DEVELOPMENT OF INTERACTIVE LEARNING MEDIA BASED ON ADOBE FLASH FOOD CHAIN MATERIALS TO IMPROVE STUDENT LEARNING OUTCOMES CLASS V SDN 3 BULANGO UTARA

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ABSTRACT

This research aims to 1). to find out the development of adobe flash-based interactive learning media in class V SDN 3 Bulango Utara, 2) to find out the practicality of interactive learning media based on adobe flash in science subjects on food chain material which will be developed in class V SDN 3 Bulango Utara, 3) to find out the effectiveness of adobe flash-based learning media in science subjects on food chain material that will be developed in class V SDN 3 Bulango Utara. The method used in this research is Research and Development (R&D) with the stages of developing the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), but research is only carried out up to the implementation stage. Data collection techniques in this study used a material expert validation questionnaire. Linguists, and validation of media experts and student responses. The developed media was tested by 14 fifth grade students at SDN 3 Bulango Utara. Adobe Flash-based interactive learning media in science subjects on food chain material in class V SDN 3 Bulango Utara obtained an average score from material experts of 90.59% which was categorized as "very feasible", then for validation linguists obtained an average value of 85.00 % who got the "very decent" category, and media expert validation got an average value of 90.00% which got the "very decent" category. The results of the assessment on the trials conducted by students obtained an average score of 92-32% in the "very feasible" category, so that interactive learning media using Adobe Flash in science subjects on food chain material is suitable for use as interactive learning media in class V elementary school. Based on the conclusions, it can be suggested that interactive learning media using Adobe Flash in science subjects on the food chain material can be used as an alternative learning media that can improve student learning outcomes.

Keywords: Adobe Flash, Interactive Learning Media, Food Chain

INTRODUCTION

For students at the elementary school level, science is not an easy thing to understand and understand briefly. Elementary school students are children who are still in play sessions and are not serious about education. If for them the subject is boring then they will be lazy to follow the learning process. And for some students Natural Science Learning (IPA) is still considered a boring lesson, because what we often know is that Science at the elementary school level contains several lessons about events in the natural surroundings which require them to read, master and remember what events or activities It's just what happens in nature. In fact, learning about natural events is rich in references to life.

Natural science material, especially food chain material as contained in the book theme 5, sub-theme 2, learning 1 class V SDN 3 Bulango Utara Students are required to be objective in observing, critical in thinking, open in the understanding obtained and convey the truth of what has been observed based on the

material. So far, it can be seen that teachers teach material about food chains in a textbook and are limited in using media images when conveying material 'Food Chain', the existence of this media as a means of conveying messages and subject matter so that they are not verbalistic.

The results of observing the learning conditions in class V, namely d SDN 3 Bulango Utara, it is known that students do not understand the types of animals that exist in the environment so that they have difficulty explaining the food chain. This condition occurs when many students are taught using the textbook by the teacher, teaching science in a textbook makes students assume that science material is considered difficult, confusing, boring, and less interesting, causing students' interest in learning to be less and students less motivated in learning science learning, especially material chains. Food.

Then the results of interviews with the homeroom teacher of class V d SDN 3 Bulango Utara also stated the conditions of science learning so far using student books provided by the government. The result is that students' knowledge is limited to the student books used. The teacher stated that "children can't depend on student books, because the material presented is only a little when children are asked to be active outside and the natural surroundings by looking for sources of material on the internet, even though in reality not all students can use the internet and have mobile phones to access material through Internet. If the teacher gives assignments that require students to search for material on the internet, then the teacher cannot just let go. Teachers at least urge parents of students to provide assistance to students when looking for learning resources on the internet. Meanwhile, we know that not all parents can use the internet, and even more so with the condition of the area where they live around the SDN 3 Bulango Utara area which does not have an internet connection." If students only rely on student books as the only source of learning, then the knowledge and concepts of food chain material that students get are incomplete. The teacher said the need for other learning resources could be in the form of books or additional learning media.

