



Development of Quizizz Game-Based Interactive Learning Media to Improve Learning Outcomes

Wahyuni^{1*}; Ika Lis Mariatun²; Yusrianto Sholeh³

^{1,2,3}Pendidikan Ekonomi, STKIP PGRI Bangkalan, Indonesia

^{1*}Corresponding Email: wahyuni270700@gmail.com, Phone Number: 0878 xxxx xxxx

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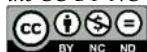
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Abstract: In this digital era, it is very important to understand and use technology wisely to adapt to digital transformation. Technology affects the quality of education in these turbulent times. A game is an interesting learning medium with an interactive nature. Currently, educators can choose Quizizz as an interesting learning environment supporting the learning process. This study aims to provide teachers with interactive learning media interventions based on quizizz games in Economics class X SMA Darul Hadits, Sepulu District, Bangkalan Regency. This time, learning media development uses the research model (ADDIE). The research subjects included in the development of interactive learning media are validation tests by media validators, practitioner validators, and material validators, as well as tests aimed at students. Research data were obtained through observation techniques, questionnaires, and interviews with economics teachers and several class X SMA Darul Hadits regarding the learning process. The study results show that the teacher uses lecture and discussion methods using LKS and PowerPoint media in economics learning. So, with this, the researcher uses the Quizizz game application to support student learning enthusiasm so that later it will improve student learning outcomes. This study got a very good response from teachers and students.

Abstrak: Di era digital ini, sangat penting untuk memahami dan menerapkan penggunaan teknologi yang bijaksana untuk beradaptasi dengan transformasi digital. Teknologi mempengaruhi kualitas pendidikan di masa yang penuh gejolak ini. Salah satu media pembelajaran yang menarik, memiliki sifat interaktif ialah permainan. Saat ini, pendidik dapat memilih Quizizz sebagai lingkungan belajar yang menarik yang dapat mendukung proses belajar. Penelitian ini bertujuan untuk memberikan intervensi kepada guru mengenai media pembelajaran interaktif berbasis game quizizz dalam pembelajaran Ekonomi kelas X SMA Darul Hadits Kecamatan Sepulu, Kabupaten Bangkalan. Adapun pengembangan media pembelajaran kali ini menggunakan model penelitian (ADDIE). Subjek penelitian yang dimasukkan dalam pengembangan media pembelajaran interaktif ini adalah uji validasi oleh validator media, validator praktisi dan validator materi serta uji yang ditujukan untuk siswa. Data penelitian diperoleh melalui teknik observasi, angket dan wawancara dengan guru ekonomi serta beberapa siswa kelas X SMA Darul Hadits mengenai proses pembelajaran. Adapun hasil penelitian menunjukkan bahwa pada proses pembelajaran ekonomi guru menggunakan metode ceramah dan diskusi dengan penggunaan media LKS dan power point. Maka, dengan hal ini peneliti menggunakan aplikasi game quizizz sebagai penunjang semangat belajar siswa sehingga nantinya akan meningkatkan hasil belajar siswa. Dalam penelitian ini mendapatkan respon yang sangat baik dari guru serta siswa.

A. Introduction

Education is a conscious effort to pass on and preserve cultural knowledge, values, skills, and traditions from one generation to another (Rahman et al., 2022). Educational experts can conclude that education is an activity that includes various interrelated elements, and the learning process is planned so that the learning process becomes active (Sutrisno, 2019). Learning media can convey lesson information to students and stimulate students' thoughts, feelings, attention, and willingness to motivate learning. This is supported by (Arsyad, 2015) learning media is anything that can be used to convey information in the teaching and learning process in such a way as to attract students' attention and interest in learning. Learning media is a message carrier technology that can be used for learning purposes and a physical and communication facility to convey subject matter directly or indirectly (Apriani, 2023; Suryawan et al., 2023). From some definitions above, learning media refers to everything that can disseminate information or news, stimulate students' thinking in learning activities, and increase students' learning interests.

