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Analysis of literacy-based learning media produced by primary school teacher education students

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Research Article

Analysis of literacy-based learning media produced by primary school teacher education students

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Abstract: Literacy is an important skill that every learner must have because a large part of the educational process depends on literacy skills and awareness. It is important to be able to implement literacy using various types of literacy media, one of which is literacy media in the form of teaching aids. This study aims to analyze learning media products that have been made by students, especially teaching aids based on learning media criteria and oriented to literacy activities. This research uses a qualitative research model with a descriptive method that uses Miles and Huberman data analysis. The instruments used in this research are interview instruments and data documentation related to literacy media. The results of this study show that various types of teaching aids can be used in literacy learning. Literacy-oriented teaching aids can be an effective solution to help literacy activities in an easier, more interesting, fun, and effective way. The various types of teaching aids can perform the function of media well and support the literacy skills that must be mastered (reading, speaking, listening, and writing).

Keywords: learning media; literacy-based media; teaching aids

1. Introduction

Literacy is an important skill that every person must have (Pekkolay, 2022). Literacy is also recognized as a key skill to enter the 21st century. Literacy development must be carried out in integrated education both in the family, school, and community environment (Rusydiana et al., 2023). Literacy is the ability to listen, speak, read, write, and the ability to communicate in the different ways (Monigir & Masinambow, 2018). A large part of the education process depends on literacy skills (Demir, 2023; Pringle, 2020). Because literacy skills are used as an early foundation at the beginning of mastering other skills. Based on several opinions that have been mentioned, it explains that literacy skills are an ability whose urgency is very high to be mastered by students to deal with the consequences of the development of information technology which encourages the emergence of many changes. Literacy is not only defined as reading activities but also involves aspects of knowledge and skills as well as various social activities that take place at home, school, and in society that involve understanding various fields (Drewry et al., 2019).

However, the fact is that the quality of literacy in Indonesia is still far from ideal. This can also be seen from the 2019 PISA data that Indonesia is ranked 72 out of 78 countries surveyed (Nugraha, 2023), the National Socio-Economic Survey which states that only about 13.02% of the population aged 5 years and overcome to the library and data from the Ministry of Education and Culture in 2020 the illiteracy rate in Indonesia reached 2,961,060 people (Fahmi et al., 2022). In addition, the low quality of teachers and the quality of education in Indonesia are thought to be the main causes of students' poor literacy skills. Teachers who are less able to package good literacy activities and classroom management will affect the quality of learning (Broeder & Stokmans, 2012; Rieser et al., 2016; Vasalou et al., 2022). From these data, it is known that the low literacy in Indonesia

Learning media is an important component that supports activities because it helps teachers in delivering material to students (Lewis et al., 2019; Radu, 2014). In addition, it facilitates students to learn well (Nurani & Mahendra, 2019). Learning media that have been made are required to pay attention to good media criteria and can support

students' literacy activities including (reading, listening, speaking, and writing). In addition, as a teacher, you must master the skill of making variations in how a teacher uses media in the learning process. With learning media, it is hoped that students can have literacy skills, namely understanding information both orally and in writing, communicating information, through speaking and writing, speaking clearly and precisely and logically, and writing fluently (Amir et al., 2020).The utilization of learning media as a means to activate the learning process is needed as a support in improving students' literacy. This should be a concern for teachers to always use learning media in every learning process in delivering material to be understood by students. Not only teachers who pay attention to the utilization of learning media, prospective teachers, namely PGSD (*Pendidkan Guru Sekolah Dasar* = primary school teacher education students) students who will later become agents of change when they have completed their studies need to do this. Students who have a good understanding of literacy, excel academically, and can compete globally (Cai & Gut, 2020). Qualified students and teachers will be able to produce quality students as well. Well-qualified teachers will be able to lead their students to success. Good literacy implementation is supported by educators who understand literacy well. This is necessary to design a quality literacy learning system.

