia learning requires learners to actively process verbal and visual information rather than passively consume digital content (Mayer, 2024b). In early childhood education, this process becomes increasingly significant because children's cognitive development depends heavily on adult guidance, social interaction, and contextual learning experiences (Gazali, 2025). The observed

instructional practices therefore illustrate that multimedia resources become educationally meaningful only when teachers continuously scaffold children's understanding through dialogue, explanation, and reflective questioning. In other words, technology provides opportunities for learning, whereas pedagogical mediation determines whether those opportunities develop into meaningful educational experiences.

The present findings both confirm and extend previous evidence concerning the educational use of YouTube. Earlier studies have consistently reported that video-based learning enhances learners' motivation, engagement, and conceptual understanding because audiovisual presentations provide richer learning experiences than conventional verbal instruction, particularly when the interaction between the child and the on-screen content is responsive rather than one-directional (Noetel et al., 2021; Xu et al., 2022). Similarly, research in early childhood education has demonstrated that digital media can stimulate children's curiosity and improve classroom participation when appropriately integrated into instructional activities (Faizin & Astuti, 2026). Nevertheless, much of the existing literature has concentrated on evaluating learning outcomes or students' motivation, while providing comparatively limited attention to the pedagogical processes through

which teachers transform digital resources into interactive classroom experiences. The present study contributes additional empirical evidence by demonstrating that effective YouTube integration involves a sequence of interconnected instructional decisions, including content selection, pedagogical facilitation, classroom interaction, and continuous evaluation. These processes collectively explain why identical digital media may generate different educational outcomes depending on how teachers organize and facilitate learning.

Another important finding concerns the institutional conditions supporting the implementation of YouTube-assisted learning. Interview data with the principal revealed that the school actively promotes digital learning by providing internet access, wireless networks, LCD projectors, and professional development programmes that strengthen teachers' digital pedagogical competence. The principal further emphasized that teachers are encouraged to select educational videos that remain consistent with curriculum objectives and children's developmental needs while classroom supervision is conducted regularly to ensure instructional quality. Although several challenges were identified, particularly unstable internet connectivity, limited technological facilities, and children's tendency to become distracted by attractive animations, teachers

demonstrated adaptive strategies by downloading videos before instruction, preparing classroom equipment in advance, and continuously guiding children's attention toward the intended learning objectives. These observations indicate that the sustainability of technology-supported learning depends not only on individual teacher competence but also on institutional commitment that provides adequate infrastructure, professional support, and continuous instructional supervision.

From an educational perspective, these findings imply that successful integration of YouTube into early childhood classrooms requires teachers to possess strong pedagogical competence alongside digital literacy. The ability to evaluate educational content, organize interactive learning sequences, and facilitate continuous classroom dialogue determines whether YouTube functions merely as an audiovisual presentation tool or develops into a meaningful learning environment that promotes children's active engagement, a competence that is closely related to teachers' capacity to mediate children's use of digital tools more broadly (Brame & Perez, 2016; Yu et al., 2021). Consequently, teacher professional development should prioritize instructional design, classroom facilitation, and reflective pedagogical practice rather than focusing exclusively

on technological skills. Such an orientation would enable teachers to maximize the educational potential of digital media while maintaining developmentally appropriate learning experiences for young children. Similar conclusions have been drawn from Indonesian early childhood settings, where the effective use of multimedia and digital learning tools has likewise been found to depend on teachers' pedagogical guidance rather than on the sophistication of the media itself (Ali, 2022; Hendraningrat & Fauziah, 2022; Pangarti & Yaswinda, 2023).

Beyond its practical significance, the findings also broaden current understanding of technology integration in early childhood education. Existing research has largely emphasized the effectiveness of YouTube in improving motivation, engagement, or learning achievement (Noetel et al., 2021; Su et al., 2022). The present study demonstrates that these educational outcomes are inseparable from a broader pedagogical process involving instructional planning, teacher mediation, classroom interaction, institutional support, and continuous evaluation. Accordingly, YouTube should be understood not simply as an audiovisual learning resource but as one component within a pedagogically mediated learning ecosystem, where meaningful learning emerges through the interaction between

teachers, learners, digital resources, and the classroom environment. This perspective provides a more comprehensive explanation of how digital media support learning in early childhood settings and offers an analytical foundation for future studies examining interactive digital pedagogy across diverse educational contexts.