According to (Surjono, 2017), interactive learning multimedia is a learning program that combines various media such as text, images, videos, animations, sounds, and other interactive elements. This program is designed to achieve learning objectives by utilizing computer assistance. With interactive learning multimedia, users, be they students or trainees, can actively interact with the program. Then according to (Syaparuddin et al., 2020), active learning strategy is a unified source of a comprehensive collection of learning strategies. Active learning includes various ways to make students active from the start through activities that build group work and, in a short time, make them think about the subject matter. There are techniques to lead learning for the whole class, for small groups, stimulate discussion and debate, practice skills, encourage questions and even allow students to teach each other.

Technology plays an important role in education and provides the necessary tools for learning, research, and curriculum development. Technology in education can refer to various tools and platforms, including hardware (such as computers, tablets, and projectors), software (such as interactive learning programs or educational apps), computer networks and the internet, and various types of digital media (Kurniawan, 2019). The development of technology and the current digital era greatly affect people's lives, especially in the world of education. Technology in teaching becomes easier and more interesting in learning, where the teacher is not the only source of learning for students. However, the teacher is also a facilitator who guides and controls student learning. (Kurniawan et al., 2019).

Information and communication technology ICT involves using technology, engineering, and management techniques to acquire, process, and use information. ICT has an important role in learning, and there are three main components in ICT-based learning computers, multimedia, and telecommunications. Computers are used as a tool to access and process information. With computers, students can access online learning resources,

complete assignments, and interact with interactive learning programs (Wiryany et al., 2022).

It is very important to understand and use technology wisely to adapt to digital transformation in this digital era. Technology affects the quality of education in these turbulent times. The world of education is a world that allows many things, especially personal transformation, knowledge, character building, and realizing one's potential. For educators to access the material about digital transformation more easily, the learning environment is diverse and optimally demonstrates the basic skills required. Giving quizzes is a strategy given by the teacher to students by giving questions in the learning process related to the material taught to measure students' level of understanding (Riskawati, 2017).

Quizizz is an online learning platform that offers interactive quizzes and assessments for students. It provides immediate feedback and performance data, making it convenient for teachers and students. Quizizz allows teachers to create quizzes that students can access and play anytime and from anywhere, as long as they have an internet connection. This flexibility enables students to complete the quizzes as homework assignments PR and allows them to manage their time effectively (Musyarrof, 2021).

The Quizizz media has the advantage that the questions presented in the Quizizz media have a time limit. Students are taught to think properly and quickly in working on the questions on the quizizz media. Good learning is learning that is by the learning objectives. To determine that learning is by learning objectives, it is necessary to evaluate learning through student learning outcomes. Learning outcomes are patterns of behavior, values, understanding, attitudes, appreciation, and skills of students as a result of the interaction of learning activities carried out with a teacher or educator (Andriani & Rasto, 2019).

According to (Citra & Rosy, 2020), Learning outcomes are the knowledge, skills, and attitudes that students acquire and demonstrate as a result of their learning experiences. They encompass cognitive thinking and knowledge-based, affective emotional and attitudinal, and psychomotor physical and motor skills. Cognitive learning outcomes refer to the intellectual abilities and knowledge gained by students. These outcomes include critical thinking, problem-solving, analytical skills, understanding concepts and theories, and applying knowledge in different contexts (Qiptiyyah, 2020). Learning outcomes can impact two things, namely, the impact of teaching and the impact of accompaniment. The impact of teaching is student learning outcomes that can be measured directly. This impact arises as a direct reaction to the teacher's learning process. Accompaniment effects are student learning outcomes that appear indirectly or transfer learning outcomes from one context to another. These impacts cannot be measured directly and may take longer to become visible. Both of these impacts contribute to increased meaningful learning for teachers and students. Teachers can use the information from these two impacts to measure the effectiveness of their teaching methods, adjust teaching strategies, and improve the quality of their teaching. Meanwhile, students will benefit from a better understanding, developing relevant skills, and being ready to face challenges in their lives and careers.

The types of learning outcomes are stated in the classification developed by Bloom et al. In (Parwati et al., 2018), there are three domains, and the first is the cognitive domain, where this realm relates to a child's thinking ability. Second, the affective domain is hierarchical. Third, the psychomotor domain relates to the ability to move or manipulate, not caused by biological maturity. The ability to move or manipulate is controlled by psychological maturity. So these abilities can be learned and can support students in understanding economic subjects. Economics subject itself is a subject that studies how a person fulfills his unlimited needs with limited resources. Economics subjects are subjects given in high schools (SMA), economics subjects using the 2013 curriculum, and each student actively seeks information to avoid missing learning material.

