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THE LEARNING MEDIA DEVELOPMENT BASED ON BENIME AND EDMODO AT TRIGONOMETRY SUBJECTS TO IMPROVE STUDENTS' LEARNING INTEREST

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Abstract:
Effective media is media that can achieve learning objectives quickly and precisely. This study aims to develop learning media based on Benime and Edmodo on Trigonometry learning material to increase students' interest in learning. This type of research is development which refers to the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The subjects in this study were 19 students of class X MA Unggulan Bandung Tulungagung. Methods of data collection using questionnaires and tests. From the questionnaire, the results of the material expert validity test were obtained, namely a score of 3.60 (good criteria) and a score of 4.22 from media experts (very good criteria), so the media developed was a valid criterion. The students' practicality test results obtained an average of 87.36 (very practical criteria). The results of the student effectiveness score were 88.42 (very good criteria). The Gain-test value is 0.69 which is classified as moderate based on the Gain-test criteria to find out how much the student's learning interest has increased. Therefore, audio-visual media based on Benime and Edmodo applications on Trigonometry material is practical and effective in increasing student learning interest.

Keywords: Benime App, Edmodo App, Audiovisual, Trigonometry

PENGEMBANGAN MEDIA PEMBELAJARAN BERBASIS BENIME DAN EDMODO PADA MATERI TRIGONOMETRI UNTUK MENINGKATKAN MINAT BELAJAR SISWA

Abstrak:
Media yang efektif merupakan media yang mampu mencapai tujuan pembelajaran dengan cepat dan tepat. Penelitian ini bertujuan untuk mengembangkan media pembelajaran berbasis Benime dan Edmodo pada materi Trigonometri untuk meningkatkan minat belajar siswa. Jenis penelitian ini adalah pengembangan yang mengacu pada model ADDIE (Analysis, Design, Development, Implementation dan Evaluation). Subjek dalam penelitian ini adalah siswa kelas X MA Unggulan Bandung Tulungagung sebanyak 19 siswa. Metode pengumpulan data menggunakan angket dan tes. Dari angket diperoleh hasil uji validitas ahli materi yaitu skor 3,60 (kriteria baik) dan skor dari ahli media 4,22 (kriteria sangat baik), sehingga media yang

dikembangkan berada pada kriteria valid. Hasil uji kepraktisan siswa diperoleh rata-rata 87,36 (kriteria sangat praktis). Hasil nilai keefektifan siswa sebesar 88,42 (kriteria sangat baik). Nilai uji-Gain 0,69 yang tergolong sedang berdasarkan kriteria uji-Gain untuk mengetahui seberapa besar peningkatan minat belajar siswa. Oleh karena itu, media audio visual berbasis aplikasi Benime dan Edmodo materi Trigonometri, praktis dan efektif dalam meningkatkan minat belajar siswa.

Kata Kunci: Aplikasi Benime, Aplikasi Edmodo, Audio visual, Trigonometri.

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INTRODUCTION

Education was a main subject for everyone that helps humans learn so that the results of the process can be used in dealing with certain problems (Nababan, 2020) and as a means to avoid ignorance. Education was inseparable from the learning process, where the learning process was a series of communication activities between students and teachers and learning resources in a learning environment (Farida, 2015). The lack of precise selection of learning methods and media during the learning process led to the low learning interest of students, so they were not able to generate learning interest optimally. An effective media that can achieve teaching goals quickly and accurately (Mudinillah & Syurfa, 2022). Dharmawati (2017) stated that through the media of Smartphones, tablets, and laptops connected to the internet network, students can easily find any information anywhere, which was supported by the availability of provider access offers that were improvingly developed. Learning e-learning can improve the effectiveness and flexibility of learning (Zhafiri, & Ekohariadi, 2021), and make the learning process more creative, interesting, and conducive and improve student learning interest to improve student learning outcomes (Suharyanto & Mailangkay, 2021). Based on observations made in grade X MA Bandung Tulungagung, most of the students said that mathematics was a difficult, uninteresting subject because the media used were still using printed books and worksheets so students' learning interest was decreasing. With these problems, students want interesting mathematics learning. Students need new learning media so that the teaching and learning process was not

monotonous. One solution was the use of social media as a learning medium (Irwandani & Juariyah, 2016). One of the social media that can be used as learning media was Edmodo. As for the making of SubSubjectsat will be uploaded on Edmodo, one of them was the Benime application. Edmodo was one of the e-learning courses that provides free, safe, and comfortable services for teachers and students so they can maintain their room community (Ulfa & Purwati, 2020). Benime was an application that makes presentations a little different from usual because there were animations provided as additional creations for learning media to make them more interesting for students (Mudinillah & Syurfa, 2022).