Students learn to be able to create and utilize learning media that can support literacy activities. The media created certainly pays attention to the applicable curriculum, the material to be delivered, and other needs in learning. It is expected that the media can support all literacy skills such as reading, listening, speaking, and writing. Media can be an effective tool to support literacy. Interesting and interactive media can help understand literacy concepts more easily and enjoyably. One form of media that can be used to support literacy is teaching aids. Teaching aids are a type of learning media in the form of objects (objects or inanimate objects) that can be used to support the learning process. Teaching aids related to daily life are an important part of learning because they can trigger students' activities, and make learning more effective and interesting (Mujtahid et al., 2021). Not all media props can be used in literacy learning.

Previous research that has been done is related to the preparation of various literacy media for teachers and students (Amir et al., 2020), the use of Bigbook to improve students' early reading skills (Nurani & Mahendra, 2019), and the use of popular media for literacy (Heuer, 2007). However, this study discusses the analysis of learning media props that can be used in literacy activities. This research provides a broader picture of what teaching aids can be used in literacy and does not only focus on one literacy skill but is more comprehensive. To ensure this, it is necessary to analyze the learning media that have been made by students who have media characteristics and support literacy activities. So further research is needed related to the analysis of media that has been made by students, to provide information on the extent to which the suitability of learning media products that have been made, and as a follow-up plan for lecturers to develop student assistance in making learning media. The purpose of this study is to analyze learning media products that have been made by students, especially teaching aids based on learning media criteria and oriented to literacy activities. Teaching aids were chosen because they are more concrete and tend to be easier to make and use. From the results of this analysis, it is hoped that data and an overview of the quality of teaching aids and their suitability in supporting literacy activities can be obtained. The results of this study are expected to be used as a reflection and reference to be able to make learning media with various innovations that might be done in learning and pay attention to literacy elements.

2. Materials and Methods

2.1 Types of research

This research was conducted using a qualitative research approach with a descriptive method. This research approach was chosen to provide a complete and real picture related to certain aspects of everyday life (Dodgson, 2017). In this case, the media props and literacy. The data analysis used is Miles and Huberman's data analysis. This descriptive qualitative research aims to analyze learning media products that have

been made by students, especially teaching aids based on learning media criteria and oriented to literacy activities.

2.2 Research subject

The subjects in this study were students and the work of student teaching aids. PGSD students as subjects who make teaching aids that are used for literacy activities. Media props are analyzed based on the function and type of literacy in their use.

2.3 Data types and sources

This study uses two variables to be studied, namely related to media props and literacy. This research focuses on these two things, as a reference for further analysis. The research instruments used were interview sheets and documentation. The interview sheet is used to explore data related to teaching aids that have been made by students. The type of interview used is an unstructured interview. The documentation sheet is to collect evidence of the teaching aids made and their use.

