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Training on Game-Based Learning Implementation as an Effort to Develop Holistic Students for Teachers at Elementary School

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Abstract: Educational transformation in the digital age requires teachers to be able to innovate in creating interactive, meaningful learning processes that are oriented towards the comprehensive development of students' potential. One approach that is relevant to these needs is Game-Based Learning (GBL), which is a game-based learning model for developing the cognitive, social, emotional, and moral aspects of students. This Community Service Activity took the form of Training on the Implementation of Game-Based Learning for Teachers at SDN Nongkojajar 1 Pasuruan City, which aimed to improve teachers' competence in utilizing digital learning technology. Held in a classroom at SDN Nongkojajar 1 Pasuruan City, the training lasted for one day and was attended by 15 teachers. The training material covered understanding the concept of "Holistic Students," designing game-based learning media through the Spatial.io platform, and integrating Artificial Intelligence (AI) to support the learning process. The results of the activity showed an increase in teachers' ability to design and implement game-based learning effectively. Additionally, this training fostered teachers' motivation to continue innovating and developing adaptive learning to produce holistic students amid the educational needs of the 21st century.

Keyword: Game-Based Learning, Holistic Students, Teachers, Elementary School

Introduction

The current transformation of education has not escaped the rapid development of information and communication technology, which has brought a new paradigm in learning methods. The main feature of this transformation is demonstrated by significant changes and ease of access to information, both for educators and students, in obtaining more diverse learning resources (Hasnida, et al., 2024). The use of technology in the learning process shows significant changes in learning methods, making learning activities more personalized and adaptive. The importance of utilizing technology in the era of educational transformation aims to increase student engagement, interest, and motivation to learn. According to Nathaniela & Esfandiari (2024), the integration of technology in learning will create a more interactive, engaging, and participatory learning environment. This is closely related to improving the quality of education, which will prepare students to face the challenges of the times.

The challenges of the 21st century require students to be able to think critically and solve problems (Pibina, et al., 2025). Potential in spiritual, social, and moral aspects must also be developed alongside technical and intellectual aspects so that they can bring benefits to society. Hasnida, et al., (2024) revealed that easy access to information makes communication and collaboration more open and easier to do. In addition, cross-border project work and discussions using the internet can not only improve social skills but also have the potential to develop more holistic skills. This shows that conventional education, which tends to be passive and does not involve students much, is not suitable because it hinders critical thinking, creativity, and problem-solving skills (Depita, 2024). A more modern learning model in line with technological developments is needed to achieve holistic students with various potentials that must be developed to respond to the challenges of the modern era.

One form of interactive and enjoyable learning model that integrates technology is game-based learning. Game-Based Learning is a learning model that uses games in the classroom to support learning activities. Wahyuning (2022) explains that Game-Based Learning is an active learning design that introduces concepts and guides students to achieve predetermined learning objectives. Game-Based Learning uses the concept of games in their entirety by involving the active participation of students so that they can develop knowledge through structured play experiences. The active involvement of students through direct interaction with learning content will make learning activities more interesting and meaningful.

The effectiveness of Game-Based Learning in improving learning outcomes has been supported by various empirical studies. Widiana's (2022) research on science learning in elementary schools shows that there is a significant difference in learning interest and concept understanding between students who use Game-Based Learning and students who follow conventional learning. Students who follow the GBL-based learning method show better learning interest and concept understanding because they are interested in learning activities that involve games. Other studies show how GBL contributes to significant academic activity and achievement. Research by Rahayu et al. (2024) in the fourth grade of SDN Gading V Surabaya showed an increase in student learning activity after implementing game-based learning using the EducaPlay application in IPAS subjects, with student achievement levels increasing and falling into the “moderate” category. The approach used in the learning process not only improves students' academic understanding but also their critical thinking, discussion, and collaboration skills. The implementation of GBL makes the classroom atmosphere more interactive and enjoyable.

The implementation of Game-Based Learning at the elementary school level is becoming increasingly crucial given the characteristics of elementary school-aged children, who learn more effectively through direct experience. GBL creates a realistic, interactive, and enjoyable learning environment that makes it easier for students to understand a concept. GBL can encourage intrinsic motivation to learn due to the high level of curiosity it generates. In addition, GBL will form collaborative activities to train students to work together, manage emotions, be sportsmanlike, and support each other.

Teachers play a crucial role in innovating the integration of game concepts into learning activities. It is important to have the competence to ensure that game-based learning does not deviate from the predetermined learning objectives. Teachers are required to master digital literacy skills as a basis for operating technology in the game-based learning process. However, limited understanding and technological skills have prevented some teachers from optimally utilizing digital media in teaching and learning activities. This condition has an impact on the low variety of learning methods used, so that the learning process tends to be monotonous, passive, and less interesting for

students. Therefore, a comprehensive and applicable training program is needed to improve teachers' abilities in applying Game-Based Learning using digital technology effectively in the classroom. This effort is expected to encourage the creation of learning that is more interactive, innovative, and oriented towards the holistic development of students' potential.

