

**NEEDS ANALYSIS IN DEVELOPING E-LKPD BASED ON GENIALLY EDUCATIONAL GAMES IN MATHEMATICS LEARNING TO INCREASE LEARNING MOTIVATION**

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***Abstract***

*This study aims to analyze the needs of developing E-LKPD based on Genially educational game in learning mathematics for grade III students at SDIT Ar-Rahmah Yosowilangun. The analysis stages include curriculum, learner, and teacher needs, as well as solution analysis. The research method used is the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) with data collection techniques through observation and interviews. The subjects of this study were third grade students of SDIT Ar-Rahmah Yosowilangun. The results showed that there is a clear need for the development of E-LKPD based on Genially educational game in learning grade III mathematics, due to the low motivation of students to learn. Analysis of curriculum needs indicates the need for innovative approaches to improve the quality of mathematics learning in accordance with the demands of the Merdeka Curriculum. The analysis of learners highlights the internal and external factors that influence their interest in mathematics, while the analysis of teachers shows the need for support and facilitation in developing innovative learning materials. Thus, this study suggests the need for the development of E-LKPD based on the Genially educational game as a solution to increase the learning motivation of grade III students. By utilizing technology and interactive learning approaches, it is expected to create a dynamic and interesting learning environment for students. In addition, the results of this study can be the basis for developing learning strategies that are more effective and relevant to the needs of students in today's digital era.*

**Keywords;** E-LKPD, Educational Games, Genially, Mathematic Learning

**Abstrak**

Penelitian ini bertujuan untuk menganalisis kebutuhan pengembangan E-LKPD berbasis game edukasi Genially dalam pembelajaran matematika untuk peserta didik kelas III di SDIT Ar-Rahmah Yosowilangun. Tahapan analisis meliputi kebutuhan kurikulum, peserta didik, dan guru, serta analisis solusi. Metode penelitian yang digunakan adalah model ADDIE

(Analysis, Design, Development, Implementation, Evaluation) dengan teknik pengumpulan data melalui observasi dan wawancara. Subjek penelitian ini adalah peserta didik kelas III SDIT Ar-Rahmah Yosowilangun. Hasil penelitian menunjukkan bahwa terdapat kebutuhan yang jelas untuk pengembangan E-LKPD berbasis game edukasi Genially dalam pembelajaran matematika kelas III, karena rendahnya motivasi belajar peserta didik. Analisis kebutuhan kurikulum mengindikasikan perlunya pendekatan inovatif untuk meningkatkan kualitas pembelajaran matematika sesuai dengan tuntutan Kurikulum Merdeka. Analisis terhadap peserta didik menyoroti faktor-faktor internal dan eksternal yang memengaruhi minat mereka terhadap matematika, sementara analisis terhadap guru menunjukkan kebutuhan akan dukungan dan fasilitasi dalam pengembangan materi pembelajaran yang inovatif. Dengan demikian, penelitian ini menyarankan perlunya pengembangan E-LKPD berbasis game edukasi Genially sebagai solusi untuk meningkatkan motivasi belajar peserta didik kelas III. Dengan memanfaatkan teknologi dan pendekatan pembelajaran yang interaktif, diharapkan dapat menciptakan lingkungan pembelajaran yang dinamis dan menarik bagi peserta didik. Selain itu, hasil penelitian ini dapat menjadi dasar bagi pengembangan strategi pembelajaran yang lebih efektif dan relevan dengan kebutuhan peserta didik di era digital saat ini..

**Kata kunci;** E-LKPD, Game Edukasi, Genially, Pembelajaran Matematika

## INTRODUCTION

A great nation is a nation that has the quality of intelligent human resources and is able to be highly competitive. In creating intelligent humans with good quality education, effectiveness in the learning process is needed because education is the main pillar of the establishment of a great nation. One indicator to measure the quality of learning can be seen through the comfort of students during learning. A successful education system can be reflected in the attitude of students who are motivated and active in the learning process. Human resources also determine the success of national development, this can be achieved through good quality education (Alyusfitri et al., 2023).

