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THE USE OF EDUCAPLAY IN PRIMARY SCHOOL LEARNING

Nunung Nurhayati[1*], Karlimah[2], Ghullam Hamdu[3]
[1,2,3]Universitas Pendidikan Indonesia
[1]fhaziya02@upi.edu

Abstract
Technological developments in education have encouraged the use of digital media in learning, including in elementary schools. One of the innovations used is Educaplay, a gamification-based platform designed to increase student engagement in the learning process. However, the effectiveness of Educaplay in improving students' conceptual understanding and critical thinking skills still needs to be studied further. This study aims to analyze the implementation of Educaplay in primary school learning and its impact on students' conceptual understanding and critical thinking skills. This study used a qualitative approach with an exploratory descriptive design. Data were collected through interviews with teachers and students, classroom observations, and documentation studies. Data analysis was carried out using data reduction techniques, data presentation, and conclusion drawing based on the Miles and Huberman method. The results showed that the use of Educaplay was able to increase students' involvement and motivation in learning. Analysis of pretests and posttests revealed a significant increase in conceptual understanding in students who used Educaplay compared to conventional methods. In addition, the platform supports the implementation of instructional differentiation and assists teachers in monitoring student progress in real-time. However, the implementation of Educaplay faces challenges, such as limited infrastructure and teachers' lack of digital literacy. Therefore, training for educators and improving access to technology are needed to maximize the effectiveness of digital-based learning in primary schools.
Keywords: *educaplay; gamification; digital learning; conceptual understanding; critical thinking.*

Abstrak
Perkembangan teknologi dalam pendidikan telah mendorong penggunaan media digital dalam pembelajaran, termasuk di sekolah dasar. Salah satu inovasi yang digunakan adalah Educaplay, sebuah platform berbasis gamifikasi yang dirancang untuk meningkatkan keterlibatan siswa dalam proses belajar. Namun, efektivitas Educaplay dalam meningkatkan pemahaman konseptual dan keterampilan berpikir kritis siswa masih perlu dikaji lebih lanjut. Penelitian ini bertujuan untuk menganalisis implementasi Educaplay dalam pembelajaran di sekolah dasar serta dampaknya terhadap pemahaman konsep dan keterampilan berpikir kritis siswa. Penelitian ini menggunakan pendekatan kualitatif dengan desain deskriptif eksploratif. Data dikumpulkan melalui wawancara dengan guru dan siswa, observasi kelas, serta studi dokumentasi. Analisis data dilakukan dengan teknik reduksi data, penyajian data, dan penarikan kesimpulan berdasarkan metode Miles dan Huberman. Hasil penelitian menunjukkan bahwa penggunaan Educaplay mampu meningkatkan keterlibatan dan motivasi siswa dalam belajar. Analisis pretest dan posttest mengungkapkan adanya peningkatan pemahaman konseptual secara signifikan pada siswa yang menggunakan Educaplay dibandingkan dengan metode konvensional. Selain itu, platform ini mendukung penerapan diferensiasi instruksional dan membantu guru dalam memantau perkembangan siswa secara real-time. Meskipun demikian, implementasi Educaplay menghadapi tantangan, seperti keterbatasan infrastruktur dan kurangnya literasi digital guru. Oleh karena itu, diperlukan pelatihan bagi tenaga pendidik serta peningkatan akses terhadap teknologi guna memaksimalkan efektivitas pembelajaran berbasis digital di sekolah dasar.
Kata Kunci: educaplay; gamifikasi; pembelajaran digital; pemahaman konseptual; berpikir kritis.

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Introduction

Technological developments in education have brought about major changes in the way learning is designed and implemented, including at the primary school level. Advances in information technology have driven a shift from traditional learning methods towards digital based approaches that are more innovative, interactive and adaptive to students' needs (Clark & Mayer, 2016). In the context of primary education, the utilization of technology not only enhances learning effectiveness, but also enables the implementation of instructional strategies that are more suited to the diverse learning styles of students. In addition, technology opens wider access to varied learning resources and encourages students' cognitive engagement through more dynamic, exploratory and self-directed learning experiences (Jonassen, 2010). With technology, learning can be more flexible and interesting, so that students are more motivated to actively participate in the learning process, develop critical thinking, and improve conceptual understanding.

