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ECOSYSTEM ANIMATION VIDEO (VISIKO) AS MEDIA IN LEARNING ECOSYSTEM MATERIAL IN THE FIFTH GRADE: A RESEARCH AND DEVELOPMENT

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Abstract
The results of observations and interviews revealed that the use of learning media is still lacking, with most teachers only relying on the lecture method. This study aims to evaluate the effectiveness of VISIKO (Ecosystem Animation Video) teaching media in teaching ecosystem material to grade V students. This type of research follows the RnD method developed by Sugiyono, with limitations up to the seventh stage, namely product revision. The feasibility assessment of learning media is carried out by a number of experts, including material experts, media experts, and linguists. In addition, the readability score of VISIKO teaching media was tested by involving 10 representative students from grade 5 at SDN Sumberjo 01, as well as 5 teachers from SDN Sumberjo 01, SDN Bajang 01, and SD Alam Al Ghifari Blitar. The results showed that VISIKO (Video Animation Ecosystem) teaching media products received high feasibility scores from various validators, namely material experts by 87.6%, media experts by 98.8%, and linguists by 91.4%. With an average eligibility percentage of 92.6%, this product can be considered very viable. Limited trials involving teachers also resulted in a readability rate of 92.8%, while students gave a readability score of 97.7%. Based on teacher and student assessments, this product is considered very good and very easy to understand, making it suitable for use in learning ecosystem materials for grade 5 students.

Keywords: VISIKO learning media, ecosystem, 5th grade students

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1. INTRODUCTION

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In Law No. 20 of 2003, there is an explanation of how important education is as a tool to explore students' potential in various aspects such as spirituality, self-control, behavior, character, intelligence, morality, and personal skills that benefit individuals, society, state, and nation. Education is considered the key to improve the intelligence and quality of life of the nation. Teachers, in their roles, are considered a major element in providing quality education; they are expected to assume the roles of educators, facilitators, teachers, and innovators. They are also expected to have the initiation to choose effective learning methods, encourage active student participation, use various available learning resources, and provide motivation to students to utilize teaching media effectively.

Developments in science and technology have a vital impact on various aspects of life, including education. Education is greatly influenced by the advancement of science and technology, but on the contrary, education also depends on the support of the development of science and technology to achieve its goals more efficiently and effectively, according to the views of Ali Muhson (2010). Through observations in schools such as SDN Kanigoro 03, SDN Sumberjo 01, and SDN Ngadipuro 01, it can be observed that the lecture method is often the only approach applied by teachers in the classroom, causing a loss of student learning attractiveness in the learning process. The negative impact is the low attractiveness of student learning. The use of teaching media by teachers is not fully maximized, and the learning resources available are limited to simple illustrative images included in books. As a result, learning becomes less interesting due to the lack of utilization of teaching media. This situation is seen when the teacher only explains the material to students without involving the media, so students only act as listeners and talk to their friends. This condition results in learning not reaching its full potential.

Based on interviews with grade V teachers in three schools that implemented the 2013 curriculum, there were several challenges that arose during the learning process. These teachers face several difficulties, such as limitations in teaching media resources, lack of student attention, behavior disorders when the teacher is explaining, and students who are often distracted in their thoughts during lessons. In this context, one of the main issues that should get more attention is the limitations in the use of teaching media, especially when material about ecosystems must be taught. On the other hand, students also have difficulty understanding ecosystem material, especially in describing the state of natural ecosystems such as seas, forests, and lakes, which are difficult to explain directly due to long distances. While students should ideally be able to visit their natural surroundings, various factors such as limited time, cost, and long distances hinder this possibility. Therefore, it is important to use teaching media that are able to clearly describe the condition of the ecosystem and can be presented in the classroom.

According to the results of a survey involving 59 students from Kanigoro Elementary School 03, Sumberjo State Elementary School 01, and Ngadipuro Elementary School 01, it was concluded that as many as 64% of respondents stated that their teachers did not use the media during the learning implementation. The result of this is students' difficulty understanding ecosystem materials, which is found in 58% of students. This situation is influenced by the fact that the teaching method relies only on workbooks (LKS), so students find it difficult to understand the lesson. Based on the analysis of student needs, 84% of them are more inclined to use digital teaching media in the form of animated videos. Animated videos featuring moving characters are able to attract attention and provide motivation to students in the learning process. Currently, teachers

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only use simple illustrative images listed in teacher companion books and student handbooks as teaching media. Therefore, it is necessary to use media support in the form of animated videos to increase understanding of the chapters taught.