2. Children's Responses toward the Use of YouTube as Interactive Learning Media

The findings revealed that children demonstrated predominantly positive responses throughout the implementation of YouTube-assisted learning activities. Positive engagement was reflected not only in their observable enthusiasm during classroom instruction but also in their sustained attention, active participation, and improved understanding of learning materials. According to the teacher, "Most children were enthusiastic, remained focused, actively asked questions, and understood the learning materials more easily than when conventional lecturing methods were used." This statement was consistently supported by classroom observations showing that most children maintained their attention from the beginning until the end of the video presentation, actively participated in classroom discussions, and completed follow-up learning activities enthusiastically. Observation records

further indicated that 11 out of 15 children actively responded to the teacher's questions, while eight children were able to explain the learning content using their own words, suggesting that learning engagement extended beyond passive viewing toward meaningful participation. These empirical findings demonstrate that YouTube contributed to the creation of an interactive classroom atmosphere in which children became active participants rather than passive recipients of information.

Children's responses were also evident through multiple dimensions of classroom participation. During video presentation, children paid close attention to visual and auditory stimuli, whereas after the videos concluded they willingly answered questions, shared opinions, interacted with classmates, and participated in practical learning activities initiated by the teacher. Interview data further revealed that children appeared happier, less easily distracted, and frequently requested that educational videos be replayed because they perceived learning activities as enjoyable experiences. Likewise, the observation checklist showed positive responses across almost all behavioural indicators, including sustained attention, learning interest, active participation, motivation, comprehension, interaction with instructional media, and the willingness to revisit learning videos independently.

Collectively, these findings suggest that children's responses encompassed behavioural, cognitive, and affective dimensions simultaneously, indicating that the integration of YouTube fostered a learning environment that supported comprehensive engagement rather than merely attracting children's attention through entertaining visual content.

An important aspect emerging from the findings concerns the relationship between children's engagement and their conceptual understanding. Observation data indicated that children demonstrated greater confidence when answering questions, were more capable of recalling previously presented information, and showed improved ability to identify letters, numbers, colours, shapes, and simple stories presented in educational videos. Rather than simply remembering isolated visual elements, children were able to reconstruct learning content through classroom discussion and teacher-guided reflection. This pattern indicates that conceptual understanding developed progressively as children interacted with both multimedia resources and pedagogical support provided throughout the learning process. Consequently, children's positive responses should not be interpreted merely as emotional excitement resulting from attractive animations but as indicators of meaningful cognitive engagement facilitated through continuous instructional interaction.

The observed learning behaviour may be understood from the perspective that children's engagement develops when learning experiences simultaneously stimulate attention, curiosity, and active knowledge construction. Audiovisual representations naturally capture children's interest because moving images, colours, narration, and sound correspond to their developmental preferences; however, these sensory experiences alone are insufficient to promote meaningful learning. The present findings indicate that sustained engagement emerged because teachers consistently transformed children's curiosity into opportunities for questioning, discussion, explanation, and collaborative reflection. Such instructional mediation enabled children to connect new information with prior experiences while gradually constructing conceptual understanding through social interaction. This process reflects the proposition that meaningful engagement is not generated solely by technological attractiveness but by pedagogical practices that encourage children to participate actively in learning activities, a claim consistent with evidence that carefully designed digital content can support the development of specific cognitive skills when evaluated and curated appropriately (Mayer, 2024b; Meyer et al., 2021).

The findings also resonate with contemporary perspectives in early childhood education emphasizing that digital technologies should function as interactive learning environments rather than passive entertainment media. Previous studies have reported that educational videos can increase children's motivation, participation, and classroom engagement when integrated appropriately into instructional activities (Faizin & Astuti, 2026; Noetel et al., 2021). Similarly, research conducted in Indonesian kindergarten settings has shown that children's exposure to YouTube content is associated with observable gains in communicative and social behaviour when accompanied by adult guidance (Maryani et al., 2022). Nevertheless, the present study extends these findings by demonstrating that positive learning responses emerged through the interaction between multimedia characteristics and continuous teacher facilitation. Rather than attributing children's engagement solely to the attractiveness of YouTube videos, this study highlights the importance of instructional dialogue, guided observation, and collaborative classroom interaction as mechanisms that transformed children's initial interest into meaningful participation and improved conceptual understanding.