One innovative technology that is gaining increasing attention in digital-based learning is Educaplay, a web-based platform designed to support interactive learning through gamification-based activities, such as adaptive quizzes, crosswords, audio-visual-based exercises, and other educational games. The concept of gamification in Educaplay refers to the theory of intrinsic motivation that emphasizes the importance of active engagement in the learning process, as proposed in Bandura's (2001) social cognitive theory. This approach is aligned with the principle of constructivism which emphasizes that effective learning occurs when students engage in meaningful activities that allow them to build understanding through direct interaction with the learning environment (Piaget, 2013). The strength of Educaplay lies in its alignment with several theoretical perspectives, including Mayer's (2024) multimedia learning theory, which highlights how the integration of visual, auditory, and interactive elements enhances cognitive processing. The implications of using interactive media in education have been widely discussed in various empirical studies. Mayer (2024) in his theory of multimedia learning asserts that combining visual, auditory and interactive elements in one learning system can improve cognitive processing and strengthen students' long-term memory. In addition, research by Hattie and Yates (2013) shows that digital based learning technologies can optimize conceptual understanding by providing a more exploratory learning experience compared to traditional text-based or lecture-based approaches. In this regard, Educaplay offers a learning environment that stimulates critical thinking through various interactive challenges that enable students to develop problem-solving skills more effectively.

Although the integration of technology in basic education has shown significant positive impacts, challenges in its implementation are still a major obstacle. Various studies show that barriers to the adoption of educational technology in primary schools include limited access to digital infrastructure, lack of readiness of educators in adopting technology-based learning models, and limitations in the curriculum that do not fully support digital-based learning (Ubaidah, 2022). In addition, research by Clark and Mayer (2016) confirms that the effectiveness of using digital media in learning depends not only on the existence of the technology itself, but also on the pedagogical strategies applied in integrating technology into the instructional process.

In this research, the main focus is to explore the effectiveness of using Educaplay in primary school learning, particularly in improving students' conceptual understanding and critical thinking skills. This research aims to analyze how Educaplay can be optimally integrated in the learning process, identify the challenges faced in its implementation, as well as evaluate its impact on student learning outcomes. An evidence-based approach will be used to examine

the relevance of Educaplay in supporting the competency-based curriculum and provide strategic recommendations for educators in optimizing the use of digital technology in the primary school setting. Thus, this research is expected to make an academic contribution to the development of the theory and practice of technology-based learning at the primary education level.

In addition, recent studies have shown that the use of gamification-based platforms such as Educaplay not only increases learning motivation, but also strengthens students' social skills through collaborative activities. According to research conducted by Wang and Tahir (2020), a game-based learning environment can increase interaction between students and encourage their engagement in solving learning challenges. This is in line with Vygotsky's (1978) theory of social learning, which emphasizes that interaction in the learning process plays a key role in students' cognitive development. Thus, Educaplay can be an effective tool in optimizing collaboration-based learning, especially in improving conceptual understanding through group discussions and problem solving. The effectiveness of Educaplay in improving students' understanding can also be attributed to the principle in Cognitive Load Theory proposed by Sweller (2011). In this context, Educaplay allows the delivery of material in a more structured and engaging format, thus reducing students' cognitive load when processing new information. Research conducted by Mayer and Fiorella (2015) shows that the combination of visual, text and sound elements in multimedia learning can accelerate understanding and improve student recall. By utilizing the interactive features in Educaplay, students can learn in a more enjoyable way without feeling burdened by information that is too complex or monotonous.

Despite the various advantages offered, the successful implementation of Educaplay in learning in elementary schools is highly dependent on the readiness of teachers in integrating this technology effectively. According to research by Koehler and Mishra (2009) on Technological Pedagogical Content Knowledge (TPACK), teachers need to have a good understanding of the integration of technology, pedagogy, and content of teaching materials in order to maximize the benefits of technology in learning. Therefore, training for educators on the utilization of Educaplay and digital-based learning strategies is an important step in ensuring that this technology can be used optimally to improve the quality of learning in primary schools. However, there are still limitations in previous studies related to the application of Educaplay at the primary school level, especially in the Indonesian educational context. Most of the existing studies focus more on secondary or higher education, and not many have examined the effectiveness of Educaplay in improving students' critical thinking and collaborative skills at the primary level.

Therefore, this study aims to fill the void by exploring the application of Educaplay in improving elementary school students' conceptual understanding and critical thinking skills through collaborative activities. This research explicitly offers novelty by integrating gamification, multimedia principles, and collaborative learning theories into a single learning model tailored to the Indonesian primary education context. This research contributes novelty in the form of developing a gamification-based learning model that is adaptive to the characteristics of students in Indonesia.

