

Design of Mathematics Learning Media Using Genially Combined Quizwhizzer Platform for Class X Senior High School Students

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Abstract:- This study aims to develop and evaluate the effectiveness, practicality, and validity of learning media in improving student academic achievement. The method applied is R&D (Research and Development) by adopting the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The research findings indicate that the Genially platform-based math learning media combined with Quizwhizzer is declared Valid, based on the assessment of material experts and media experts. Practicality test shows good results, seen from student observation sheets and teacher observation sheets. Meanwhile, the effectiveness of the media in improving math learning outcomes is said to increase. In conclusion, the development of mathematics learning media using a combination of the Genially platform and Quizwhizzer proved to be very effective in improving students' understanding of quadratic equation material.

Keywords:- Learning Media; Genially platform; Platform Quizwhizzer; Learning Outcomes.

I. INTRODUCTION

Mathematics is a part of science that has an important role in other fields of science and in everyday life [1]. While [2] Mathematics is a basic science that plays a crucial role in everyday life and the development of science and technology. Because of its important role, mathematics is even referred to as the root of science. [3] suggests that most humans find it very difficult to learn math because math is the most difficult thing to learn. There is still a perception among students that math is a challenging subject because it deals with numbers. In addition, students also feel bored quickly, so students do not like math [4].

The above problems are caused by internal and external factors. Internal factors are caused by students' lack of interest and willingness. External factors are the teacher's teaching style that is less interesting, less varied and less innovative. Among the factors that cause student difficulties in learning mathematics, an action is needed to overcome the problem [5]. So the need for interesting learning media. However, the use of learning media at the beginning of the teaching and learning process can increase learning efficiency and facilitate the delivery of subject matter.

The selection of appropriate and interesting learning media can help students understand concepts that seem simple and complex [6]. Meanwhile, according to [7] The implementation of learning media has the potential to increase students' interest in new material, thus facilitating their understanding. Interesting and fun media can also be a source of motivation for students in the learning process. In addition, the use of learning media creates a learning experience that supports the student understanding process [8].

With the rapid development of technology, teachers are able to utilize technology by creating unique, interesting, and fun media [9]. The integration of technology in education has encouraged various parties, including the Ministry of Education, Culture, Research and Technology, to play an active role in optimizing the positive use of technology in education [10]. Therefore, it is necessary to stimulate students using learning media to stimulate students' interest in learning in class.

One platform that allows the creation of attractive, responsive, and economical learning media is Genially. As a web-based application, Genially provides tools for its users to create various types of content involving audiovisual elements and interactivity quickly and practically. To access Genially's services, users can visit its official website <https://genial.ly/>. Genially is also included in the 100 best learning media applications [11]. Genially is a free online program that helps deliver quality and meaningful learning content, which can cover the three learning modalities of students: visual, auditory and kinesthetic [9].

Although it has many advantages, the Genially application also has limitations, one of which is the need to connect to the internet when using it, some premium features can only be accessed by paying additional fees, sometimes it takes a long time loading, this application only provides game features and the delivery of material and animation does not include evaluation assessments, therefore researchers utilize one of the e-learning media, namely Quizwhizzer. According to [12] Quizwhizzer is an educational game platform that functions double, namely as a material delivery medium and learning evaluation tool. Its narrative and flexible characteristics make it suitable for both purposes.

Quizwhizzer is a learning media with board game system, racing, competition or racing system. Quiz Whizzer is an ideal platform for learning math, with a variety of games that make learning more exciting. This application provides various options for creating questions that are packaged in the form of games. In addition, Quiz Whizzer can be used both in face-to-face learning in the classroom and online through the Distance Learning (PJJ) method [12].

Quiz Whizzer is an interactive learning platform that helps teachers create a more interesting and varied learning atmosphere. This application adopts the concept of a snakes and ladders game, where teachers can arrange quiz questions that students must answer according to the designed flow. The Quiz Whizzer feature allows the organization of multiple games simultaneously. In addition, users can customize various aspects such as question types, scoring for each question, player movement rules, and game board layout [13].

The results of Enstein's research (2022) explain that a web-based learning media named "Pangkar" stands for (rank and root) has been developed with the concept of a board game similar to "snakes and ladders". This media has been proven to function properly and is suitable for use by students and the general public, this is reviewed from the feasibility test using the Black Box Testing method. While the results of Juhaeni's research (2023) show that educational game media seen from the feasibility and effectiveness of the media is proven to be able to improve student learning outcomes, this is reviewed from the distribution of feasibility test questionnaires.