Based on previous research Jumaeroh and Zuhaida (2019) The results of the study indicate that the use of edmodo was very helpful in the student learning process, it was easily accessible anywhere and anytime. The results of the questionnaire showed that the experimental grade had a higher interest in the subject matter compared to the control grade. The results of the correlation test there was a relationship between Edmodo media and student learning outcomes with a value of 0.453, which means that the level of the relationship was moderate/enough. The results of the simple linear regression test have a significance value of 0.015 with an influence value between the two variables of 20.5%. So it can be concluded that there was an influence of edmodo media with the discovery learning model on the science learning outcomes of the Subject pressure on the substance of grade VIII SMPN 1 Salatiga. Based on previous research (Amrina, Mudinillah, & Ulya, 2021) could serve to create and also obtain more flexible learning relationships between a teacher and the students themselves, breaking the tensions between students and a teacher, so that a teacher can play the role of a creative teacher and can adapt to existing conditions. The use of the Benime application which certainly has an attraction with animated animations was effectively able to change the dynamics in a learning grade or grade and of course, it can contain an even greater desire from students to learn, especially in learning Arabic, namely learning *microdata*.

In this study, researchers will develop media in the form of animated videos based on the Benime application which will be implemented in the Edmodo application so that students can download videos on Edmodo and can do practice questions in the form of quizzes. Benime was a whiteboard animation creator application developed by Benzveen listed in the art and design category. This application program was online on the internet and

functions as a video maker application for presentations and learning media (Yarshal, 2021). The advantages that Benime has were that it was easy to use because the result was a video and it was easy to make animations that can attract students' interest and can make several videos without any restrictions (Amrina, Mudinillah, & Ulya, 2021). Several animation options already exist in this Benime application, so we no longer need to manually create animations and complete animations that can support the creation of interesting learning animation videos. While Edmodo was a personal microblogging platform developed for teachers and students, it can be accessed for free and safely that can be used in all lessons so that it can improve the teaching system, save costs, make learning Subjects more dynamic, wider scalability, and form a community without being limited by space. and time (Jumaeroh & Zuhaida, 2019; Sudarsi, 2017; Ulfa & Purwati, 2020). Edmodo provides a safe and easy way for grade room learning even to connect and collaborate with parents (Wicaksana, Atmadja, Wikanso, Putri, & Muthia, 2020).

Edmodo also has several features that support the learning process such as resources, links that connect to other applications, and attractive designs, (Yuniarti, Mulyadi, & Ifadah, 2019) when compared to other social media learning management systems, edmodo has several advantages including similar to facebook, easy to use, closed group collaboration, only those who have group code can take gradees, do not require a server at school, and can be accessed anywhere and anytime, edmodo always updated by the developer, edmodo can be applied in one grade, one school, between schools in one city or one, can be used for students, teachers, and parents. For every student who joins the grade, edmodo will also automatically provide a parent code that was intended for parents or guardians of students. The badge feature can be used to improve student motivation. One of the weaknesses of Edmodo was the unavailability of video conferencing to interact directly in online learning (Halil, 2020). The researcher developed this Benime and edmodo-based learning animation video to foster student learning interest to be more motivated in learning mathematics and love mathematics more. Based on this background, the authors were interested in conducting research under the title "Development of Benime and Edmodo-Based Media on Trigonometry Subjects to Improve Students' Learning Interests".

METHODS

This study used a research and development (R&D) approach based on the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation with the research product, namely the animated video learning media based on the Benime application which was implemented in the Edmodo application.

The subjects in this study were students of grade X MA Bandung Tulungagung, with 19 students. Methods of data collection in the form of questionnaires and tests. The types of data in this study were quantitative and qualitative data. The quantitative data is in the form of validation scores given by the validator, student response questionnaires, and test results. The qualitative data is in the form of responses and suggestions given by the validator (on the validation sheet) and students (on the student response questionnaire).

The data analysis technique was the validation of media experts and material experts obtained through observation, interviews, questionnaires, or questionnaires and tests. The data obtained was calculated on the valid, practical, and effective aspects of the resulting product. Qualitative data analysis was obtained based on suggestions from Material experts and media experts.

