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Audio-Visual Learning Media Based on Digital Literacy on the Topic of the Water Cycle

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ABSTRAK

Pemanfaatan media pembelajaran digital saat ini sangat diperlukan. Hal ini ni berkaitan dengan literasi, keterampilan literasi, kemampuan menggunakan teknologi secara tepat guna. Tujuan penelitian ini yaitu mengembangkan Media Pembelajaran Audio Visual Berbasis Literasi digital pada Topik Siklus Air. Jenis penelitian ini yaitu pengembangan dengan menggunakan model ADDIE. Subjek penelitian yaitu 1 ahli materi pembelajaran, 1 ahli media pembelajaran dan 1 praktisi. Subjek uji coba yaitu 25 orang siswa kelas V SD. Metode pengumpulan data menggunakan wawancara, kuesioner dan tes. Instrumen pengumpulan data menggunakan rating scale. *Teknik yang digunakan untuk mengaanalisis data yaitu analisis deskriptif kualitatif, kuantitatif, dan statistic inferensial. Hasil penelitian yaitu penilaian dari ahli desain pembelajaran mendapatkan nilai 97,5 % (sangat baik) Penilaian dari ahli materi pembelajaran yaitu 93,3% (sangat baik). Penilaian dari ahli media pembelajaran yaitu 97,6% (sangat baik). Hasil penilaian guru yaitu 95,2% (sangat baik). Hasil penilaian dari respon siswa yaitu 89,5% (sangat baik). Hasil uji t menunjukan terdapat pengaruh yang signifikan antara Media Pembelajaran Audio Visual Berbasis Literasi Digital terhadap hasil belajar siswa kelas V SD. Disimpulkan bahwa Media Pembelajaran Audio Visual Berbasis Literasi Digital dapat meningkatkan hasil belajar siswa*

ABSTRACT

The use of digital learning media is currently very necessary. It is related to literacy, literacy skills, and the ability to use technology effectively. This research aims to develop Digital Literacy-Based Audio Visual Learning Media on the Topic of the Water Cycle. This type of research is developed using the ADDIE model. The research subjects were one learning material expert, one learning media expert and one practitioner. The test subjects were 25 fifth-grade elementary school students. Methods of data collection using interviews, questionnaires and tests. The data collection instrument uses a rating scale. The techniques used to analyze the data are descriptive qualitative analysis, quantitative and inferential statistics. The research results are the assessment of the learning design expert, getting a score of 97.5% (very good). The assessment of the learning material expert is 93.3% (very good). The assessment of learning media experts is 97.6% (very good). The results of the teacher's assessment were 95.2% (very good). The assessment results of student responses were 89.5% (very good). The t-test results showed a significant influence between Digital Literacy-Based Audio Visual Learning Media on the learning outcomes of fifth-grade elementary school students. It was concluded that Digital Literacy-Based Audio Visual Learning Media could improve student learning outcomes.

1. INTRODUCTION

One way to improve abilities is by providing education. A good education will greatly influence learning (Roshonah & Dwitami, 2021; Saregar et al., 2021). The learning process must be able to produce good changes in education. Learning must be the basis of education to help make the nation's life more intelligent (Chang et al., 2021; Krath et al., 2021; Nur et al., 2021). As long as there is life, learning will continue. Education is now centered on students rather than teachers. However, students are experiencing literacy difficulties (Gogahu & Prasetyo, 2020; Nurcholis & Istiningsih, 2021). The literacy culture of Indonesian society is far behind other countries in the world. This problem may be proof that the quality of learning must be considered. Thus, Minister of Education and Culture Regulation number 23 of 2018 determines student literacy levels, which include understanding texts to solve contextual problems other than reading (Nopilda & Kristiawan, 2018). Students trained in critical reasoning can acquire these skills. By equipping students with unique personalities, knowledge and skills, education aims to change students' attitudes or behavior through learning activities (Hanik, 2020; Puspita & Purwo, 2019). Students can obtain important information in learning activities through interaction.

