



Development of diosir media (water cycle diorama) to improve science literacy of elementary/MI students

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ABSTRACT

Science literacy is a very important skill for students, especially in today's information age, where understanding scientific concepts can affect decision-making in daily life. However, the results of the PISA survey show that science literacy in Indonesia is still relatively low, so a new approach is needed in science learning at the elementary school level. This research aims to develop the Diosir media (water cycle diorama) as a learning tool that can improve the science literacy of grade V elementary school students. The method used is Research and Development (R&D) with the ADDIE model, which includes analysis, design, development, implementation, and evaluation. The results of the study showed that the Water Circle Diorama media developed was declared very valid with a percentage of 100% of media experts, 95% of material experts, and 93% of question experts. The practicality of the media was also stated to be very practical with a percentage of 91% of educators and 94% of students. In addition, the classroom trial showed the effectiveness of the media in improving student understanding, with an average pretest score of 69.35 and a posttest score of 94.64, so the increase obtained was 82.06%. In conclusion, the use of water cycle diorama media has been proven to be valid, practical, and effective in improving students' science literacy, as well as being able to increase student involvement in the learning process.



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INTRODUCTION

Science literacy is the ability to understand scientific concepts, think critically, and apply them in daily life (Latip & Faisal, 2021). Science literacy refers to the ability of individuals to understand science, convey scientific information both orally and in writing, and use science knowledge to solve problems. It also includes developing a high attitude and sensitivity to oneself and the environment in making decisions based on scientific considerations (Sabila et al., 2023). PISA (Programme for International Student Assessment) defines science literacy as the ability to utilize scientific knowledge and skills, identify questions, and draw conclusions based on available evidence and data. It aims to understand and make decisions about the natural world and human interaction with their environment (Pujana et al., 2022).

Science literacy is defined as knowledge that must be developed thoroughly, as it not only serves to educate students, but also allows them to apply scientific concepts appropriately in their daily activities (Cahya et al., 2022). Science literacy is knowledge and understanding of scientific concepts and processes that allow individuals to make decisions based on their knowledge, as well as participate in aspects of statehood, culture, and development (Rini et al., 2021). Science literacy is the ability to participate in issues related to science through scientific understanding, with the goal of solving problems in life as a reflective individual (Chasanah et al., 2022).

From some of the above understandings, it can be concluded that science literacy is a person's ability to understand basic scientific concepts and not only educate students but also instill how those concepts are applied in daily life. Science literacy is also defined as a science related to the idea of science in identifying questions and drawing conclusions based on existing evidence and data. As according to (Hasibuan, 2018) that literacy skills are not only limited to reading and writing skills, but

also include the ability to observe and understand various life phenomena that can be used as learning in life.

The National Research Council (1996) stated that in science learning, science literacy has become the main focus because science literacy does not only make students understand concepts in terms of knowledge alone. More than that, science literacy helps students develop scientific competencies and attitudes that can be applied in daily life. (Kähler et al., 2024) say that "Scientific literacy is conceptualized as a unidimensional construct comprising knowledge of science (KOS) and knowledge about science". The rapid development of science in the 21st century requires humans to put in great effort to adapt to various aspects of life. One of the keys to facing challenges in this era is science literacy skills, as individuals who have an understanding of science will be better able to use scientific information to solve everyday problems. Science literacy plays an important role in shaping individuals who care about the environment and understand the contribution of science in society. Those who are science literate can understand and apply scientific concepts in daily activities, such as in the context of health. For example, someone who understands the basics of microorganisms will be more aware of the importance of handwashing and will be able to understand issues such as climate change, pollution, and recycling. In the learning process, science literacy is crucial because it helps students understand natural phenomena through scientific evidence, such as the water cycle, so that they not only memorize theories, but also understand their applications. With science literacy, science learning becomes more relevant and practical, preparing students to face an ever-evolving world.