2.4 Data collection technique

This research procedure is carried out by collecting data related to teaching aids that have been made by students. Then conduct interviews with students related to the media that has been made. Furthermore, collecting documentation data about the media and the use of media in literacy activities. The data obtained was then analyzed. Figure 1 present a description of the flow of this research.
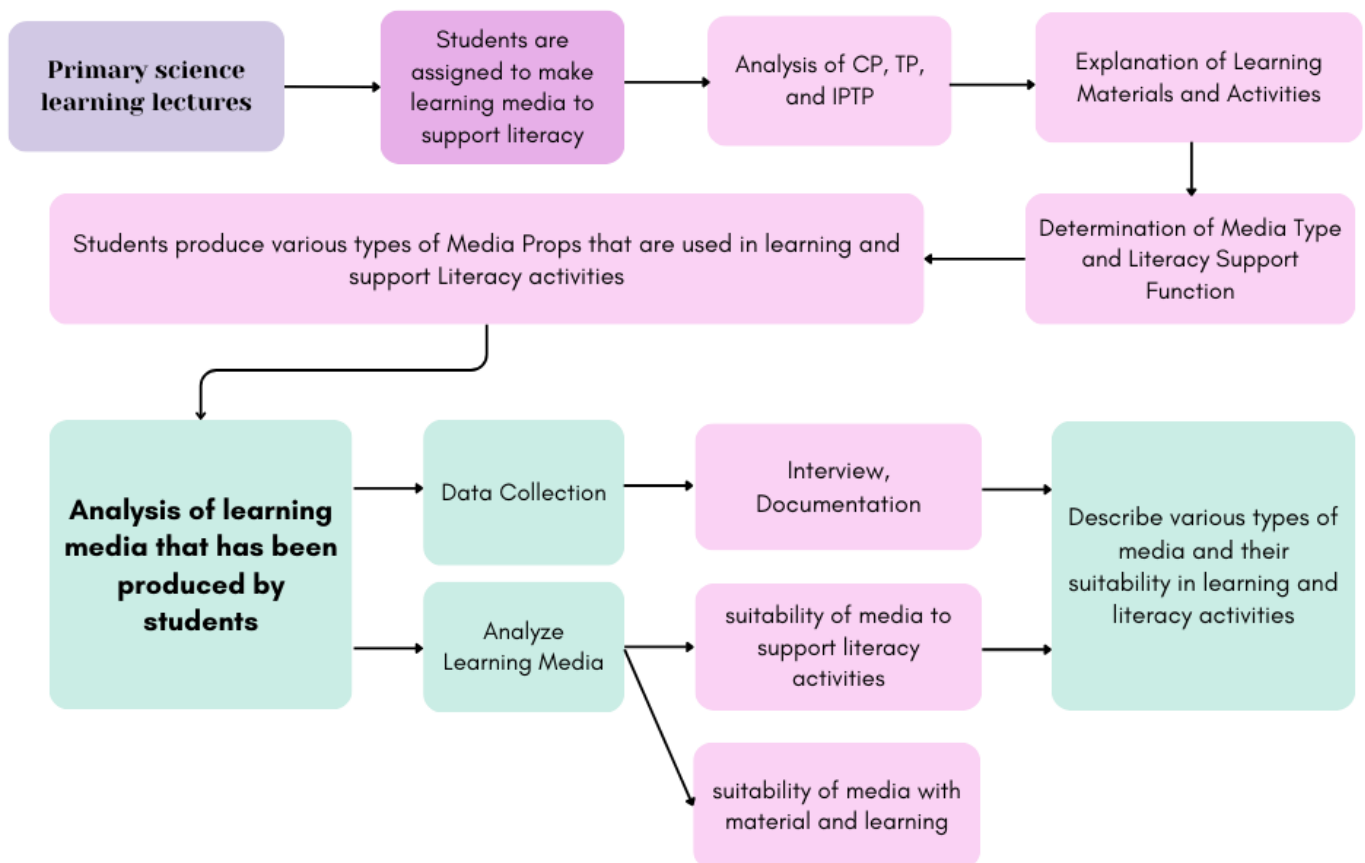

Figure 1. Overview of research flow

2.5 Data analysis technique

The data analysis used in this study is the Miles and Huberman data analysis model. Activities in qualitative data analysis are interactive and take place continuously until completion, so that the data is saturated (Adams et al., 2015). The steps of data analysis are as follows:

2.5.1. Data Collection

The first step taken in qualitative research is to collect data as initial material which will be processed at the next stage of research. Data collection is obtained with various techniques, namely interviews, observations, questionnaires, and documentation.

2.5.2. Data Reduction

Reducing data is summarizing, selecting key things, focusing on important things, looking for themes and patterns, and discarding unnecessary things. Through data reduction, it will provide a clear picture to researchers and make it easier for researchers to collect further data.

2.5.3. Data Display (Presentation of Data)

The next step after reducing the data is presenting the data. Presentation of data in qualitative research can be done in the form of brief descriptions, charts, relationships between categories, and the like. Presentation of data will make it easier to understand what is happening.

2.5.4. Conclusion Drawing/Verification

The next step after presenting the data is drawing conclusions and verification. At this stage, the research provides conclusions related to the research conducted on the quality of digital learning media. Conclusions are drawn to answer the problem formulations that have been designed by researchers.

3. Results

Students who take lectures in the Elementary Science Learning course are given the task of making learning media. The learning media created must be adapted to the material and curriculum applicable at school. In addition, it is required to pay attention to good media criteria and can support students' literacy activities including (reading, listening, speaking, and writing). The type of media created is props to support literacy activities. Students review learning outcomes, learning objectives, and indicators of achievement of learning objectives and learning materials. Then determine what media is appropriate, followed by designing media that can support the achievement of learning objectives and literacy activities. This course discusses how to develop elementary science learning that is innovative and in line with literacy activities, as explained by students:

> *This course gives us an understanding of how to design elementary science learning by integrating literacy into learning activities. We also develop learning tools, teaching materials, and learning media integrated with literacy (P1).*

The following is a description of the various types of media that have been produced by students during the lecture.