Based on the results of researchers' observations of the learning process at Darul Hadits High School, Sepulu District, the teacher's learning process used manuals and power points to support learning activities at school. In addition, teachers also still use the lecture method in teaching, especially economics learning, so that students feel bored and prefer to do other things, such as sleeping or drawing in notebooks during the learning process. Economics lessons are considered difficult to understand because they require a good understanding of concepts. Economics lessons require the ability to contribute fully so students can fully understand. This ability can arise because of the pleasure of student learning. Therefore the teacher must bring students to a pleasant atmosphere, and students can focus on the material presented by the teacher. In addition, most mobile phones students use are smartphones with adequate specifications to operate in an application useful for learning. Obtained data on class X SMA Darul Hadits knowledge value, totaling 12 students. Eight students received knowledge scores included in the good category (B), and the number of students who received sufficient scores (C) was 4. The average value of student learning outcomes in economics lessons is 67.25 in the sufficient category. The researcher chose this title because by using the Quizizz Game media, students can easily understand the material presented. In addition, this learning process will make students active because the learning atmosphere is fun, so it is possible to increase student interest in learning.

This research can add to students' understanding by having or using Quizizz game media to improve learning outcomes in the learning process at Darul Hadits High School, Sepulu District. The teacher is expected to help students in solving class problems. Quizizz game media helps teachers simplify and create an effective and fun learning atmosphere. Meanwhile, for schools, the research results are expected to provide an overview of schools with interesting learning media. They can motivate schools to improve the quality of learning media in schools.

B. Method

Research and Development (RD) is a research method focused on producing and developing a product and testing its effectiveness. RD research aims to improve existing products or develop new ones to enhance their effectiveness. RD typically involves several stages, including identifying research goals, conducting background research, designing

and developing the product, testing and evaluating its effectiveness, and making necessary improvements based on the findings (Sugiyono, 2016).

This time the development uses the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) research model. This development model has several stages that the sequence must carry out to meet the resulting product's needs. The research model (ADDIE) is chosen because this research aims to develop a product that will also be tested for its feasibility through expert validation. Development model (ADDIE) according to product development steps, this research and development model is more rational and more complete than the 4D model (Rusmayana, 2021).

The research subjects included in the development of interactive learning media were validation tests by media validators, practitioner validators, and material validators, as well as tests aimed at 12 students. This development research was conducted at Darul Hadits High School in Terem Hamlet, Klapayan Village, Sepulu District, Bangkalan Regency. The development of technology-based learning media will be carried out in May 2023. The research procedure consists of the following stages:

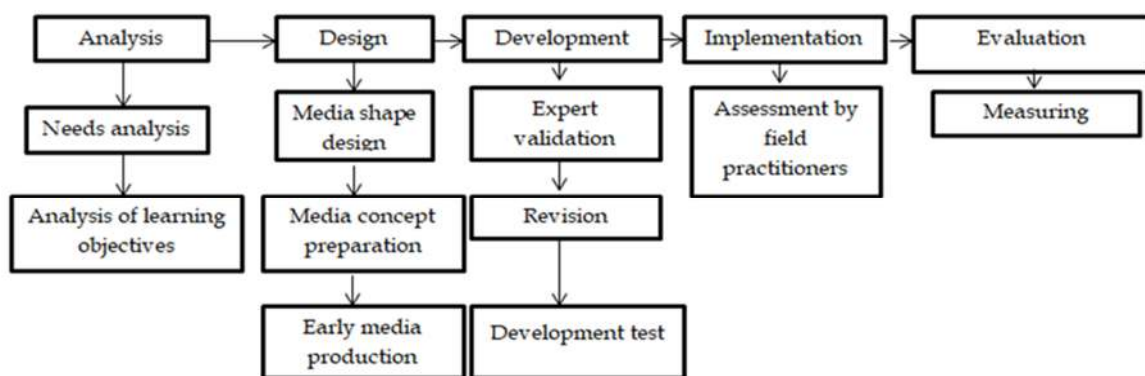


Figure 1. Development Activity Procedures

Based on Figure 1. There are five stages of development activity procedures that use the ADDIE model, namely:

1. The analysis phase contains a needs analysis and an analysis of learning objectives.
2. The design stage contains the media form's design, the media concept's preparation, and the media's initial production.
3. The development stage contains expert validation, revision, and development testing.
4. The Implementation phase contains an assessment by field practitioners.
5. The evaluation stage contains activities to measure the feasibility of the product (game Quizizz)

This time researchers used several data collection techniques, namely: (1) Observation, (2) Interview, (3) Questionnaire. The observation is participatory observation, in which the researcher makes direct observations and is involved in learning. In this

observation method, researchers observe various aspects needed to find problems that exist in schools (Sugiyono, 2019). While the interviews were unstructured, this research was conducted to discover the problems found in depth. Interviews in this development research were conducted with teachers regarding students' constraints in learning and learning and using learning media (Sugiyono, 2019). According to (Sugiyono, 2016), a research instrument is a tool used to measure observed natural and social phenomena. The instruments used in this study include learning media validation sheets for material experts, media experts, practitioner experts, and students. Data analysis techniques in this development research interactive learning media based on quizizz games use a Likert scale.

C. Result and Discussion

Result

Based on the results of the analysis that has been carried out, the researcher decided to develop learning media products that can be used to overcome the learning problems that have been described. With this Quizizz game media product, it is hoped that later learning will be more effective and enjoyable to achieve learning objectives more quickly. However, before proceeding to the product trial stage, researchers must go through the stages of validation from media experts, material expert validation, field practitioner validation, and finally, the results from the respondents or their students.

Table 1. Likert Scale Achievement Conversion

Achievement Level	Score	Qualification
90 % -100%	5	Very good
75% - 89%	4	Good
65% - 74%	3	Enough
55% -64%	2	Not good
0 -54%	1	Not very good

Likert scale is a measurement tool often used in research to measure one's attitudes, opinions, and perceptions of a social phenomenon. This scale allows respondents to express their agreement or disagreement with certain statements using a specified range of scores. Likert scales generally use a score range of 1-5 or 1-7, although variations in the number and score labels are used (Sugiyono, 2015). Furthermore, the results obtained are then calculated to determine the percentage. Furthermore, the percentage results are categorized according to the feasibility level of the table.

Table 2. Media Expert Validation Results

Assessment Aspects	Number Of Items	Score	Percentage
Members of the media	17	81	95%

Thus, the product-based interactive learning media *Game Quizizz* in economics subjects is included in the very good or very decent category because it gets a percentage value of 95%, so it is highly recommended to use it as a medium for learning. The suggestions given by media experts in researching the development of Quizizz game media this time are as follows:

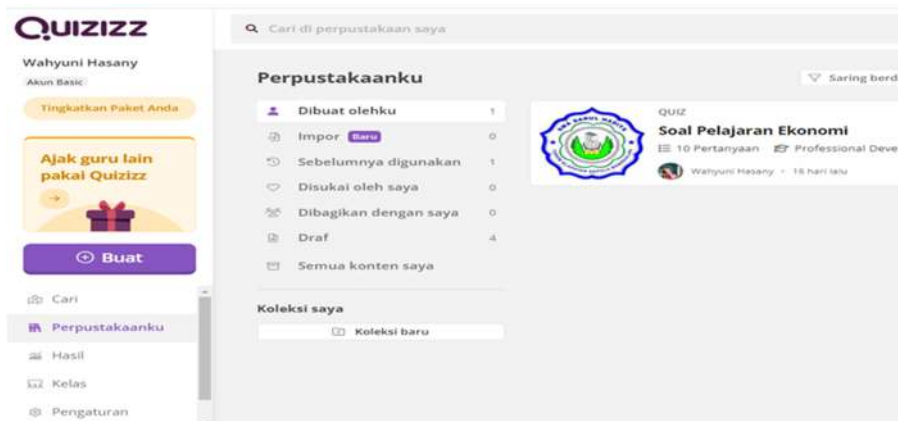


Figure 2. View Before Revision

Figure 2. Displays the Quizizz game media, which only contains one practice question for students.

