



## Analysis of Learning Media Needs for Rounding and Assessment Materials with Character Strengthening in Grade IV of Elementary School

Feby Dwi Rahmasari<sup>1\*</sup>, Yuniawatika<sup>2</sup>, Siti Mas'ula<sup>3</sup>

<sup>1,2,3</sup> Department of Elementary School Teacher Education, State University of Malang, Indonesia

\*Correspondence: E-mail: [yuniawatika.fip@um.ac.id](mailto:yuniawatika.fip@um.ac.id)

### ABSTRACT

The delivery of information or messages that are important in learning can be channelized through learning media. Along with utilizing textbooks, the learning process can be further supported by employing a learning message agent. Creating effective learning tools can help address challenges students face, particularly in mathematics education. This study aims to examine the requirements for mathematics learning media to simplify the comprehension of the material for students. The participants in this study included teachers and all grade IV students at UPT SDN Sumberjati, totaling 13 students. Data was collected via interviews and questionnaires, highlighting the need for engaging, practical learning tools that include images and videos focused on rounding, estimation, and character development.

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## 1. INTRODUCTION

The delivery of information or messages that are important in learning can be channeled through learning media. According to Hamid et al. (2020), learning media is a means of conveying messages from various channels that aim to stimulate students' thoughts, feelings, and interest in participating in learning. Mashuri (2019) also argues that one of the methods to ensure communication and interaction runs smoothly, and can be a channel of information or messages so that Students' thoughts, words, feelings, interests, and attention can be stimulated through the use of learning media.

The application of media in the execution of teaching help to actively support the learning process of students by emphasizing direct learning experiences for them (Munawir et al., 2024). The effectiveness of teaching and learning activities can be enhanced (Pakpahan et al., 2020). Consequently, it is essential for teachers to develop skills that enable them to create engaging and interactive lessons using learning media. These perspectives highlight the significant impact that learning media can have on the educational process.

Teachers need to be capable to innovate to encourage student learning motivation by being creative in creating learning media that attract attention so that it can support the implementation and achievement of learning. One way to utilize learning media is during the process of learning mathematics. It is no stranger that learning mathematics is a subject that is quite Students often struggle to understand the material, and one reason for these difficulties is the presence of numerous or complex calculations, which can lead to boredom and trouble maintaining focus. This aligns with Tyas (2016) perspective, the belief that mathematics is a challenging and tedious subject can cause students to feel anxious about learning it, so that students are passive during the learning process. This also happened in Hardianty (2017) research which showed that students' passivity in learning mathematics was caused by students who were more silent, less active, and rarely paid attention to the material given by the teacher. So that the difficulties can be addressed by employing mathematics learning media.

The application of media in mathematics instruction is anticipated to address students' learning challenges. By using learning media, it is hoped that students' comprehension will improve and their motivation to learn will be consistently enhanced. Success in learning is also influenced by the quality of learning media, so there are criteria in its selection. These selection criteria will help teachers create effective and efficient learning media for instructional use.

The development of learning media should include character reinforcement to help instill and enhance character traits in students. This agrees with Isa (2020) that Learning media can be utilized to impart character values to students. Therefore, the selection of learning media must be really considered by teachers according to students' needs. If the students' needs are met effectively and efficiently, it is very likely that the learning process will increase in the future.

To find out the needs of students, an analysis of student needs is carried out. The need analysis in developing learning media is carried out to find out students' assessment of the learning media used and expectations for the learning media to be made. Therefore, the purpose of this study is to analyze the needs of learning media from teachers and students of grade IV of UPT SDN Sumberjati as anticipated, which can be an additional learning media that is engaging, practical, more comprehensive, and capable of enhancing students' character.

## 2. METHODS

### 2.1 Subject of The Research

Focus of the study is a research variable which is an important component in the research. The same age as the opinion of Rosilia & Yuniawatika (2020) who said that the primary component of the research variables is the research subject. The subject of the research in this analysis is a homeroom teacher of class IV UPT SDN Sumberjati and 13 students of class IV UPT SDN Sumberjati consisting of 5 male students and 8 female students.

### 2.2 Research Data Collection Instruments

A research instrument is a tool used to obtain research data. According to Anufia & Alhamid (2019), an instrument is a tool used to measure data that is basically inseparable from the data collection method. This study employs an instrument consisting of interview guidelines addressing three topics: the curriculum, student characteristics, and learning media, directed at the homeroom teachers of grade IV at UPT SDN Sumberjati. Additionally, a needs analysis questionnaire with 12 questions was administered to 13 grade IV students. The research data collection instrument is organized according to the following framework.