The use of animative video media has the potential to achieve learning objectives in the realm of Natural Science (Science) concepts. In science learning, it is important for students to directly experience events through their five senses so that they can be easier to remember. These mediums present motion and audio images, which can spark students' attention and potentially improve their study outcomes. This finding also received support from research that focused on elaborating learning videos, which aimed to increase the motivation and knowledge of grade IV elementary school students. This research shows that these learning videos meet expert standards in terms of material and media quality. This product development is effective in increasing the enthusiasm for learning and achievement of knowledge of students in grade IV SD Cluster Pacarejo, as presented in research by Suryansyah and Suwarjo (2016).

Therefore, researchers use animated videos as a teaching medium that has the potential to attract students' attention during the teaching and learning process in class V. The reason behind using this medium is the hope that it will have a positive effect on student achievement. Based on this explanation, researchers are interested in conducting research entitled **"Ecosystem Animation Video (Visiko) As Media in Learning Ecosystem Material in the Fifth Grade: A Research and Development "**.

2. LITERATURE REVIEW

2.1. Learning Media Development

Research and development is a research model used to design certain products based on conducting field tests as a test of the effectiveness and standards of certain products. According to the Ministry of National Education (2003), media is everything that is able to transfer information from the information base to the recipient. The KBM process is an interaction process, so the use of media in the classroom is called teaching media. Meanwhile, Luhan (in Hamalik, 2003) believes that individual extensions that allow persuading others indirectly are media.

2.2. VISIKO Learning Media

One of the useful media in KBM is animated videos. This medium is useful in KBM and assists teachers in delivering material concretely, which makes students not think abstractly and imagine (Alifa, Hanafi, and Nulhakim, 2021). The advantage of using this medium is that the attractive animation design has the potential to make KBM less monotonous, and has the potential to motivate student achievement. Animation can be created for the delivery of various types of teaching materials in accordance with teaching indicators, as well as cutting production costs rather than using the original cast (Musdayat, 2017).

2.3. The Definition of Ecosystem

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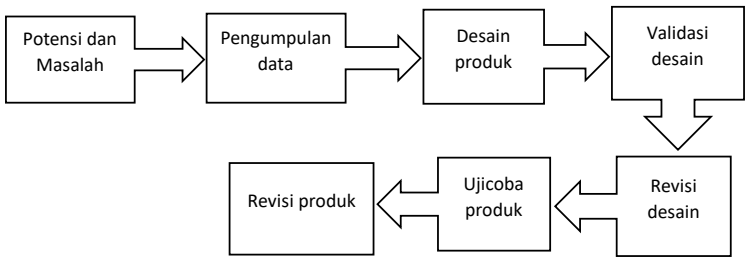
The basic unit related to the process of socializing living things in their habitats, whether biotic or abiotic, is the ecosystem. This terminology was originally proposed in 1935 by an ecologist named A.G. Tansley. Ecosystems are an integral concept in the discipline of ecology because they are created by reciprocal relations between living things and the environment. Living entities, i.e., biotics, and non-living entities, i.e., abiotics, simultaneously create ecosystems. The socialization of these two entities creates growth, development, and change in the ecosystem.

3. METHODS

The research that has been done is a type of Research and Development (R & D). The purpose of this study is to evaluate the effectiveness of VISIKO (Ecosystem Animation Video) teaching media in teaching ecosystem material, as well as to measure the response and acceptance of teachers and students to VISIKO (Ecosystem Animation Video) learning media in teaching ecosystem chapters in class V. According to Sugiyono (2011), there are ten stages that must be taken in this research procedure, but due to the limitations of researchers, only seven stages of the research procedure are used.



Researchers used a quantitative descriptive approach in research to find preliminary data and interview instruments for teachers of SDN Sumberjo 01 as a research site with a population of 10 fifth grade students. While quantitative methods have been applied to collect data in the form of questionnaire validation (Likert Scale) by three experts: content validator (material), medium validator, and language structure validator, as well as student responses (Guttman Scale) to the application of the VISIKO teaching media for readability test to fifth grade students. Details on the scale and criteria for assessing the appropriateness of clothing can be found in the following table.