Research Methods

This research adopts a qualitative approach with an exploratory descriptive design to gain a comprehensive understanding of the implementation of Educaplay in primary school learning. This approach allows exploration of the dynamics of using educational technology by

considering pedagogical, technological and psychosocial aspects in learning interactions (Creswell, 2018). This design allows researchers to identify patterns, barriers and supporting factors that contribute to the successful implementation of educational technology (Merriam & Tisdell, 2016). The exploratory approach is used to understand phenomena that have not been widely studied empirically and provide a foundation for further research in the field of technology-based learning. The research informants consisted of elementary school teachers and students who have used or are using Educaplay in the learning process.

The selection of participants was carried out using purposive sampling technique, with criteria, namely:

1. Teachers who have experience in the application of digital technology in learning and have used or plan to use Educaplay.
2. Students who actively participate in technology-based learning and have experience in the use of digital media.
3. Primary schools that have infrastructure and policy readiness to support the implementation of digital-based learning.
4. The research locations were determined based on the diversity of educational technology implementation to gain greater insight into the variability in the use of Educaplay in various learning environments.

This research uses method triangulation by combining three main data collection techniques, namely:

1. Teacher Interviews Semi-structured interviews were conducted to explore teachers' perspectives on the effectiveness of Educaplay in supporting the learning process. The focus of the interviews included teaching strategies, challenges in implementation, and teachers' perceptions of the impact of technology on student engagement and understanding (Patton, 2015).
2. Student interviews were conducted to understand students' experiences in using Educaplay. Interview questions included their perceptions of the platform's interactive features, its impact on material comprehension, and how Educaplay facilitates critical thinking and problem-solving skills (Fraenkel & Wallen, 2019).
3. Document Analysis/Documentation Study of learning materials, lesson plans, and student learning outcomes that have used Educaplay. This documentation study aims to identify patterns of using the digital platform and evaluate its suitability for the expected learning objectives (Miles, Huberman, & Saldaña, 2014).

In addition, if pretest and posttest scores were reviewed, they were used strictly as supporting documentation to enrich the qualitative analysis. These scores were not part of a quasi-experimental design but served as supplementary evidence to observe trends in student learning outcomes.

Data analysis was conducted using the Miles and Huberman (1994) approach, which consisted of:

1. Data reduction is the process of selecting, categorizing, and filtering data based on the main themes, including pedagogical constraints, the effectiveness of learning methods, and the need for technology-based media development.
2. Data Presentation is data communicated in the form of descriptive narratives, tables, and direct quotes from informants to strengthen the validity of the findings.
3. Inference is drawn based on patterns that emerge in the data, with an emphasis on pedagogical implications and innovative recommendations in the development of technology-based learning media.

To increase the credibility and validity of the research results, several strategies were applied, namely:

1. Triangulation of sources and methods to compare the results of teacher interviews, student interviews, and documentation studies to ensure data consistency.
2. Member checking, which is the validation of interview results with key participants to ensure the suitability of data interpretation with students' experiences.
3. Peer debriefing, which is an academic discussion with technology education experts to improve the accuracy of analysis and validity of conclusions (Creswell & Creswell, 2017).

With the methodology applied, this research is expected to make an academic contribution in understanding the effectiveness and challenges of Educaplay implementation in elementary schools and provide evidence-based recommendations for the development of technology based learning strategies.

Result and Discussion

In this section, the researcher will present the research findings based on data analysis obtained through interviews with teachers and students as well as documentation studies related to the implementation of Educaplay in learning in elementary schools. These research findings are categorized into several main aspects: (1) Implementation of Educaplay in Learning, (2) Impact on Students' Conceptual Understanding, (3) Improvement of Critical Thinking Skills, and (4) Implementation Challenges and Strategies.

This analysis aims to describe how Educaplay is applied in various learning contexts, how students respond to the use of this technology, and the extent of its effectiveness in improving the quality of learning. It also explores the factors that support and hinder the use of Educaplay, including teacher readiness, the availability of technological infrastructure, and the relevance of materials presented through the platform. The findings are expected to provide a more comprehensive insight into the role of technology in learning and offer recommendations for educators and stakeholders in optimizing the use of Educaplay in primary school settings.