It can be concluded that these two studies confirm that well-developed educational game-based learning media, through the feasibility testing process, can be attractive, effective, and feasible media to support the student learning process. So in this study the researcher raised the title "Development of mathematics learning media using the Genially combined Quiz Whizzer platform for grade X high school students" from this title aims to analyze the validity, practicality and effectiveness in improving student learning outcomes on quadratic equation material for grade X high school students.

II. METHODS

The R&D method is the type of research and development used. This method involves research to validate and improve products used in education and learning [14]. The development model used in this development is the ADDIE model (analysis, design, development, implementation, and evaluation) [15]. Researchers focus on developing learning media using platform genially combined quizwhizzer with the procedures of needs analysis, material analysis, selection of learning media, instrument preparation, product design, developing media, validating media and material experts, implementation, and evaluation.

This research focuses on students of class X-11 SMA Negeri 1 Gondangwetan. The development of this mathematics learning media aims to improve student learning outcomes and make learning a fun experience. In collecting data, researchers used two main instruments: validation sheets and observation sheets for teachers and students. The validation sheet was used to assess the feasibility of the learning media, involving two expert assessors - a mathematics lecturer and a mathematics teacher. Meanwhile, the observation sheet was used to measure the practicality of the learning media, which was assessed by observers.

III. RESULTS AND DISCUSSION

A. Results

The product of this development is a learning media that can be accessed online through the Genially platform. This media presents learning content that includes discussion of quadratic equation material, accompanied by examples of problems, and equipped with interactive quiz features. It should be noted that this game-based learning media is designed as a supplement or additional material, which aims to enrich and complement the learning material that students have obtained during classroom learning sessions. Thus, this media serves as a supporting tool that can deepen students' understanding of the topic of quadratic equations.

➤ Analysis

Analysis in media development aims to gather information to overcome problems at school. This process includes needs analysis and material analysis. Based on the needs analysis, it was found that students had already used learning media, but only quizzes. From the results of the material analysis, the material obtained in the current independent curriculum at the high school level is quadratic equations. From this analysis, a learning media is needed that contains material and quiz where this quiz is an evaluation material for games packaged in the genially combined quizwhizzer platform.

➤ Design

The design stage aims to make an initial design of learning media. One of the important activities in this stage is the selection of the right media according to the needs and learning objectives, material and quiz preparation, instrument preparation, main product design and media design. Researchers chose the genially platform to create learning media combined with quizwhizzer to create quizzes, researchers chose the platform as a more enjoyable learning experience in the form of applying material using online-based learning media and as an evaluation after the implementation of activities through quizwhizzer. Product design is made to facilitate the creation of media navigation structures, so that the designer has no difficulty applying ideas to make the main product. The following is a display of the flow of genially media product design which can be seen in the picture below:

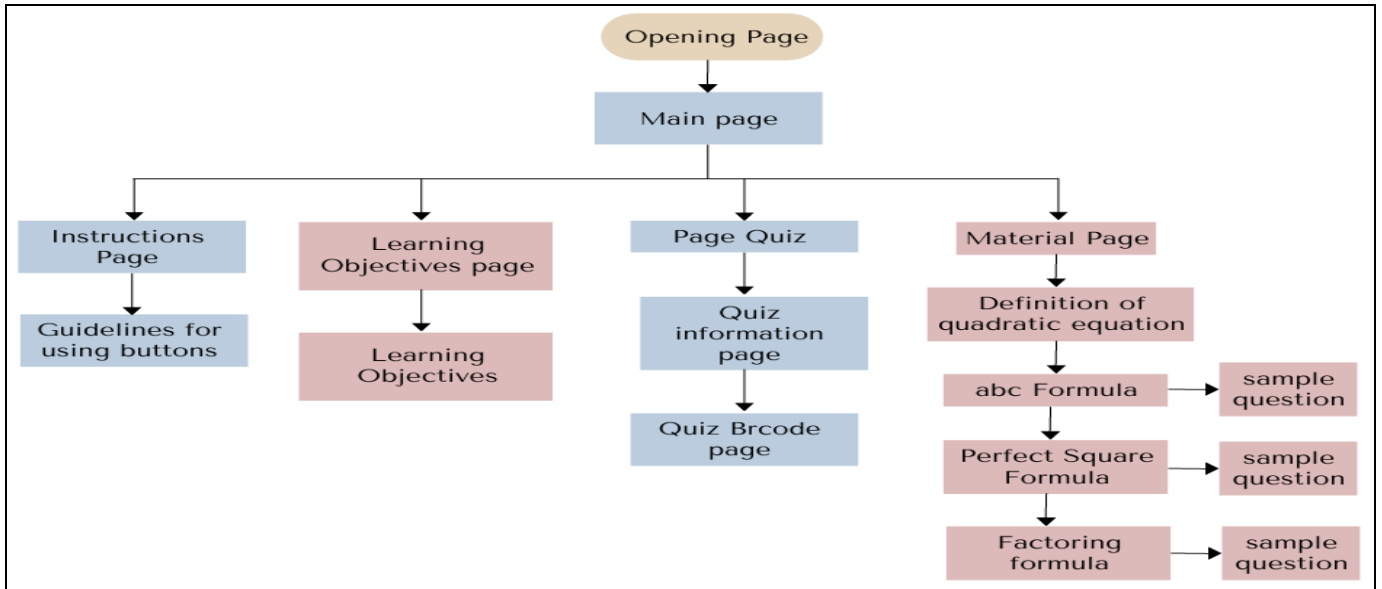


Fig 1: Genially Media Product Design

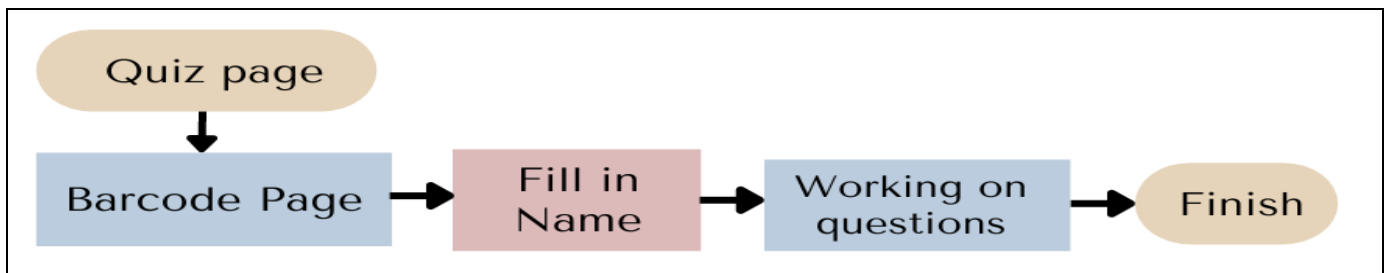


Fig 2: Quizwhizzer Product Design

Figure 1 is the design of the display of mathematics learning media using the genially platform, where the flow of the media can be a reference for the content of the media. Figure 2 is a design on the quizwhizzer platform.

➤ *Development*

The development stage aims to produce products, in accordance with the flow of media design and the flow of

quiz design. Researchers have produced a learning media design display that can be seen in the following illustration, in Figure 3 displays the initial page of the learning media product that has been developed. This opening page is designed by including inspirational sentences to increase student learning motivation.



Fig 3: Opening Page

Meanwhile, Figure 4 shows the main menu interface. This menu is equipped with interactive buttons that, when

clicked, will direct users to the specific parts they want in the learning media.



Fig 4: Main Menu Page

The development of the quiz page is developed in the quizwhizzer platform, after the researcher develops the quiz the quiz link will be converted into a barcode and the

barcode link can be placed on the genially platform learning media as in Figure 6. To do the quiz students read information about the quiz on the quiz page in Figure 5.