1) Validation questionnaire using Likert Scale

Table 1. Likert Scale

SKALA PENILAIAN				
1	**2**	**3**	**4**	**5**
No	Less	Enough	Good	Excellent

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Table 2. Percentage of validation questionnaire scores

No	Achievement Level	Qualification	Information
1.	80≤ x ≤100%	Excellent	Very valid, no revision required
2.	60≤ x ≤80%	Good	Valid, no revision required
3.	40≤ x ≤60%	Good enough	Valid, revision required
4.	20≤ x ≤40%	Less	Invalid, revision required
5.	≤20%	Bad	Very invalid, revision required

2) Student readability questionnaire using the Guttman Scale

Table 3. Guttman scale

Criterion	Skor
Yes	1
No	0

Table 4. Criteria for the level of appropriateness of clothing

No	Achievement Level	Qualification	Information
1.	80≤ x ≤100%	Excellent	Very valid, no revision required
2.	60≤ x ≤80%	Good	Valid, no revision required
3.	40≤ x ≤60%	Good enough	Valid, revision required
4.	20≤ x ≤40%	Less	Invalid, revision required
5.	≤20%	Bad	Very invalid, revision required

4. RESULTS

The initial stage of creating learning media to be developed is first planned and designed according to the results of the initial observations collected. In addition, it also analyzes learning outcomes, learning outcomes are obtained from the Ministry of Education and Culture Number 008/H/KR/2022. After analyzing the learning outcomes of researchers making learning objectives, learning objectives are made based on the learning outcomes used. The next step is to compile VISIKO teaching media. The media is created using Adobe after effects, Adobe premiere pro, and Adobe illustrator applications. Here is the display of VISIKO teaching media for learning science for grade V students.

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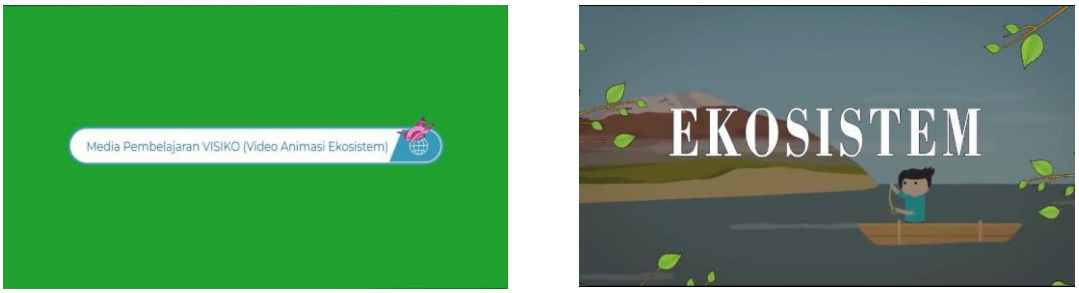
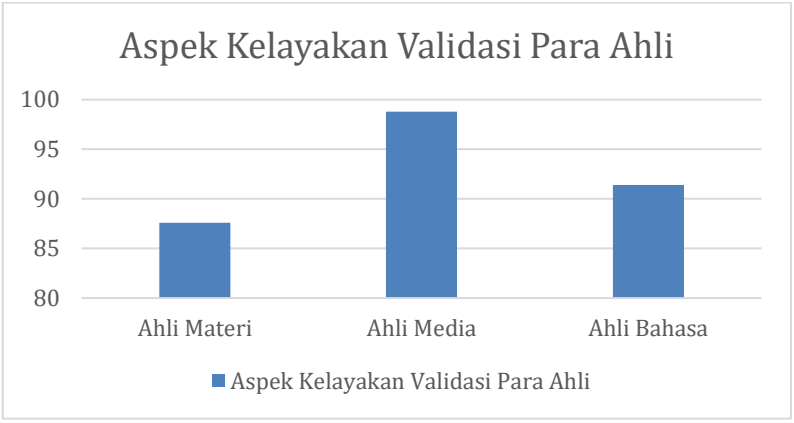


Figure 1. VISIKO teaching media display

The results of the validation by the phase II material expert obtained a percentage result of 87.6% out of 100%. The percentage obtained is in the range of 80≤ x ≤100%, so the developed media is categorized very well and claimed to be suitable for use. Phase II medium expert validation obtained a percentage result of 98.8% out of 100%. The percentage obtained is in the range of 80≤ x ≤100%, so that the updated media is categorized well and suitable for use. Validation of phase II linguists obtained a percentage result of 91.4% out of 100%. The percentage obtained is in the range of 80≤ x ≤100%, so that the elaborated media is categorized so well and can be used. Looking at the results of the validation of teaching media by the three phase II expert validators, we obtained an average result of 92.6% from 100%. The percentage obtained is in the range of 80≤ x ≤100%, which meets very good criteria and is appropriate to use.