3.1 Types of media props

In this study, research results were obtained related to teaching aids media that had been made by PGSD students. The media in Figure 2, namely (a) human circulatory system media, and (b) producer and consumer pyramid media, are media that can be used to help students visualize how the blood circulation and digestive system in the human body works. Because without these teaching aids, students will have difficulty imagining the processes that occur in the human body. Whereas in Figure 2 (c) the human digestive system media is a media that illustrates the levels of the food chain and helps provide an understanding of ecosystems, animals, and plants and their role as producers and consumers.

The media in Figure 3 are (a) traditional houses and clothing, (b) water cycle media, and (c) miniature animal media. Figures 3 (a) and (c) are media used to display miniature versions of traditional houses, traditional clothing in Indonesia, and various animals in nature. If the object being studied is not possible to be present in the classroom, then the teacher can use the miniature to help explain a certain concept to students. Meanwhile, Figure 3 (b) shows the process of the water cycle which gives learners an understanding of how the sequence of the water cycle takes place so that learners can know the process of the water cycle without having to witness it directly.

The media in Figure 4 are (a) electrical energy-motion media and (b) push-force media. In Figure 4 (a) and (b) are media that can be used to help students visualize how energy and force work. The concept of energy and force is abstract because it is not directly observed but its impact can be felt. Therefore, it is necessary to have props to clarify because often students have difficulty understanding if only in the form of an explanation.

(a)   (b)   (c)
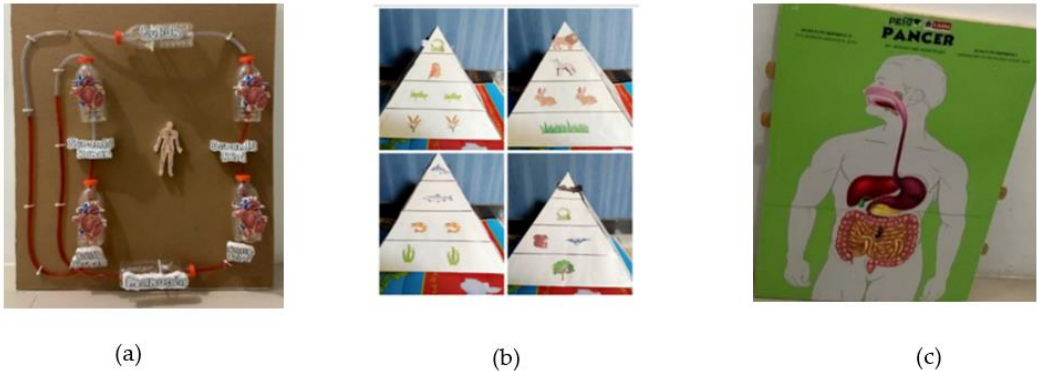
Figure 2. Media produced by students: (a) human circulatory system media, (b) producer and consumer pyramid media, (c) the human digestive system media

(a)   (b)   (c)
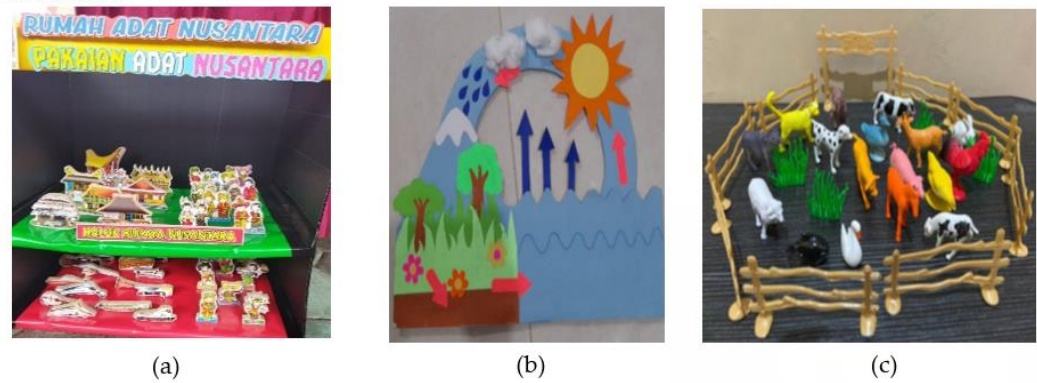
Figure 3. Media produced by students: (a) traditional houses and clothing, (b) water cycle media, and (c) miniature animal media