In the preamble of the 1945 Constitution of the Republic of Indonesia, the purpose of Indonesian education is stated, which actually aims to educate the nation's life. This goal requires the government to provide and implement quality education. The quality of education in question is in the form of learning processes and outcomes (Oktavia, 2022). The learning process, which is a measure of learning quality, is its implementation based on

educational standards. Meanwhile, the learning outcomes that measure the quality of learning are the learning achievements of students who are in line with the standard provisions.

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by themselves and society (Firman Aulia Ramadhan, 2022). Education is a means or bridge for humans to develop their potential through the learning process they get. So, education is an important effort for humans to be able to develop their potential.

The progress of the nation and the quality of human resources depends on the quality of education, especially in mathematics. Mathematics is a subject that exists at every level of education from basic education to higher education. Mathematics is a basic science that plays an important role in the development of life (Nur Fitriani Zainal, 2022).

As in Permendiknas Number 22 of 2006 that one of the goals of mathematics is to solve problems such as the ability to understand problems, design mathematical models, solve models, and interpret the solutions obtained. In an effort to achieve these goals, it is necessary to implement a creative and interactive learning approach, one of which is game-based (Qolbuani et al., 2022). This approach not only helps learners in understanding complex mathematical concepts, but also encourages them to develop critical and analytical thinking skills. Through this game, learners are not only invited to learn mathematical concepts passively, but also actively involved in solving problems, designing mathematical models, solving the models made, and interpreting the resulting solutions (Astriz Permata Mulia, Nila Kesumawati, 2022).

With creative and interactive learning approaches, learners have the opportunity to apply mathematical concepts in contexts that are relevant and interesting to them. For example, teachers can use collaborative projects, digital math games or interactive simulations to facilitate learning. This approach not only helps improve learners' understanding of the subject matter, but also provides a fun and motivating learning experience that is important in their development as competent individuals in this digital era (Zaini et al., 2019).

A common problem in mathematics education is caused by students' low interest in learning mathematics because students think that math is difficult. Other problems in learning mathematics can be caused by teacher factors. One of the teacher factors that cause problems in learning mathematics is the lack of mastery of appropriate learning methods and

approaches to be used in each different class(Lioba et al., 2021). Mathematics learning should be presented to all students starting from elementary school, because later it will benefit these students with abilities that are important for everyone to be able to compete globally.

Teaching materials are needed to make it easier for teachers to help convey material to students. The teaching materials used must be the right ones so that students do not feel bored or saturated when learning takes place. Learning requires following the new curriculum and advances in technology and information. In addition, not a few students feel confused when solving problems. When the teacher provides exercises with problems that are different from example problems, or when the teacher asks students to recall material that has been studied before(Ihsan, 2019). Because these students do not understand the problem but tend to memorize formulas, where students assume that there is only one way to solve the problem. One of the teaching materials that can develop learning with an open-ended approach is E-LKPD(Mardianti et al., 2022). E-LKPD is one of the teaching materials compiled and presented in the form of digital-based Learner Worksheets which aims to facilitate students in the learning process. The advantages of E-LKPD in learning will have an impact on students' learning activities to be more interactive, fun, not monotonous, and provide opportunities for students to practice in learning(Enstein et al., 2022). then the media that is feasible for students to use to learn with interactive media, one of which is Genially.

Genially used can support educators in problem solving faced during the online learning process. The combination of images, video, audio, text designed in such a way can produce interactive and effective learning media for students(Putri, Setiawan, et al., 2023).

Genially contains many features, namely presentations, infographics, animated/video presentations, ePosters, CVs, quizzes, and gamification that can produce an interactive learning media for students. Users are authorized to edit existing content through various features available on the menu(Putra & Afrina, 2023). In addition, the reason researchers use Genially media is because this media is very easy to use, has a wide range, can create a variety of learning media, and is equipped with a variety of images, icons, templates, colors, and countless fonts so that it can motivate students in the learning process which results in increased learning achievement(Putri, Firduansyah, et al., 2023).

Enthusiasm can be felt when researchers conduct interviews about local history materials to students and educators. The time of the researcher's interview coincided with the limitations of the teaching material delivered by the educator, namely regarding mathematics learning so that it would be synchronized when the material was implied. The results of the

interviews show that innovation is needed in the use of learning media by considering the interests and needs of students. Based on this needs analysis study, the media that is feasible for students to use to learn with E-Lkpd based on educational games.

