Development of Motion Graphic Animation Video Learning Media Assisted by Animakers Based on Problem Based Learning (PBL) in Demak Kingdom Material

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Abstract

This research is motivated by the fact that active learning activities are still relatively low and the lack of use of learning media that utilize technology, especially in History subjects. The formulation of the problem in this study is how to design media development and implementation of animated video learning media *Motion Graphics* assisted by *Animaker* based on *Problem Based Learning* (PBL) on the material of the Kingdom of Demak. The purpose of this study is to describe the design of learning media development and implementation of animated video learning media . This research uses the research and development method (*Research and Development*) with the ADDIE model which consists of 5 (five) stages, namely *Analysis* , *Design* , *Development* , *Implementation.* and *Evaluation* . The results of this study indicate that the developed animated video learning media meets the criteria of "very valid" from material experts , media experts , and language experts, obtaining an average value of 90%. Furthermore, the assessment of the educator's practicality test obtained a value of 91% with the category of "Very Practical, whereas, practicality of students obtained a score of 93% with the category of "Very Practical". Based on the assessment of the questionnaire that has been filled out by the validator, educators and students, the animated video learning media *Motion Graphics* assisted by *Animaker* based on *Problem Based Learning* (PBL) that was developed has met the validity and practicality, so it can be concluded that this learning media is very suitable for use in learning.
Keywords: *Motion Graphics , Animaker, Problem Based Learning (PBL).*

Introduction

Education is a process of developing the potential of students. The definition of education according to Ki Hajar Dewantara, shows that education is a dynamic and continuous process. Related to this, education must be able to adapt to the demands of the times (Y Ranti, 2023 :2) . Therefore, educators play a very important role in learning.

Current technological advances, especially in the field of education, are a challenge for educators and students. Because in the midst of the rapid development of technology today, most students already know more about technology than educators. In this case, students feel bored if they still study conventionally, so there are many complaints in the learning process (Nazmi et al., 2022 :13) . Therefore, the learning process will run effectively if all components that influence the process support each other. One of the most influential components is learning media that can improve the

competence or abilities of students (Rika Putri, Meldawati, 2021 :78) . Learning media is a tool used to convey and channel messages to recipients, so that recipients can carry out the learning process efficiently and effectively so that a conducive learning environment is created, so that learning is understood more quickly by students and attracts students' interest in learning further. (Anjani, Meldawati, and Kasim, 2023 :623) .

Current technological advances can be one solution to the limitations of learning media. One of them is with learning media in the form of videos that are made interesting with animation, so that students are interested in watching the video. One application that uses a lot of *Artificial Intelligence* (AI) technology to create animated video designs is by utilizing the *Animaker site* via the web https://www.animaker.com/ .

Especially in history learning, there is an effort to have a reciprocal role between educators and students, not just educators explaining and students listening, but demanding students to be active in class both in terms of *cognitive, affective, and psychomotor* . Therefore, researchers want to know how the use of animated video learning media *Motion Graphics* based on *Problem Based Learning* (PBL) affects students' learning abilities in the subject of History and it is hoped that students will be able to learn independently . Based on the background description above, the researcher is interested in raising this problem into a study entitled *"Development of Motion Graphic Animation Video Learning Media Assisted by Animaker Based on Problem Based Learning (PBL) on the Material of the Kingdom of Demak".*

The limitations of the problem in this study are 1) the lack of student activity in the learning process if they still use conventional learning media . 2) Development of animated video learning media *Motion Graphics* assisted by *Animaker* based on *Problem Based Learning* (PBL) on the material of the Demak kingdom. Based on the problem limitations above, the research problem can be formulated as follows: how is the design of the development of animated video learning media and how is the implementation of the developed animated video learning media. The purpose of this study is to determine the design of the development of learning media and the implementation of the development of animated video learning media *Motion Graphics* assisted by *Animaker* based on *Problem Based Learning* (PBL) on the material of the Kingdom of Demak.

Research methods

This study uses the *Research and Development* (R&D) development method. In this study, the product developed is a *Motion Graphics* animation video learning media assisted by *Animaker* based on *Problem Based Learning* (PBL) on the material "Kerajaan Demak" . . The population as the entire object of research experienced and also recorded in all forms in the field (Nur Fadilah, Sabarudin, 2023 :17) so that the population in this study were students of class X majoring in APHP 1 SMK Negeri 1 Koto Baru with a population of 308 students and 11 classes. The sample used in this study was class X APHP 1 totaling 19 students who only obtained the highest score of 78 and had the smallest number of students among the other classes.

