

DEVELOPMENT OF LEARNING MEDIA ROTAR (ROTATING WHEEL) IN CLASS V MATHS LESSON AT SDN 101866 BATANG KUIS PEKAN

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Abstract

This study aims to develop learning media for rotating wheels to students and to determine the feasibility of using the media. to determine the feasibility of using the media, as well as knowing the level of validity of the media through the responses of educators and students after using the media. media through the responses of educators and students after using the wheel learning media. learning media. This type of research is a development research (R&D) with the ADDIE development model which consists of the stages of analysis, design, development, implementation, evaluation. The subjects of this study were grade V grade students at SD Negeri 101866 Batang Kuis, totalling 24, consisting of 7 girls and 17 boys. The results of research and development obtained a design in the form of a rotating wheel learning media in mathematics learning in class V SDN 101866 Batang Kuis Pekan obtained a score of feasibility value of 80% by material experts and 92% by media expert. Student response to media feasibility obtained an average score of 92%. Based on the results of the description above Based on the results of the description above, the product developed by the researcher is feasible and valid to be used as a learning media.

Keywords: Learning Media, Rotating Wheel, Maths

INTRODUCTION

Education is a conscious and planned effort to provide guidance or help in developing the physical and spiritual potential given by adults to students to achieve maturity and achieve the goal that students are able to carry out their life tasks independently (Aggarwal, 2010). Education is a continuous process that aims to develop the potential of an individual which includes emotional, social and spiritual. Education also does not only occur in formal classrooms, but also through the family environment, in the community and the world. Education is inexhaustible and always continues for a lifetime.

Education is defined in Law No. 20 of 2023 as a deliberate effort to create a conducive environment for learning, with the goal of helping students develop their potential and acquire essential skills for themselves and society. The learning process must be thorough to ensure students achieve success. The purpose of national education, as outlined in the same law, is to cultivate the abilities and character of citizens to contribute positively to society.

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Teachers play a crucial role in guiding students towards achieving their full potential and becoming responsible members of society. Utilizing engaging learning materials can enhance the learning experience.

Kuntari et al. (2023) defines learning media as anything that conveys messages to create a conducive learning environment. Adam (2015) notes that learning media helps teachers convey subject matter to students and achieve learning objectives. Damayanti et al. (2023) emphasizes the importance of learning media in facilitating the learning process for educators and students. Teachers use learning media to convey knowledge more easily and make the learning experience more engaging for students. One example of learning media is the rotary wheel.

Kuntari et al. (2023) states 'rotar (rotary wheel) is a media in the form of a circle that can be rotated containing materials or images where the learning process is carried out in educational units. In primary schools, mathematics lessons are part of the subjects that students must learn (Umairah, 2024). Mathematics is a systematic discipline by examining patterns of relationships, patterns of art, patterns of thought and language that are all studied with logic and are deductive in nature. Mathematics is a basic science that is a tool for studying other sciences, the use of mathematics is to help humans to master and understand economic, social and natural problems (Damayanti et al., 2023).

Mathematics is also an important subject in human life, mathematics exists in almost every aspect, even technology and digital (Umairah, 2024). From this explanation, researchers can conclude that mathematics is a science that is important for human life for their daily lives. And mathematics has also been a lesson that has been around since elementary school. And mathematics is also basic in the development of technology and digital. Although mathematics is a very important science, some students still say that mathematics is a difficult subject to understand. They seem to be scared when dealing with maths.

As it is known that mathematics has abstract concepts, it has the potential to bring up various difficulties experienced by students, where students are not yet able to think abstractly (Umairah, 2024). This makes the importance of learning media in mathematics lessons that can create visual experiences for students with abstract mathematical objects. This relates to the opinion in the Umairah (2024) regarding one of the ways that students can think abstractly about mathematics lessons, that is, by using the help of learning media.

According to a fifth-grade teacher interviewed in January 2024, students find math lessons intimidating, particularly when it comes to Shapes and area. Many students have not yet mastered the material, resulting in below-average learning outcomes. Flat shapes are described as two-dimensional shapes according to Prakoso and Rahmatunnisa (2019). Tarigan, cited in the same study, defines flat shapes as having width and length but no height or thickness.