Researchers also made observations related to the learning process in the classroom, especially related to science subjects at SDN 3 Bulango Utara. The learning process in the scope of students' natural science subjects is good, and the level of student understanding is also good. The learning media he uses are learning media that are common or often used by most teachers, namely using textbook media and visual media in the form of paper pasted on the wall. Have never used learning media in the form of multimedia, be it power point or other flash props. This is also caused by the lack of computer facilities and infrastructure in the school environment, which makes it a little difficult for teachers to make interactive science learning media.

Each student has a different understanding in receiving lessons, this causes many students to think learning science is a bit boring because they are always struggling with notes, memorizing and assignments at each class meeting. In dealing with these problems we need to make a change in the learning system so that the learning process becomes more active, attracts attention and motivates students. therefore it is necessary to have an interactive learning media development in the form of Adobe Flash.

One of the efforts that we make so that students are able to understand the material being studied is to carry out learning activities assisted by using learning media or teaching aids using concrete things, and using or choosing the right media to pay attention to student characteristics. Learning media is believed to be one of the success factors of learning. By using media in learning activities, students will appear physically and psychologically active, can be motivated in learning, maximize all students in learning and make learning more meaningful.

Learning media is a tool in the learning process in the context of communication between teachers and students. learning media also has a contribution in improving the quality and quality of learning. Media is one of the communication tools in conveying messages, of course it is very useful if implemented in the

learning process, the presence of media really helps students understand a certain concept that is difficult to explain in verbal language. (Rusman, 2019:171)

In addition, the selection of learning media is important for educators, teachers must choose learning media that will make students interested in the media they make. If the media conveyed are new things that have never been seen or known by students, both physically and non-physically, the message contained in the media is something new, for example in terms of color and design, the greater the desire students to understand and use the media. along with the development and progress of computer technology requires teachers to keep abreast of these technological developments in carrying out the learning process, many applications are used to assist teaching and learning activities such as, geogebra, microsoft power point, adobe flash, macromedia flash , Articulate story lines, Smart apps creators, etc. which should be utilized and developed for teaching materials. Learning media using computer media can accommodate students who are slow in accepting lessons, because it can provide an effective climate, which makes students not young forget not young to get bored and more patient in carrying out the instructions the program wants. Therefore, researchers are interested in utilizing these applications to be used as materials/media in learning so that students can better understand and be interested in the material presented. The software that the researchers are trying to develop is Flash-based because this software is expected to be able to attract student motivation by displaying clear and attractive images, animations.

Adobe Flash produces interactive multimedia as an application that produces interactive multimedia, of course it can accommodate students in receiving lessons and can also handle students who are slow in receiving lessons. Adobe Flash is the right software for creating visual presentations that can present various media such as videos, animations, images, and sounds to attract student motivation and communication. This media is used so that students can see firsthand simulations and demonstrations that resemble real events, and can be defined in everyday life.

The use of Adobe Flash in learning can assist teachers in explaining subject matter so that students can easily remember the material being taught, answer practice questions as an understanding of the material and provide new experiences so that students are motivated. The choice of an interesting typeface in the presentation of the material makes it easier for students to remember the material being taught, therefore learning media with Adobe Flash can give students the opportunity to be active and gain experience in learning that can provide optimal results.

This research will be developed using the adaptation of the ADDIE development model, which is a development model consisting of five stages including: analysis, design. Development (development), implementation (implementation), and evaluation (evaluation). The ADDIE development model was developed by Dick and Carry (1996) for designing learning systems (Ending, 2020: 200).

RESEARCH METHODS

In this study, the Research and Development research approach was used, or better known as development research. This development research was carried out within 6 months starting from August 2022 to January 2023 with an R&D research approach in this study, namely interactive learning media using Adobe Flash to improve student learning outcomes.