(a)   (b)
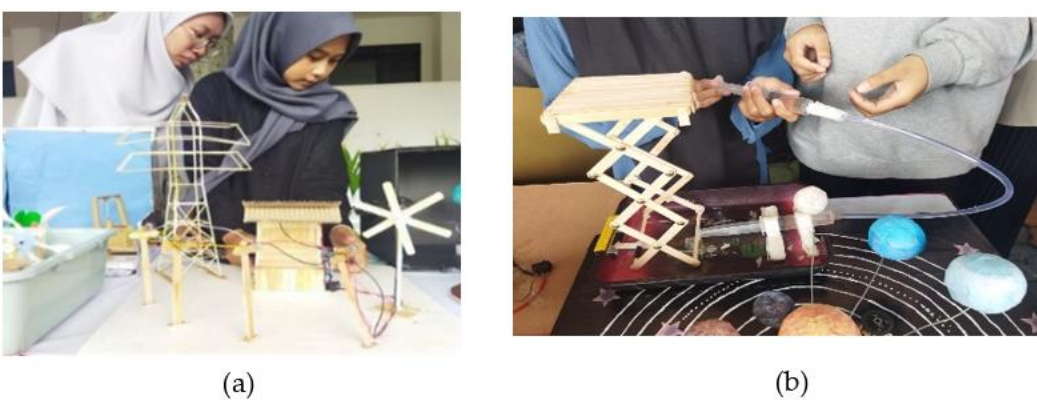
Figure 4. Media produced by students: (a) electrical energy-motion media and (b) push-force media
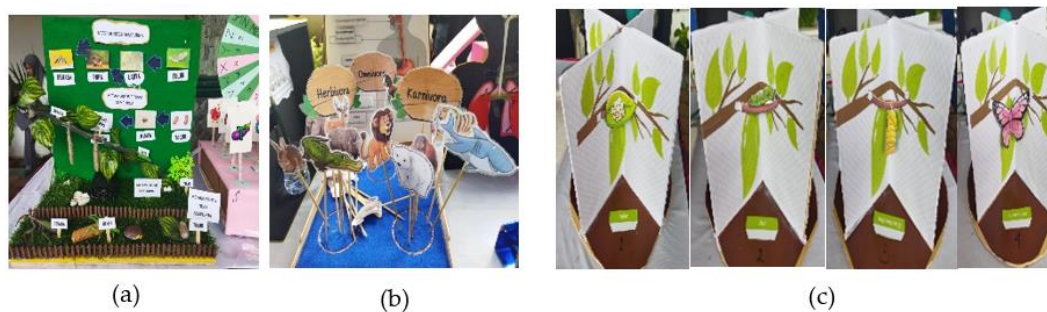
Figure 5. Media produced by students: (a) metamorphosis mockup media, (b) animal species media, and (c) butterfly metamorphosis media

The media in Figure 5 are (a) metamorphosis mock-up media, (b) animal species media, and (c) butterfly metamorphosis media. The three media are props to display the process of metamorphosis in animals and types of animals based on their food. Learners will find it easier to use the media because of the limitations in making direct observations of nature. The metamorphosis process also takes a long time so it is not possible to be observed directly.

Figure 6. Depictions of the planets and the makeup of the solar system

Table 1. Functions of media props

No	Media Function	Explanation
1.	Describing Abstract Concepts	Teaching aids help illustrate abstract concepts in a more concrete form and are easily understood by students.
2.	Facilitate Concept Understanding	Props can help present information in a more vivid and tactile way, making it easier for learners to grasp complex concepts.
3	Increase Engagement and Motivation	Physical engagement with props can increase learners' motivation and interest in learning materials. Direct contact with objects can make learning more interesting.
4.	Facilitate Demonstration	Props can be used as a tool to demonstrate a particular concept or process.
5.	Assist the Teaching of Practical Skills	In the context of practical skills, teaching aids can help learners learn through direct experience.
6.	Provide Sensory Experiences	Props can provide sensory experiences that enrich learning. By touching, seeing, or hearing props, learners can better understand the learning material.