Indonesia is one of the countries that participates in PISA (Programme for International Student Assessment). The results of the PISA survey show that the level of science literacy of Indonesian students is included in the basic level and is still relatively low. Reporting from The Organization for Economic Co-Operation and Development (OECD) Table 1. The following shows the position of science literacy achievement of Indonesian students from 2000-2022 since being involved in PISA (Programme for International Student Assessment):

Table 1. PISA Survey Results 2000-2022

Year	Skor	Position	Total Countries
2000	393	38	41
2003	395	38	40
2006	393	50	57
2009	383	60	65
2012	382	64	65
2015	403	69	76
2018	396	70	78
2022	383	67	81

Source:(OECD, 2024)

On the participation table, it can be seen that there is a not significant increase. In terms of ranking, Indonesia's worst achievement was in 2003 which was ranked third from the bottom with a score of 395, but it has begun to increase in 2022 at 67th place out of 81 countries with a score of 366, this cannot be said to be a good achievement, judging from the score obtained, Indonesia has actually decreased compared to previous years. With the results of the survey, it can be concluded that students' science literacy scores are declining and are still far below the international standard score that has been set by the OECD institution (Nurhayati & , Langlang Handayani, 2020). This situation is very worrying, especially because of the very low interest in literacy of students (Ulfa et al., 2023). The data should make us aware that the condition of student literacy in Indonesia is very concerning (Nazraini & Anas, 2022).

In the context of science learning, one approach that can be used to improve students' science literacy and character is to develop learning media. This means that the accuracy of teachers in choosing and using the media will affect the success of the learning process. By utilizing learning media, students will be more motivated to learn and can generate new ideas in the face of challenges that arise during learning (Diana et al., 2022). Learning media is a tool that is usually used by educators to help students so that the learning process takes place effectively, so that students can understand the material being taught and feel motivated in learning (Rambe et al., 2021).

Learning media contributes to conveying information in an effective and efficient way in the teaching and learning process (Hafis et al., 2022). According to the Association for Education and Communication Technology (AECT), everything used to convey information is media (Hasanah, 2020). Meanwhile, according to (Diana et al., 2022) are tools, strategies, and approaches used to improve communication and interaction between educators and students during the educational process in schools. Visual media is one of the many types of learning media, and the success of students in learning using this medium is highly dependent on their ability to see it (Aminah & Yusnaldi, 2024).

Children who study in elementary or MI are between the ages of 7-12 years, and according to Piaget, their cognitive development is divided into four stages: sensorimotor (0-2 years), preoperative (2-6 years), concrete operations (7-12 years), and formal operations (12 years to adulthood). At this stage, students have become aware of the perspective of others and use various aspects to consider them. When students are asked to group an object, this stage of development is marked. They should do so using the grouping basics they know. At this point, children have also mastered the concepts of logistics and cause-and-effect relationships in real-world contexts. In addition to providing material on the air cycle, learning about the air cycle can be delivered using moving dioramas that depict natural everyday phenomena such as rain, air evaporation, cloud formation, and the seeping of rainwater into the ground. In this way, children can gain an abstract understanding of the air cycle through hands-on experience that corresponds to their developmental stage.

According to Hendrik et al. (2021), a diorama is a small, three-dimensional image used to show a situation or phenomenon that indicates activity. Then Annisa et al (2024) argue that Dioramas are three-dimensional miniature displays designed to depict real-world scenes. In addition, according to (Laila, 2022), a diorama is a box in which there is a replica of a scene or object complete with something around it. All of these are made smaller than their original size.

Based on the above opinion, it can be concluded that diorama media is a three-dimensional learning medium that is in miniature form and aims to demonstrate and describe the actual form visualized in the classroom. Diorama media can also be interpreted as a three-dimensional representation in small size that is designed to realistically depict a particular scene, state or phenomenon.

Dioramas serve as a learning medium because they are supported by a variety of three-dimensional miniature-sized materials that are easily accessible and can be used repeatedly. Dioramas depict real circumstances and show something that is difficult to see in person. In addition, the materials are easy to obtain and easy to use, so that students can apply their science literacy regarding water cycle materials (Anggraeni & Istianah, 2017).