## RESEARCH METHODS

The research method used in the development of E-LKPD Math based on Genially educational game is the Research and Development (R&D) method, which is research that develops a product that has existed before. According to Borg & Gall, the Research and Development (R&D) method is a research method used to produce certain products, and test the effectiveness of these products (Firman Aulia Ramadhan, Suparwoto Sapto Wahono, 2023).

In this research, the development model is ADDIE model. One of the functions of this model is a generic learning design that facilitates a well-organized process in the creation of learning media for classroom-oriented and online learning. The ADDIE model is a simple framework useful for designing learning where the process can be applied in a variety of settings due to its general structure. ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation developed by Dick and Carry in 1996. However, the development of this teaching material does not carry out all the stages contained in the ADDIE method because it is not possible to implement.

## RESULT AND DISCUSSION

The results of the research that has been carried out will focus on three aspects, namely curriculum analysis, learner analysis, and teacher analysis. In general, the results of the research conducted by researchers will be presented as follows:

### A. Curriculum Analysis

Identification of problems found in the field using interview techniques conducted with third grade Mathematics teachers of SDIT Ar-Rahmah Yosowilangun. The following table of interview results is a generalization of the answers of the informants that have been determined;

NO	Indicator	Result of Interview
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1.	Implementation of Merdeka Curriculum in Schools	Already Implemented in schools
2.	Problems in implementing the independent curriculum in mathematics learning	difficulties in explaining material to students using the lecture method, there must be a bridge to explain the material, especially in learning math.
3.	Teaching materials that are often used during learning	math package books from the government and LKS books from the government and LKPD for practice questions
4.	The availability of no Educational Game-based of E-LKPD to support students working on problems not only at school	there is no Educational Game-based E-LKPD facilitated by the school.
5.	your opinion if an E-LKPD based on Educational Games is developed for learning mathematics	strongly agree, because it can make learning Mathematics more interesting in the eyes of students

Based on Interview data above The implementation of the Merdeka Curriculum in schools marks a significant shift in educational paradigms, particularly in mathematics learning. While the curriculum has been already integrated into the educational system on SDIT Ar-Rahmah Yosowilangun, several challenges have surfaced in effectively executing it. One prominent issue lies in the struggle educators face when attempting to elucidate mathematical concepts to students through traditional lecture methods. The complexity of mathematical topics often requires a bridge to connect abstract theories with tangible examples, a gap that poses a hurdle in facilitating comprehension among students.

To address this challenge, teaching materials play a crucial role in aiding educators. Currently, math package books provided by the government, along with accompanying LKS (Student Worksheets) and LKPD (Student Worksheets) for practice questions, constitute the primary resources employed during learning sessions. However, despite the availability of these materials, a notable gap persists in the educational toolkit: the absence of Educational Game-based E-LKPD. This missing component is particularly

crucial for supporting students' engagement and comprehension outside the confines of the classroom environment.

The introduction of an E-LKPD based on Educational Games represents a promising solution to enhance mathematics learning. By leveraging gamification techniques, such a platform can transform the often daunting subject into an interactive and enjoyable experience for students. Educational games have the potential to contextualize mathematical concepts within immersive scenarios, fostering deeper understanding through experiential learning. Moreover, the interactive nature of these games encourages active participation and exploration, catering to diverse learning styles and preferences among students (Yuniati et al., 2022).

In math teacher opinion of SDIT Ar-Rahmah Yosowilangun, the development of an E-LKPD based on Educational Games for learning mathematics is not just beneficial but essential in the modern educational landscape. It aligns with the evolving needs of 21st-century learners, who are increasingly accustomed to digital interfaces and interactive content. By incorporating gamified elements into the learning process, educators can cultivate a dynamic and engaging environment that motivates students to actively participate and invest in their mathematical education.

#### B. Learner Analysis

Analysis of data on grade 3 learners' dislike of mathematics at SDIT Ar-Rahmah Yosowilangun revealed several factors that could be the main cause of this attitude. First of all, it was found that math materials at this level are often considered too abstract or difficult to understand by some learners. Concepts such as fractions, multiplication and division may be complicated for those who do not have a strong foundation of understanding, leading to frustration and discomfort in learning.