Learning activities are a two-way communication process between teachers and students. The role of the teacher is very important to carry out the learning process (Sudirman et al., 2022; Xu et al., 2019). The teacher's

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role is to provide services to students so that they become students who align with their school's goals. Teachers also have the task of guiding students, providing guidance and assistance to individuals to achieve the understanding and self-direction needed to make maximum adjustments to the environment they face (Gaudin & Chaliès, 2015; Nurlaily et al., 2019). One of the goals to be achieved in learning activities is learning objectives. Learning elements such as media, learning resources, materials, methods, evaluation, students and teachers help achieve learning goals (Aliriad et al., 2023; Hussin et al., 2018). These components are important because the learning process can only run well if all elements are interconnected (Nurlaily et al., 2019; Suharsiwi et al., 2022). Teachers can use tools to convey information to their students to achieve this.

However, the current problem is still poor learning. Previous research findings also reveal that many teachers are still confused about determining the right learning model (Adiansha & Sani, 2021; Aliyah & Wahjudi, 2021). Other research also reveals that teachers have difficulty designing appropriate learning media for students (Chasanah et al., 2019; Yamin & Karmila, 2020). Utilization of learning media is currently very low. It is related to literacy, literacy skills, the ability to use scientific knowledge, identify questions, and draw conclusions based on evidence to understand nature and the changes humans make to it (Gogahu & Prasetyo, 2020; Pertiwi et al., 2018). In addition, students' digital literacy skills can be considered low because teachers do not use digital literacy to teach their students (Anggraeni et al., 2019). The results of observations at SD Negeri 3 Panji Anom also found the same problem. There are problems with the use of innovative learning media. In interviews conducted in fifth grade, the school had not yet used media based on digital literacy. One of the learning media used is learning videos taken from YouTube. However, the learning video only contains a brief presentation of the material, so using learning media is not optimal. The results of the data analysis show that of the 25 fifth-grade students, four have a low literacy level, and 18 have a low technology level. Therefore, innovation is needed to create learning media relevant to the material's characteristics.

The solution offered is by using innovative media. One of the innovative technology-based media that can be used is audio-visual media. Media is a learning component that helps learning (Handayani, 2021; Purwandari & Wahyuningtyas, 2017). Media can be used as an intermediary between other people and also function as a source of receiving information. One way to support a good learning process is to use interesting learning media (Hidayah & Ulva, 2017; Widiyasanti et al., 2018). Learning media emphasizes the role of media as a sender of learning messages or information to encourage someone to learn. The learning materials students receive are accessed through the media during learning activities (Alfianti et al., 2020; Yudha et al., 2017). Some general characteristics of learning media are as follows: First, learning media is identical to the concept of demonstration, which comes from the word "raga", which means objects that can be touched, seen and heard and can be observed through the five senses. Second, the main focus of learning media is objects or things that can be seen and heard. Lastly, learning media is used for relationships (communication) between teachers and students (Kang & van Es, 2019; Susanti et al., 2018).

Previous research findings also reveal that learning media helps learning activities (Arsyad et al., 2020; Pradilasari et al., 2019). Other findings also reveal that audio-visual media can increase enthusiasm and improve student learning outcomes (Indrawan et al., 2019; Setiawan & Ari Oka, 2020). Technology can be used with learning media to help the current learning process. Technology can help students and teachers choose the most suitable learning media. Learning that uses technology will be more effective. Audio-visual learning media based on scientific literacy can help students understand and receive material about the water cycle. Audiovisual video learning media based on digital literacy is very important to develop. There has been no study regarding audio-visual learning media based on digital literacy on the water cycle topic. This research aims to develop audio-visual learning media based on digital literacy on the water cycle topic.