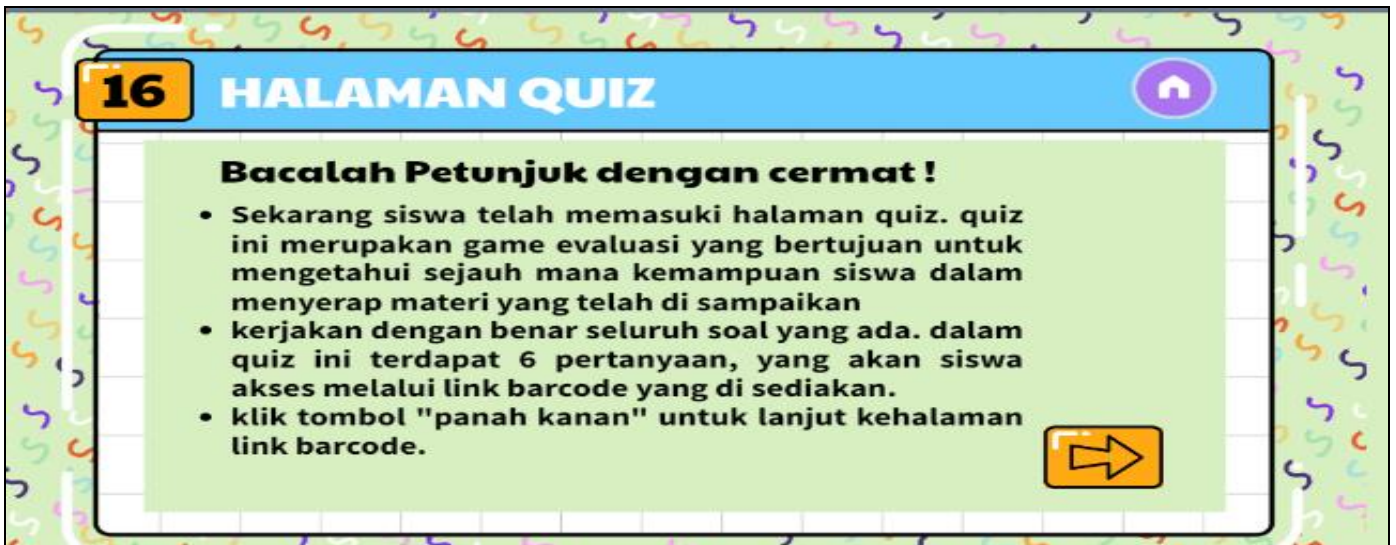


Fig 5: Quiz Page

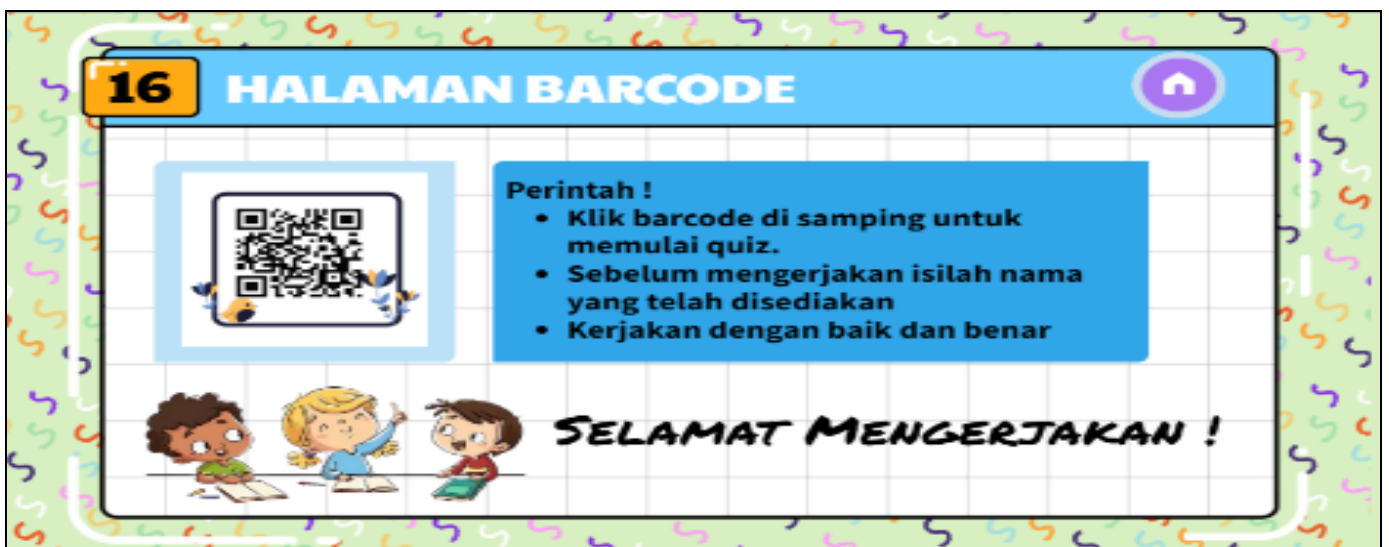


Fig 6: Barcode Quiz Page

Before becoming a barcode on the genially quiz platform, it is designed using quizwhizzer, on the quizwhizzer website researchers enter questions that have

been compiled previously. Gamabar 7. Is a board game display on the quizwhizzer page.