1. Media Expert Validation Instrument

Aspects that were assessed in the form of aspects of appearance; the attractiveness of images and animations, the suitability of the layout of text and images, the accuracy of choosing the background, the consistency of the use of color, text, and audio, the suitability of images, and the size of the text. While in the writing aspect; the ease of sentences to understand, the ease of writing to read, and the suitability of the color of the writing.

2. Material expert Validation Instrument

Aspects of appearance were assessed in the form of; coherence of content, Subject coverage, clarity of examples, suitability of Subject with learning objectives, the accuracy of concepts displayed, and suitability of images with Trigonometry Subject. The results of the assessment use the formula

$$p = \frac{\sum acquisition\ score}{\sum maximum\ score} \quad (1)$$

This analysis was done by calculating the value of the percentage of practicality with the following determination.

$$Practical\ Value = \frac{\sum acquisition\ score}{\sum maximum\ score} \quad (2)$$

The effectiveness of the media was seen from the percentage of completeness of the evaluation test results based on the Minimum Completeness Criteria. The learning media developed was categorized as "effective" if the student's score reaches the Minimum Completeness Criteria (KKM). The calculation formula used was as follows.

$$Effectiveness\ Percentage = \frac{\sum acquisition\ score}{\sum maximum\ score} x\ 100\% \quad (3)$$

RESULTS AND DISCUSSION

The following was the process and results of developing audio-visual learning media based on the Benime and Edmodo applications on Trigonometry.

1. Analysis Stage

Several analyzes were done, namely: needs analysis, curriculum analysis, and student and media analysis. A needs analysis was done before a learning media was designed and developed. In this study, it was obtained a needs analysis that technology-based learning media in the school where the research was done was still limited in its use in learning mathematics. Mathematics learning still uses worksheets, besides that, there were no learning media used for trigonometry Subjects in the form of learning videos at the school.

Furthermore, a curriculum analysis was done, and it was found that the curriculum used at the MA Bandung was the 2013 Curriculum. The trigonometry Subject contained in the development of learning media was by the provisions of the 2013 Curriculum. The Basic Competence (KD) used was KD 3.9 (Explaining the rules of sines and cosines) and KD 4.9 (Solving problems related to the sine and cosine rules).

Next was the analysis of students and media. It was found that students were more interested in learning than in using technology. Learning media that utilize technology was the right and fun media used by students so that students were even more enthusiastic about learning mathematics. Learning media by utilizing the selected technology, namely audio-visual learning media designed with the help of the Benime application, then implemented with the Edmodo application to be developed as a medium for independent learning and learning in the grading room. With the help of the Edmodo

application, students can easily download learning videos and do test questions or quizzes both at home and at school.

2. Design stage

At the design stage, the activities done include;

a. Downloading the Benime app
b. Develop a learning flow on Trigonometry Subject.
c. Prepare an outline of media content; Opening sentences, Subject, pictures that match the Subject, as well as examples of questions.
d. Selecting and modifying templates, designing the display of learning videos, and inputting sound through the Benime application.
e. Then make a finished video to be saved offline, although it can be saved automatically in the Benime application gallery.
f. Next, upload the video on the Edmodo application to be accessed by students.
g. Make questions on Edmodo for students to do as an evaluation.

3. Development Stage

The development stage was the realization stage of the design or product design stage. In this development stage, the conceptual framework was realized into a product that was ready to be implemented (Rohma & Sholihah, 2021). The product design was developed through the following stages:

a. Product manufacture

Making products in the form of audio-visual learning videos for Trigonometry using the Benime application that was tailored to research needs, including;

1) In the form of a video with components; Opener, content or Subject, sample questions, and closing.

The following was a partial display of the learning media developed.