RESEARCH RESULT

This research begins with a preliminary study or better known as a needs analysis activity which has previously been adjusted to the schedule of research activities. This stage aims to collect information and an

overview of the implementation of science learning which involves the use of interactive learning media using previous learning media in class V SDN 3 Bulango Utara. The research results in this study have been adapted to the research model (ADDIE model) which has been adapted and modified by researchers. The stages in this study started from the analysis stage, design stage, the development stage and finally the implementation stage. The product development steps in this study are described as follows:

1. Stage of Analysis (Analysis)

The analysis stage is the stage of identifying problems to obtain information related to the product that the researcher will develop. This stage is the initial stage, where the purpose of this stage is to establish and identify development requirements through a preliminary study which includes 5 main steps, namely a) analysis of student needs, b) analysis of curriculum, c) analysis of formulation of learning objectives (specifying instructional objectives) .

2. The Design Stage

The purpose of this stage is to prepare a prototype learning device in this case interactive learning media (Adobe Flash). at this stage consists of three steps, namely a) product design planning, b) preparation of benchmark reference tests, c) device design.

3. Development Stage (Development)

The design of this development stage is expected to produce a product in the form of revised Adobe Flash interactive learning media. At this stage the validators involved are experts and teachers. Expert validation includes material experts, linguists and media experts. All three are to find out the truth of the content of the material and the format of the material, the language and the format of the learning media. Material validation, namely validation from elementary school teachers to find out the possibility of implementing learning using learning media that has been developed. After draft 1 of the interactive learning media was produced, then a validation process was carried out to produce draft II which was corrected based on suggestions and improvements by experts.

1. Revision of Results

Revisions were made based on suggestions and input provided by media experts. The revised matters in the media are as follows:

1) Material Expert Revision. When the material expert validated interactive learning media using Adobe Flash in the science subject on the food chain material, there were several comments and suggestions for improvement, namely completing the explanation of the material.

2) Revision of linguists. When the linguists validated the interactive learning media using Adobe Flash in the natural science subject on the food chain material, there were several comments and suggestions for improvement. It is better in the case of developing media in a lesson that the actual form of the media is shown first, then after it is developed, the form is shown.

3) Revision of media experts. When media experts validated interactive learning media using Adobe Flash in science subjects on the food chain material. There are some comments and suggestions for improvement. The first is to adapt the intro/music to the material being discussed, namely the food chain. Both background views must be adjusted to the material being taught. The three symbols used are adapted to the material.

4. Implementation stage (Implementation)

After the product was finished, the researcher proceeded to the next stage, namely by implementing the product on the subject of this study, namely 14 students at SDN 3 Bulango Utara.

After the media is used, students are asked to learn the instructions for using interactive learning media based on the teacher's direction. After the end of the lesson students were asked to express their opinions and assessments regarding the media that had been used on the questionnaire sheet that had been given.

Assessment is used to determine the feasibility of learning media for food chain material as a medium that is applied in schools. The results of the assessment of the questionnaire sheet from students can be seen in the attachment. The following is the recapitulation of the average score and student responses as follows:

Table 1 Results of student assessment recapitulation

No	Assessment Aspects	Total Value	Average Total	Information
1	Software	321	91,71%	Very Worth it
2	Learning Design	521	93,04 %	Very Worth it
3	Visual Communication	581	92,22%	Very Worth it
	Total	1423	92,32%	Very Worth it

Based on the student assessment results table above in terms of the software aspect, an assessment score was obtained with an average score of 91.71% which was included in the "very feasible" category, then from the learning design aspect obtained an assessment score with an average score of 93, 04% in the very decent category, and lastly in the visual communication aspect, the results of the assessment obtained an average score of 92.22% which is included in the "very decent" category. The results of the assessment of the three aspects obtained an average score of 92.32% in the "very feasible" category so that the level of feasibility of interactive learning media for food chain material based on student assessments is classified as "very feasible":

Media Effectiveness

After conducting small group trials and revisions, interactive learning media on food chain materials were tested on a large group of 14 at SDN 3 Bulango Utara class V. Data collection on this sample was used to determine the increase in student learning outcomes in the development of interactive learning media. The trial phase begins by providing initial test questions, namely tests prior to the treatment of using interactive media on 14 students which aims to determine the initial ability of the material being studied, then at the end of the lesson a final test item will be given after the treatment of using media, the number of questions 10 items are given in the form of multiple choice questions.