Research by Yanti & Huda (2023) entitled "Development of DASI Media (Water Cycle Diorama) to Improve Understanding of Concepts for Grade V Elementary School Students" discusses the development of DASI learning media to improve students' understanding of the water cycle. The method used is Research and Development (R&D) with a 4D model (Thiagarajan). The results showed that DASI media was effective, with an average score of 54 and 76 posttest for small group pretest, and classical completeness increased from 40% to 80%, resulting in an increase in learning outcomes by 40%. For other small groups, the average pretest score was 48 and the posttest was 74.5, with classical completeness increasing from 15% to 75%, indicating a 60% increase in learning outcomes.

Research by Kiswandari (2016) entitled "Development of Water Cycle Learning Media in Science Subjects Class V Elementary School" aims to produce water cycle learning media, assess its feasibility, and measure students' understanding of the material. This research uses the Research & Development (R&D) method with a 4D model. Water cycle diorama media is developed through define, design, and develop stages. The results of the feasibility test showed a final score of 3.88 (good) from media experts, 4.21 (very good) from material experts, and 4.69 (very good) from practitioners. The limited trial got a score of 4.17 (very good), while the field trial got a score of 4.32 (very good). The average student understanding of water cycle materials based on cognitive aspects is 76.7.

In the research to be carried out, the author will conduct research on water cycle materials using the method (R&D) with the ADDIE Model. This study uses a moving diorama media that helps students

understand the dynamic processes in the water cycle, evaporation, condensation, precipitation and infiltration more clearly. Visible movements can show how air moves through different stages of the cycle, making abstract concepts more concrete and easy to understand, in addition some water cycle processes such as evaporation are difficult to see in everyday life, moving dioramas allow students to visually witness how these processes occur in real time, thus helping to clarify their understanding. With this difference, this research is expected to make a new contribution to the development of learning media, especially in understanding the water cycle through dioramas.

RESEARCH METHODS

The methodology applied in this study is *Research & Development* (R&D). According to (Soegiyono, 2011) R&D is a research method used to make a particular product or test how effective the product is. R&D is a research method that aims to create new products and assess how effective they are. The study uses ADDIE design, which means analysis, design, development, implementation, and evaluation. These five stages provide guidelines for researchers to create media that help subject matter experts, media experts, and fifth-graders.(Nasution & Siregar, 2024).

The sequence of ADDIE models detailed by Sugiyono is shown as follows:

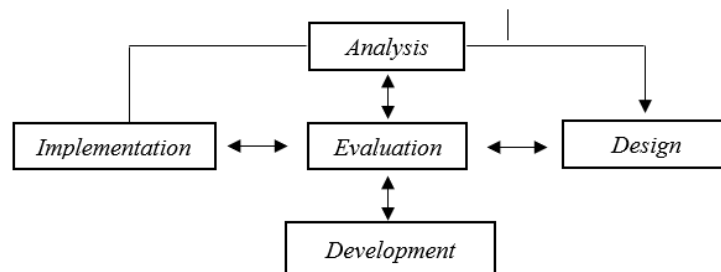


Figure 1. ADDIE Model by Sugiyono

In this study, the methods used include observations, questionnaires, and tests conducted during the study. Test usually means a tool to determine or a standard of measurement to test (Nurussakinah Daulay, 2014). The test was carried out by means of a *multiple choice test* (Ananda & Rafida, 2017). This research is located at UPT SPF SDN 104205 Medan Tembung with 14 students in grade V of elementary school.

Unstructured observation was carried out with homeroom teachers to obtain data for this study. Then, media experts and subject matter experts receive validation sheets to provide their reviews of the media and materials (Wandini et al., 2022). This assessment was also supported by the responses of teachers and students of class V UPT SPF SDN 104205 Medan Tembung through a questionnaire filled out about the media being studied.