Figure 1. Opening Video Image

Figure 2. Closing Video Image

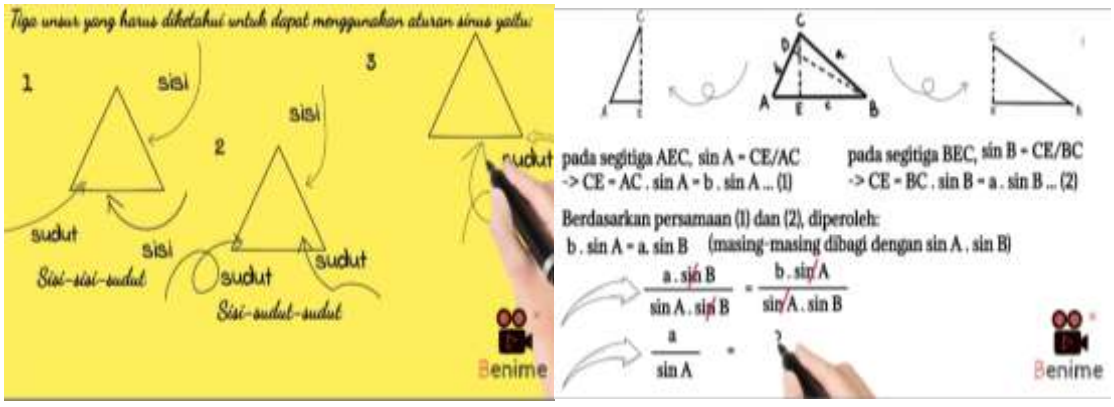

Figure 3. Contents

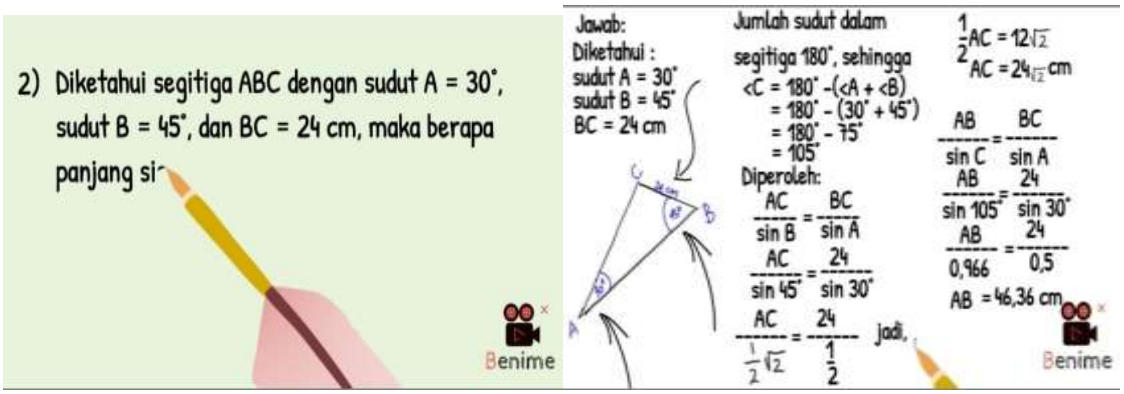

Figure 4. Example Questions

2) Uploaded on the Edmodo application according to the video display design that was designed at the design stage.