**Table 1.** Interview Grid with Class IV Homeroom Teacher

No.	Analytical Indicators	Question criteria
1.	Needs analysis	Accessibility of learning media Translate the whole document. Hopes for the development of learning media
2.	Curriculum analysis	Translate the whole document. Frequently used instructional methods Challenges in learning mathematics
3.	Analysis of student characteristics	Total number of students Student Characteristics Character development in students through mathematics instruction

Source: Sejati (2021) adjusted

In addition to the interview grid with the IV grade teacher, the following is a grid of student needs analysis that shown in **Table 2**.

**Table 2.** Framework for the Student Needs Analysis Questionnaire

No.	Indikator
1.	Difficulties in studying mathematics
2.	Accessibility and demand for mathematics learning media
3.	Desire for mathematics instructional materials
4.	Character reinforcement integrated into Mathematics learning media

Source: Sejati (2021) modified

### 2.3 Research Procedure

The phase of gathering data through various methods to reach conclusions is called a research procedure (Rosilia & Yuniawatika, 2020). Data was collected from interviews with grade IV homeroom teachers, following the interview guidelines, as well as from student needs analysis questionnaires. The results of these interviews and needs analysis will reveal the necessary learning media.

## 2.4 Data Analysis

The data that has been obtained will be analyzed in a quantitative descriptive manner. The student needs analysis questionnaire was analyzed using the Guttman scale. The instrument consists of 12 questions that must be answered by students. A "yes" response is assigned a score of "1," while a "no" response receives a score of "0." The score results were analyzed quantitatively as percentages, using the frequency of responses divided by the total number of responses, then multiplied by 100%. To present the percentage results of the needs analysis, the categorization was adapted from [Sejati \(2021\)](#). The categorization is detailed in the **Table 3** below.

**Table 3.** Classification of The Percentage Results from Completing The Student Needs Analysis Questionnaire

Ratio	Classification
0-1,9 %	Not required
2% - 25,9%	A small percentage need
26% - 49,9%	Fewer than half of them require
50%	Fifty percent of them require
50,1% - 75,9%	More than fifty percent require
76% - 99,9%	The majority require
100%	Everyone requires

Source: Sejati (2021)

Then, the quantitative data from filling out the needs analysis questionnaire will be interpreted in accordance with Table 3. If the percentage exceeds 50%, it indicates that more than half of the students need learning media. Conversely, if the percentage is below 50%, then the majority of students do not need learning media. Meanwhile, the results of the interview with the homeroom teacher will be presented in descriptive form.

## 3. RESULTS AND DISCUSSION

Interview activity with the homeroom teacher of grade IV regarding the need for learning media, among others, related to the curriculum in use, learning media, and the characteristics of grade IV students. The findings from interviews with homeroom teachers regarding the curriculum are displayed in the **Table 4** below.

**Table 4.** Findings from Interviews Regarding the Curriculum

Indicator	Answer
Curriculum implemented	The curriculum in use is the 2013 curriculum.
Methods used	The methods used are only lectures and assignments.
Problems	The teaching materials used are only textbooks. When learning mathematics, students experience many obstacles when working on problems, especially in rounding and assessment materials.

Based on the results of the interview, in grade IV of UPT SDN Sumberjati Integrated thematic learning with the 2013 curriculum has been implemented. The methods employed include lectures, assignments, and question-and-answer sessions. However, students continue to face challenges with learning media in the 2013 curriculum, as they primarily depend on textbooks. This reliance leads to difficulties and a lack of engagement in the

learning process. Therefore, it is essential to conduct an interview regarding the learning media, with the results shown in the **Table 5** below.

**Table 5.** Interview Results on Learning Media

Indicator	Answer
Availability of Learning Media	The mathematics learning media available at the school are whiteboards and LCD projectors. But most importantly, students only learn using student worksheet and textbooks.
Problems	The existing learning media is still quite limited and not suitable for use. Students only use worksheets and textbooks with very limited material reviewed. So that understanding is a little slow, and sometimes there are mistakes in concepts.
Wish	Media that is convenient interesting, and fun for students, thank you if it can be associated with the internet

Based on the interview results about learning media, it is concluded that the availability of learning media for students is still very limited, with no media currently offering adequate quality. Textbooks remain the predominant resource in the student learning process, despite inconsistencies in how sub-subject material is presented. Teachers are hopeful for the development of practical, engaging, and comprehensive learning media to boost students' motivation and interest. This also factors into the development of media tailored to the characteristics and needs of students. Thus, interviews were conducted concerning student characteristics. **Table 6** show the findings from the interview with the grade IV homeroom teacher regarding student characteristics.