Analysis of students' pre-posttest results before and after the application of Diosir media in learning activities allowed for additional data. This data analysis method uses the Likert scale, which has an answer range from 1 to 4 printed on the validation sheet with the assessment scale: (1) Very Not Feasible, (2) Less Feasible, (3) Feasible, and (4) Very Feasible. To calculate the percentage of feasibility of using Diosir media, the following formula is used:

$$P = \frac{\sum Xi}{\sum X} \times 100\% \quad (1)$$

Information :

P = Percentage

$\sum Xi$ = Total Scores obtained from Validators

$\sum X$ = Ideal Score Amount

The percentage results of this analysis provide important information that can be used when making decisions about the practicality and validity of Diosir media. The criteria set are as follows:

Table 2. Criteria for Percentage of Validity and Practicality

Score (%)	Criteria	Qualification
81-100	Highly Valid	Very Practical
61-80	Valid	Practical
41-60	Quite Valid	Quite Practical
21-40	Less Valid	Less Practical
0-20	Invalid	Impractical

Students' pre-post assessment data was analyzed to find out how effective the use of media was. This was done as part of an overall evaluation of the impact of media use in the learning process, and the N-Gain formula used.

$$N\text{- Gain} = \frac{\text{skor posstest} - \text{skor pretest}}{\text{skor maksimal (100)} - \text{skor pretest}}$$

Table 3. N-Gai Criteria

N-Gain Value	Criteria
$0,70 < g < 100$	Tall
$0,30 < g < 0,70$	Keep
$0,0 < g < 0,30$	Low
$g = 0,00$	No Decline
$-1,00 \leq g, 0,00$	There is a decline

In this study, the *ADDIE* model was used to create a *Diosir* learning media that focuses on air cycle materials. Analysis, design, development, implementation, and evaluation are all steps followed by the *ADDIE model*, which is well explained. The purpose of using this model is to create a learning medium that is useful and worth using.

RESULTS AND DISCUSSION

This research produced a product in the form of Diosir media (Water Cycle Diorama) for science subjects on water cycle materials for grade V elementary school students. The researcher has gone through several stages, including:

Analysis Stage

This stage is the first step of the researcher in designing the Diosir (Water Cycle Diorama) media which was developed to improve students' science literacy. All the information required for the creation of the Diosir media is analyzed in this stage. The stages analyzed are:

1. Needs Analysis

The results of observations and interviews with teachers and students allow us to identify some characteristics of students during the learning process, such as:

- Students at SDN 104205 Medan Tembung school, mostly have preliminary knowledge about water and its uses in daily life, but students do not understand scientific concepts such as evaporation, condensation, precipitation and infiltration. The limitation of media in the learning process is one of the inhibiting factors in students' understanding of concepts, so a more concrete and interactive approach is needed.
- The learning process is classified. Most students just listen, take notes and then work on the assignments given by the teacher.

Based on the results of the identification in the analysis stage of the *ADDIE* model for water cycle materials, it can be concluded that learning needs to be designed by considering the media used and a concrete and interactive approach. One way to improve students' science literacy is through the

use of interesting media and appropriate learning methods. By understanding students' needs thoroughly, learning about the water cycle can be designed more effectively and help them understand concepts more deeply and applicatively in their daily lives.

2. Material Analysis

Material analysis is carried out to determine the content of the material to be taught, adjusted to the product to be produced, and the selection of appropriate learning methods. Through this analysis, the goal is for students to achieve the desired competencies and fulfill the main tasks that must be mastered, so that they can achieve learning achievements. The material that will be taught in CHAPTER 4 "Let's Get to Know Our Earth" as explained in the teaching scheme found in the class V teacher's book:

Table 4. The Teaching Scheme

Teaching Stages	Number of Lesson Hours	Subject Matter	Learning Objectives per Stages	Teaching Strategies	References and Teaching Media
Topic B: How is Our Earth Changing?	6	Changes in Nature; Water Cycle	1. Learners retell based on their interpretation of environmental changes around them. 2. Learners understand that environmental conditions, the structure of the Earth can change.	1. Topic orientation 2. Exploration activity 3. Discussion with friends 4. Reflection together 5. Further learning 6. Choosing a challenge (optional)	1. Interview sheet (Appendix 4.1) 2. Learner equipment: a. stationery; b. drawing paper c. coloring tools. 3. Site preparation: school neighborhood area.

Source: (Ghaniem et al., 2021)

3. Performance Analysis

Some students at SDN 104205 Medan Tembung already have preliminary knowledge about water and its uses in daily life, but students still do not understand the stages of the water cycle and explain it in scientific language and students are not able to explain the relationship between weather changes and water cycles as seen from the results of the pre-test conducted to measure students' initial understanding of the concept of the water cycle.

