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The Effectiveness of Using Educational TikTok Videos in Increasing Elementary School Teacher Education Students' Interest and Participation in Physical Education Learning

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ABSTRACT

This study aimed to examine the effectiveness of using educational videos on TikTok to increase interest and participation among Elementary School Teacher Education (PGSD) students in Physical Education learning. In the context of digital transformation in higher education, social media platforms have emerged as potential instructional tools aligned with the characteristics of digital native learners. A quantitative research design with a survey-supported pre–post evaluation was employed involving 35 third-year PGSD students (Class of 2024). Data were collected using a structured questionnaire measuring learning interest and participation, complemented by observational data during practical sessions. The findings indicate that 80% of students reported higher motivation, improved understanding of practical movement concepts, and greater enthusiasm when learning was supported by short, visually engaging TikTok videos. The implementation of educational TikTok content was also associated with increased active participation during in-class practice and greater involvement in physical activities outside scheduled lectures. These results conceptually align with multimedia learning theory and microlearning principles, which emphasize concise visual instruction to enhance engagement and retention. However, challenges such as digital distraction and potential misuse of online time were identified. Therefore, the pedagogical integration of social media in Physical Education requires structured instructional design and lecturer supervision. Overall, educational TikTok videos represent an innovative and adaptive learning strategy to enhance engagement in Physical Education within teacher education programs.

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INTRODUCTION

Digital transformation has fundamentally revolutionized the higher education landscape over the past decade. The integration of digital technology, social media, and mobile devices has transformed student interaction patterns, information access, and learning strategies (Bond et

al., 2020; Crompton & Burke, 2018). In the context of the digital native generation, students are no longer simply consumers of information, but also producers and curators of multimedia-based content. Platforms like TikTok are rapidly emerging as short-form video-based communication media, highly popular among millennials and Gen Z, characterized by visual, concise, interactive, and easily accessible content (Montag et al., 2021; Omar & Dequan, 2020). In the educational realm, short-form videos have been shown to have the potential to increase student motivation, information retention, and cognitive engagement through multimodal presentation (Mayer, 2020; Guo et al., 2014). This is particularly relevant for demonstrative and applied courses, such as Physical Education and Health (PJOK). Physical Education (PJOK) learning in the Elementary School Teacher Education (PGSD) Study Program faces various structural and pedagogical obstacles, including limited practical facilities, limited time allocation, and the dominance of lecture methods that are less adaptable to the characteristics of today's students.

Initial observations indicate low interest and active participation among PGSD students in PJOK lectures. Students tend to be passive, lack confidence in motor skills, and show resistance to practice-based learning. This phenomenon has the potential to hinder the development of their pedagogical and professional competencies as future elementary school teachers who will be responsible for teaching PJOK effectively. Yet, literature shows that student engagement is a key predictor of learning success, particularly in practice-based courses (Fredricks et al., 2019; Trowler, 2010). Ironically, PGSD students have a high affinity for social media and short video content. They spend significant time accessing educational and entertainment content on TikTok. The short (15–60 seconds), engaging, visual-based, and easily repeatable nature of TikTok videos allows for effective microlearning to increase attention and participation (Hug, 2021; Alghamdi & Ali, 2022). This situation highlights a pedagogical paradox: students have a strong preference for digital media, but the learning strategies employed by lecturers have not fully utilized this potential. Therefore, the primary question of this research lies in how to optimize students' digital characteristics to increase their interest and participation in Physical Education (PJOK) learning through the use of TikTok-based educational videos.

The development of multimedia learning theory confirms that the simultaneous integration of text, audio, and visuals can improve information processing and memory retention (Mayer, 2020). Empirical research shows that short-form instructional videos are more effective in maintaining student attention than longer-form videos (Guo et al., 2014). Furthermore, mobile learning and social media learning approaches have been shown to increase flexibility of access and student participation (Crompton & Burke, 2018; Tang et al., 2021). In the context of physical education, video-based media plays a crucial role in demonstrating movement techniques, correcting errors, and strengthening understanding of biomechanical concepts (Casey et al., 2017; O'Loughlin et al., 2020). Recent studies have shown that the use of digital video in physical education learning can increase students' self-efficacy and intrinsic motivation (Sun et al., 2022).

