

## Game Innovation : Nglegena World for Elementary Students

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**Abstract-** *the use of learning media, especially in the context of developing educational games, has a significant role in facilitating effective learning, especially in introducing abstract material concretely to students. Learning media helps students overcome learning obstacles, create innovative solutions, and increase interest and understanding of learning material. This development discusses the implementation of the Nglegena World educational game, which was developed using RPG Maker MV software, as an innovative alternative in learning Javanese. Nglegena World focuses on learning basic Javanese script, helping students understand the concept and use of Javanese script in an interactive and fun way. By involving teachers and students in the learning process, this game has a positive impact in improving teachers' teaching skills, diversifying learning methods, as well as students' interest, understanding and knowledge of Javanese language and Javanese script.*

**Keywords:** *learning media, educational games, Nglegena World, Javanese language, Javanese script, RPG Maker MV, innovative learning.*

### I. INTRODUCTION

The use of media in the learning process has a very important role in facilitating smooth learning in order to achieve maximum results[1]. This is because the role of media in the learning context is very significant, through learning media, teachers can present abstract material as something more concrete, allowing students to understand it more easily.[2]. The use of learning media also plays an important role in helping students overcome obstacles and create innovative solutions, both in the educational environment and in their daily activities.[3]. This can be achieved by implementing learning strategies that can inspire students to ask questions and convey their opinions, so that the classroom atmosphere becomes more dynamic and there is interaction between the teacher and students.[4]. Therefore, learning media has an important role in learning, such as increasing student involvement in learning, this is because learning media can also be used to facilitate collaborative learning such as discussion forums or other collaborative tools that allow students to interact, share ideas, and learn together.

Apart from that, learning media and teacher professional skills are also related. This is stated in Article 10 paragraph (1) of Law Number 14 of 2005 concerning Teachers and Lecturers mandates that teachers must have pedagogical competence, personality competence, social competence and professional competence.[5]. Professional teachers must have strong mastery of the curriculum material that has been determined, and have a deep understanding of every aspect of the science to be taught, which can be combined with the use of learning media.[6]. In the era of industrial revolution 4.0, the role of teachers is more as a facilitator who provides the latest information about scientific developments to students from various sources, so teachers need to have competence in the field of technology and digital.[7]. A teacher must be able to prepare the teaching and learning process and design learning materials, have mastery of learning materials, effective classroom management, the ability to establish an appropriate evaluation system, and the ability to choose appropriate learning strategies, including determining the learning methods

and media that will be used.[8]. Thus, teachers are trained to innovate, develop, operate and implement virtual games[9].

But unfortunately, according to research conducted by Andini Dewanti[10] There are several factors that influence the low level of student learning independence, one of which is the lack of use of innovative and creative learning media by teachers which can increase student motivation and learning independence. This is caused by teachers' lack of ability to create digital learning media such as presentations, videos, animations and interactive multimedia[11]. According to Muhammad Iqbal Ansari[12], teachers who have difficulty using technology can use the simplest platforms, such as WhatsApp groups with teachers as tutors, but this requires teacher creativity in delivering material to students. Even though in the 21st century, students are faced with demands to be smart, creative and innovative, this is due to the hope that in the next few years, Indonesia's human resources are expected to be able to excel and compete globally.[13].

As a result, teachers tend to choose to use textbooks provided by the government and are limited to using Student Worksheets (LKS) or printed books. However, according to Saluky, M.Kom[14] If considered more deeply, producing teaching materials in the form of printed books requires large expenditures on printing, coupled with the fact that forests are decreasing due to logging for paper making.

According to Kevin Christianto[15], with the rapid development of information and communication technology today, students' interest in learning is starting to decline due to boredom, therefore, useful learning media applications are needed in dealing with these technological developments in order to increase students' interest in learning. Teachers can use various forms of learning media, such as animated comics, pictures, PowerPoint presentations, audio-visual materials, and interactive multimedia.[16]. Apart from that, from the results of observations made by Suryani[17] noted that it is still rare to find learning media that includes problems to help students develop character values in accordance with the identity of the Indonesian nation, and also helps students improve literacy. Based on other observations made by Akbar Dwipangga[18] It was found that the lack of understanding among them was partly caused by the lack of attractiveness and monotonous tendencies of the learning media used by educators.