Fig 7: Board Game on Quizwhizzer

The learning media that has been developed will go through a validation process by media experts and material experts. The goal is to assess the feasibility of the media. The validation results will be presented in table 1 below:

Table 1: Results of Validation by Experts

Validator	Percentage	Category
Media Expert	78,21%	Worth
Material Expert	72,63%	Worth

Through table 1, the results of the media expert validity test show a percentage of 78.21%, with a decent category. The material expert validity test shows a percentage of 72.63%, with a decent category.

➤ *Implementation*

The implementation stage involves testing the learning media on students. This trial aims to measure the effectiveness and practicality of the media in improving student learning outcomes. The trial was conducted on 30 students of class X-11 SMA Negeri 1 Gondangwetan. This trial was conducted for 2 meetings, for the first day's activities students were given pre-test questions with the aim of measuring students' initial knowledge. Furthermore, students use learning media until the material is finished. The second meeting students do quiz and post-test questions.

To test the practicality of the media can be seen through the student observation sheet and teacher observation sheet observed by the observer which will be presented in table 2 below:

Table 2: Observation Results

Observer Result	Percentage	Category
Student Observation Sheet	71,5%	On
Teacher Observation Sheet	76,25%	Good

Through table 2, the results of the student observation sheet show a percentage of 71.5%, with an active category, and for the teacher observation sheet shows a percentage of 76.25%, with a good category. To test the effectiveness of the media obtained by looking at the improvement of student learning outcomes. Of the 30 students, 27 students reached the criteria for achieving school learning objectives , namely ≥ 75 . This shows 90% of all students who use learning media have met the criteria for learning completeness.

➤ *Evaluation*

The development of this math learning media still has shortcomings, among others: The material in this learning media only covers quadratic equations. The media studied by researchers uses mathematical material but this platform still has problems in typing formulas, and games on this platform cannot be made, evaluation because it focuses on interactive learning. So that researchers collaborate with quizwhizzer. For students who do not bring a cellphone cannot access this learning media, so there are participants who join their classmates' cellphones.

B. Discussion

The school has implemented learning media in the learning process at school in the form of cooperation with the quipper application to test students' academic knowledge. In addition, there are LCDs and projectors but they are not available in all classes so they cannot be used effectively in learning. In the learning process that often occurs students do not pay attention to the teacher, students do not do assignments from the teacher, lazy students so that researchers develop website-based math learning media.

Development research is a type of research that aims to produce a product. In this context, development research is focused on creating an innovative learning media using Pltfrom genially combined quizwhizzer, quadratic equation material for class X SMA that is valid, practical and effective. This mathematics learning media was developed in accordance with the procedures of Dick and Carry (1996) using the ADDIE model, namely analysis, design, development, implementation, and evaluation [15].

The use of the Genially platform as a learning tool results in an interesting learning process for students. this is supported by previous researchers [16], who stated that the application of genially media in learning provides an effective and enjoyable learning experience The templates used in learning are also adapted to the written modules that have been compiled. Although researchers faced challenges in the form of inconsistent internet connections during learning activities, the process could still be continued. Network instability had become an obstacle in the implementation of learning, such as research from [17] said that the problem of network or internet instability can hinder learning.

The use of learning media using the genially combined platform is feasible to use as learning media, this conclusion is supported by several previous studies. One of them is a study entitled "Improving Learner Learning Outcomes through the Development of Genially Based Learning Media". [18]The study revealed that the learning media developed received excellent ratings from validators and users in various aspects. Furthermore, the use of Genially-based media successfully improved students' academic performance. In addition, another study demonstrated that the use of Quiz Whizzer was able to increase students' enthusiasm for learning[19].

IV. CONCLUSIONS

The development of mathematics learning media using pltfrom genially combined Quizwhizzer proved to be feasible and effective in improving student learning outcomes on quadratic equation material. This conclusion is supported by the results of the feasibility test conducted by experts. The assessment from the media expert reached 78.21%, while the material expert gave a score of 72.63% More impressively, the use of this media succeeded in encouraging an increase in the average student learning outcomes of up to 90%. These figures show that the

combination of Genially and Quizwhizzer is a promising solution to improve the quality of mathematics learning, especially in the topic of quadratic equations

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