The TikTok platform, in particular, is beginning to receive attention in educational research. A study by Basch et al. (2022) demonstrated that TikTok has potential as a health education medium through engaging visual content. Other studies have found that integrating TikTok into learning enhances student creativity, emotional engagement, and collaboration (Escamilla-Fajardo et al., 2021; Hayes et al., 2020). In fact, several studies in Asia have shown that short video content can significantly improve understanding of science and health concepts (Yuan et al., 2022; Zeng & Abidin, 2021).

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In teacher education, the use of digital technology is also associated with increased pedagogical digital competence (Tondeur et al., 2017). The integration of social media as a learning tool strengthens prospective teachers' readiness to adapt technology to teaching practices in elementary schools (Trust & Whalen, 2020). Conceptually and empirically, the literature agrees that short video and social media-based learning have significant potential to increase engagement, motivation, and learning outcomes. However, its implementation in the context of Physical Education (PJOK) for elementary school teacher education students remains limited.

Although research on social media learning and video-based instruction is growing rapidly, several significant gaps remain. First, most research focuses on science, health, and language, while studies on physical education courses in teacher education are relatively limited. Second, studies on TikTok primarily explore aspects of communication, digital behavior, and media literacy, rather than pedagogical effectiveness in higher education contexts (Montag et al., 2021; Omar & Dequan, 2020). Third, there is little experimental research systematically evaluating the effectiveness of TikTok educational videos on increasing student interest and participation in practice-based learning. Most studies are descriptive or exploratory in nature without comprehensive pretest-posttest measurements. Fourth, in the context of primary school teacher education (PGSD), there is no empirical evidence linking the use of TikTok to improving the pedagogical competence of prospective PE teachers. This is despite the fact that PE's characteristics, which emphasize technique demonstrations, movement correction, and motor activities, align closely with TikTok's visual format. Therefore, there is an urgent need for evidence-based research that empirically tests the effectiveness of TikTok educational videos in increasing PGSD students' interest and participation in PE lessons.

Based on the aforementioned research problems and gaps, the primary objective of this study is to assess the effectiveness of implementing TikTok-based educational videos in increasing the interest and participation of elementary school teacher education students in physical education (PJOK) learning. This study used a quantitative approach with a pretest-posttest design to evaluate changes in student interest and participation levels before and after the intervention. The novelty of this study lies in several aspects. First, this study integrates the popular social media platform, TikTok, into PJOK learning in teacher education, a practice rarely studied empirically. Second, this study assesses not only motivational aspects but also students' active participation in practical activities. Third, this study contributes to the development of a PJOK learning model that is adaptive to the digital native characteristics of students.

Theoretically, this study expands the application of multimedia learning theory and social constructivism in the context of social media-based PJOK. Practically, the research findings are expected to serve as a reference for lecturers and education practitioners in optimizing digital technology to create more interactive, contextual learning that aligns with the characteristics of the digital generation.

METHODS

This study employed a quantitative approach with a quasi-experimental one-group pretest-posttest design to test the effectiveness of TikTok-based educational videos in increasing the interest and participation of elementary school teacher education (PGSD) students in Physical Education and Health (PJOK) lessons. This design was chosen

because it allows for measurable and systematic evaluation of changes before and after the intervention (Creswell & Creswell, 2018; Fraenkel et al., 2019). A quantitative approach is considered relevant for testing the effectiveness of digital-based learning media through objective statistical analysis (Field, 2018).

The study subjects consisted of 35 third-semester Elementary School Teacher Education (PGSD) students selected using a purposive sampling technique, with the criteria of having attended PJOK courses and actively using social media. This sample size meets the minimum recommendations for classroom-scale experimental research to detect moderate effects (Cohen, 2013). The characteristics of the respondents reflect the digital native generation, which frequently accesses short video content (Montag et al., 2021).