Based on the results of interviews with teachers, Educaplay has been integrated in learning in various ways, ranging from interactive quizzes to educational games that aim to increase student engagement. In classroom observations, teachers tend to use Educaplay as a tool in the exploration and evaluation stages, where students are given the opportunity to test their understanding of the material through digital-based exercises. This implementation supports a constructivism-based learning approach that emphasizes self-exploration and interactivity in the learning process (Jonassen, 2010). In this context, Jonassen identifies critical components of meaningful learning environments, such as active engagement, constructive thinking, intentionality, complexity, and contextualization all of which are facilitated by Educaplay's interactive features. In addition, teachers also reported that the use of Educaplay can increase student motivation because the learning format is more interesting and not monotonous compared to conventional methods. Students become more active in participating in learning, especially when given game-based challenges that encourage them to think critically and find solutions independently. T hese findings are consistent with research by Rosa, E., et al., (2024) which states that gamification elements in learning can increase student engagement and accelerate the process of understanding concepts. This supports Jonassen's (2010) emphasis on technological tools that allow for learner control, guided discovery, and reflection, which are reflected in the flexibility and adaptiveness of Educaplay activities. Some teachers revealed that

Educaplay allows them to differentiate their learning by providing activities tailored to students' level of understanding. With diverse features, such as crossword puzzles, word matching, and quiz games, Educaplay can help meet different learning needs in the classroom (Utami, R. D., & Wibawa, S. 2023). However, in its implementation, teachers also face obstacles such as limited technological devices in schools as well as a lack of training in optimizing the use of this platform. Therefore, training for educators and increasing access to technology are important factors that need to be considered so that the integration of Educaplay in learning can run more effectively.

Moreover, collaboration between schools and external parties, such as technology providers or universities, could help in facilitating device procurement and teacher capacity-building programs. Continuous evaluation of the use of Educaplay is also necessary to ensure that its integration remains aligned with learning objectives and student needs. In the future, strengthening digital literacy among teachers and students will be crucial to maximize the potential of platforms like Educaplay in enhancing the quality of education. This aligns with the digital literacy framework, which positions teachers as digital facilitators and students as co-constructors of knowledge through technology-enhanced learning environments. The following table 1 is related to the implementation of technology or digital-based learning strategies:

Table 1. Implementation of Technology or Digital Learning Strategies

Implementation Aspect	Frequency of Use	Effectiveness in Learning
Interactive quiz	Often	Increase student engagement
Crossword puzzle	Sometimes	Helps concept understanding
Visual simulation	Rare	Facilitate independent exploration
Educational games	Sometimes	Increase learning motivation
Multimedia-based training	Often	Accelerate concept understanding
Digital-based evaluation	Often	Makes it easy to measure student progress
Discussion-based interaction	Sometimes	Strengthen communication skills
Implementation Aspect	Frequency of Use	Effectiveness in Learning

Observations also show that Educaplay assists teachers in instructional differentiation, i.e. providing tasks that match students' level of understanding. For example, students with high comprehension are given problem-solving-based challenges, while students with low comprehension are given more basic interactive exercises. In addition, Educaplay provides flexibility for teachers in customizing content to better suit student characteristics. In some cases, teachers use Educaplay's analytics feature to monitor student progress in real-time and adjust teaching strategies more adaptively (Mayer, 2024). This feature allows teachers to identify patterns of student difficulties and provide more targeted interventions, both in the form of additional guidance and modification of teaching materials. The use of Educaplay in learning also reflects the principles of Universal Design for Learning (UDL) theory which emphasizes the importance of providing multiple ways of representation, action and expression, and student involvement in the learning process (CAST, 2018). With the variety in material delivery, students have more opportunities to understand concepts through various cognitive pathways that suit their learning styles. In addition, the integration of Educaplay in instructional differentiation is in line with the Flipped Classroom approach, where students can access interactive materials outside of class hours so that time in class can be utilized for more in-depth discussions and problem solving (Bergmann & Sams, 2012). This not only increases student engagement in learning but also encourages more independent and student-centered learning.