Based on data on student learning outcomes, it shows that there is an increase in student learning outcomes with most students exceeding the KKM score, which is 70%. In the table it can be seen that the increase in student learning outcomes is due to the fact that in learning the use of interactive learning media Adobe Flash requires students to study actively, the teacher provides opportunities for students to build and develop knowledge possessed by students so that process skills can hone the abilities they have. owned by students as an effort to achieve the expected learning objectives.

DISCUSSION

Based on the results of student calculations, the results of the assessment of the software aspect obtained an assessment score with an average score of 91.71% which is included in the "very feasible" category, then from the learning design aspect, an assessment score is obtained with an average score of 83.04%. with the "very feasible" category and finally in the visual communication spec obtained an assessment result with an average score of 92.22% which was included in the "very feasible" category. The results of the assessment of these three aspects obtained an average score of 92.32% in the "very feasible" category, so that the level of feasibility of interactive learning media for food chain material based on student assessments was classified as "very feasible" based on the results of the validator's validation and the responses of class V students, then the interactive learning media for food chain material is appropriate to be implemented in class V of elementary schools.

Limitations/obstacles in research

In its development, the interactive learning media Adobe Flash material on the food chain in class V SDN 3 Bulango Utara, of course, has several obstacles in its implementation, but these obstacles do not prevent researchers from continuing to conduct research. The obstacles that emerged in the research process were as follows 1) Researchers had never made learning media before, 2) Researchers had difficulties in presenting learning videos in the form of animations that were in accordance with the food chain material during the colonial period**.**

The solutions to solve the obstacles that arise include 1) Researchers dig up information and collect materials to be used in making interactive learning media, 2) Researchers learn how to make tutorials on animated learning videos from YouTube.

Through research and development of this interactive learning media, it is hoped that it will be useful and can provide new knowledge to students about food chain material, can improve student learning outcomes and can provide references to interactive learning media that are appropriate for use in learning activities for teachers and students.

CONCLUSION

Based on the discussion of the research results that have been described, it can be concluded that 1) The objective conditions for the implementation of Adobe Flash interactive learning media: in science subjects in class V SDN 3 Bulango Utara, Bone Bolango district, are still rarely carried out by teachers. This is due to the lack of special media for learning activities that use interactive media, 2) Development of Adobe Flash interactive learning media in science subjects, the food chain material needed by teachers and students is media that is able to foster interest and improve student learning outcomes so that the delivery of material can be absorbed easily and well by the students so that the learning objectives are achieved, 3) Adobe Flash interactive learning media in the science subject of the food chain matrix that has been developed has been validated by three experts. Based on the assessment of media experts, the product being developed has the criteria of "very feasible" with an average score of 90.59% and is declared "very feasible" to be used with revisions. In addition, for the linguist assessment of the product being developed, it obtained an average score of 85% with the criteria: very feasible, used with revisions and for material expert assessment, the product being developed obtained an average score of 94.16% with the criteria of "very feasible". properly declared to be used with revision. from the results of the student assessment questionnaire obtained a score of 92.32%. based on the recapitulation of the final results of the validation assessment of the three experts,

the adobe flash interactive learning media in science subjects on the food chain material obtained an average score of 89.49% with the criteria of "very feasible" and continued to the next stage.

While the implications of this study 1) Implications for students, interactive learning media using Adobe Flash developed can increase understanding of science learning, especially in food chain material, 2) Implications for schools, especially class V teachers, can be a rationale in developing learning media, 3) Implications for other research, as a frame of reference for conducting the same research at a further level.

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