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Practical Pedagogical Approaches to Optimizing Elementary School Learning in the Digital Era

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Abstract

Amidst the rapid development of digital technology, education faces challenges to adapt to these rapid changes. Although technology provides many opportunities to improve the quality of learning, many educators still have difficulty in implementing practical pedagogical approaches that can improve the quality of learning in the digital era. This study uses a qualitative method with a literature review of the philosophy of education and its relevance to learning in elementary schools, the literature review includes an analysis of the main works in the philosophy of education, the relevance of these theories to educational technology is explored for pedagogy that is adaptive to the development of the digital era. However, the main challenges faced are limited access to technology and lack of training for educators. This study suggests the need for increased training for educators and the provision of adequate infrastructure to support technology-based learning. In conclusion, the application of practical pedagogical approaches based on technology has great potential to improve the quality of learning in the digital era, but requires stronger support in terms of training and infrastructure.

Key Word: *Digital Era, Educational Technology, Learning Quality, Pedagogical Approaches, Teacher Training.*

Abstrak

Amidst the rapid development of digital technology, education faces the challenge of adapting to these rapid changes. Although technology offers numerous opportunities to improve the quality of learning, many educators still struggle to implement practical pedagogical approaches that can enhance the quality of learning in the digital age. This study employed a qualitative method with a literature review of educational philosophy and its relevance to learning in elementary schools. The literature review included an

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analysis of key works in educational philosophy. The relevance of these theories to educational technology was explored for pedagogy that is adaptive to developments in the digital age. However, the main challenges faced are limited access to technology and a lack of training for educators. This study suggests the need for increased training for educators and the provision of adequate infrastructure to support technology-based learning. In conclusion, the implementation of practical pedagogical approaches based on technology has great potential to improve the quality of learning in the digital age, but requires stronger support in terms of training and infrastructure.

Keywords : *Digital Era, Learning Quality, Teacher Training, Pedagogical Approach, Educational Technology.*

Introduction

In today's digital era, the world of education is undergoing major changes. Digital technology has transformed the way we learn and teach, making the learning process more accessible and flexible.[1] Technology offers many benefits, but maintaining the quality and relevance of learning remains a challenge. One of the biggest challenges in education in the digital era is integrating technology effectively into the teaching and learning process. Many educational institutions strive to maximize the use of technology to improve the quality of learning.[2] Furthermore, there is the challenge of ensuring that all students have equal access to technology and digital resources. This unequal access can lead to differences in the quality of education received by students from different backgrounds.[3]

In the digital era, technology has become an essential part of our daily lives, including in education.[4] Advances in information and communication technology (ICT) have had a significant impact on classroom learning methods. To meet the demands of the times, educators need to integrate

[1] Hapsari, SA, & Pamungkas, H. (2019). Utilization of Google Classroom as an online learning medium at Dian Nuswantoro University. *WACANA: Scientific Journal of Communication Science, 18* (2), 225-233. https://doi.org/10.32509/wacana.v18i2.924

[2] Purba, A., & Saragih, A. (2023). The role of technology in the transformation of Indonesian language education in the digital era. *All Fields of Science Journal Liaison Academia and Sosiety, 3* (3), 43-52. https://doi.org/10.58939/afosj-las.v3i3.619

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[4] Darwanto, D., & Putri, AM (nd). Strengthening literacy, numeracy, and technology adaptation in school learning: (An Effort to Face the Digital Era and Disruption. *Eksponen, 1* (2), 25-35. https://doi.org/10.47637/eksponen.v11i2.381

technology into the teaching and learning process to ensure the quality of education remains relevant and effective.[5] However, its implementation still faces various challenges, including teaching staff, available facilities and infrastructure, and a curriculum that has not fully kept pace with technological developments. This phenomenon creates a gap between existing educational theory and its practical application in the field.[6].

According to Syafitri & Novriadi in the field of elementary school teacher education, technological integration is often hampered by a lack of training, limited facilities, and a lack of in-depth understanding of the effective use of technology in the classroom. Therefore, to improve the quality of learning in the digital era, it is important to explore and implement educational approaches that are more practical and easier for educators to understand.[7]

The digital era has brought major changes in the world of education, especially in the way learning is delivered.[8] Technology offers various possibilities to support the learning process, but especially to ensure that the pedagogical approach used can meet students' needs holistically, major challenges still remain according to, one of. The purpose of this article is to explore how a practical pedagogical approach based on educational philosophy can be applied to improve the quality of learning in the digital era.