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The improvement of students' conceptual understanding was measured through pretest and posttest before and after the use of Educaplay. Data analysis showed that students who learned using Educaplay experienced a significant increase in scores compared to students who learned with conventional methods. In addition, interviews with teachers and students revealed that Educaplay-based learning makes it easier for students to understand abstract concepts through visual and interactive representations. Features such as interactive quizzes, educational games, as well as real scenario-based exercises help students connect theory with applications in everyday life. This is supported by the cognitive theory of multimedia learning (Mayer, 2021), which emphasizes that the combination of visual and text elements in learning can improve students' understanding and memory. Classroom observation results show that students who use Educaplay are more active in answering questions and discussing concepts with peers. These results support Vygotsky's (1978) notion of the Zone of Proximal Development, where collaborative activities mediated by tools like Educaplay can enhance cognitive development. In addition to improved understanding, students also showed a more positive attitude towards the subject matter. They feel more motivated because learning feels like a game, not just a boring academic task. This corroborates Dichev and Dicheva (2017), gamification in education can increase students' engagement and intrinsic motivation, which contributes to a deeper understanding of the subject matter. The following table is related to the average pretest and posttest scores of Educaplay users:

Table 2. Average Pretest and Posttest Scores of Educaplay Users

Group	N	Pretest Average	Posttest Average
Classroom with Educaplay	30	62.4	85.6
Class without Educaplay	30	61.8	74.3
Students with longer access	15	60.2	88.1
Students with limited access	15	59.5	72.3

These results show that Educaplay contributed to a significant increase in students' concept understanding. Teachers reported that students who used Educaplay were better able to explain concepts in their own language and were more confident in connecting theory to real applications. These findings confirm Mayer's (2021) assertion that learning is most effective when learners can offload cognitive processing through well-integrated multimedia elements, which Educaplay successfully implements (Clark & Mayer, 2016). Furthermore, students with more intense access to Educaplay showed more significant score improvement than those with limited access, highlighting the importance of accessibility in the effective use of educational technology. This is in accordance with Wang and Tahir (2020), who emphasize that frequent interaction with gamified content contributes to stronger conceptual retention and deeper understanding. In addition to the improvement in cognitive aspects, teachers also observed that students were more motivated to learn independently after using Educaplay. Some students showed the initiative to repeat the exercises independently outside of class hours, reflecting an increase in intrinsic motivation in learning. This is supported by Self-Determination Theory (Deci & Ryan, 2000), which emphasizes that gamification elements in education can increase students' intrinsic motivation by providing a more enjoyable and meaningful learning experience. Furthermore, this study also found that Educaplay provides greater benefits for students with visual and kinesthetic learning styles. Students with visual learning tendencies find it easier to understand the material through illustrations and interactive diagrams, while

kinesthetic students are helped more by drag-and-drop based features or interactive simulations. This also supports the VARK learning styles theory (Fleming & Baume, 2006), which states that delivering material tailored to students' learning styles can increase learning effectiveness.

In addition to improving concept understanding, Educaplay also has an impact on developing students' critical thinking skills. Interviews with teachers showed that students who used Educaplay more often asked reflective questions and were able to evaluate their own answers compared to students who learned through conventional methods. This substantiates Jonassen's (2010) model of meaningful learning, which stresses that technology should foster intentional, reflective, and problem-centered thinking. The following table 3 is related to critical thinking indicators:

Table 3. Critical Thinking Indicators

Critical Thinking Indicators	Before Use	After Use
Ability to analyze information	Low	High
Ability to evaluate concepts	Medium	High
Ability to construct arguments	Low	Medium
Problem solving ability	Low	High
Reflective thinking ability	Medium	High
Ability to develop hypotheses	Low	Medium
Ability to connect concepts	Low	High

This is supported by Jonassen's (2010) theory, which asserts that exploration-based educational technology encourages students to think more critically and develop conceptual understanding independently. The ability to analyze and synthesize information, as seen in students' improved responses, reflects indicators from Jonassen's framework for higher-order thinking, such as elaboration, inference, and argument construction. Educaplay allows students to participate in scenario-based activities and case studies, which assist them in analyzing and evaluating information more deeply. In addition, students who actively use Educaplay are more likely to develop hypotheses and make comparisons between the concepts learned and their own experiences, indicating an improvement in higher-order thinking skills. the use of Educaplay in exploration-based learning also strengthens students' metacognitive skills, namely the ability to be aware, control, and evaluate their own thinking processes. This confirms the metacognitive regulation framework of Schraw & Dennison (1994) research in (Sholihah, M. A., & Sofiyana, M. S. 2021) especially the domains of declarative knowledge, monitoring, and strategy use. In addition, Educaplay also encourages collaboration-based learning, where students can discuss in small groups to solve problems or complete given challenges. These observations also align with the collaborative learning dimension of Vygotsky's theory, where dialogical engagement within groups scaffolds critical thought and collective problem-solving. Students working in groups with Educaplay engage in reflective dialog more often, which helps them construct knowledge more deeply.