One learning method that is being developed is using an educational game approach in the learning environment[19]. Educational games are games aimed at learning, including educational elements that allow students to learn without pressure, but with a fun learning experience[20]. According to Silvia Tri Eviyanti[21], Educational games are games that combine learning material with various positive benefits for children, including introducing technology, developing problem-solving abilities, motor and spatial skills, as well as strengthening communication between children and parents, as well as providing entertainment. Of course, this is very popular with children who have a tendency to enjoy playing games[22]. Therefore, learning media applications such as educational games are important in increasing students' interest in learning.

One software that can be used to create Android-based educational games is RPG Maker MV[23]. RPG Maker is a software created to enable the creation of role-playing games which are also known as role-playing games (RPG).[24]. RPG Maker MV is an excellent choice for developing games that can be run on various platforms, from laptops, smartphones, to websites[25]. This is because RPG Maker MV provides a variety of tools and features for game design, including character settings, maps, dialogue and scripts, thus enabling developers to create educational games that suit their needs.

However, in several findings, most educational games created using RPG Maker MV tend to focus on general material, for example, Development of Media Role Play Game (RPG) to Improve Student Problem Solving Ability[26]. Designing Learning Media for Sorting and Queue Algorithms using Pixel Game Maker MV[27]. Design and Build Game-Based Learning Media Using RPG Maker MV[28]. Designing an educational game for Oviparous and Viviparous Animals Using RPG Maker MV[29]. Starlight Master Game Development to increase knowledge about the Solar System using RPG Maker MV[30]. Educational games made using RPG Maker MV mostly only focus on mathematics and science material, even though this general material is

enough for students at school to be interested in. Even though there are still several subjects that students are still not interested in, for example Javanese.

According to research conducted by Nimas Permata Putri[31], Indonesian is more commonly used than Javanese because Javanese feels more ordinary and familiar, the complexity of the rules for speaking Javanese seems difficult, and because of the needs of various aspects of modern life. With the progress of time, parents' interest in Javanese has decreased, as evidenced by the use of Indonesian[32]. As a result, many students still do not understand Javanese, and most of them use Indonesian when communicating with other people.

Javanese language itself cannot be separated from the Javanese script or better known as "hanacaraka" which can often be spoken but not many people understand it because of the complicated shape of the letters.[33].According to Diah Ayu Pamukir AY[34], One of the basic competencies that is often not well understood by students is Javanese script, because they tend to consider learning Javanese script as something difficult, both in terms of pronunciation and form, as well as in arranging it into simple words or sentences. Based on observations made by Nur Rira Febriyani[35], in Javanese language learning, it was found that there was a lack of innovation in the use of game media, with media that was still traditional in nature, as well as a lack of activity, student interest in learning, parental support, and understanding of the Javanese language, causing the Javanese language learning material to not be optimal. This shows that teaching Javanese script requires a better approach and more effective learning strategies to help students understand and master it well.

According to research results from Hidayatur Rohmah[36], the teacher admits that limited teaching time is also an influencing factor, this shows that difficulties in understanding Javanese script do not only occur among students, but are also recognized by teachers, who consider that limited time in teaching also plays a role in influencing students' understanding to that material. Other obstacles faced include the use of conventional learning methods which mainly take the form of lectures without interaction between students, limited facilities and infrastructure, lack of habit of students in reading the material being studied, and lack of interest and motivation to learn from students.[37]. As a result, students' understanding of the material presented by the teacher becomes low[38].Therefore, it is necessary to develop learning media in the form of Javanese language educational games that prioritize learning about Javanese script, so that it can help students understand the concept and use of Javanese script in an interactive and fun way.

SoTherefore, developers responded to the need for interesting and effective learning media in introducing Javanese script to students. Considering the high interest in games among students, the developer decided to use an innovative approach by creating an educational game. This game, called Nglegena World, was developed using RPG Maker MV software. The use of this software allows developers to create interactive and immersive learning experiences, where players can learn about Javanese script while enjoying interesting and challenging games. Through this approach, it is hoped that students will be more involved in learning Javanese script and increase their understanding of cultural heritage and traditional language.