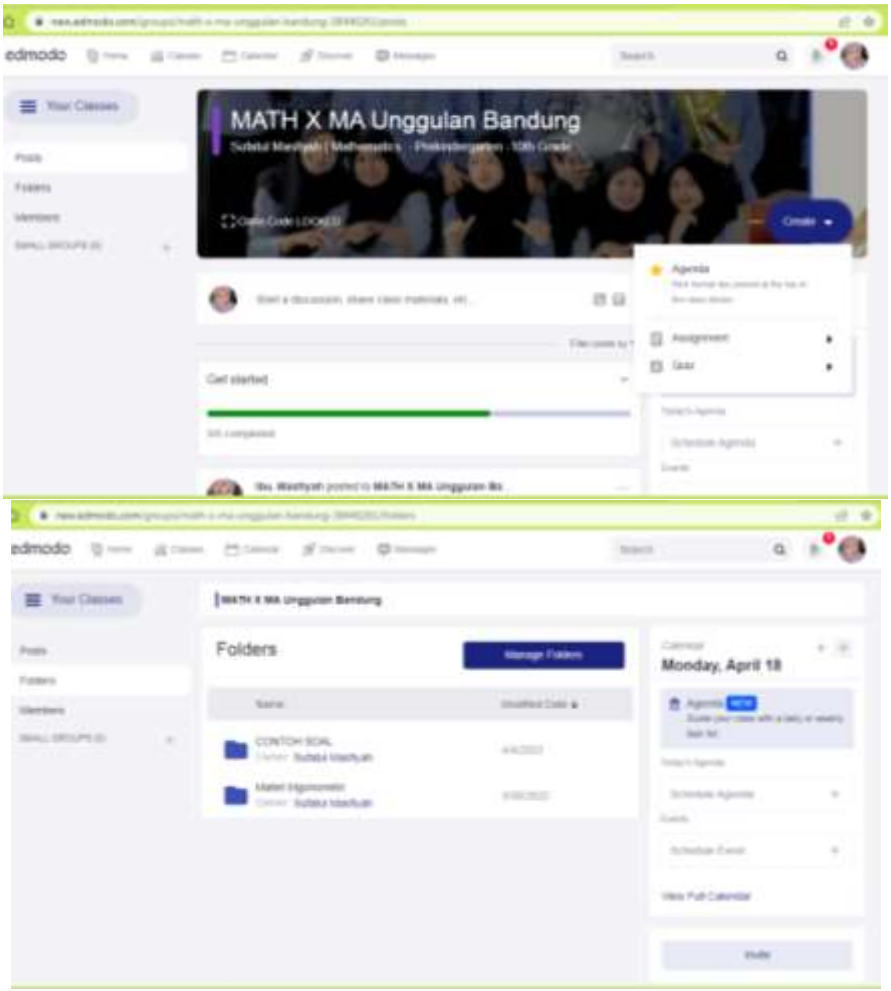

Figure 5. Display in Edmodo

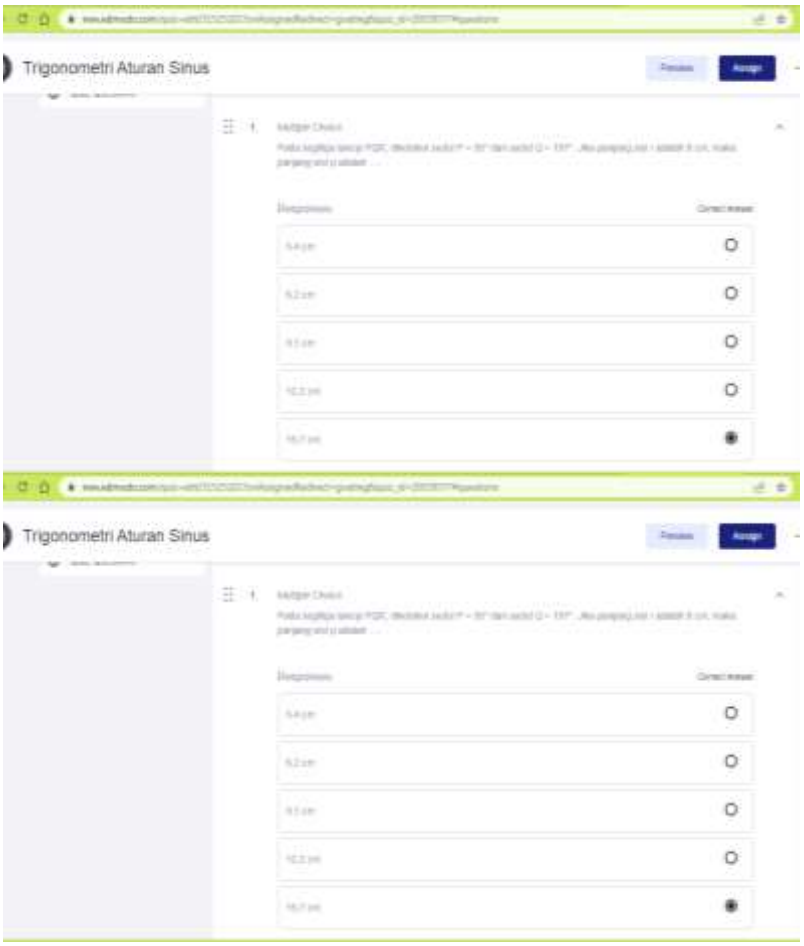

Figure 6. Quiz Display in Edmodo

b. Product Rating

Assessment of learning media was done through aspects of validity. The validity test was used to determine the level of validity or feasibility of learning media based on the Benime and Edmodo applications. The validity aspect was reviewed from 2 sources, namely a grade room teacher as well as a mathematics subject teacher as a Material expert, and a curriculum teacher who was competent in the field of Information and Communication Technology (ICT) as a media expert. Then an analysis of the results of the questionnaire was done, if it was included in the valid and practical category, then the developed media can be applied in the learning process in schools.