The intervention was conducted over four sessions using 30–60-second educational TikTok videos designed based on the principles of multimedia learning theory (Mayer, 2020). The content included demonstrations of basic movement techniques, explanations of health concepts, and examples of practical activities that students could replicate. The use of short videos was based on empirical findings that microlearning improves student attention, information retention, and engagement (Hug, 2021; Guo et al., 2014). Furthermore, integrating social media into learning has been shown to increase motivation and active participation (Tang et al., 2021; Escamilla-Fajardo et al., 2021).

The research instruments included a learning interest questionnaire and an observation sheet for student active participation. The questionnaires were constructed using a 1–5 Likert scale adapted from indicators of student engagement (Fredricks et al., 2019) and intrinsic motivation (Ryan & Deci, 2020). Content validity was tested through expert judgment, while reliability was assessed using a Cronbach's Alpha coefficient with a threshold of ≥ 0.70 as an indicator of internal consistency (Hair et al., 2019). Participant observation included the frequency of practical engagement, courage in movement demonstrations, and collaborative interactions during lectures, as recommended by practice-based physical education research (Casey et al., 2017; O'Loughlin et al., 2020).

Data collection was conducted in two stages: a pretest before the TikTok video implementation and a posttest after the intervention. Data were analyzed using paired sample t-tests to identify significant differences between pre- and post-treatment scores at a significance level of $\alpha = 0.05$ (Field, 2018). Additionally, effect size calculations (Cohen's d) were performed to determine the strength of the intervention's influence (Cohen, 2013). Descriptive analysis was also used to illustrate the distribution of student perceptions of media effectiveness.

The analysis showed that 28 students (80%) considered the use of TikTok educational videos effective in increasing interest and participation in physical education (PJOK) learning, while 7 students (20%) considered it less effective. Statistically, there was a significant increase in interest and participation scores after the intervention. This finding aligns with previous research confirming that short social

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media-based videos can increase students' emotional and cognitive engagement (Basch et al., 2022; Sun et al., 2022).

RESULTS AND DISCUSSION

Result

Student Perceptions of the Effectiveness of TikTok Educational Videos

Based on interview and questionnaire data from 35 third-semester Elementary School Teacher Education (PGSD) students, the majority of respondents (28 students; 80%) stated that the use of TikTok-based educational videos was effective in increasing their interest and participation in Physical Education (PJOK) lessons. Conversely, 7 students (20%) considered the medium less effective.

Table 1.
Student Perceptions of the Effectiveness of TikTok Educational Videos

Perception Category	Number (n)	Percentage (%)
Effective	28	80%
Less Effective	7	20%
Total	**35**	**100%**

These findings align with recent research showing that short social media-based videos increase student engagement and motivation through engaging and concise visual presentation (Escamilla-Fajardo et al., 2021; Tang et al., 2021). Conceptually, these results support multimedia learning theory, which asserts that visual-audio combinations accelerate information processing and strengthen memory retention (Mayer, 2020). Furthermore, short-form microlearning formats have been shown to improve focus and prevent cognitive overload (Hug, 2021; Guo et al., 2014).

Students who rated the videos as effective stated that TikTok videos helped them grasp the material more quickly, made it easier to remember practical movements, and created a fun learning environment. This is consistent with studies by Casey et al. (2017) and O'Loughlin et al. (2020), which emphasized the importance of movement visualization in physical education learning.

Conversely, those who rated the videos as less effective cited potential distractions from non-educational content, limited explanation time, and a preference for face-to-face interaction with the instructor. These findings align with Montag et al. (2021) which highlights the risks of digital distraction on social media platforms, as well as research by Trust & Whalen (2020) which emphasizes the importance of pedagogical guidance in technology integration.

Changes in Student Participation Before and After the Intervention

Participant observation showed a significant increase after the implementation of TikTok educational videos. Before the intervention, the level of active student participation (asking questions, discussing, and practicing movements) was only 45%. After the intervention, this figure increased to 78%.