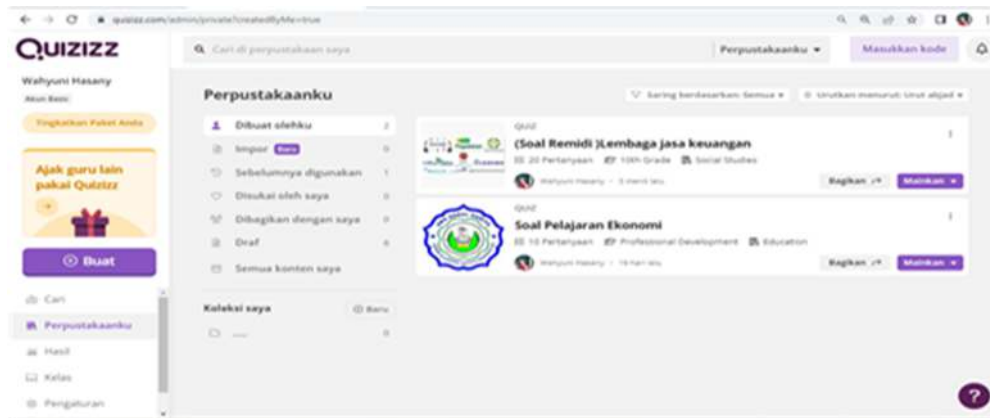


Figure 3. Display After Revision

Figure 3. Displays the revised Quizizz game media where it is recommended to prepare additional quiz questions for students whose grades are below the KKM so that they can participate in additional exercises and increase student scores.

Table 3. Material Expert Validation Questionnaire Results

Assessment Aspects	Number of Items	Score	Percentage
Material expert	10	42	84%

Thus, product-based learning media *Game Quizizz* Economics subjects are included in the good or proper category because they get a percentage of 84%, so they can be used as learning media. The suggestions given by material experts in research on the development of Quizizz game media this time are as follows:



Figure 4. View Before Revision

Figure 4. Displays images before the revision, which only contain questions. No material is displayed.

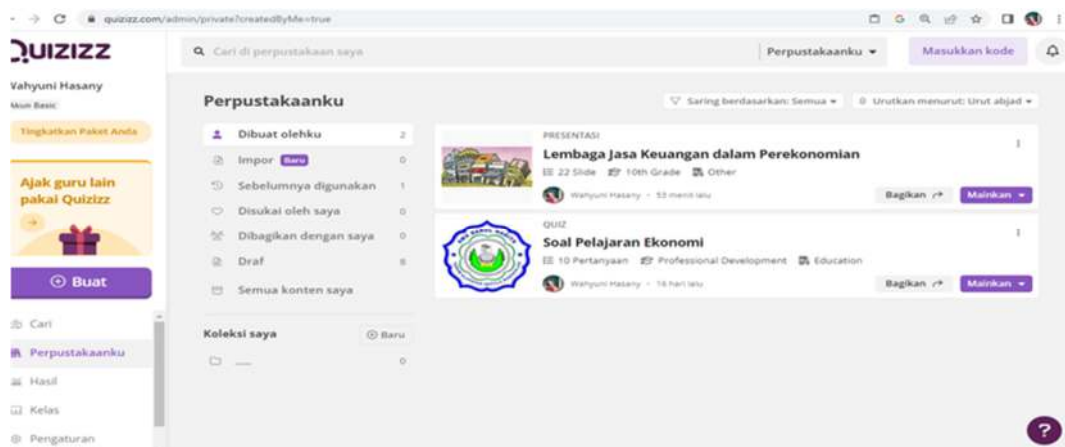


Figure 5. Display After Revision

Figure 5. It contains the appearance after revision, where the material is added beforehand, and includes learning objectives in the Quizizz game media. So that students can understand the purpose.

Table 4. Field Practitioner Validation Questionnaire Results

Assessment Aspects	Number of Items	Score	Percentage
Field practitioner	10	46	92%

Thus, product-based interactive learning media *game quizizz* in Economics subject, included in the very good or very decent category with a percentage of 92%. So that it can be used as a medium for teaching and learning activities.