## II. METHOD

This research is included in the development category, where the researcher develops a learning model with a communicative approach, following the ADDIE development steps. ADDIE is an abbreviation for the stages in the model, which include analysis, design, development, implementation and evaluation.[39].

The first stage in the ADDIE method is analysis. The analysis stage determines learning content and evaluates the availability and relevance of textbooks[40]. This involves identifying learning objectives, student characteristics, as well as challenges that may be faced in learning Javanese, especially Javanese script. Student characteristics include educational background and initial knowledge, namely the extent to which students have understood and mastered Javanese language and Javanese script before starting learning. In addition, students' motivation and interests greatly influence their involvement and activeness in the learning process. The next stage is the design stage. Design involves preparing the essential points that will be conveyed in

learning materials, which are in accordance with students' previous abilities, time allocation, as well as indicators and assessment instruments[41]. The design phase focuses on designing the structure and content of the Nglegena World Game. This includes planning game elements, such as level design, characters, dialogue, and interactive and engaging learning mechanisms.

At the next stage is the development stage. development involves creating the actual content of the Game, including graphics, sound, animation, and software programs using RPG Maker MV. At this stage, the design that has been prepared previously is implemented, all the concepts that have been planned are then implemented in the game product that is being developed[42]. During this process, developers also pay attention to technical and creative needs in producing games that match the planned design. Then on stageNext is implementation, Nglegena World is ready to be implemented in a learning environment. This process is a concrete step in developing a game[43]. This game will be introduced to students, especially for class IV students as an interactive and educational learning tool for learning Javanese script.

The final stage is evaluation, where the effectiveness and success of Nglegena World in achieving learning objectives is evaluated. According to Vina Melindah[44], a product that has been developed is considered good when it successfully meets established standards. Nglegena world game development uses formative evaluation methods. Formative evaluation is a series of processes carried out regularly during development, aimed at providing feedback that can be used to increase the effectiveness of the development[45]. Formative evaluation is a crucial stage in game development and implementation. This step aims to identify and fix problems before the game is introduced widely. This evaluation process consists of several stages, namely alpha and beta tests, class observations, and the use of questionnaires and interviews. Alpha and beta tests involve small groups of teachers and students testing early versions of the game. They provide feedback regarding bugs, technical difficulties, and design aspects that need improvement. Next, classroom observations were carried out to observe how games were used in the classroom. The recordings include student interactions as well as how they complete in-game missions and puzzles. Finally, the use of questionnaires and interviews was carried out to collect opinions and suggestions from teachers and students who have used the game. The focus is on aspects of ease of use, usability, and the level of engagement obtained from direct user experience in the field. Thus, formative evaluation provides a deep understanding of game performance and ensures that necessary improvements can be made before wider use.

### III. RESULTS AND DISCUSSION

#### A. NGLEGENA WORLD GAME INNOVATION WITH RPG MAKER MV

Nglegena World Game Innovation is an RPG game developed by developers using RPG Maker MV software which can be accessed via Windows and Android. Nglegena World comes from two words, nglegena means basic script writing[46], and world means world. This combination reflects the game concept which is related to the use of Javanese script or Javanese letters in a wide world or context.

In its development, this project has several stages. First, determine Javanese language material about Javanese script as the core material in the game and plan the gameplay, story, characters and other elements that will be in the game. Second, plan the sequence and types of challenges or activities that will be present in each level. Third, create the necessary assets, such as images, sound and music. Fourth, build a map, organize events, and add characters and dialogue that have been created using RPG Maker MV. Fifth, implement educational material into gameplay. Sixth, test the Game periodically to ensure that all features are functioning properly. Seventh, extract the Nglegena World Game to Android and Windows applications.