The research and development model used is the ADDIE model which consists of five stages, namely Analysis, Design, Development, Implementation and Evaluation. The use of this ADDIE model is because to develop learning devices, a suitable and more complete model is needed so that each stage has an evaluation stage.
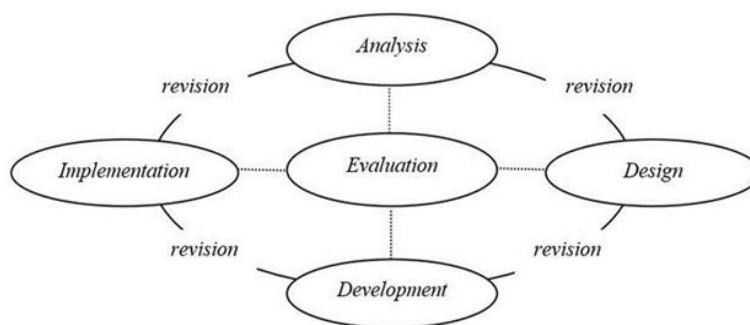

Figure 1. ADDIE Model Development Stages
(*Source: Sugiyono 2015)*

1). Analysis Stage, this analysis stage consists of 3 stages of analysis, including: **a). Needs analysis**, at this stage the researcher analyzes the problems faced by students in learning History, so that development is needed in learning media and this needs analysis will get an overview of the facts, expectations and alternative solutions to the main problems that will be developed. **b). Material analysis**, At this stage, material analysis is carried out by detailing the learning material in the form of Learning Objectives and Learning Achievements in the form of knowledge, critical thinking skills. skills, attitudes and can take wisdom from every historical event. **c). Curriculum analysis**, this curriculum analysis aims to find out the curriculum used in schools, by conducting a curriculum analysis, researchers can ensure that the learning media developed will be in line with the existing curriculum.

2). Design Stage, this stage also uses 3 stages, including: **a). Media Selection**, At this stage, the right media is selected and adjusted to the analysis of the needs of students to be achieved. Furthermore, the researcher chooses learning media in the form of animated videos of the Motion Graphic type as learning media that will be developed with the help of the Animaker site. **b). Material Preparation**, at this step, the preparation of the material that has been determined in the analysis stage is carried out. The selected material is "Kerajaan Demak". After that, an analysis of Learning Achievements and Learning Objectives is carried out according to the curriculum used, after which the objectives that can be achieved are determined. The material provided is then presented in the learning media that will be developed. **c). Instrument Design**, the design of the instrument in this study was carried out by researchers to determine the design that will be used in the animated video learning media that will be developed.

3). Development Stage, At this stage is the stage of refinement of the animated video learning media, Product refinement is carried out after being revised based on input or improvement notes from media experts, material experts and language experts. At this stage the learning media is validated by the validator team with instruments that have been prepared by the researcher. This assessment is carried out to determine the level of validity of the animated video learning media so that it becomes a better product and is declared suitable for use in the learning process.

4). Implementation Stage, At this stage is a real step to implement the product that the researcher has developed, meaning that at this stage everything that has been developed is designed in such a way that it is in accordance with its role or function so that it can be implemented. This application also aims to determine the effect of the use of animated videos that have been developed on the quality of learning which includes effectiveness and efficiency in learning. This stage is carried out after obtaining validity status from the validator of material, media and language experts.

5). Evaluation Stage, This evaluation stage can be carried out after the four initial stages have been carried out. This stage can be carried out to see whether the developed learning media is successful or in accordance with initial expectations or not. At this stage, it also aims to determine the effectiveness of the Motion Graphics animation video learning media assisted by Animaker based on Problem Based Learning (PBL) on the Demak Kingdom material and also to determine the level of students' understanding in learning.

Results and Discussion

The development of this learning media uses the stimulus and response theory. This theory is used to find out how class X APHP 1 students respond when given a stimulus in the form of History learning media in the form of animated videos, and to see the response of students to the media used whether it is in accordance with the expected research objectives or not.