The types of flat shapes are trapezoid, parallelogram, triangle, rhombus, square to calculate the area of each flat shape also use different formulas. When researchers made observations in class V in January 2024 during mathematics learning, from what researchers observed, the teacher's mastery of the material was also good. However, the teacher still uses package books, books relevant to the material in the library, blackboards and markers and the teacher explains using the lecture method. Some students listen and some do not listen when the teacher explains it makes them less active and difficult to understand the subject matter.

There is a need for engaging learning media in mathematics lessons. One solution proposed is using rotar media (rotary wheel) to make learning more interactive. Rotar media allows students to play an active role in learning math concepts, especially Shapes. This study aims to validate the effectiveness of rotar media in class V mathematics at SDN 101866 Batang Kuis Pekan and assess its feasibility for development.

LITERATURE REVIEW

Learning Media Development

Learning media is everything used in learning activities to engage students and facilitate effective interaction between students and educators (Mashuri, 2023). According to Rusydiyah et al. (2023), learning is essentially a communication process involving the delivery of messages from a source to a recipient through various channels or media. Components of this process include messages, sources, channels or media, and recipients. Messages typically consist of teaching content found in the curriculum, with sources ranging from teachers to book authors. The channel used for communication is the learning media, and the recipient is the learner.

Learning Outcomes

Wicaksono and Iswan (2019) states that "learning outcomes are the abilities obtained by students from their learning process activities or exercises that are shown to change behaviour as a result of their learning experience". Nurrita (2018) states , "Learning outcomes

are the results given to students in the form of assessments after following the learning process by assessing knowledge, attitudes, skills in students with behavioural changes" Learning outcomes are the abilities possessed by students after receiving their learning experience (Sudjana in Wicaksono and Iswan (2019)). Learning outcomes are the result of a person interacting positively and actively with their environment (Nasution S in Wicaksono and Iswan (2019)).

Rotar Learning Media

Kuntari et al. (2023) states that rotary wheel media is a circular object that can be rotated. Azis and Pertiwi (2021) the rotary wheel is a circular object made of a board and there is a picture that can be played by rotating it so that it stops at one part of the picture. Kuntari (2023) also states that the Rotary Wheel is a circular-shaped media that can be rotated containing materials or images which are used during the learning process in educational units. According to Trisiantari & Wulandari (2024), the rotary wheel is a round or circular object that has the ability to move around or change direction.

Mathematics

Mathematics is a universal science that has an important role in various disciplines and develops human thinking, and underlies the development of modern technology (Mashuri, 2019). Mathematics education has a role not only in providing educational values that educate students but also educational values that help shape students' characters, including critical thinking and creative thinking (Siswono et al., 2018)

Learning Maths in SD/MI (Elementary School)

Mathematics learning is given at every level of education, including in primary school. Learning mathematics in primary school is the basis for students to receive mathematical concepts correctly. However, at the primary school level, mathematics lessons are still given in basic form.

Permendiknas number 3322 concerning content standards for mathematics objectives states that mathematics learning in SD / MI has a scope that includes aspects namely numbers, geometry and measurement, and word processing (Umairah, 2024). Elementary school students are on average 7-11 years old, as according to Piaget's cognitive theory, cognitive development is the first phase, namely the concrete operational phase, a phase where children can already think logically, rationally, scientifically and objectively about something that is concrete or real. In line with the above theory according to Hidayat and

Bujuri (2020) at this stage children are able to think concretely as in reality, are able to conserve numbers, and understand concepts through their own experiences. However, to understand the concept of mathematics, children still need concrete objects.

Grade V Shapes Materials

The material in this development research is taken from the independent curriculum teaching module based on learning outcomes for class V containing phase C on shape material.

Theory on Model Development

Before a researcher wants to research and develop an educational product, it is necessary to first understand the research and development model, as a framework for the flow of the research process that will be carried out later, several R&D research and development models include:

1. Borg and Gall Development Model

Borg and Gall developed an R&D model known as the 10 steps. Borg and Gall said that research and development in education (R&D) is a process used to develop and validate products in the field of education (Winaryati, 2021).

2. 4D Development Model

Thiagarajan in Winaryati et al, 2021: 26-28 consists of four stages of development. The first stage is Define or often referred to as the needs analysis stage, the second stage is Design, which is preparing a conceptual framework for learning models and devices, then the third stage is Develop, which is the development stage involving validation testing or assessing the feasibility of the media, and the last is the Disseminate stage, which is the implementation on the real target, namely the research subject.