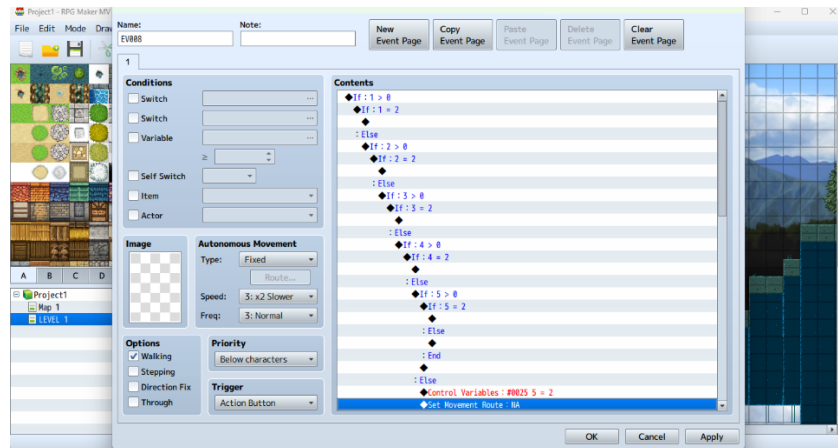


Figure 1. Process of creating the Nglegena World Game concept

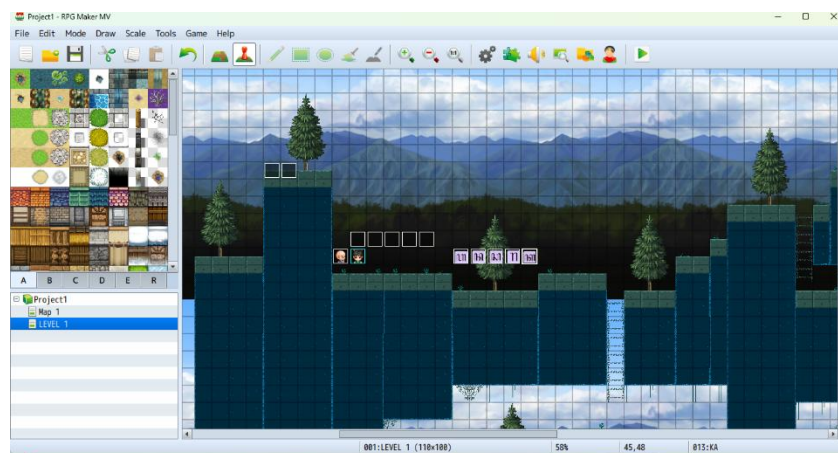


Figure 2. Process of creating the Nglegena World Game map

The learning design of the Nglegena World Game in Javanese language material is to focus on basic Javanese script material. By only focusing on basic Javanese script, Nglegena World can emphasize the essence of the script, including its form, use and meaning. This allows players who are unfamiliar with the Javanese language or Javanese script to gain a solid understanding of the basics of Javanese script before they move on to more complex things.

## B. NGLEGENA WORLD GAME FEATURES

Games This is presented by giving players the opportunity to explore diverse environments in the game. The main task of the Nglegena World game is to collect written Javanese script according to the mission given, of course with elements of RPG games in general which present puzzles, interactions and levels. Puzzles in the game are simple puzzles that can open the way or get prizes in the game, interactions in the game contain conversations in Javanese, Indonesian and English, so that players can understand the meaning of the conversation while learning, levels in the game are levels game difficulty.