Improving the quality of education in the digital era is the primary objective of educational monitoring in elementary schools.[9] The purpose of this study is to investigate pedagogical approaches that can be adopted in elementary school education and analyze their relevance to the educational philosophy underlying teaching practices in elementary schools. According to today's digital environment, educational support is crucial to ensure the learning process always keeps up with the latest technological developments. At that time, various strategies must be implemented to maximize the use of modern technology when preparing assignments for teachers and online

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[9] Saleh, K. (2020). Application of Academic Supervision Techniques in Elementary Schools Facing the Digital Era. *Pendekar: Journal of Character Education, 13* (1), 18-21.

assignments for students.[10] No matter how beautiful a school is, it will seem incomplete if it does not adapt to changing times. Therefore, teachers need to maximize the use of technology in the classroom. Furthermore, instructional supervision will be responsible for ensuring elementary school students use technology to achieve learning objectives.

Method

This article uses a qualitative approach based on a literature review of educational philosophy and its relevance to learning in elementary schools. This literature review includes an analysis of key works in educational philosophy, such as John Dewey's pragmatism, Jean Piaget's constructivism, and Carl Rogers ' humanistic approach.[11]. The relevance of these theories to educational technology is explored to offer a pedagogical framework that is adaptive to developments in the digital era.

This research adopts a qualitative approach through a literature review method. The purpose of this method is to explore, analyze, and synthesize various relevant scientific literature to understand and identify the application of practical pedagogical approaches to improving the quality of learning in the digital era. The literature review was chosen because of its ability to provide in-depth insights from various existing academic perspectives.

The data sources in this study consisted of secondary literature and scientific journal articles. The criteria used for the literature selection were its relevance to the theme of practical pedagogy and the digital era. Data analysis methods used included analysis stages based on the principles of practical pedagogy relevant to the digital era, the role of technology in improving learning effectiveness, and challenges and implementation strategies in various educational contexts.[12]

The research results will be presented in the form of analytical narratives that include a description of the concept of practical pedagogy in

[10] Santoso, W.T., Nawanti, R.D., Purnomo, S., & Fathoni, A. (2024). Educational Supervision Strategies in Facing the Challenges of Learning in the Digital Era 5.0. *Didaktika: Jurnal Kependidikan, 13* (2), 2657-2664.
[11] Zaini, N. (2019). The Concept of Humanistic Education and Its Implementation in the Teaching and Learning Process. *Karangan: Journal of Education, Learning, and Development, 1* (01), 62-72.
[12] Aprianto, D., & Wahyudi, A. (2023). Integration of curriculum management, teacher professional development, and educational technology in improving student learning outcomes. *Jurnal Review Pendidikan Dan Pengajar (JRPP), 6* (3), 4414-4424. https://doi.org/10.31004/jrpp.v6i3.30950

the digital era, the role of technology in supporting practical pedagogical approaches, practical pedagogy to improve the quality of learning, and the development of practical pedagogy into the digital era.With this approach, it is hoped that research can provide a deep understanding of how practical pedagogy can be integrated with digital technology to improve the quality of learning in various contexts.

Findings and Discussion

Literature Review

Educational philosophy plays a crucial role in determining the direction and methods of the learning process. According to Paulo Freire, as cited in Rusli, education should focus on liberating and developing students' critical thinking, not simply transferring knowledge.[13] This approach emphasizes the importance of dialogue and active participation between teachers and students, which is particularly relevant in digital-based teaching. For example, the use of technology can create spaces for discussion and collaboration outside the classroom, enriching the learning experience and encouraging students to think more critically.[14]

Furthermore, the constructivist theory formulated by Jean Piaget and Lev Vygotsky suggests that learning must be tailored to students' experiences and social interactions.[15] In this digital era, technology serves as a tool that encourages the creation of more authentic and interactive learning experiences. This approach encourages the use of applications or platforms that allow students to explore knowledge through simulations or collaborative projects.