**Table 6.** Findings from Interviews on Student Characteristics

Guide	Response
Number of childs	Class IV students totaled 13 children consisting of 5 boys and 8 girls
Student characteristics	Everything is normal, but after online learning of comprehension, students' ability to grasp comprehension needs more attention.
Strengthening Student Character in Learning	There needs to be a strengthening of curiosity because students lack curiosity in learning, for example when the answer is wrong and how it should be right.

The grade IV students at UPT SDN Sumberjati exhibit a wide range of characteristics, including diverse interests, motivations, and learning styles. There is also a notable lack of curiosity among the students. Interview results indicate that the learning media currently in use is quite limited in both material and presentation. The media primarily consists of textbooks and student worksheet, while students face challenges, particularly with mathematics topics like rounding and assessment. This research aims to develop engaging, practical, and comprehensive learning media that effectively conveys knowledge during the learning process. By aligning with the curriculum, media requirements, and student characteristics, it is hoped that this development will enhance student learning outcomes (Ani, 2019).

Along with conducting interviews, the researcher also distributed a needs analysis questionnaire to 13 grade IV students of UPT SDN Sumberjati. The needs analysis questionnaire consists of 12 questions with 5 indicators that must be filled in by students. The 12 questions were answered with yes or no according to the opinion of each student. The following on **Figure 1** are the results of the student needs analysis questionnaire.

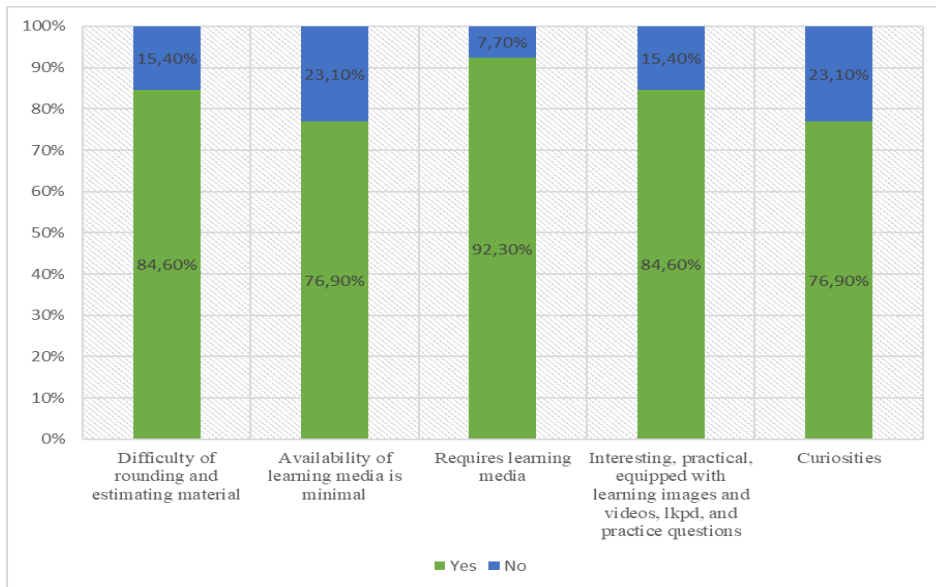


Figure 1. Results of The Percentage Analysis from The Needs Questionnaire

The diagram **Figure 1** above illustrates that most students responded with "yes" to the five indicators provided. The percentage of students' responses is detailed in the table below.

Table 7. Findings from the Needs Analysis Questionnaire

Indicator	Number of question	Number of "yes" Answer Scores	Percent age	Average Percentage	Categories Results
Difficulty of rounding and estimating material	1,2,3	33	84,60%	83,06%	Most require
Minimal availability of learning	4,5,6	30	76,90%		
Requires learning media	7	12	92,30%		
Interesting, practical, equipped with learning images and videos, worksheet, and practice questions	8,9	22	84,60%		
Strengthening curiosity integrated into learning media	10,11,12	30	76,90%		

Based on the needs analysis questionnaire, it is known that the average percentage value is 83.06%. When interpreted in **Table 1** with a range of 76%—99.9% with the category of most students in need. The results were also adjusted to the results of interviews with the homeroom teacher of class IV UPT SDN Sumberjati.

### 3. DISCUSSION

Learning media is one of the components needed in the learning process. Media is able to provide effectiveness and build interaction in the learning process so that the material provided is easier and faster to understand. Likewise, according to Nurdin & Andiantoni (2016), learning media is everything that is useful for channeling messages, stimulating will, mind, and emotions, facilitating communication during the learning process. Utilizing

learning media will simplify for teachers to deliver material that is packaged in an attractive and practical way so that students are active in learning. In addition, based on Edgar Dale's experience cone, learning using the help of media is very helpful for students to understand and remember the material that has been learned (Hartini et al., 2019).