3. ADDIE Development Model

The next development model is the ADDIE model, which consists of five stages of development. ADDIE Model Development Steps involving the stages of model development with five steps/phases of development include: Analysis, Design, Development or Production, Implementation or Delivery and Evaluations.

Research Framework

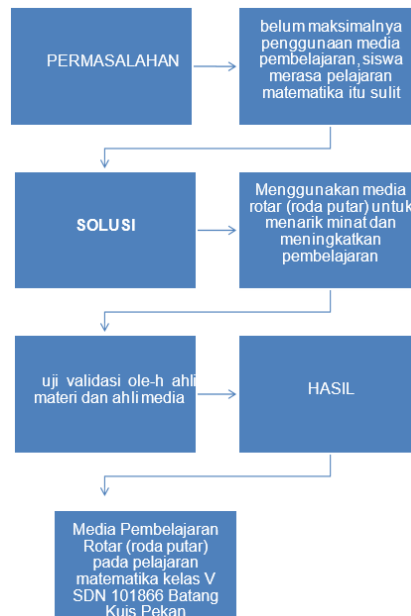


Figure 1. Research Framework

RESEARCH METHODS

In this study, the research method used is research and development or commonly called (R&D) Research and Development. This type of development research was chosen because this research aims to create a product or develop a product that has been made by previous researchers and then modified to be even better.

The model used in this research is the ADDIE model which stands for analysis, design, development, implementation, and evaluation. The ADDIE model development design is one of the interactive development processes whose learning phases are efficient, dynamic and effective. The ADDIE development system design model is simple and can be implemented in stages (Ananda, 2023). Trial design is the stage of evaluating the development of rotating wheel learning media (rotar) which is carried out during the field test / development trial. The product to be tested and validated is the rotating wheel in mathematics lessons, the trial is carried out to obtain data which is used as a basis for making improvements in order to achieve the level of validity and effectiveness.

The subjects in this study were media experts, namely UNUSU Medan lecturers, material expert validators, namely UNUSU Medan lecturers, and learning experts, namely grade V teachers of SDN 101866 Batang Kuis Pekan. The research instruments used by researchers are observation carried out in class V SDN 101866 Batang Kuis Pekan during

the teaching and learning process and to see the condition of the class where the application of the rotating wheel media to be developed. Interviews were conducted with the fifth grade teacher. This interview was conducted by researchers to find out the problems that occur in class V. Documentation is in the form of photographs of activities that researchers carry out at the research site. Questionnaires are used to collect data on the feasibility of rotating wheel media by media experts, feasibility of material by material experts.

This questionnaire aims to determine the value of rotar media (rotary wheels). The assessment sheet on rotar learning media (rotary wheels) to analyse the data that will be given to media experts, material experts, educators' responses and student responses will use a Likert scale.

For scoring using a Likert scale on the assessment sheet for media experts, material experts, educators' responses and student responses filled using the provisions by Sugiono (2013) can be seen from table 1 below:

Table 1. Likert Scale Score Description

Score	Description
5	Very good
4	Good
3	Good enough
2	Not Good
1	Very poor

In the data analysis to calculate the average score in the questionnaire using the formula is as follows:

$$xi = \frac{score}{max\ score} \times 100\%$$

Description :

xi = sum of respondents' scores per aspect

score = sum of scores per aspect

max score = maximum score per aspect

After calculating the average score, to determine the feasibility of rotar media (rotary wheels) can be calculated by the final average value of all aspects, the following is the formula for calculating the average:

$$x = \frac{xi}{n} \times 100\%$$

Description :

x = final average

xi = sum of all respondents' scores

n = number of respondents

Furthermore, the final score can be adjusted in the following criteria table:

Table 2. Validation Criteria

Percentage (%)	Criteria
0 - 20	Very poor
21 - 40	Poor
41 - 60	Good enough
61 - 80	Good
81 - 100	Very good

Source: Susiyawati et al. (2021)

The criteria table is used as a reference to see the average assessment score from media experts, material experts, educators' responses, and student responses to the rotar learning media (rotary wheels) that will be developed. If the percentage shows less than 60%, the researcher will revise it according to the content that has been obtained. But, if the percentage shows more than 61% then the rotar media (rotary wheel) gets a good response. Thus the rotar product (rotary wheel) developed is declared feasible and can be used as a learning media to support the learning process of students in class V.