This study produced a learning media product in the form of a *Motion Graphics animation video* assisted by *Animaker* based on *Problem Based Learning* (PBL) on the material of the Kingdom of Demak, this media is designed as attractive as possible so that students have the attraction to watch . Presentation of data on the development of animated video learning media consists of the following stages :

Design of Learning Media, the design of this learning media is assisted by using the *Animaker* application *software* so that it becomes one of the interactive learning media that can be utilized by educators and students in learning activities. The stages of designing learning media that are taken from the ADDIE development model are as follows:

1). Analysis Stage, at this stage there are 3 analyzes, namely: a). Needs Analysis, in analyzing needs, researchers have conducted observations in the field to obtain the information needed. The results of the observations obtained include: some students still pay less attention to the Teaching and Learning Process and the lack of active student involvement in the Teaching and Learning Process, so that the Teaching and Learning Process activities are still considered less conducive. It can be said that the use of this method is still classified as conventional learning. In addition, the learning media applied usually uses Powerpoint and learning videos that are still sourced from Youtube. b). Material Analysis, Material analysis is carried out to determine student responses to the learning media used by educators. Based on observations made by researchers, there are still many students who do not understand the History learning material. This is because the material in learning is rote and is not accompanied by pictures, making students less interested in studying History. The material used in this development research is the Demak Kingdom material. **c). Curriculum Analysis**, At this stage the researcher analyzes the curriculum used in schools, namely in class X using the Merdeka curriculum. This curriculum analysis was conducted to determine and clarify Learning Outcomes, Learning Objective Flow and Learning Objectives which contain abstract material, including material about the Demak Kingdom.

2). Design Stage, at this stage the media is designed as attractively as possible by collecting materials and reviewing the materials used through several trusted references, here are some of the design stages including: a). Product Design Design, In designing this animated video media, researchers create a Flowchart which is a step in representing the workflow or process in the form of a chart containing symbols in a program to facilitate media development. b). Preparation of Materials, The materials used in the development of this animated video learning media are materials from the Islamic kingdom. However, researchers limit the material to only 1 kingdom that will be discussed, namely the "Demak Kingdom" in the even semester of the 2023/2024 academic year. This material is taken from several trusted references. Meanwhile, researchers provide questions in the form of quizzes as evaluation material in learning. c). Preparation of the Animated Video Media Assessment Instrument Grid, The instrument grid is arranged in the form of a questionnaire consisting of several columns of statements or entries which are then given a checklist (✓) for each indicator. The questionnaire consists of 3 types, namely the validation questionnaire of material experts by the History Education Lecturer, Mrs. Dr. Aisiah, S.Pd, M.Pd, media experts by the Information Technology Lecturer, Mr. Ade Pratama, M.Kom and language experts by the Indonesian Language and Literature Lecturer, Mrs. Dra. Indriani Nisja, M.Pd, then the practicality questionnaire of educators was assessed by Mr. Mardanus, S.Pd, a History subject educator at SMK Negeri 1 Koto Baru and 17 class X students majoring in APHP 1 at SMK Negeri 1 Koto Baru..

3). Development Stage, This stage is the realization stage of the flowchart at the Design stage. The media that has been designed is then created and developed to produce MP4. This media creation was assisted by Animaker , which is an online animated video maker . The content of this learning media consists of material obtained from several printed books on the independent curriculum for class X and also from other trusted reference sources. Furthermore, the media that has been developed is validated by material, media and language experts with the aim of finding out the shortcomings of the Motion Graphics animated video media assisted by Animaker based on Problem Based Learning (PBL) in the Demak Kingdom material.

The assessment of the developed media used a Likert scale questionnaire with a score of 1-4, namely Very Good, Good, Not Good, and Very Not Good which was sourced from the Sugiyono variable measurement scale. Based on input or notes of improvement from material experts, media experts and language experts, improvements were made so that the product was suitable for use. **a).** Results of Material Expert Validation, This material validation was carried out by Mrs. Dr. Aisiah, S.Pd, M.Pd as the head of the History education study program at Padang State University. The validator gave an assessment of 10 indicators with 2 aspects, namely learning objectives and learning materials on the animated video learning media on the Demak Kingdom material that would be developed. The results of the material expert assessment obtained an average score of 85% with the category "Very Valid" in the range of 85% -100%. This validation began on April 18, 2024 at the Padang State University campus. Revisions from material experts include: displaying learning objectives after the opening video, the video should be divided into several parts or made like parts 1, 2, 3 and 4 to make it easier for educators to explain the material and students also find it easier to understand the material in each video, adding the end of the video with reference sources. **b). Media**