Furthermore, a student readability test was carried out using 10 grade V elementary school students and a readability test on 5 elementary school teachers. The measurement of readability level is carried out by giving questionnaires to grade V students and teachers. The subject of this readability measurement includes the students and teachers of that class. The subjects used were 10 students and 5 teachers. The statements on the student readability questionnaire amounted to 9 questions, while the teacher readability questionnaire amounted to 10 questions. The results of the evaluation of students' reading power regarding VISIKO teaching media received a readability score of 97.7% with very good criteria and claimed to be appropriate for use. These gains show the creation of legible, appropriate media.

Table 1. Results of Student Reading Questionnaire

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Question number	Student										Sum
	1	2	3	4	5	6	7	8	9	10	
1	1	1	1	1	1	1	1	1	1	1	10
2	1	1	1	1	1	1	1	1	1	1	10
3	1	1	1	1	1	1	1	1	1	1	10
4	1	1	1	1	1	1	1	1	1	1	10
5	1	1	1	1	1	0	1	1	1	1	9
6	1	1	1	1	1	1	1	1	1	1	10
7	1	1	1	1	1	1	1	1	1	1	10
8	1	1	1	1	1	0	1	1	1	1	9
9	1	1	1	1	1	1	1	1	1	1	10
Total											88
Maximum score											90
Percentage											97,7%

Based on the results of the assessment of teacher readability questionnaires regarding teaching media, VISIKO got a percentage of 92.8% with information that was claimed to be appropriate for use. So, the teacher readability test on VISIKO teaching media is very good.

Table 2. Results of the Teacher Reading Questionnaire

Question number	Teacher					Sum
	1	2	3	4	5	
1	5	5	4	5	5	24
2	5	4	4	5	4	22
3	5	5	4	5	5	24
4	5	5	4	5	5	24
5	5	5	4	5	5	24
6	5	4	4	5	5	23
7	4	4	4	5	5	22
8	5	5	4	5	5	24
9	4	5	4	5	4	22
10	5	4	4	5	5	23
Total						232
Maximum score						250
Percentage						92.8%

5. DISCUSSION

The creation of teaching media is based on the problems that students have in science learning. Teaching media can be utilized optimally to improve the quality of learning activities. Based on the use of technology modes by schools, it has projections to be able to spur student interest in learning science on ecosystem materials.

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The findings of the creation of VISIKO media are teaching media products in the form of animated videos. This development uses the Sugiyono model. In VISIKO teaching media, there are learning outcomes, learning objectives, materials, quizzes and developer profiles. VISIKO teaching media has a size of 711 MB which can be displayed on a laptop or mobile phone. Media can be accessed via google drive and barcodes. VISIKO teaching media have manuals, CP, TP, materials, quizzes, and developer profiles.

From the validation of the material, it shows the results that VISIKO teaching media contains animated videos that are appropriate for use and suitable for learning. VISIKO teaching media is categorized as very appropriate with a percentage of 83.8%. This means that animated video teaching media is suitable if used in science KBM (Fasyi, 2015). The use of VISIKO teaching media for learning because not all material can be realized actually. Therefore, teachers need animated video media to be able to project it to students to race understanding of science material.

VISIKO teaching media has fulfilled the characteristics of elementary school learning including, (1) the material is presented in detail and gradually (2) in the material section at each point of the material a quiz is given so that students can concentrate on digesting the material (3) examples of the appearance of figures in harmony with the material (4) animations presented in VISIKO teaching media can attract students' attention.

In terms of language, the language or sentence instruction in VISIKO teaching media is in line with Indonesian language rules and can be understood by students easily. It can be seen that during the readability test process, students without assistance can use and read the media easily. This is in accordance with the theory that the alignment of language with the level of student development will help students understand the material presented or to be learned. Based on the assessment of three language validators, VISIKO teaching media is included in the appropriate category with a percentage of 75.2%. This can be interpreted as meaning that the language in VISIKO teaching media is in accordance with the characteristics of students because the language presented is clear and can be read by students. Media spurs the potential for readability, namely the potential for classifying and interpreting forms, actions, and symbols of money seen, both naturally and artificially, by humans in the environment (Miarso, 2004: 458). In addition, the language in VISIKO teaching media has also been adjusted to the rules of Indonesian.