RESULTS AND DISCUSSION

Research Results

This research develops a learning media, namely the rotating wheel media in mathematics lessons that can be used for learning media for class V semester 2. Research and development at the validation stage was carried out at the Nahdlatul Ulama University of North Sumatra and the trial was conducted at SDN 101866 Batang Kuis Pekan with 26 class V students.

This research uses the ADDIE research stages, which are Analysis, Design, Development, implementation, evaluation. The development research procedure produced a rotating wheel learning media in mathematics lessons for grade V students of SDN 101866 Batang Kuis Pekan. The results of the development stages of the rotary wheel learning media, as follows:

1. Analysis

The first stage carried out by researchers is to analyse the problems that exist in class V and analyse mathematics subject matter in class V. from this analysis which will be a reference for formulating the right learning media and will be developed. The learning media

that has been analysed in this study is the rotating wheel learning media (rotar) in mathematics lessons.

a. Problem analysis results

At the problem analysis stage aims to find out the problems being faced by educators, especially in mathematics lessons. From the results of interviews with teachers, researchers get information that in mathematics lessons still make use of objects around as media and make more use of mathematics textbooks as teaching materials, students also think that mathematics lessons are scary and have difficulty with mathematics lessons and the learning outcomes of students still have not reached KKM.

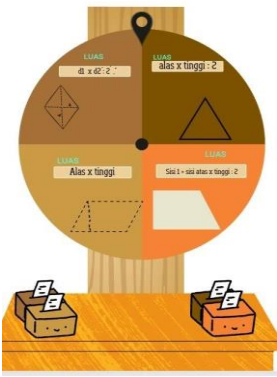
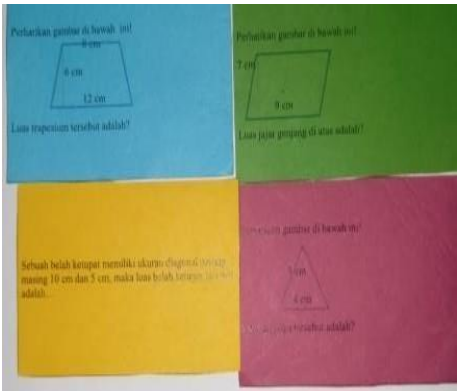
b. Material analysis results

At this stage, the analysis that researchers do is that in class V currently uses an independent curriculum based on learning outcomes. In mathematics lessons in grade V, the material that researchers analyse is finding the area of Shapess. This material is in accordance with phase c and the learning outcomes that will be delivered through the rotating wheel learning media. From the results of the analysis conducted by researchers through observations in class V during mathematics lessons students need to be encouraged to be enthusiastic and active in learning. From this analysis, the rotating wheel media is expected to foster students' enthusiasm and active learning.

2. Design

After the researcher has completed the analysis stage, the next step that the researcher will do is to design the learning media to be developed. Researchers chose this rotating wheel media for special mathematics lessons on flat area material because this media has never been used at SDN 101866 Batang Kuis Pekan school and this media can attract students' attention. The following are the stages of the design of the rotary wheel learning media in mathematics lessons.

Table 3. Learning Media Design

No.	Stages	Image
1.	Preliminary sketch designed using canva application	
2.	Spinning wheel media after design	
3.	Red, blue, yellow and green coloured question cards	

3. Development

After designing the rotary wheel product, then at the development stage. This development stage aims to determine the feasibility and validity of the rotary wheel media that has been developed. The feasibility and validity of the rotary wheel media are validated by material expert validators and media experts and will be revised according to criticisms and suggestions by the validator. The validators were carried out by UNUSU lecturers where the material expert validator was Mr Nuri Ramadhan S.Pd, M.Pd and the media expert validator was Mr Wahyu Hidayat S.Pd, M.Pd. Here is the validation results.

1) Assessment of the rotary wheel media by material experts

The validation results consist of an assessment score of the rotary wheel learning media which consists of material and learning aspects and contains 10 assessment items.