Therefore, the results of the initial evaluation show that many students have a basic understanding of the water cycle but have difficulty in connecting concepts with real phenomena and explaining each stage of the water cycle scientifically.

Design Stage

The researcher prepares a plan for the Diosir media, including the design of the media, the selection of manufacturing materials and the determination of the materials that will be applied to the media. This planning process involves several important steps, including: 1) designing the water cycle in digital form, 2) selecting materials to be used to improve the quality of the planned media.

a. Concept and form of Diosir Media

Main components in *Diosir*:

- 1) Mountains and Rivers as a source of water
- 2) The sun as a source of energy for evaporation
- 3) Smoke pump as a representation of evaporation
- 4) Clouds as a result of the condensation process
- 5) Rain (Precipitation) indicates the process of returning water to the earth
- 6) Infiltration and water flow show how water seeps into the soil and returns to its cycle.

b. Materials used

- 1) Used cardboard / Styrofoam
- 2) Plastic Transparent

- 3) Dye
- 4) Small lamp
- 5) Smoke Pump Machine
- 6) Water pump machine

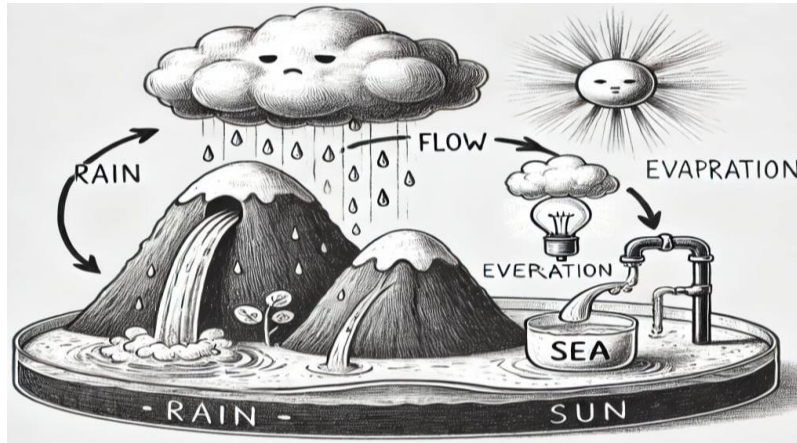


Figure 2. Diosir media design sketch (Water Cycle Diorama)

Development Stage

Before use, the medium or material must be validated by experts to ensure that the medium or material is correct and accurate. After the design of the Diosir media and instruments is completed, three expert validators conduct validation to ensure that the media and instruments are feasible. Validation includes the feasibility of media, questions, and materials.

Media Eligibility

The feasibility of Diosir Media can be determined through the validation of media experts. The results of the validation of media experts are presented in the following table 5.

Table 5. Media Expert Validation Results

Aspects	Scores Obtained	Maximum Score	Percentage	Criteria
Material	12	12	100%	Highly Valid
Media Quality and Appearance	16	16	100%	Highly Valid
Sum		28		
Maximum Score		28		
Percentage		100%		
Category		Highly Valid		

Based on table 4 data, the results of media evaluation by media validators showed a score of 28 out of a maximum score of 28 with a percentage of 100%. These results show that Diosir media falls into the category of "Highly Valid", and is therefore suitable for use and application in the field.

Material Eligibility

The feasibility of the material is known from the validation of the material expert. The results of validation by subject matter experts can be seen in table 6.

Table 6. Material Expert Validation Results

Aspects	Scores Obtained	Maximum Score	Percentage	Criteria
Material Contents	16	16	100%	Highly Valid
Presentation of Materials	23	24	96%	Highly Valid
Language	6	8	75%	Highly Valid
Material Usefulness	8	8	100%	Highly Valid
Sum		53		
Maximum Score		56		

Aspects	Scores Obtained	Maximum Score	Percentage	Criteria
Percentage			95%	
Category			Highly Valid	

Based on the data in table 5, the results of the material evaluation showed a score of 53 out of a maximum of 56, with a percentage of 95% included in the "Very Valid" category. The results of this validation show that the material developed by the researcher has been successfully evaluated.