Expert Validation Results, This media expert validation was carried out by Mr. Ade Pratama, M.Kom as a Lecturer in Information Technology (IT) at the West Sumatra PGRI University. The validator assessed 15 indicators and 3 aspects including software engineering aspects, learning design aspects and audiovisual communication aspects. The results of the media expert's assessment of the animated video obtained an average score of 93% with the category "Very Valid". This validation began on April 23, 2024 at the West Sumatra PGRI University campus. The revisions from the media expert include: replacing the opening sentence with a greeting, changing the color of the map to make it clearer, changing the layout of the images of the relics of the Demak kingdom.

c). Results of Validation by Language Experts, Validation of language expert products was carried out by Mrs. Dra. Indriani Nisja, M.Pd as a Lecturer in the Indonesian Language and Literature Study Program, Universitas PGRI Sumatera Barat. The validator provided an assessment of the linguistic aspects of the animated video that was developed. The results of the validation assessment by language experts on animated video media obtained an average score of 92% with the category "Very Valid". This validation began on April 19, 2024. Revisions from language experts include: the use of text and sound in the video is unclear or not synchronized, and the use of fonts or letters is too small, the font size should be enlarged to make it clearer. Based on the three validation assessments, the average validator results can be seen in the following table:

Table 1. Recapitulation of Validator Assessment

No.	Validators	Score obtained	Percentage (%)	Criteria
1.	Media Validator	56	93%	Very Valid
2.	Material Validator	34	85%	Very Valid
3.	Language Validator	37	92%	Very Valid
	Amount	127	90%	Very Valid

Source: Researcher Processed Data (2024)

Based on table (1) above, it can be seen that the percentage of validation results from the three validators obtained an average score of 90% in the "Very Valid" category, so that Motion Graphics animated videos assisted by Animaker on Problem Based Learning (PBL) on Demak Kingdom material can be used in the process Learning Activities.

Implementation Stage, This implementation stage aims to apply Motion Graphics animation video media based on Problem Based Learning (PBL) assisted by Animaker on the Demak Kingdom material that has been developed and validated by the validator, which will then be tested on students at SMK Negeri 1 Koto Baru class X APHP 1 with learning activities carried out offline (face to face). At this stage, the product trial activity produced a good response from students with video discussions related to learning. Students can accept the complete discussion of the material accompanied by moving animations and questions/quizzes. The use of this media can maximize student learning concentration and active student involvement in learning. Then after being tested, educators and students filled out the questionnaire by giving a checklist (✓) in the questionnaire sheet column. At this stage, the aim is to see the practicality of the developed learning media. The results of student responses to the application of the media can be seen in the following table:

Table 2. Results of Media Application by Students

No.	Respondents	Score Obtained	Percentage	Criteria
1.	Students	850	93 %	Very Practical

Source: Researcher Processed Data (2024)

Table (2) above shows that the results of the responses of class X APHP 1 students are categorized as very practical because they obtained an average score of 93% with a range of 85%-100%. Based on these data, the responses of students to the animated video learning media *Motion Graphics* assisted by *Animaker* based on *Problem Based Learning* (PBL) on the material of the Kingdom of Demak are considered very practical to use . Furthermore, the results of the application of media by educators can be seen in the table below:

Table 3. Results of Media Implementation by Educators

No.	Respondents	Score Obtained	Percentage	Criteria
1.	Educator	40	91%	Very Practical

Source: Researcher Processed Data (2024)

In table (3) above, it can be concluded that the results of the educators' responses are categorized as very practical because they obtained an average score of 91% with a range of 85%-100%. Based on these data, the practicality test of educators on the *Animaker*-assisted *Motion Graphics animation video learning media* based on *Problem Based Learning* (PBL) on the Demak Kingdom material is considered very practical.

Evaluation Stage , According to Nasution in the journal (Pamungkas & Azmi, 2021 :86) Evaluation is a program to provide opinions and determine meaning. Evaluation is carried out at each stage of the product creation process, the results of the material, media and language validation questionnaires, as well as the results of the educator practicality test questionnaire and the student response questionnaire . At this stage, the researcher also began to evaluate the questionnaires that had been distributed to educators and students to determine the practicality of the animated video learning media that the researcher created. The evaluation referred to here is an evaluation of the implementation of activities. The evaluation results were obtained from suggestions from educators and students during the trial, so that from this evaluation stage a final revision was carried out.