1) Media Expert Validation

The results of the validity assessment on the media aspect were presented in the following table:

Table 1. Media Expert Validation Results

No.	Rated aspect	Score
1	Clarity of application title	5
2	The ease of the application title in providing an overview of the application	5
3	Consistency of layout proportions (text and image layout)	5
4	The color used on the background page was comfortable to see	5
5	The accuracy of choosing the background	4
6	Consistency of using color	4
7	The accuracy of choosing the type of text and font presented	4
8	The accuracy of choosing the size of the text presented	4
9	Consistency of text usage	4
10	The suitability of the animation used in the Subject	4
11	The suitability of the images used in the Subject	4
12	Accuracy of sound/audio presentation	4
13	Sound/audio quality	5
14	Video display quality	5
15	Lengthen video duration	4
16	The suitability of the use of sentences with the intellectual level of students	4
17	Ease of use of terms	4
18	Use of related words, images, sounds, and animations only (omitting unrelated and relevant information)	4
	Skor total	76

The results of the media expert's assessment of the design of audio-visual media based on the Benime and Edmodo applications obtained an average total validity score of 4.22 on a scale of 5.0 with the criteria of "very good." This means that the results of the media design were very suitable for use in the school where the test was done, with a note of making a few revisions. The following was input from the validator for evaluation and improvement Subjects regarding the developed media: "On the 3rd slide, the explanation was too fast, it needs to be a little slower".

2) Material Expert Validation

The results of the validity assessments on the subject aspects were presented in the following table form:

Table 2. Results of material expert validation

No.	Assessment Criteria	Score
	Subject Aspect	
1	The breakdown of the content/description of the Subject	4
2	Coverage (breadth/depth) of the Subject	4
3	Subject actualization	3
4	Subject update	3
5	Clarity of included examples to learn the content	4
6	Clarity and appropriateness of the relevance of the language used	4
7	The attractiveness of the content of the Subject in motivating users	4
8	Suitability of the Subject with the purpose	4
9	Conformity of the content of the Subject with the standard concept	3
10	The suitability of the Subject for the student's character	3
	Evaluation Aspect	
11	Clarity of instructions for questioning	4
12	A sequence of questions to be worked on	4
13	Question difficulty level	3
14	Suitability of practice/test with learning achievement	3
15	Balance of question proposals	4
	Total score	54

The average score obtained on the Subject aspect was 3.6 on a scale of 4.0 with the criteria of "good". Before the instructional media design was used in field trials, trials were done in limited grades as Subjects for evaluation and revision. Thus, based on the media expert and Material expert validation table above, the learning media developed can be categorized in the "very valid" assessment.

Therefore, it was appropriate to do a field trial with a note of making a few revisions. The following was input from the validator for evaluation and improvement Subjects regarding the developed media: "Example question number 1 was better replaced, don't use questions for right triangles".

4. Implementation Stage

The implementation stage was done by applying the media that has been developed in real situations in the teaching and learning process in the grading room (Suhaeri, Mustaji, & Suryaman, 2020). Revising the learning media that was used as a reference was the result of the evaluation. For the implementation of the learning media results, namely those that have been validated by the media and Subject validators as well as revisions by the assessment and input given by the validator. Furthermore, the product was ready for field trials.

In this study, learning was done online through the Edmodo platform. Overall, the implementation of the learning media trial ran in an orderly and smooth manner. Students arrive on time in online learning forums and follow all stages of the learning process to completion. Students also respond in the form of questions to improve their understanding. At the end of the lesson, students can solve the questions given as a means of monitoring and evaluating learning outcomes. Thus, it can be concluded that students can understand Trigonometry subjects during distance or online learning through Edmodo application-based learning media. The results of the trial were then analyzed as an assessment of learning media on the aspects of practicality and the effectiveness of the media was reviewed based on practicality questionnaires, as well as student scores on evaluation tests or quizzes on the Edmodo application on Trigonometry Subject.

5. Evaluation Stage

The evaluation stage was the stage where to measure the achievement of product development goals and find out what information can be achieved on product development. At the evaluation stage, an evaluation of the developed learning media was done with the analysis of students' practicality questionnaires and an assessment of the developed learning media. While the analysis of the results of student scores on the evaluation of the Subject was used to assess the aspects of effectiveness obtained at the implementation stage. The following was the evaluation result:

a. Analysis of Student Practicality Assessment

In analyzing the practicality of audio-visual media based on the Benime application, the Linkert scale was used. The following was the analysis method used.