Table 5. Respondent Trial Results

Respondent	Score	Percentage	Category
S1	94	99%	Very good
S2	94	99%	Very good
S3	95	100%	Very good
S4	82	86%	Good
S5	87	92%	Very good
S6	90	95%	Very good
S7	88	93%	Very good
S8	88	93%	Very good
S9	91	96%	Very good
S10	89	94%	Very good
S11	85	89%	Good
S12	95	100%	Very good
Average		95%	Very good

Based on the table above, the results of trials on respondents, which involved 12 respondents, obtained an average of 95%. So, based on the validity table, the qualification results are very good. The student scores before and after the product trial are as follows:

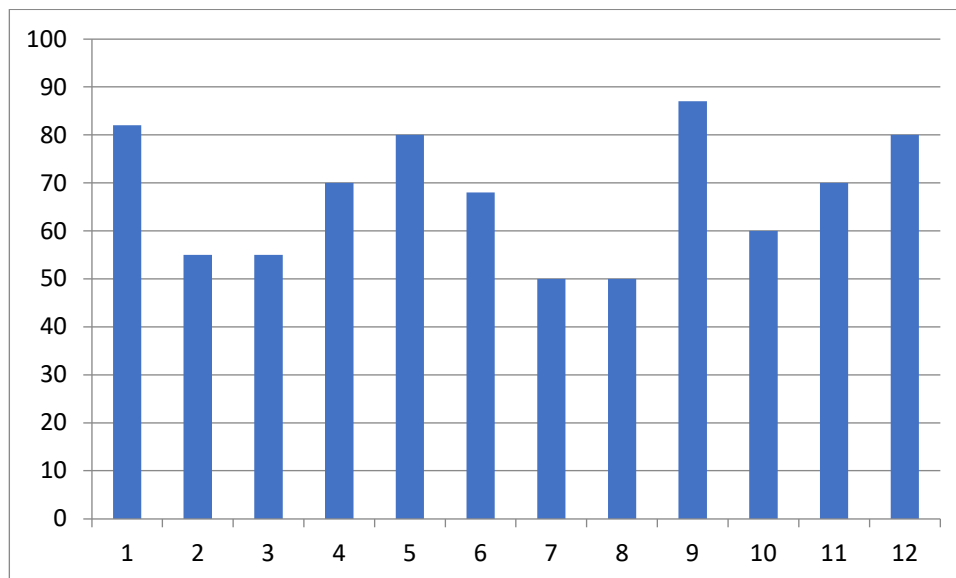


Figure 6. Student Grades Prior to Product Trial

Figure 6. Above can be seen the value of students' knowledge in economics class X SMA Darul Hadits with 12 students. Students who get good category scores (B) 8 students

who get scores in the fair category (C) 4 students. With an average value of 67.25 in the sufficient category.