No	Media Function	Explanation
7.	Facilitate Temporal or Spatial Understanding	Some concepts require an understanding of the dimensions of time or space. Props can help visualize these aspects, making concepts easier to understand.
8.	Facilitate Interactive Activities	Props can be used in interactive activities that engage learners. For example, the use of interactive whiteboards or math manipulatives can increase student participation.
9	Adaptation to Different Learning Styles Teaching	Props can help accommodate different learning styles, such as visual, auditory, or kinesthetic, so they can more effectively reach different types of learners

The media in Figure 6 (a) and (b) are depictions of the planets and the makeup of the solar system. This of course cannot be observed directly due to the limitations of human vision. However, this media makes it easier for students to understand the concept of the solar system. Based on the explanation of various types of teaching aids in Figure 6, it can be concluded that teaching aids have a very important role in learning. Teaching aids media can provide a real picture of previously abstract concepts for students. More details of the functions of teaching aids media are contained in the Table 1.

Several functions of teaching aids have been seen in the media developed by students. These media props can also be utilized in implementing literacy. Because literacy learning itself will also not be maximized without media.

3.2 b. Teaching aid media literacy activities

Media made by students are types of teaching aids such as the circulatory system, miniature animals, ecosystem pyramids, respiratory organs in humans, human digestive system. Media in the form of props can be used for several literacy activities, for example when the teacher demonstrates how the circulatory system is then students do listening activities, and can also write important information they get to be poured in the form of LKPD. Not only that, speaking literacy activities are carried out when students are asked to demonstrate, as conveyed by students:

The media props that we have made can be used to see the extent of students' understanding of absorbing information related to the human blood circulation process. Students can demonstrate the blood circulation process while explaining. When students can explain, it will support students' speaking skills (P2).

The following description of media utilization in literacy activities is presented in the Table 2. Based on Table 2, it can be seen that all teaching aids can be used to support literacy learning both in primary literacy and advanced literacy. This proves that there is a role for teaching aids in literacy learning.

Table 2. Media literacy activities props

Media Name	Literacy Activity			
	Listening	Speaking	Reading	Writing
Circulatory System	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Animal Ecosystem Pyramid	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Miniature Animal	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Digestive Board	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Water Cycle	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Electricity-Motion Energy	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Media Gaya Dorong	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Media Maket Metamorfosis	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Media Jenis Hewan	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Tabung Tata Surya	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Media Susunan Tata Surya	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy
Metamorfosis Kupu-Kupu	Primary Literacy	Advanced Literacy	Primary Literacy	Advanced Literacy

4. Discussion

The implementation of literacy in learning requires an active role of the teacher and an understanding of literacy to be able to package creative, innovative, and fun activities (Md-Ali et al., 2016).Therefore, students as prospective teachers need to be equipped with literacy-related skills, one of which is media development that supports literacy. Teachers play a very important role in creating a conducive and fun learning atmosphere by utilizing learning media (Asnawi & Majid, 2023). Teachers must provide appropriate instructions, condition classes that reflect and encourage community and collaboration, and provide a variety of literature with various themes so that learners are enthusiastic about doing literacy activities (Mmasa & Anney, 2016). Teacher support is critical to improving literacy skills, especially with creative ways to motivate learners to learn, strengthen their written work, and provide meaningful experiences in the classroom (Chetty, 2019).These can build learners' love for literacy activities.

Literacy activities must be packaged in a variety of ways, one of which is the use of media. Media has an important role in the implementation of learning. The utilization of media can enhance understanding, interest, and clarity in learning (Sari & Yurnetti, 2022). Learning media can increase students' attention and focus on learning materials. At the beginning of learning activities, teachers can attract attention and make perceptions using media to more easily visualize what will be learned (Akmal et al., 2024). In using the media, several things must be considered, such as suitability to the learning design, learning

objectives to be achieved, characteristics of students, and the practicality of the media (Akmal et al., 2024; Heuer, 2007).