In addition, the teaching approach adopted by teachers also plays a role in influencing learners' interest in mathematics. Monotonous and less interactive teaching methods tend to make math lessons boring for some learners. When the approach relies solely on teacher lectures without any variety or engaging activities, learners' interest in the subject is likely to decline over time.

Negative perceptions of math are also an important factor influencing learners' attitudes towards the subject. Some of them may feel that math is irrelevant to everyday life or that they do not have a natural ability to understand the subject. These feelings of insecurity can inhibit learners' motivation to study math seriously.

In addition to these internal factors, an unsupportive learning environment can also influence learners' dislike of mathematics. If learners feel uncomfortable or afraid to ask questions when they don't understand, this can lead to greater confusion and reduce their interest in the subject. Lack of support from parents or teachers to improve math skills outside of class time can also make learners feel unmotivated to learn more (Pribadi et al., 2021).

Based on this analysis, it can be concluded that it is important for educators to design mathematics learning experiences that are engaging and relevant for Grade 3 learners. An approach that combines math concepts with fun and interactive activities can help increase learners' interest and motivation in the subject. In addition, building their confidence by providing appropriate support and pointing out the relevance of math in everyday life is also important to turn negative perceptions into positive ones.

By integrating technology wisely, educators can create a learning environment that not only motivates learners but also prepares them for future challenges. By understanding government regulations, research results and religious values, mathematics learning can be more inspiring, effective and in line with the demands of the times. This step is not only a form of adaptation to the digital era, but also a joint effort to produce a competent, creative and competitive generation in this modern era.

In this context, the development of E-LKPD based on the Genially educational game is one of the promising first steps in improving mathematics learning (Enstein et al., 2022). However, to ensure successful implementation, there needs to be cooperation between teachers, educational institutions, and parents. Supporting this initiative requires training and guidance for educators in effectively integrating technology into their curriculum.

In addition, periodic evaluations of the effectiveness of using game-based E-LKPDs need to be conducted to identify strengths and weaknesses in this learning method. The data collected from the evaluation can be used to continuously improve and adjust the learning content and strategies according to the needs and development of the learners (Tressyalina et al., 2023).

In line with the principles of sustainable education, the development of Genially educational game-based E-LKPD can also be integrated with project-based learning initiatives that emphasize the application of mathematical concepts in real contexts (Putri,



Firduansyah, et al., 2023). This will not only increase learners' motivation, but also help them develop critical thinking and problem-solving skills needed in everyday life.

### C. Teacher Analysis

The absence of educational game-based E-LKPD for math teachers in grade 3 of SDIT Ar-Rahmah Yosowilangun is a problem that hinders learning progress. The data shows that there is no such E-LKPD available, and this is due to several factors. One of them is the busy schedule experienced by the math teachers at the school. With demanding working hours and extensive teaching responsibilities, these teachers may experience limited time and resources to develop innovative learning materials such as educational game-based E-LKPDs.

In addition, the lack of support and facilitation from the school is also a factor that complicates the situation. Without adequate incentives or assistance from the school, teachers may not feel encouraged to create educational game-based E-LKPDs. The facilities and technical support required for the development and implementation of such a platform may also be unavailable or limited in the school.

Due to these limitations, the potential use of technology in improving mathematics learning in grade 3 at SDIT Ar-Rahmah Yosowilangun is not fully utilized. Educational game-based E-LKPDs can be an effective tool to increase learners' interest and engagement in math learning. By presenting math materials through an interactive and engaging format, such a platform can help overcome challenges in understanding math concepts that are often perceived as abstract by grade 3 learners.

Therefore, it is important for schools to consider supporting teachers in the development and implementation of educational game-based E-LKPDs. This can be done through providing training and technical support, procuring the necessary resources, and providing incentives or rewards to teachers who are active in learning innovation. Thus, schools can create a more conducive environment for the application of technology to improve the quality of mathematics learning for Grade 3 students.