2. METHOD

This type of research is developed using the ADDIE model, which consists of analysis, design, development, implementation and evaluation (Hidayat & Nizar, 2021). At the analysis stage, an analysis of student characteristics, needs and curriculum is carried out. At the design stage, digital literacy-based audio-visual learning media were designed, and instruments were developed. Digital literacy-based audio-visual learning media was developed at the development stage, and product validity was tested. At the implementation stage, field tests were carried out. The evaluation stage was conducted to test the effectiveness of audio-visual learning media based on digital literacy. The research subjects were one learning materials expert, one learning media expert and one practitioner. The test subjects were 25 fifth-grade elementary school students. Data collection methods use interviews, questionnaires and tests. Interviews are used to find out problems that occur. The questionnaire method is used to collect data in the form of expert scores. The test method is used to collect student learning results. The data collection instrument uses a rating scale. The instrument grid is presented in Table 1 and Table 2.

Table 1. Material Expert Instrument Grid

No.	Aspect	Indicator	Item Number	Total Item
1	Learning	Learning objectives	1, 2, 3	3
		Delivery of material	4, 5, 6, 7	4
		Motivating qualities	8, 9, 10, 11	4
2	Material	Relevance of the material	12, 13, 14,	3
		material assessment	15, 16, 17, 18	4
Number of Items				**18**

(Modifikasi dari Indrawan et al., 2019)

Table 2. Learning Design Expert Instruments

No.	Aspect	Indicator	Item Number	Total Item
1	Learning Design	a. Clarity of indicator formulation	1	1
		b. Conformity to indicators	2	1
		c. Accuracy in choosing learning methods	3	1
		d. suitability of learning steps	4	1
		e. Conformity of assessment techniques with established indicators	5	1
		f. suitability of assessment instruments with assessment techniques	6	1
		g. Media selection decisions	7	1
		h. The use of media makes learning easier	8	1
Total				**8**

(Modifikasi dari Indrawan et al., 2019)

The techniques used to analyze the data are qualitative descriptive analysis quantitative and inferential statistics. Qualitative descriptive analysis was used to analyze comments provided by experts and students. Quantitative descriptive analysis is used to analyze the scores given by experts and students. Inferential statistical analysis is used to analyze the effectiveness of digital literacy-based audio-visual learning media on student learning outcomes. Analysis of media effectiveness using SPSS.

3. RESULT AND DISCUSSION

Result

This research uses the ADDIE model to develop audio-visual learning media based on digital literacy. First, analyze. The analysis results show that there are problems with the use of innovative learning media. In interviews conducted in fifth grade, the school had not yet used media based on digital literacy. One of the learning media used is learning videos taken from YouTube. However, the learning video only contains a brief presentation of the material, so using learning media is not optimal. The results of data analysis show that of the 25 fifth-grade students, 4 have a low literacy level, and 18 have a low technology level. Therefore, innovation is needed to create learning media relevant to the material's characteristics. The results of the curriculum analysis are presented in Table 3.

Table 3. Description of Basic Competencies and Indicators

Basic competencies		Competency achievement indicators	
3.8	3.8 Analyze the relationship between ecosystem components and food webs in the surrounding environment.	3.8.7	Identify the stages in the cycle.
		3.8.8	Describe the stages in the water cycle, such as evaporation, condensation and precipitation.
		3.8.9	Summarize the impact of the water cycle on events on earth.

Second, design. In the initial design or planning stage, the first step was to select learning materials for using Digital Literacy-Based Audio Visual Learning Media. The analysis results show that the Water Cycle topic is the most suitable learning material. One of the next activities is to create a storyboard for the development of Digital Literacy Based Audio Visual Learning Media. The design or storyboard created is then discussed with the

supervisor to provide suggestions and opinions on improving Digital Literacy Audio Visual Learning Media products. The Storyboard for Audio Visual Learning Media Based on Digital Literacy is depicted in Figure 1.