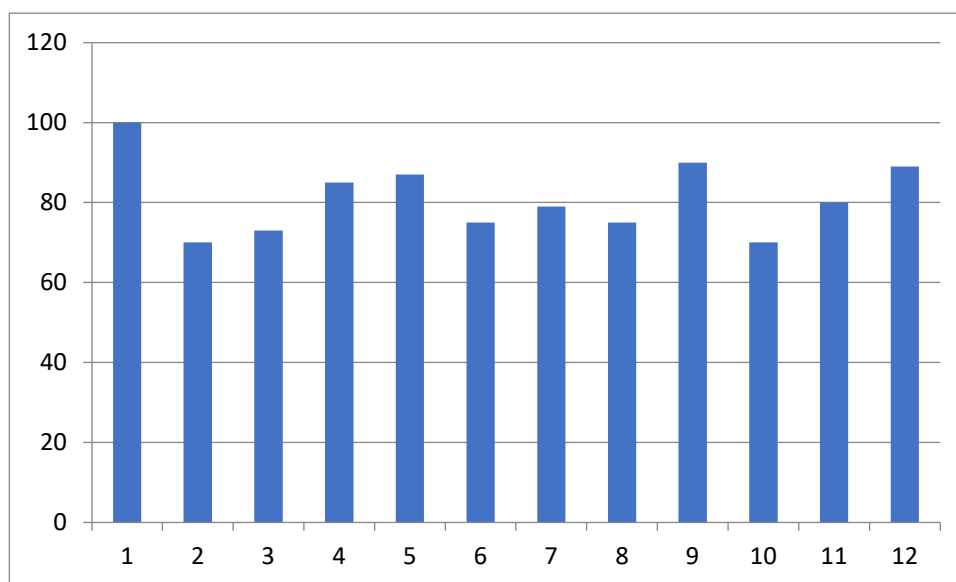


Figure 7. Student Grades After Product Trial

Figure 7. shows that the value of students who scored in the fair category (C) did not exist after the product trial. Eleven students got good grades (B) and grades in the very good category (A) 1 student. The average value is 81.08 in the good category.

Discussion

This development research aims to create non-print learning using the Quizizz game application. It can be accessed using mobile phones or computers on material for financial service institutions for class X SMA Darul Hadits, where the learning process is carried out using the K-13 curriculum. With Quizizz game-based learning, it is hoped that it can maximize the learning process in class and improve student learning outcomes. One of the advantages of this media product is that it helps teachers make questions on the platform and is fun, effective, and real-time for students. Before it can be used for actual learning, several stages need to be passed, such as validation by experts to determine the feasibility of the media and product trials on students.

The validation results from media experts get a percentage of 95% which indicates that the media is included in the valid category or is very suitable for use. This shows that the use, navigation, media integration, and technical quality presented in the Quizizz game media are easy to understand and very good (Zuhriyah, 2021)

Furthermore, from material experts, the results of the percentage of 84% are included in the valid category. The material presented is good, from the clarity of basic competencies, learning objectives, the relevance of the material, and the quality of the tests and assessments (Wijayanti et al., 2022).

The validation results from field practitioners get a percentage value of 92% in the category of valid or very feasible to use. By paying attention to the clarity of the test, the assessment of the questions presented, the opportunity for students to be more active, and the quality of motivating students (Anugraheni et al., 2023).

After the Quizizz game media was declared valid, it was then tested on students or respondents, with a total of 12 students getting an average percentage value of 95% so that it was declared valid. This can be seen from the data on student learning outcomes which increased before and after the trial. Obtained data on the learning outcomes of class X SMA Darul Hadits after conducting trials to obtain knowledge values in the sufficient category (C) did not exist. At the same time, 11 students received grades (B), and one student received very good grades (A). The average value is 81.08 in the good category. So with that, it can be said that using Quizizz games or technology can improve student learning outcomes if used correctly. This aligns with previous research by (Salsabila et al., 2020) entitled "Utilization of the Quizizz Application as Learning Media in the Middle of a Pandemic in High School Students". According to previous research, success in the learning process can be seen from understanding the concept, mastery of the material, and student achievement. Students with a high level of understanding of concepts and mastery of the material, the higher the achievements achieved. Another determining factor is the accuracy of learning models and media applications. An educator must understand learning methods, especially those related to learning models. Learning media can also divert students' attention to lead to learning motivation, which impacts activeness and learning outcomes.

D. Conclusion

Based on the results of this study, it can be concluded as follows: (1) after carrying out analysis activities, both analysis of needs and learning objectives, the researcher then developed media development in the form of quizizz games to increase student enthusiasm so that later it would affect student learning outcomes (2) the validation process starts from material experts, media experts, field practitioners (teachers) and class X SMA Darul Hadits students. (3) then, suggestions for improvement from material experts and media experts for Quizizz game media and then the determination of "feasible/not feasible" is used for the learning process. (4) after going through all these processes, the final product is created as Quizizz game media, which media and material experts have revised.

Through the findings obtained from this study, using Quizizz game media is highly recommended in the learning process for high and junior high school levels because this media is very interesting. Various examples of practice question platforms are presented to help teachers create interesting questions and improve learning outcomes for students because learning is not boring.

It is recommended for further research to develop quiz game media in terms of more interesting examples of questions and to combine the use of quiz games with other applications so that the learning process is even more effective.

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