Question Eligibility

The feasibility of the question is known from the validation of the question expert. The results of the question validation can be seen in table 7.

Table 7. Question Expert Validation Results

Aspects	Scores Obtained	Maximum Score	Percentage	Criterion
Material Contents	19	20	95%	Sangat Valid
Construction	9	10	90%	Sangat Valid
Language	14	15	93%	Sangat Valid
Sum		42		
Maximum Score		45		
Percentage		93%		
Category		Sangat Valid		

The results of the study show that the pre-test and post-test questions about the water cycle developed by the researcher can be considered valid and ready for use in the field. Based on table 6 data, validators recorded a score of 42 out of a maximum score of 45 with a percentage of 93% and were included in the "Very Valid" category. The following is a recapitulation of the average score of the media validity test, material and questions:

Table 8. Validity Test Average Score Recapitulation

No	Validation	Average	Category
1	Media Validation Test	100%	Sangat Valid
2	Material Validation Test	95%	Sangat Valid
3	Question Validation Test	93%	Sangat Valid

Implementation Stage

The fourth step is implementation. The Diosir media that has been developed and is suitable for use is tested in learning science of water cycle materials in grade V of elementary school. The practicality and effectiveness of Diosir media can be assessed based on the value of the teacher and student response questionnaire. The effectiveness of Diosir media can also be assessed through the results of multiple choice tests.

Practicality of Diocesan Media

The practicality sheet is filled out by educators and students. The educator response questionnaire consists of 13 statements and the student response questionnaire consists of 10 questions. The following are the results of the practicality test by educators.

Table 9. Educator Response Questionnaire Score

Aspects	Scores Obtained	Maximum Score	Percentage	Criteria
Material	23	25	92%	Very Practical
Media	36	40	90%	Very Practical
Sum		59		
Maximum Score		65		
Percentage		91%		
Category		Very Practical		

Table 10. Student Response Questionnaire Score

Aspects	Scores Obtained	Maximum Score	Percentage	Criteria
Benefit	258	280	92%	Very Practical

Aspects	Scores Obtained	Maximum Score	Percentage	Criteria
Display	66	70	94%	Very Practical
Material	331	350	95%	Very Practical
Sum			655	
Maximum Score			700	
Percentage			94%	
Category			Very Practical	

Table 11. Recap of the Average Score of the Diosir Media Practicality Test:

No.	Response Questionnaire	Average	Category
1	Teacher	91%	Very Practical
2	Student	94%	Very Practical

Based on the results of the test of the practicality of Diosir media on water cycle materials by educators and students, it can be concluded that both groups of respondents rated the media as "Very Practical." Teachers give an assessment with a percentage of 91%, while students give an assessment of 94%. Overall, the practicality assessment of both groups of respondents reached 92.5%, which confirms that Diosir's media is classified as "Very Practical."

Effectiveness of Divine Media

The effectiveness assessment trial was carried out with students working on pre-test and post-test questions. The following is the data on the results of the effectiveness test through pre-test and post-test questions:

Table 12. Effectiveness Test Through Pretest And Posttest Scores

No	Name	Student Grades		Post-Pre	Skor Ideal 100-Pre	N-Gain Skor	N-Gain Percent	Criterion
		Pre-Test	Post-Test					
1	Adriyan	47	93	46	53	0,867925	86,79245	Tall
2	Hibrizi	73	93	20	27	0,740741	74,07407	Tall
3	Ainayya	73	100	27	27	1	100	Tall
4	Hafiz Erawan	66	87	21	34	0,617647	61,76471	Keep
5	Kinara	67	100	33	33	1	100	Tall
6	M. Abid Aqil	73	93	20	27	0,740741	74,07407	Tall
7	Maulidan	80	93	13	20	0,65	65	Keep
8	M. Ocky	73	87	14	27	0,518519	51,85185	Keep
9	Mutia Amanda	73	100	27	27	1	100	Tall
10	Naira	60	93	33	40	0,825	82,5	Tall
11	Nurul Zannah	73	93	20	27	0,740741	74,07407	Tall
12	Sando Yudha	67	93	26	33	0,787879	78,78788	Tall
13	Siffa Safanah	73	100	27	27	1	100	Tall
14	Ummi Hanifah	73	100	27	27	1	100	Tall
Average		69,35714	94,64286			0,820657	82,06565	

In the effectiveness test, the score obtained by all students was a $g < 0.82$ with a high category and also got a gain of 82.06% and was declared effective.