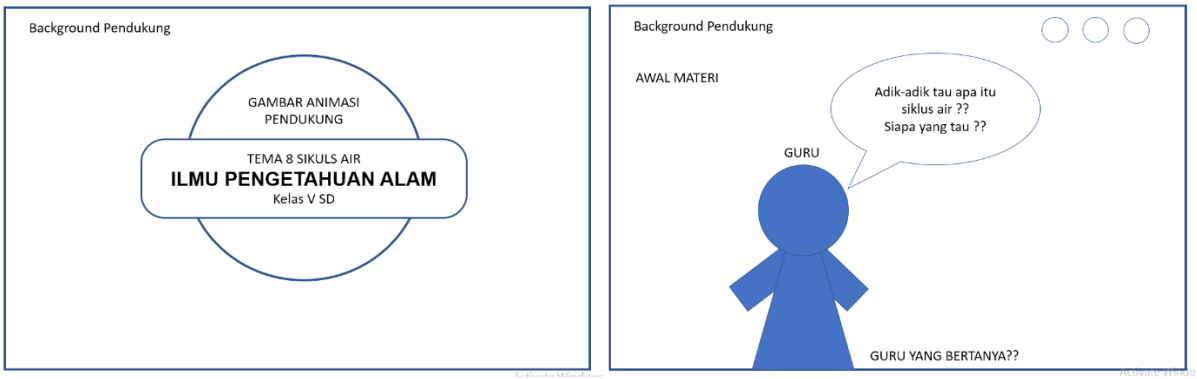

Figure 1. Storyboard for Audio-Visual Learning Media Based on Digital Literacy

Third, development. At this stage, Digital Literacy Based Audio Visual Learning Media was developed. Audio Visual Learning Media Based on Digital Literacy consists of three scenes: opening, main and closing. The development is different from a previously designed storyboard. The application used to edit Audio Visual Learning Media Based on Digital Literacy, Adobe Premier Pro, is developing. Audio Visual Learning Media Based on Digital Literacy is in MP4 form and is equipped with effects, transitions, text, animation and music during the editing stage. It is done to clarify Digital Literacy Based Audio Visual Learning Media and attract students' interest in learning. The results of the development are depicted in Figure 2.

Figure 2. Audio-Visual Learning Media Based on Digital Literacy

The Digital Literacy Audio Visual Learning Media that has been developed is then tested for validity. The assessment results from learning design experts received a score of 97.5%, so it was very good. The assessment results from learning material experts were 93.3%, which was very good. The assessment results from learning media experts were 97.6%, which was very good. The teacher assessment results were 95.2%, so it was very good. Fourth implementation. The assessment results from student responses were 89.5%, which was very good.

Fifth is evaluation. At this stage, the effectiveness of Audio Visual Learning Media Based on Digital Literacy was tested. The results of the data normality test are 0.933 in the pre-test, so 0.933 > 0.05, so it can be concluded that the pre-test data is normally distributed. The post-test data is 0.168, so that 0.168 > 0.05, it can be concluded that the post-test data is normally distributed. The results of the homogeneity test, namely the significance value of the data, were found to be 0.090, so that 0.090 > 0.05, it can be concluded that the variance of the pre-test and post-test data for fifth-grade students is homogeneous. The t-test result is 0.000, so 0.000 < 0.05, so it can be concluded that there is a significant influence between Audio Visual Learning Media Based on Digital Literacy on the learning outcomes of fifth-grade students at SD Negeri 3 Panji Anom. The results of the data analysis are presented in Table 4.

Table 4. Differences of Data Analysis Pre-Test and Post-Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-Test - Post-Test	-44.680	12.061	2.412	-49.659	-39.701	-18.522	24	0.000

Discussion

The data analysis results show a significant influence between Audio Visual Learning Media Based on Digital Literacy on the learning outcomes of class V students at SD Negeri 3 Panji Anom. Several factors cause this. First, Audio Visual Learning Media Based on Digital Literacy on the Water Cycle Topic is considered very good because its development uses the ADDIE model, which is a simple and systematic development model that makes it easier to implement each stage (Gusmida & Islami, 2017; Indrawan et al., 2019). This systematic ADDIE model organizes activities for creating audio-visual learning media based on digital literacy on the water cycle (Karisma et al., 2019; Nomleni & Manu, 2018). It reduces errors in the media creation process. According to other research, learning media products can achieve excellent qualifications using a systematic model (Fridayanti et al., 2022; Yu et al., 2021). According to other research, the ADDIE model effectively creates media products (Almelhi, 2021; Sari et al., 2022).