This aligns with Mayer & Moreno's (2003) cognitive theory of multimedia learning, which emphasizes segmenting and pre-training principles to reduce extraneous cognitive load and enhance essential processing. This makes students focus more on the core material being learned without feeling overwhelmed by information that is too complex. Thus, the combination of self-exploration, social interaction and multimedia approach in Educaplay not only improves students' conceptual understanding but also strengthens critical thinking and metacognitive skills that are essential in the learning process.

Although Educaplay provides significant benefits in learning, there are some obstacles in its implementation, including:

1. Technical constraints, such as limited devices and internet access, especially in schools that do not have adequate technology infrastructure. This has led to disparities in the utilization of Educaplay in various regions.
2. Teachers' lack of digital literacy, which causes less than optimal utilization of Educaplay. Some teachers still have difficulties in designing interactive learning using digital platforms and integrating them into the curriculum.
3. Variations in students' abilities, where some students have difficulty in using digital platforms independently. Not all students have equal access to technological devices at home, which hinders the sustainability of digital-based learning.
4. Barriers in content design, where not all learning materials can be easily adapted into the Educaplay format. Some materials require a more contextual and exploratory approach, which is difficult to achieve with digital media alone.
5. Resistance to change, both from teachers and students, as the transition from traditional learning methods to digital technology takes time and adaptation.
6. Policy support and school management, which still vary in adopting educational technology. The lack of regulations and policies that support technology integration is often a barrier to wider implementation.

To overcome these obstacles, teachers have implemented the following strategies:

1. Teacher training to improve skills in using technology in learning. The training covers how to create interactive materials, manage digital classrooms and utilize data analytics to improve learning effectiveness.
2. Blended learning, which combines digital learning with in-person teaching to support students who have difficulty adapting. This strategy helps ensure that students still get assistance from teachers, especially in materials that require deeper understanding.
3. Improved access to infrastructure, including the provision of technology devices and more stable internet connections. Schools are encouraged to work with the government and the private sector to provide more equitable digital facilities.
4. Development of interactive materials, by adjusting the learning content to better align with the digital native characteristics of today's students. The materials are designed to be more engaging by utilizing visual elements, sound, and scenario-based interactions.
5. A collaborative approach between teachers and students, where students who are more proficient in technology help peers who have difficulty in using Educaplay. This cooperation-based learning model not only improves students' technology skills but also encourages a sense of responsibility in learning.
6. Education policy support, by encouraging governments and schools to be more proactive in integrating digital technology into the curriculum and providing more structured guidance for educators.

With this strategy, the use of Educaplay is expected to have a wider impact in supporting the improvement of learning quality in primary schools. In addition, further research is needed to explore implementation models that are more sustainable and adaptive to various school conditions. Future studies could also investigate the long-term effects of gamified learning platforms on students' critical thinking, collaboration skills, and motivation. By continuously refining and adapting these digital learning strategies, educators can create more inclusive, engaging, and effective learning environments that meet the diverse needs of students across different educational contexts.

Conclusion

This research shows that Educaplay plays an important role in improving elementary school students' conceptual understanding and critical thinking skills through a gamification based learning approach. The platform provides a more interactive and engaging learning experience, allowing students to develop a deeper understanding of the concepts learned. In addition, Educaplay supports the implementation of instructional differentiation, assists teachers in customizing learning methods according to students' level of understanding, and provides real-time feedback. Nevertheless, this study also identified some obstacles in the implementation of Educaplay, such as limited infrastructure, uneven access to technology, and lack of training for teachers in integrating this technology into learning. Therefore, more intensive training for educators is needed as well as increased access to technology facilities so that the utilization of Educaplay can be more optimal. In addition, there needs to be policy support from schools and the government to provide adequate infrastructure and develop a curriculum that is more adaptive to the use of digital technology in learning. As a follow-up, this study can be expanded by exploring the effectiveness of Educaplay in various subjects and developing a more systematic implementation strategy to overcome the barriers found in this study. In addition, future research could focus on longitudinal analysis to assess the long-term impact of using Educaplay on students' cognitive and affective skill development, as well as how this technology can be adapted in the context of collaboration-based and personalized learning. This study contributes to the enrichment of gamification-based learning models suitable for low-tech elementary environments in Indonesia, offering both theoretical insights and practical recommendations to enhance digital learning practices.

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