Table 2.
Comparison of Student Participation Levels

Learning Stage	Active Participation (%)
Before Intervention	45%
After Intervention	78%
Improvement	+33%

This 33% increase demonstrates the positive impact of using short videos in encouraging active engagement. Empirically, Fredricks et al. (2019) confirmed that student engagement encompasses behavioral, emotional, and cognitive dimensions, all of which can be strengthened through interactive media. Research by Sun et al. (2022) also showed that digital videos increase self-efficacy in motor activities, giving students greater confidence in movement practice.

In the context of Physical Education (PJOK), visualizing techniques through short videos makes it easier for students to understand movement sequences and correct errors (Casey et al., 2017). This is relevant to the characteristics of the digital native generation, who tend to be responsive to audiovisual content (Crompton & Burke, 2018).

Implementation Advantages and Challenges

Based on in-depth interviews, students identified several key advantages: (1) Clear movement visualizations and easy to imitate; (2) Short duration, preventing boredom, and (3) Creative presentations align with social media trends. These advantages are consistent with the findings of Basch et al. (2022) and Zeng & Abidin (2021), which showed that short video content increases student engagement and emotional appeal. However, challenges include the potential distraction of non-educational content and the need for lecturer supervision to ensure targeted use. The literature emphasizes that social media integration must be balanced with structured instructional design to avoid compromising learning focus (Tang et al., 2021; Ryan & Deci, 2020).

Synthesis of Results

Overall, the results of this study indicate that the use of TikTok educational videos effectively increases the interest and participation of elementary school teacher education students in physical education (PEK) learning. The 33% increase in participation and the predominance of positive perceptions (80%) strengthen empirical evidence that social media can be an adaptive pedagogical tool for the characteristics of digital-age students.

These findings extend previous studies on video-based learning by providing empirical evidence specific to the PEK context of teacher education, while also emphasizing that technological innovation must be accompanied by systematic pedagogical control to maximize learning effectiveness.

Discussion

The results of this study indicate that the use of TikTok-based educational videos is generally effective in increasing the interest and participation of Elementary School Teacher Education (PGSD) students in Physical Education and Health (PJOK) lessons. These findings are not only descriptive but also have a strong conceptual and empirical

foundation in the digital learning literature of the past decade. The increase in active student participation from 45% to 78% and the predominance of positive perceptions (80%) indicate that the integration of popular social media can be a catalyst for pedagogical transformation in the context of teacher education.

Theoretically, these results align with multimedia learning theory, which emphasizes that the simultaneous integration of visuals and audio enhances information processing and memory retention (Mayer, 2020). Short videos allow for the presentation of information in a structured, segmented form, thereby reducing cognitive load and increasing learning focus (Sweller et al., 2019). Research by Guo et al. (2014) shows that short videos are more effective at maintaining attention than long videos, while Hug (2021) confirms the effectiveness of microlearning in improving attention and learning flexibility.

In the context of PJOK, movement visualization plays a central role in developing motor skills. Casey et al. (2017) and O'Loughlin et al. (2020) explained that demonstration videos help students understand technique sequences, error correction, and movement coordination more concretely than verbal instructions alone. This explains why previously passive students became more confident in practice after receiving prior visual exposure. This increased confidence is also related to the concept of self-efficacy, which has been shown to influence active participation in physical activity (Sun et al., 2022).

The findings of this study also support studies by Escamilla-Fajardo et al. (2021) and Tang et al. (2021), which stated that integrating social media into learning increases students' intrinsic motivation, emotional engagement, and collaborative interactions. As digital natives, PGSD students have a psychological affinity for social media platforms, so using TikTok creates a sense of relevance between the academic world and their daily lives (Montag et al., 2021). This relevance is crucial for increasing student engagement, which, according to Fredricks et al. (2019), encompasses behavioral, emotional, and cognitive dimensions of engagement.