Based on the results of the study, it can be seen that various media teaching aids have been produced by students. The media has also fulfilled its function and can be used in learning. In general, the function of teaching aids is as a tool to create a learning atmosphere, embed the concepts learned, and arouse the interest of students so that they are not bored (Jagom et al., 2020). Learning by using teaching aids makes the delivery of material more meaningful. Learners can be allowed to observe and use the media directly. By allowing students to actively learn, build understanding, communicate, interact and it is possible to hone various abilities including literacy skills (Hoffman et al., 2021). It is explained that various media props can be used in literacy learning. The use of various media will certainly attract more students to activities and improve literacy skills (Rusydiana et al., 2023). Learners find it easier to understand the material being studied and do not feel bored participating in literacy activities.

Media has an important role in literacy activities, helping learners to develop literacy skills including literacy activities at school. Teachers find it more helpful with literacy media. Literacy media can also be made by themselves according to their needs by utilizing objects around them (Amir et al., 2020). Media not only makes it easier for students but also teachers, because teachers are easier to understand the concepts that students must learn and help teachers to motivate students to take part in learning. The use of appropriate learning media can increase students' interest and learning outcomes (Annur et al., 2019).

The use of teaching aids can make students more active, by simulating role-playing to solve problems in everyday life (Prahani et al., 2023). In addition, teaching aids can help facilitate the learning process. For example, the use of props in the form of solar system arrays. Learners find it easier to understand the concept of the planets and the center of the solar system without the difficulty of imagining their position and how their rotation and revolution movements. Therefore, teaching aids are important to support learning activities, especially in the process of understanding concepts. Concepts that were previously abstract become easier to understand. Learners who can understand the concept also show good listening skills. This shows that teaching aids can be used to hone literacy skills, especially speaking skills by being able to explain back and conclude orally.

Of the several media developed, several teaching aids can be used in science materials. Science teaching aids media is a means of learning science that can be used to simulate problem-solving in everyday life (Prahani et al., 2023).One of the teaching aids developed by students is the thrust media. In simulating using props, it can be used to hone speaking skills, which is one of the advanced literacy skills. When doing simulations, students must understand the concept and be able to explain it while demonstrating the media.

Media props lead more to listening and speaking literacy activities. Teaching aids in the context of learning often focus on listening and speaking literacy activities. Teaching aids, such as three-dimensional models, diagrams, or visual presentations, can help learners visualize abstract concepts and listen to the teacher's or fellow learners' explanations. By involving props in learning activities, learners can improve their listening skills through visual and verbal explanations that support concept understanding. Media props provide insights into how the utilization of media props can improve learners' speaking literacy. These resources can provide further understanding of the importance of teaching aids in developing listening and speaking literacy skills.

Literacy-oriented teaching aids can be an alternative solution to help elementary school children improve their literacy skills. By using interesting and interactive teaching aids, children can build a strong literacy foundation for their future. A good teaching aid media must also pay attention to the content or message of the material to be conveyed through the media. In addition to the various media props used in literacy activities, students' literacy skills can also be maximized through balanced literacy. This activity needs different learning experiences. This can be obtained by utilizing various types of media props as needed. For example, when discussing the concept of plants as producers,

you can use the food pyramid, but when discussing metamorphosis, you can use mock-up media.

The novelty in this study is that the teaching aids analyzed are diverse and not only look at their use in literacy activities in general but also the function of the media itself. The analysis related to the suitability of the function of the teaching aids confirms that the media made by students have paid attention to the function of the teaching aids. The analysis is expected to provide an overview for teachers or educators who will implement literacy learning by utilizing teaching aids. It is expected to make it easier to choose media that suits learning needs. Meanwhile, the limitation of this research is that only one type of media in the form of teaching aids is analyzed. It should be possible to analyze and compare with other types of media to obtain more complete data on the use of various types of media in literacy activities.

5. Conclusions

Based on the explanation in the previous discussion, it can be concluded that the teaching aids that have been made by students can be used according to their function. The various media props can be used according to the main function of the props. In addition, the media in the form of props can be used for literacy activities that include primary literacy (reading and listening) and advanced literacy (speaking and writing).

This research is expected to serve as a reference for the academic community in making learning media, especially teaching aids. Teachers need to be able to use and develop teaching aids or other types of media to support literacy activities. It is hoped that literacy activities can be carried out optimally by using a variety of media.

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