The learning media that can be created and utilized in education is highly varied. According to Santrianawati (2018), there are visual, audio, audio-visual, and multimedia media. The selection of learning media is important for teachers so that the media is effective and efficient (Wahyuni, 2018). Through interviews with teachers and filling out questionnaires from the students' feedback, it was found that the learning media available in schools is quite limited. Students only use package books and student worksheet. This has an impact on students' understanding of the material.

The results of the interview were reinforced by three questions regarding the availability of media in the needs assessment questionnaire. There were 30 "yes" responses indicating limited learning media and 9 "no" responses. From these answers, it is evident that 75% of students acknowledge that the learning media is still restricted and relies solely on textbooks. This should be taken into account by teachers during the learning process. According to the categorization adapted from Sejati (2021), it can be concluded that the majority of students feel that the available learning media is insufficient.

When selecting educational media, teachers can align with advancements in technology to enhance the quality of instruction (Huda, 2020). This is important, because if there is a mistake in the selection of learning media, it will have fatal consequences that will have an impact on students' confusion in understanding the material (Wahyuni, 2018). Meanwhile, the data from the interview results regarding the curriculum shows that the curriculum implemented in teaching is the 2013 curriculum, which necessitates that student to be active in learning. This is also in accordance with the opinion of Sinambela (2017), The 2013 curriculum mandates that students actively engage in addressing contextual problems.

Based on interviews conducted with teachers, data related to very limited learning resources were also obtained, namely only in package books and lks which had an impact on student difficulties. Students have difficulty understanding rounding and estimation materials. These difficulties are also encountered in research conducted by Nurhasanah et al. (2020), that many students do not understand rounding and estimation both up and down.

The results of the questionnaire on the learning difficulty point were obtained 33 "yes" and 6 "no" answers with a percentage of 84.60%. Based on the categorization from Sejati (2021), it is known that the difficulty of rounding and estimating materials in mathematics learning is experienced by most students. This can happen, one of which is due to the influence of internal and external factors (Kholil & Safianti, 2019). Meanwhile, according to Cahyono (2019), difficulties in mathematics material are because of external factors, such as the scarcity of supplementary books. No exception to rounding and assessment materials, the challenges faced by students are attributed to a shortage of educational resources. Just like the research conducted by Ramadhanti & Alamsyah (2020), namely the use of textbooks alone causes low student learning outcomes.

Rounding and assessment require learning media to help students understand. The needs analysis questionnaire includes a single question with 12 "yes" answers that require mathematics learning media, rounding and estimation materials. The percentage of yes answers of 92.30% shows that most students need learning media. In addition to students, teachers also said that they needed more interesting, practical and complete learning media. This was corroborated by the results of two rephrased questions about the elements

and development of learning media with 22 "yes" and 4 "no" answers which approved the creation of educational media that was interesting, functional and includes educational images, videos, LKPD (student worksheets), and practice questions with a percentage of 84.60%. It is understood that the majority of students require engaging, practical, and comprehensive learning materials. Therefore, it can be concluded that students benefit from learning media that is both captivating and thorough.

Media has an essential function in the learning process (Fasa & Purwanti, 2023). Effective learning media should include supplementary elements like practice questions, student activity sheets, and audio (Hasan, 2021). In addition, in learning activities in all subjects, character education must be implemented (Yuniawatika et al., 2017). Integrating character education into learning media is an effective approach. This can be evaluated through three key questions concerning the integration of character-building within learning media, 30 "yes" and 9 "no" answers were obtained with a percentage of 79, 60% of students agreed that there was a strengthening of curiosity character integrated in learning media. As per the categorization, it is known that most of them are in need. So, it is concluded that most students need the creation of educational materials that contains the strengthening of curiosity character. By strengthening this curiosity, students will be encouraged to know and continue to find out about a problem (Fauzi et al., 2017).

#### 4. CONCLUSION

The findings from the interviews with class IV homeroom teachers showed that students and teachers needed learning media on rounding and assessment materials. The findings indicated that the materials were more engaging, practical, comprehensive, and effective in addressing students' challenges with rounding and assessment by fostering their curiosity. These results were derived from the completed analysis questionnaire by grade IV students also showed that 1) there were difficulties in learning mathematics, especially rounding and assessment materials, 2) learning media at school was very limited, 3) learning media was needed to support the learning process, 4) The required learning media should be engaging and practical, featuring images, educational videos, LKPD (student worksheets), and practice questions, all aimed at fostering curiosity. Consequently, the development of hypermedia for rounding and assessment materials focuses on enhancing curiosity to address students' challenges.

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