Second, Audio Visual Learning Media Based on Digital Literacy for the Water Cycle Topic has fulfilled several aspects of media development. Regarding learning content, the media is by basic competencies and learning objectives so students can understand the material easily (Damayanti & Qohar, 2019; Sanjaya et al., 2021). This is reinforced by research results, which found that audio-visual learning media can be well-received if adapted to the learning content elements (Indrawan et al., 2019; Nomleni & Manu, 2018). Learning media theory also says that media must be created by considering students' goals to be accepted (Fujiyanto et al., 2016; Yuanta, 2017). According to research, the suitability of media to learning objectives makes learning easier for students (Adittia, 2017; Fauzi et al., 2017). Other research also finds that when basic competencies deliver learning objectives, students will more easily understand what they will learn when using the media (Lestari et al., 2018; Widiatmika et al., 2017). It is to students' positive responses after using Audio Visual Learning Media. Students are more motivated to learn when using it.

Third, Digital Literacy-Based Audio Visual Learning Media material is delivered coherently and clearly so students can more easily understand the water cycle topic. Additionally, the material is relevant and helps students understand the topic more quickly. Previous research shows that clear media will make it easier for students to understand what is being taught (Dewi, 2020; Setiawan & Ari Oka, 2020). Apart from that, other research has found that the material presented in learning media is appropriate to the level of student development so that students do not have difficulty understanding it (Pradilasari et al., 2019; Virgiana & Wasitohadi, 2016). The suitability of images is very important for the success of learning media in conveying information. According to learning media theory, the clarity of voice and learning content presented in the media greatly influences the quality of the media (Arisantiani et al., 2017; Muhibbin et al., 2021). Learning videos also have text that can be read well to reduce misunderstandings. Apart from that, the clarity of the sound and the music used make the video interesting.

Previous research findings also reveal that audio-visual is a popular media with students in learning (Darihastining et al., 2020; Nurfadhillah et al., 2021). Other findings also reveal that audio-visual media can improve student learning outcomes (Fridayanti et al., 2022; Pratama et al., 2018). One of the relationships between audio-visual learning media and digital literacy is that students can use digital technology wisely. Previous studies found that students can improve their abilities in digital literacy by using effective learning media (Ahmadi et al., 2017; Salsabila et al., 2020). Students can use this audio-visual media to learn water cycle topics according to their needs, and they can study anywhere and anytime. Students must have digital literacy skills, which are modern life skills.

This ability allows students to learn better and be more productive. Digital literacy consists of three abilities: using technology, interpreting and understanding digital content, and assessing its credibility (Akbar & Anggraeni, 2017; Kurniawati & Baroroh, 2016). Audio-visual media can improve students' ability to use technology wisely and effectively. Audio Visual Learning Media Based on Digital Literacy on the Topic of the Water Cycle is different from other media because it directly presents information about the water cycle into students' lives, helping them learn. This research implies that Audio Visual Learning Media Based on Digital Literacy on the Water Cycle Topic was developed to help teachers overcome the learning problems faced by their students.

4. CONCLUSION

Audio Visual Learning Media Based on Digital Literacy has received very good validity from experts, practitioners and students. The t-test results show a significant influence between Audio Visual Learning Media Based on Digital Literacy on the learning outcomes of fifth-grade students at SD Negeri 3 Panji Anom. It was concluded that Audio Visual Learning Media Based on Digital Literacy can improve the learning outcomes of fifth-grade students at SD Negeri 3 Panji Anom.

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