Based on the results of research and development of animated video learning media, it can be... used as a source of independent learning in the learning process in class or for learning at home. The creation and development of animated video learning media *Motion Graphics* assisted by *Animaker* based on *Problem Based Learning* (PBL) needs to be mastered by educators , Students need to have basic skills in computer science, so that they can become accustomed to operating software such as video-based learning media assisted by *Animaker* .

2). Implementation of Learning Media , in the implementation of this animated video learning media, researchers use learning media that are in accordance with the objectives and context of its users. After the media design stage, the next step is to test the animated video learning media on students. The following are the steps for implementing the *Animaker*-assisted *Motion Graphics animated video learning media* based on *Problem Based Learning* (PBL) on the Demak Kingdom material :

Figure: Animated Video Trial in Class
(Source: Personal Document Photo at SMK Negeri 1 Koto Baru on May 13, 2024).

a). Preliminary Activities, First , the researcher enters the class to greet, check the cleanliness of the class and around the students' seats, prepare the cadets for recess, pray together and take attendance before starting the learning. **Second** , the researcher conducts apperception, relates previous learning with the material to be delivered, and explains the steps in the problem-based learning method or Problem Based Learning (PBL) and learning objectives.

b). Core activities, This step is the core activity of the Problem Based Learning (PBL) approach, In **phase 1** (Problem Orientation), the researcher provides information about the problems with the material. The researcher displays an animated video about the Demak Kingdom on powerpoint via a projector as a media to help the researcher explain, after that, the researcher divides

students into several groups consisting of 4 groups. Furthermore, the researcher gives 4 problem questions to each group of students. **phase 2** , (organizing students to learn), the researcher asks students to discuss the problems that have been given and find solutions to the problems, the researcher also provides a youtube link to the animated video that the researcher previously showed via a projector and provides instructions for using library books and their respective cellphones to find several references and reliable sources **.** **Phase 3** (guiding group investigations), the researcher directs students to the steps to solve the problem. The researcher guides students in discussing and monitoring and motivating students to find problems cooperatively and actively in the learning activities taking place. **Phase 4** (making a presentation), after students have finished discussing in groups to find answers to the problems given. The researcher asks the group to present the results of the discussion, after which the group opens a question and answer session and students are seen to be enthusiastic in expressing their respective opinions. The researcher provides feedback on the level of understanding that has been achieved by the students. **Phase 5** (evaluating the problem-solving process), after all students have completed group assignments and group presentations. The researcher provides evaluation and reinforcement of the results of the students' work. The researcher gives 5 (five) quiz questions on the powerpoint as evaluation material for students to test students' ability to re-explain the learning material that has been discussed.

c). Closing Activities , At this stage, researchers and students reflect on the learning and draw conclusions about the learning material, then, researchers give questionnaires to students to assess the level of practicality of the animated video learning media, with the aim of finding out whether the developed animated video is practical to use. Learning ends with the readiness of the cadets to pray together, researchers say hello and leave the class.

Motion Graphics animated video learning media based on *Problem Based Learning* (PBL) assisted by *Animaker* on the material of the Demak Kingdom in class. Researchers found a positive response with the involvement of students in the learning process. It can be seen that students can more easily remember facts and learning concepts which are reflected in their more active level of participation in learning materials. The existence of By using this animated video learning media, students can experience a different and more interesting learning experience. Then through the analysis of the results of the implementation of this animated video learning media, it can be understood its impact on student learning and the effectiveness of its use as a supporting tool in learning. In addition, the results of the implementation of animated video learning media can provide valuable insights for the development of better learning media in the future.

Conclusion

Based on the research results and discussion above, the following conclusions were obtained : development of animated video learning media in history learning, especially the material of the Demak Kingdom. 1) . The design of the development of animated video learning media consists of 5 stages using the ADDIE development model, namely Analysis, Design, Development, Implementation and Evaluation. 2) . Implementation of animated video learning media carried out on class X students with *the Problem Based Learning (PBL)* approach . Furthermore, the video media was declared practical by educators and students using a questionnaire. In the practicality test assessment by educators, the percentage obtained was 91% in the "very practical" category and class X APHP 1 students obtained a percentage of 93% with a range of 85%-100 .

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