### D. Solution Analysis

In overcoming the challenges of grade 3 students' dislike of math, innovative and effective solutions are needed. The data shows that one potential solution is the use of educational game-based E-LKPD, especially using the Genially platform. The use of

educational game-based E-LKPD has great potential to increase students' learning motivation in learning mathematics. The following is an analysis of this solution:

1. Educational game-based E-LKPDs such as those provided by Genially can increase learners' interactivity and engagement in learning. Through interesting games and math challenges presented interactively, learners will feel more engaged and motivated to learn.
2. Educational game-based E-LKPDs allow learners to learn through hands-on experience and experimentation. They can explore math concepts through simulations, puzzles or interactive games, which can help them understand concepts in a more in-depth and applied way.
3. Today's young generation is growing up in the digital age, where technology is an integral part of their daily lives. Therefore, the use of educational game-based E-LKPDs such as Genially will be more relevant and interesting for grade 3 students of SDIT Ar-Rahmah Yosowilangun. They will more easily adapt to the use of technology in math learning.
4. The games and challenges in the E-LKPD can be a motivation booster for learners. They will feel challenged to complete the level or achieve the highest score in the math game, which in turn will increase their desire to learn and achieve better results in the lesson.
5. Through the Genially platform, teachers can monitor learners' progress and performance directly. They can provide real-time feedback, as well as customize learning materials according to learners' individual needs.

Thus, the use of Genially's educational game-based E-LKPD in mathematics learning at SDIT Ar-Rahmah Yosowilangun can be an effective solution in increasing the learning motivation of grade 3 students. By providing learning experiences that are interactive, engaging and relevant to today's digital generation, schools can create a more dynamic and effective learning environment for students.

Genially provides space for educators to create interactive activities that are challenging and fun. Through this approach, learners are not only invited to learn actively, but also gain a deeper learning experience. Another advantage is that Genially can increase learner engagement, helping them understand math concepts more thoroughly.

Using Genially as an educational gaming platform gives educators the flexibility to design interactive activities that combine elements of challenge and fun. This not only makes the learning process more interesting, but also gives learners the opportunity to learn actively and deeply. In the context of math, which is often perceived as difficult, this approach can break the monotony and increase learning motivation.

## **CONCLUSION**

Based on the comprehensive analysis of the data provided, it is evident that the implementation of the Merdeka Curriculum in schools, including SDIT Ar-Rahmah Yosowilangun, represents a significant paradigm shift in education, particularly in the domain of mathematics learning. However, despite the integration of the curriculum, several challenges have emerged, particularly in effectively conveying mathematical concepts to students. Traditional lecture methods often fall short in bridging the gap between abstract theories and tangible examples, hindering students' comprehension and engagement.

To address these challenges, the development and implementation of Educational Game-based E-LKPD, specifically utilizing platforms like Genially, emerge as a promising solution. Such an approach offers several benefits, including increased interactivity and engagement, hands-on learning experiences, relevance to digital-native learners, motivation enhancement, and personalized feedback. By incorporating gamified elements into mathematics learning, educators can create dynamic and immersive learning environments that cater to diverse learning styles and preferences among students.

Furthermore, the analysis of grade 3 learners' dislike of mathematics at SDIT Ar-Rahmah Yosowilangun underscores the importance of addressing internal and external factors that contribute to negative perceptions of the subject. These include the abstract nature of mathematical concepts, monotonous teaching methods, lack of relevance to daily life, and unsupportive learning environments. An approach that combines interactive and engaging activities with targeted support and encouragement can help shift learners' attitudes towards mathematics from reluctance to enthusiasm.

Moreover, the absence of educational game-based E-LKPD for math teachers in grade 3 highlights the need for institutional support and facilitation in fostering innovation in teaching practices. By providing training, resources, and incentives for educators, schools can empower teachers to create and implement effective learning materials that align with the evolving needs of 21st-century learners.

In conclusion, the development and integration of Educational Game-based E-LKPD, particularly using platforms like Genially, represent a transformative step towards enhancing mathematics learning experiences for grade 3 students at SDIT Ar-Rahmah Yosowilangun. By leveraging technology and innovative pedagogical approaches, educators can cultivate dynamic, engaging, and effective learning environments that foster curiosity, creativity, and proficiency in mathematics among students. However, successful implementation requires collaborative efforts from educators, schools, and stakeholders to provide the necessary support and resources for innovation and continuous improvement in mathematics education.

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