In terms of media, media validators state that VISIKO teaching media is in accordance with the suitability of media display, sound suitability, color suitability, illustration suitability, and ease of using media. Based on the assessment of three media validators, VISIKO teaching media is categorized as very appropriate with a percentage of 98.8%. VISIKO teaching media is in accordance with media criteria, namely: (1) an attractive media interface can spur student euphoria in learning science; (2) VISIKO teaching media is designed using colors, diverse animations, and dubbing in accordance with the material; (3) it facilitates the cultivation of the foundation of the teaching material concept; (4) VISIKO teaching media is equipped with quizzes; (5) it is an instrument of teacher assistance in KBM; (6) it is efficient and able to be used face-to-face or online.

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This finding is in line with Kustandi's opinion (in Chusni, 2018) that media is said to be in accordance with learning if it fulfills the functions of (1) attentional usefulness, namely attracting students' attention; (2) ease of use, namely maintaining student comfort; (3) intellectual usefulness, which makes it easier for students to learn the material; and (4) compensatory use, namely verbal presentation of material on teaching media. After media validation, limited testing was carried out. This test was carried out by displaying VISIKO teaching media to students and closed by filling out a readability questionnaire with subjects related to media display, content understanding, language use, and interest in media. After distributing the student readability questionnaire, the media was considered very appropriate to use, with a percentage of 97.7%, meaning that the media could be used by students. VISIKO teaching media can be used when learning science. The factors that are advantages of VISIKO teaching media used in elementary schools include: (1) there are CP and TP (2) material equipped with dubbing, sample questions with gradual levels; (3) each material, sample questions, and quizzes have appropriate images; (4) can be used face-to-face or online. (5) The material presented is clear and in accordance with the theory of media utilization in elementary schools. This is supported by Arsyad's presentation (in Suparlan 2020) that it is harmonious in the use of teaching media if (1) it is in accordance with goals; (2) it assists with teaching content; (3) it is simple and flexible; (4) it is applicable; and (5) it has good technicality.

The trials were also conducted on five class teachers to find out the assessment of the developed media. The test was carried out by displaying VISIKO teaching media to teachers and concluded by filling out a readability questionnaire devoted to TP harmony, language choice, attractiveness, and ease of using media. Based on these readability findings, the media is considered very appropriate to use, with a percentage of 92.8%. This medium has high benefits for teachers and students in KBM in the classroom, so it can contribute positively to achieving TP. According to Kemp and Dayton (Sanjaya 2008: 2010), teaching media has an impact that includes: (1) increasing the interest in KBM; (2) making KBM more interactive; 3) improving the quality of KBM; 4) allowing the KBM process to run anytime and anywhere when needed; 5) encouraging the positive behavior of students toward teaching materials and teaching processes; and 6) having teachers play a more positive role, which is not the main source of teaching. Based on the research process that has been carried out, the VISIKO (Ecosystem Animation Video) teaching media can be used in the learning process about the ecosystem material in particular. Thus, with good projection, VISIKO media has the potential to assist students and teachers to more easily learn the material.

6. CONCLUSION

Based on the results of research and evaluation of VISIKO teaching media for science subjects regarding the diversity of living things and their environment in grade V elementary schools, it can be stated that this media has undergone an assessment process by three groups of validators who are experts in their fields, namely content expert validators (material), linguist validators (language structure), and expert validators in media. The assessment results from content expert validators showed that about 83.8% of them felt this medium was very suitable for use, while linguist validators gave a figure of around 75.2% with a usable assessment.

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Expert validators in media gave the highest rating, at around 98.8%, with the assessment very appropriate. Based on the assessment of these validators, it can be concluded that VISIKO teaching media is very appropriate to be used in this teaching context.

The results of the evaluation of questionnaire data regarding the level of student readability of VISIKO teaching media showed that around 97.7% of respondents considered it very appropriate. Meanwhile, the results of the survey on readability by educators also showed an approval rate of around 92.8%, which is also considered very appropriate. From these results, it can be concluded that the application of VISIKO teaching media is very effective in supporting the learning process, especially in the context of learning ecosystem topics in science subjects. Therefore, it can be concluded that VISIKO teaching media has proven to be very efficient in supporting science learning about ecosystem chapters.

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