Given the urgency and challenges faced, comprehensive and practical training related to the implementation of GBL for elementary school teachers is needed. State Elementary School I Nongkojajar in Pasuruan City is the target of training activities to produce holistic students and improve the quality of learning through GBL. Therefore, the Community Service Program was launched as a concrete step that is educational, theoretical, and practical for teachers at SDN I Nongkojajar in Pasuruan City in applying GBL as an effort to produce holistic students who are intellectually, socially-emotionally, and morally intelligent.

Method

The Community Service (PKM) initiative at SDN Nongkojajar 1, Pasuruan, represents a strategic pedagogical intervention designed to align elementary education with the demands of the digital era. By integrating the "Holistic Student" framework, the program moves beyond traditional instruction to address a triad of developmental goals: academic excellence, socio-emotional intelligence, and essential life skills. This theoretical foundation posits that Game-Based Learning (GBL) is not merely a tool for engagement, but a rigorous methodological approach necessary for fostering a more dynamic and immersive educational environment. By establishing these conceptual competencies, the training empowers educators to transform passive classrooms into interactive spaces that cater to the comprehensive needs of the modern learner.

On a technical and operational level, the program facilitated the practical adoption of cutting-edge educational technologies, specifically focusing on the Spatial.io platform and Artificial Intelligence (AI) integration. Conducted on August 27, 2025, for a cohort of 15 educators, the session bridged the gap between theory and application by providing hands-on training in innovative instructional design. The systematic objective was to cultivate a specialized skill set that allows teachers to synthesize digital literacy with holistic curriculum design. Consequently, the training serves as a catalyst for professional development, ensuring that faculty members are proficient in leveraging AI and gamified media to deliver a sophisticated, multifaceted learning experience.

First Material

The first material in the training presents two fundamental aspects as a basis for teachers' understanding. The first aspect explores the concept of “Holistic Students,” which emphasizes the importance of students' overall development, not only intellectual intelligence, but also social-emotional maturity, practical life skills, and character building. The second aspect provides an overview of Game-Based Learning as an approach to learning in elementary schools. The presentation of this first material serves as a conceptual foundation for training participants before entering the next practical session.

Second Material

The second material focuses on teachers' competence in optimally applying Game-Based Learning. The material discussed underlines the importance of teachers having the skills to design and implement game-based learning. The goal is for the learning process to not only focus on entertainment, but also to achieve learning objectives effectively and optimally.

Third Material

The third material emphasizes the practical application of digital technology as a game-based learning medium. In this material, teachers are equipped with the practical use of virtual reality-based platforms to create digital learning spaces. In addition, the third material also discusses the integration of Artificial Intelligence (AI) in supporting the design of more innovative learning processes.

Result & Discussion

Result

This Community Service Program began with the process of identifying the needs and conditions of the target audience as the first step of the training program. The PKM team conducted an initial assessment through field surveys and interviews, particularly with elementary school teachers in Pasuruan City. The results of the needs assessment were used to formulate materials for the training design.

The activity was held on Wednesday, August 27, 2025, for one day. This training activity was attended by 15 teachers from Nongkojajar 1 Public Elementary School in Pasuruan City. Training on the implementation of game-based learning processes was conducted to address the complex challenges of education that require innovation in learning activities. Important skills that students must master to respond to the challenges of the 21st century include critical, creative, and collaborative thinking skills, problem-solving skills, and adaptability to changes in the world of education (Pibina, et al., 2025).

Discussion

Based on the initial assessment conducted by the PKM Team, it was found that learning challenges in the digital era are still marked by low innovation among teachers in creating an interactive and enjoyable learning atmosphere. This condition prompted the PKM Team to organize training on the implementation of Game-Based Learning for teachers at SDN Nongkojajar 1 Pasuruan City. This activity was designed as an effort to improve teachers' competence in utilizing digital learning technology to produce holistic students, namely students who develop academically, socially, emotionally, and have adaptive life skills in the 21st century.

Figure 1. Photo After Activity
Source: Author

The photo was taken after the training activity was carried out as a form of documentation. The training activity was attended with enthusiasm and high spirits by the participants, as demonstrated by interactive sessions such as discussions and question-and-answer sessions with the speakers. Through this training, teachers are expected not only to master the concept of “Holistic Students” and game-based learning models theoretically but also to be able to plan and implement them strategically in real classroom learning practices.

Conclusion

The implementation of the Community Service Program in the form of Game-Based Learning training to produce holistic students for teachers at SDN Nongkojajar 1 in Pasuruan City has been carried out optimally and has achieved the predetermined targets. This program is a concrete manifestation of strategic efforts to create an interactive and meaningful learning process, increase student interest and motivation, and focus on comprehensive personal development. As a follow-up to the training activities that have been carried out, the PKM Team plans to provide ongoing assistance through an online platform to ensure the sustainability of Game-Based Learning implementation in the learning process at partner schools.

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