Evaluation Stage

The final stage in the ADDIE model is evaluation. The validated Diosir media was then tested to assess its effectiveness and practicality in science learning about the water cycle. After the trial, no suggestions, feedback, or criticism from users are required for product revisions. The results of the evaluation showed that Diosir's media was declared valid by the team of experts and received a positive response from students during the trial, so no revisions were required before the implementation stage.

The problem that is the reference for this study is that science literacy in Indonesia is relatively low, with PISA results showing a worrying rating. One of the factors causing low science literacy is the lack of experiential learning such as the use of media in learning which results in students having difficulty in facing science challenges in their environment.

Science literacy is essentially more focused on four interrelated aspects, namely science competence, knowledge, attitudes and context. In this study, the researcher focuses on students' science literacy using water cycle diorama media. After conducting learning interventions and carrying out post-tests, the aspect of science competence is the most influential on students' science literacy. Here's a table of pre-post and n-gain averages.

Table 13. Average Pretest, Posttest and N-Gain in Science Literacy Aspects

Aspects	Avergae		N-Gain	Category
	pretest	posttest		
Science competencies	64,61	95,71	0,87	Tall
Knowledge	56	97,57	0,94	Tall
Attitude	73,07	98,21	0,93	Tall
Context	86,92	87,85	0,07	Low

Based on the data analysis table 12. It shows that in the aspect of science competence it gets the "high" category with an n-gain score of 0.87, in the knowledge aspect it gets the "high" category with an n-gain score of 0.94, and in the attitude aspect gets the "High" category with an n-gain score of 0.93, in contrast to other aspects, the increase in the context aspect is very small with an n-gain score of only 0.07. Although the average posttest (87.85) is still relatively good, the minimal increase indicates that students already have a good enough understanding of the science context before the intervention.

Overall, the use of Diosir media has had a significant influence on students' science literacy, especially in terms of knowledge, science competence, and attitudes. With the highest N-Gain in the aspect of knowledge, Diosir media has proven to be effective in improving students' understanding of science concepts. Although Diosir media has many benefits in improving students' basic understanding of science concepts, Diosir media cannot fully meet the aspects of science literacy indicators, especially in terms of context. To overcome these limitations, researchers need to integrate other teaching methods that can relate science knowledge to real-world situations, such as practical activities, contextual discussions and problem-based projects. With a more holistic approach, students can develop a deeper and more relevant understanding of science in students' lives.

In this study, researchers found that the results obtained were in line with previous research that also measured science literacy through similar indicator aspects. Previous research has shown that the effective use of learning media can improve students' understanding of science concepts, and this is reflected in the science literacy indicators used which state that the results of students' post tests show that media in the form of educational videos (animations) have effective results in improving student literacy. The science literacy ability indicator shows that the "medium" category with an n-gain score of 0.13, the indicator identifies scientific questions or issues, the indicator explains scientific phenomena with an n-gain score of 0.07, and the indicator uses scientific evidence with a score of 0.11. In this case, the animation video media used is in accordance with three science literacy indicators so that it can help students improve their science literacy skills (Nurdiana & Sartika, 2024).

CONCLUSION

Based on the results of the research that has been obtained, it can be concluded that the development of Diosir media (water cycle diorama) can significantly increase the science literacy of grade V elementary school students. Through the application of the Research and Development (R&D) method with the ADDIE model, the media developed has been proven to be valid and effective in the learning process. The results of the classroom trials showed a significant improvement in student understanding, with the average pretest score increasing from 69.35 to 94.64 on the posttest. In addition, the average N-Gain of 82.06% indicates that Diosir media has succeeded in substantially improving students' science literacy skills. However, it is necessary to pay attention to the shortcomings that exist in the Diosir media and carry out further development to improve the effectiveness of learning media better.

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