Another noteworthy finding concerns the presence of several

challenges during classroom implementation. Although children's responses were predominantly positive, the teacher observed that a small number of children occasionally became more attracted to colourful animations than to the instructional content itself. Instead of allowing this distraction to interrupt learning, the teacher immediately redirected children's attention through questioning, explanation, and discussion, ensuring that visual stimulation remained connected to the intended learning objectives. This adaptive instructional strategy illustrates that children's engagement is dynamic and requires continuous pedagogical guidance throughout multimedia-assisted learning. Consequently, effective classroom interaction depends not only on children's motivation but also on teachers' ability to regulate attention and maintain instructional focus while accommodating children's natural curiosity toward digital media.

From a practical perspective, these findings emphasize that teachers should evaluate children's responses beyond observable enthusiasm during video viewing. Indicators such as participation in discussion, willingness to express opinions, ability to explain concepts independently, and confidence in completing learning tasks provide stronger evidence of meaningful engagement than temporary emotional

excitement alone, particularly given that unmediated screen exposure has been associated with weaker self-regulation of attention among young children (Fitzpatrick et al., 2023). Accordingly, educational use of YouTube should be designed as an interactive instructional experience where observation, questioning, reflection, and collaborative communication become integral components of multimedia learning. Comparable recommendations have emerged from studies of specific Indonesian YouTube channels aimed at young viewers, which similarly call for stronger media literacy support from teachers and parents to maximize educational benefit (Rahmi et al., 2024; Umrah et al., 2023). Such an approach enables digital media to support children's cognitive, social, and emotional development simultaneously while preventing learning activities from becoming passive viewing sessions.

More broadly, the present findings enrich current discussions concerning children's engagement in technology-supported early childhood education. Existing literature has predominantly interpreted positive responses as increased motivation, enjoyment, or learning achievement following exposure to educational videos (Budiarti & Adar, 2023; Noetel et al., 2021). The evidence generated by this study suggests a broader perspective in which children's

responses represent a multidimensional process involving behavioural participation, emotional involvement, cognitive processing, and social interaction. This understanding reinforces the view that the educational effectiveness of digital media should be evaluated through the quality of learning interactions it generates rather than through the technological features of the media alone. Consequently, the findings offer a more comprehensive explanation of how interactive digital pedagogy can foster meaningful learning experiences among young children within authentic classroom settings.

D. Conclusion

This study demonstrates that the integration of YouTube channels as interactive learning media contributes positively to the learning experiences of children aged 4–5 years at TK PGRI Kartini Ledokombo. The findings indicate that the educational effectiveness of YouTube is not determined solely by the availability of digital media but by teachers' pedagogical competence in selecting developmentally appropriate content, designing interactive learning sequences, facilitating classroom dialogue, and conducting continuous evaluation. Through this structured instructional process, YouTube functioned as a pedagogical medium that supported active learning rather than

merely serving as an audiovisual presentation tool.

The study further reveals that children's positive responses extended beyond observable enthusiasm during video viewing. Their active participation in classroom discussions, confidence in expressing ideas, sustained attention, and ability to reconstruct learning content demonstrate that meaningful engagement emerged through the interaction between multimedia resources and teacher mediation. These findings reinforce the perspective that technology-supported learning in early childhood education should be understood as a collaborative pedagogical process in which digital media, instructional practices, and social interaction operate synergistically to facilitate children's cognitive, affective, and behavioural development.

From a broader educational perspective, the findings highlight the importance of positioning digital technology as an integral component of pedagogical design rather than as an independent instructional resource. Effective implementation requires not only adequate technological infrastructure but also institutional support and teachers' professional capacity to transform digital media into interactive learning experiences. Accordingly, this study provides empirical evidence that the educational value of YouTube emerges through the quality of instructional

interaction that surrounds its use, thereby offering a more comprehensive understanding of technology integration in early childhood classrooms.

This study is subject to several limitations. The research was conducted in a single kindergarten with a relatively limited number of participants, which may restrict the transferability of the findings to different educational settings. In addition, the study focused primarily on describing classroom implementation and children's immediate learning responses without examining the long-term influence of YouTube-assisted learning on broader developmental outcomes. Future research is therefore encouraged to involve multiple schools with diverse socio-cultural contexts, employ longitudinal or mixed-methods approaches, and investigate how different types of educational digital media influence children's cognitive, language, social-emotional, and creative development. Such investigations would provide a more comprehensive understanding of the pedagogical potential of interactive digital media in early childhood education while strengthening the evidence base for technology-enhanced learning practices.

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