Table 3. Student Practicality Assessment Score

Score	Criteria
86-100	Very Practical
76-85	Practical
60-75	Practical enough
55-59	Less practical
0-54	Very impractical

The results of the student practicality questionnaire were presented in table 4.

Table 4. Student Practicality Assessment Results

Practical Aspect	$\sum$ **Evaluator**	$\sum$ **Score**	***the*** $\sum$ **Max Sc**	**Mean**	**Criteria**
Complete content, attractive design appearance	19	166	190	87,36	Very practical

The average value of the practicality of media based on the Benime and Edmodo applications based on the responses of 19 students, obtained an average number of 87.36. This indicates a "very practical" criterion. In addition, some students stated in their observations that the media used was interesting and easy to understand. So it can be concluded that based on the practical aspects of students, it shows that the learning media developed was a "very practical" learning media so that it can improve learning interest and improve students' understanding.

b. Analysis of Learning Media Effectiveness Assessment

Assessment of the effectiveness of learning media in terms of the results of student scores in an evaluation test in the form of a quiz in Edmodo on Trigonometry Subject. So that the effectiveness of the process and the results of the design can be known. Student learning outcomes test data shows that there were no students who need to do remedial. Each student gets a score above or equal to the KKM. Some students even get a maximum score of 100.

Benime and Edmodo's application-based audio-visual media effectiveness criteria use the following criteria:

Table 5. Media Effectiveness Criteria

Score	Criteria
86-100	Very effective
76-85	Effective
60-75	Effective Enough
55-59	Less Effective
0-54	Very Less Effective

The results of the effectiveness of the media were presented in table 6.

Table 6. Effectivity Score Media

Subject	$\sum$ sul	$\sum$ Score	$\sum$ Max Scor	Mean	Criteria
Student	19	1680	1900	88,42	Very effective

Based on the results of the evaluation test scores or students' quiz scores, the students' effectiveness scores were 88.42 with the criteria of "very effective." So it can be said that the learning media developed was effective based on the test results of student evaluations. Students who get a score of more than or equal to 75 give a response that they find helpful in understanding learning video-assisted Subjects designed with the Benime application. This means that the developed media was effectively used in online learning. In addition, based on the results of the test subject evaluation test, Trigonometry Subject was one of the Subjects that understanding requires proper visualization in delivery. Students were not easily bored when learning Subjects were designed to be more attractive through the Benime application.

c. Analysis of student learning interest assessment

To find out how much the improvement in student learning interest was, the N-gain test was used. The distribution of the N-gain test scores was as follows:

Table 7. Distribution of N-Gain. test scores

N-Gain Value	Category
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Medium
$g > 0,3$	Low

The results of the acquisition of student learning interest were presented in table 7.

Table 8. Results of Measurement of Student Interest with Gain-Test

Treatment	Score
Average Pretest score	62,11
Average Posttest score	88,42
Maximum Value	100
N-Gain	0,69
Conclusion	Medium

Based on table 8 above, shows that the acquisition of the results of student learning interest at grade X MA Bandung Tulungagung before and after using media based on Benime and Edmodo showed an average pretest score of 62.11 and an average post-test score of 88.42. Based on the findings of the N-gain test, the improvement in student learning interest has a gain value of 0.69 which was gratified as moderate based on the Gain-test criteria.

Based on the results of the data analysis, it can be seen that Benime and Edmodo-based audio-visual media can be used as an alternative to support the process of learning activities. Through the media of Benime and Edmodo, teachers can improve their creativity to compose and develop learning media according to the needs of students. In addition, it appears that students have high enthusiasm for the learning process based on the results of the practicality assessment of students.

CONCLUSION

The development of audio-visual media based on the application of Benime and Edmodo Trigonometry Subject was declared valid, practical, and effective to be applied to learning at MA Bandung, Tulungagung. The media can improve students' learning interests. This showed in the results of the media and subject validity test, practicality test, and media effectiveness test.

The suggestions that can be given by researchers were that the developed media can be used to support learning both face-to-face and distance or online learning for students of class X MA Unggulan Bandung Tulungagung. Although the Benime and Edmodo applications have been prepared for free, if they were not supported by teaching resources (teachers) as education implementers in utilizing them, the learning process cannot run

optimally and with quality. In addition, this learning media can be developed better for further research, with different learning subjects and models.

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