Although various theories support the use of technology in education, its practical application often faces various obstacles. One of the main challenges is teachers' lack of mental readiness and skills to integrate technology into the learning process. [16]

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[13] Robikhah, AS (2018). Paulo Freire's paradigm of liberation education in the context of Islamic religious education. IQ (Quranic Science). *Journal of Islamic Education, 1* (01), 1-16.
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[15] Andrea, J., Sakinah, F., & Gistituati, N. (2024). Independent Learning in the Indonesian Education Revolution in the Era of Disruption. *Pendas: Scientific Journal of Elementary Education, 9* (2), 7158-7175.
[16] Hasan, LM, Naseha, SD, & Hasan, IN (2024). Study of the Implementation and Effectiveness of TPACK in Maharah Qiro'ah Learning. *DAARUS TSAQOFAH. Journal of Postgraduate Education, Qomaruddin University, 1* (2), 129-137.

Discussion

The results of the literature review indicate that a pedagogical approach based on educational philosophy can make a significant contribution to improving the quality of learning in the digital era (Khaerani, 2024) . A related theory is John Dewey's pragmatism, which emphasizes that learning must be active and based on real-life experiences. In the digital context, this principle is applied through the use of interactive technologies such as simulations, educational games, and project-based learning (Yusuf, Suastra, Atmaja, & Tika, 2025) . This approach allows students to be directly involved in the learning process and connects theory with practical applications in everyday life. For example, project-based learning using digital tools can help students develop critical thinking and teamwork skills that are highly needed in the 21st century. [17]

Jean Piaget's constructivism is also an important foundation for the development of technology-based learning. This theory emphasizes that students are active constructors of knowledge, meaning that learning should allow students to explore, discover, and develop their own understanding.[18] Educational technologies such as adaptive learning platforms and artificial intelligence (AI) systems offer students the opportunity to learn at their own pace and with their own learning styles . For example, digital platforms that provide students with learning materials organized according to their individual difficulty levels and needs can enhance their understanding of the material.[19] This supports the idea that technology can be an effective tool to support a student-centered and personalized learning approach.

Carl Rogers' humanistic approach emphasizes the importance of addressing students' emotional and social needs in the learning process[20]. In the digital age, these needs can be met through learning. In the digital age, these needs can be met through technology-based collaborative learning, such as online discussion forums, virtual group projects, and the use of learning platforms that support social interaction. This collaborative learning

[17] Ramadhan, EH, & Hindun, H. (2023). Implementing a Project-Based Learning Model to Help Students Think Creatively. *Protasis: Journal of Language, Literature, Culture, and Their Teaching, 2* (2), 43-54.

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[20] Sultani, S., Alfitri, A., & Noorhaidi, N. (2023). Humanistic Learning Theory and Its Application in Islamic Religious Education Learning. *ANSIRU PAI: Development of the Profession of Islamic Religious Education Teachers, 7* (1), 177-193. http://dx.doi.org/10.30821/ansiru.v7i1.16108

not only helps students develop interpersonal skills but also creates a supportive and inclusive learning environment.[21] This humanistic approach allows teachers to act as facilitators who help students feel valued, heard, and motivated to learn. In this case, technology becomes a tool to support student-teacher interactions more effectively.

Although this educational approach has great potential, its implementation faces many challenges. One of the biggest challenges is limited access to technology, especially for students in rural and developing areas. Many students in these areas lack access to adequate digital devices or a stable internet connection, making it difficult for them to participate in technology-based learning. Furthermore, the lack of initial training in integrating technology into a philosophy-based teaching approach is also a major barrier. Many teachers struggle to understand how to use technology effectively to support student-centered teaching principles.[22] The main aspects related to digital learning, especially the application of technology in primary education.[23]

The Role of Educational Philosophy

Educational philosophy is an important foundation for developing approaches that take technological advances into account.[24] Constructivism, a school of educational philosophy, promotes active, experiential learning and encourages students to develop their understanding through interactions with digital resources. Technology expands access to a variety of information and makes learning more flexible and independent. In this context, the role of teachers shifts from mere instructors to facilitators who help students acquire knowledge

Research on technology adoption demonstrates the importance of improving teachers' digital skills. Lack of confidence in using technology is

[21] Sultani, S., Alfitri, A., & Noorhaidi, N. (2023). Humanistic Learning Theory and Its Application in Islamic Religious Education Learning. *ANSIRU PAI: Development of the Profession of Islamic Religious Education Teachers, 7* (1), 177-193. http://dx.doi.org/10.30821/ansiru.v7i1.16108

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[24] Rofi'ah, AM, Shobirin, M., Fadllillah, M., Farah, N., & Wahyudi, MF (2024). Analysis of Teacher Readiness in Implementing the Independent Curriculum in Junior High Schools. *Journal Educatione, 1* (2).

often due to a lack of training.[25] Therefore, ongoing training programs are needed that not only focus on technical mastery but also integrate pedagogical technology into the curriculum. This training should include the use of online learning software and technology-based assessment methods.