Figure 3. Initial appearance of the Nglegena World game

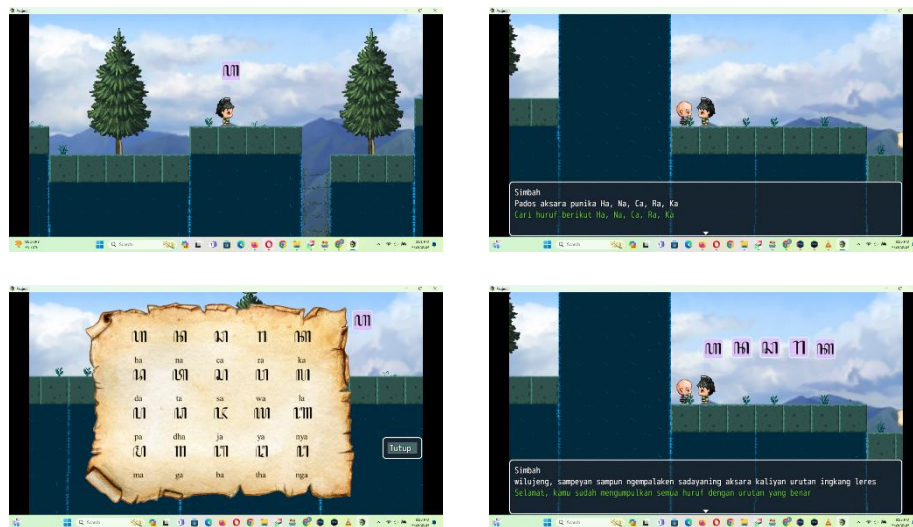


Figure 4. Nglegena World game gameplay display

In the game, players will search for and select Javanese script according to the mission guide, the correct answer will trigger a higher and more difficult level. Each level will have its own difficulty, such as the many puzzles and interactions provided in the mission.

GamesNglegena World can be accessed on windows via the following URL <https://drive.google.com/file/d/1XebWuXuSHjuBFm4DKiouCmCtYhVoT08/view?usp=sharing>.

#### C. IMPLEMENTATION OF THE NGLEGENA WORLD GAME IN LEARNING JAVANESE SCRIPT

Implementation of the use of this game is carried out using several steps. First, the teacher installs the game on each student's android or windows device. Second, the teacher gives students instructions on how to play the Nglegena World Game. Third, students practice the Nglegena World Game directly. The playing guide video can be accessed using the following link <https://youtu.be/CGtqYPhxzIw>

#### D. THE IMPACT OF THE NGLEGENA WORLD GAME ON TEACHERS AND STUDENTS

The Nglegena World Game innovation has various impacts on teachers and students. The first impact on teachers is that teachers can use the Nglegena World Game as a tool to improve their teaching skills in teaching Javanese. They can take advantage of game features, such as interactive tutorials, mini games, and quests, to make learning more interesting and meaningful for students. Second, teachers can help teachers diversify their teaching methods. By integrating games into

the curriculum, teachers can present Javanese language learning material in a more interactive and fun way, thereby making students more involved in the learning process. Third, the use of the Nglegena World Game can help teachers improve their technology skills. Teachers can learn how to integrate technology into their teaching and utilize game features effectively to support the learning process.

Apart from that, the Nglegena World Game also has various impacts on students. First, the Nglegena World Game which is designed in an interesting and interactive way can increase students' interest in learning Javanese language and Javanese script. Second, the Nglegena World Game can help improve students' understanding of the Javanese language, especially related to Javanese script. Through direct interaction with Javanese script in a game context, students can strengthen their understanding of letter structure, pronunciation, and use in words. Third, through interaction with the Nglegena World Game, students can gain a better understanding of Javanese script and the structure of the Javanese language. Features such as tutorials, mini games, and missions integrated with Javanese can help students deepen their knowledge

#### IV. CONCLUSION

Learning media plays an important role in facilitating effective learning. With the use of media, abstract material can be presented in a more concrete way, helping students understand it more easily. Apart from that, learning media can also help students overcome learning obstacles and create innovative solutions. Teacher competence in selecting and using learning media has a significant influence on the learning process. Professional teachers must have a deep understanding of learning material and the ability to use learning media effectively. One of the challenges in learning is the lack of use of innovative and creative learning media by teachers. This can result in low student motivation and learning independence. The development of educational games is one solution to increase interest and effectiveness of learning. Educational games offer an innovative and engaging approach for students to learn learning material. Nglegena World is an innovation in learning Javanese using an educational game approach. This game focuses on learning basic Javanese script, helping students understand the concept and use of Javanese script in an interactive and fun way. The Nglegena World game has a positive impact on teachers and students. For teachers, this game can help improve teaching skills, diversify learning methods, and improve technology skills. For students, this game can increase their interest, understanding and knowledge of Javanese language and Javanese script. Thus, the development of educational games such as Nglegena World can be an effective alternative in improving the quality of Javanese language learning and strengthening students' understanding of cultural heritage and traditional language.

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