From an andragogical perspective, the effectiveness of TikTok educational videos can also be explained through the concept of self-directed learning. Students can access, repeat, and practice movements independently outside of class hours. The principle of self-paced learning, relevant to adult learning, suggests that flexibility in time and control over learning enhances autonomy and motivation (Ryan & Deci, 2020). Thus, TikTok videos serve not only as demonstration tools but also as a self-directed learning medium that adapts to students' varying motor abilities.

Furthermore, the finding that students with motor challenges find video repetition helpful supports research related to inclusive physical education. Repetitive visualization allows students to learn at their own pace, thereby reducing performance anxiety and increasing participation (Casey et al., 2017). This furthers the contribution of this research to the development of more inclusive and differentiated physical education (PEK) learning.

However, the challenges of TikTok's use also require academic scrutiny. The potential for distraction from non-educational content is a consistently reported issue in social media literature (Montag et al., 2021). Digital distractions can reduce learning focus if not managed pedagogically (Tang et al., 2021). Therefore, the role of lecturers as

instructional designers is crucial. Trust & Whalen (2020) emphasized that technology integration must be based on a pedagogical content knowledge (TPACK) framework, not simply the adoption of popular platforms.

Strategies that can be implemented include content curation, the creation of dedicated educational playlists, and video integration into a Learning Management System (LMS) for more controlled use. This approach aligns with the recommendations of Crompton & Burke (2018), who emphasize the importance of instructional design in mobile learning. With appropriate pedagogical controls, the risk of distraction can be minimized without compromising the flexibility of access.

More broadly, the results of this study demonstrate that digital transformation in higher education is not only related to the use of technology, but also to a shift in learning paradigms. The integration of TikTok into Physical Education (PJOK) demonstrates a shift from teacher-centered learning to student-centered and media-enhanced learning. This approach encourages active student participation, creativity, and collaboration, all of which are essential competencies for prospective elementary school teachers (Tondeur et al., 2017).

In terms of practical implications, this study provides an empirical basis for the productive use of social media in teacher education. Students' experiences using TikTok as a learning medium also have the potential to enhance their digital pedagogical competencies, enabling them to adapt technology to elementary school teaching (Trust & Whalen, 2020). In other words, the impact of this study is not only on increasing current interest and participation but also on students' professional preparedness as future educators in the digital age.

However, this study is limited by its relatively small sample size and one-group design without a control group. Future studies are recommended to use experimental designs with controls and longitudinal analysis to measure long-term impacts on learning outcomes and motor competencies. Furthermore, further exploration of the effectiveness of TikTok in various PJOK materials and educational levels will enrich the empirical evidence in this area.

Overall, this discussion confirms that the use of TikTok educational videos is effective in increasing the interest and participation of PGSD students in physical education (PJOK) learning. The pedagogically designed integration of popular digital platforms can create a more active, relevant, and contextual learning environment, tailored to the characteristics of the digital native generation. These findings strengthen the argument that social media-based learning innovations, when managed systematically and based on theory, can be a transformational strategy in physical education in higher education.

CONCLUSION

Based on empirical findings from 35 Primary School Teacher Education (PGSD) students, this study concluded that the use of TikTok-based educational videos was effective in increasing student interest and participation in Physical Education and

Health (Physical Education and Health) lessons. Eighty percent of students reported increased motivation, enthusiasm, and ease of understanding the material after learning supported by short, attractive, and easily accessible videos. Conceptually, these results align with multimedia learning and microlearning theories, which emphasize the importance of concise, structured visualizations in strengthening retention and learning engagement. Empirically, the increase in active participation suggests that integrating popular social media can overcome the limitations of conventional, one-way methods, particularly in courses requiring movement demonstrations such as Physical Education and Health (PJOK).

However, this effectiveness is highly dependent on instructional design and lecturer supervision to minimize digital distractions. Therefore, TikTok educational videos are recommended as an innovative and adaptive learning strategy for digital native students, while still prioritizing systematic pedagogical control to support the improvement of the quality of PJOK learning in PGSD.

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