Technology Integration in Learning

Technology offers significant opportunities for engaging learning. Examples include learning software that provides interactive applications for practice assignments. Online learning platforms that can be used for discussions and assignments. However, uneven infrastructure and limited access to technology pose significant challenges in some regions. Measures such as government support through device distribution programs and strengthening internet networks are needed to bridge this gap.

Collaborative learning technology supports highly effective collaboration-based learning. Platforms like Google Classroom and Padlet make it easy for students to interact directly on group projects. However, the success of this collaboration depends heavily on teachers' ability to design activities that support project-based learning (PBL).[26]

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Improving the Quality of Learning

Especially in elementary schools, gamification-based applications can motivate students to learn. Examples include engaging apps like Kahoot for interactive quizzes and Duolingo for language learning. This approach makes the learning process more enjoyable and encourages students to engage more deeply with the material.

A hands-on approach like instructional videos is ideal for elementary school students. Videos allow students to access material at their own pace,

[25] Hasan, LM, Naseha, SD, & Hasan, IN (2024). Study of the Implementation and Effectiveness of TPACK in Maharah Qiro'ah Learning. *DAARUS TSAQOFAH. Journal of Postgraduate Education, Qomaruddin University, 1* (2), 129-137.

[26] Sanuhung, F., Salsabila, UH, Abd Wahab, J., Amalia, M., & Rimadhani, MI (2022). The Use of Padlet Applications as Online Learning Media in Educational Technology Courses (Case Study of Ahmad Dahlan University). *Glasser Journal of Education, 6* (1). https://lonsuit.unismuhluwuk.ac.id/glasser/article/view/1352

deepen their understanding through repetition, and provide flexibility in their learning. To ensure the learning material is fully absorbed, teachers choose media appropriate to the students' level of understanding.

In terms of technological integrity, there is a significant gap between theoretical understanding and implementation of technology in the classroom These challenges include limited time to prepare technology-based teaching materials, inadequate infrastructure in some schools, and intensive training for teachers to connect theory and practice. These are still lacking. Mentoring programs and professional learning communities can be solutions that help teachers share experiences and best practices.

Curriculum Changes

The philosophy of progressive education emphasizes the importance of developing 21st-century skills such as critical thinking, creative thinking, and collaborative thinking. Therefore, the curriculum must be designed to integrate technology as a learning tool, not simply as a complement. For example, using technology to facilitate project-based learning and research.

By encouraging learning innovation, school leaders play a strategic role in creating a culture of innovation in their schools (Leadership to promote innovation must include providing appropriate technological equipment.Integrating technology into digital learning requires a comprehensive approach, from educational philosophy to curriculum development and teacher training. However, research findings indicate that integrating pedagogical approaches based on educational philosophy with technology has great potential to improve the quality of learning if implemented correctly. Solutions to existing challenges involve multiple stakeholders, including the government, schools, and technology developers. The government needs to ensure equal access to technology through the development of digital infrastructure, and educational institutions need to provide comprehensive training to teachers on integrating technology into their pedagogical approaches. Through strong collaboration among various stakeholders, this approach can achieve comprehensive and sustainable educational reform and meet the needs of the 21st century.

Conclusion

Integrating a pedagogical approach based on digital technology can significantly improve the quality of learning in the digital age. The principles of pragmatism, constructivism, and humanism provide a relevant framework for developing adaptive and student-centered learning methods. To achieve this goal, teacher education must focus on developing technology-based pedagogical competencies. Furthermore, education policies must ensure

equal access to technology at all levels of education. Therefore, changes in education in the digital age will help achieve better learning outcomes and meet the demands of the 21st century.

Implementing a practical pedagogical approach to improve the quality of learning in the digital age requires an effective integration of educational philosophy, educational theory, and technology. While there are challenges to overcome, such as limited infrastructure and teachers' technical skills, using the right approach can create a more engaging and relevant learning experience for students. Therefore, providing intensive training to teachers, improving technological facilities, and gaining support from school administrators are crucial for building a learning ecosystem.

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