Table 4. Data on Material Expert Validation Results

No	Aspect	Criteria	Score
1.	Material	1. Suitability of the media with the independent curriculum and learning outcomes	4
		2. The completeness of the material covered in the media	4
		3. Depth of the material	4
		4. The suitability of the material with the exercise questions given	4
		5. The material is brief and easy to understand when explained	4
2.	Learning Activities	6. The material presented is appropriate for students to receive	4
		7. Rotar media (rotating wheel) can make students active in the lesson and in accordance with the content of the material	4
		8. The rotar game activity is interesting and suitable for mathematics lessons on flat shapes.	4
		9. Image placement does not interrupt the understanding of the material	4
		10. Students participate in the use of rotar learning media (rotating wheel)	4
Total			40
Percentage			80%
Criteria			Valid
Feasibility			Appropriate

The results of the assessment by material experts on the rotating wheel media product in mathematics lessons get a total score of 40 with a percentage of 80% which is on valid criteria and feasible to be tested without revision.

2) Media expert validator rotating wheel media assessment

The validation results consist of an assessment score of the rotating wheel media which contains 10 assessment items.

Table 5. Media Expert Result Data

No.	Aspect	Criteria	Score
1.	Media quality and appearance	1. Rotar media display (rotating wheel) is in accordance with the material about shapes	5
		2. Rotar media (rotating wheel) is durable in repeated use	5
		3. The colour of each part of the rotar media (rotary wheel) is attractive	5
		4. The image display on the rotar media (rotary wheel) can attract students' interest	4
		5. The flow of rotar media playback (rotating wheel) is easily understood by students	4
2.	Media content design	6. Not using too many fonts in the writing on the learning media	4
		7. Appropriate shape, colour, and size	5
		8. The design on the media patches is in accordance with the material	5
		9. Image placement does not interrupt the understanding of the material	4
		10. The font type on the rotar media (rotary wheel) is clear and easy for students to understand	5
Total			46
Percentage			92%
Criteria			Very Valid
Feasibility			Highly Feasible

The results of the assessment by material experts get a total score of 46 with a percentage of 92% which is very valid and feasible to be tested without revision.

4. Implementation

A team of material and media experts approved the rotary wheel media for testing. The next stage involved testing the media with 26 students in a classroom. Learning sessions were held twice a week.

The first meeting took place on June 7 and 8, 2024. Activities included prayer, attendance check, and stating learning objectives. Students reviewed material on flat shapes

and their area. The teacher briefly reviewed examples of finding areas of shapes like triangles, trapezoids, rectangles, and rhombuses on the blackboard. A rotating wheel was used for a group activity where students answered questions based on the shape shown. The lesson concluded with a questionnaire to evaluate the effectiveness of the learning media.

Table 6. Student Group Answer Results

No	Group Name	M/ F	Score Earned				Total	Description
								
1	Star Girls Nia tarigan Azura aristia Raffa naufal Aqil Asraf Syakira Hayati Dwiranda Syafitri	F F M M F F	10 9	8 9	8 10	9 10	54	C O M P L E T E
2	6 Saudara Dzakira aftanie Alkiniya Avusila Harika ramadhani c Gibran Johan hylmi	F F F M M M	10 9	10 9	8 9	10	56	C O M P L E T E
3	Harimau Putih Rizky Amanda Andrea Kevin Sutan Azka Sayyid	M M M M M M	 8 8	10 8	7 9	9 9	51	C O M P L E T E
4	Golden Boys Amar Rehan Zaky Rizadi Firmansyah Farhan	M M M M M M	9 7	 10 8	 7	9	49	C O M P L E T E
Average								87
Highest Score								10
Lowest Score								7
Classical completeness								97%

From the results of answering questions in groups, the class average is 87. The completeness of the student learning outcomes test was 97% or as many as 24 students who

completed the test. After the product trial was carried out, the researcher asked the teacher and students to fill out a student response questionnaire. This teacher and learner response questionnaire aims to determine the practicality of the rotating wheel media that has been developed and used in learning.

Table 7. Teacher Response Questionnaire Results

No.	Aspect	Criteria	Score
1.	Media quality and appearance	1. Rotar media (rotary wheel) is easy to operate	5
		2. Rotar media (rotating wheel) makes learning interesting	5
		3. Rotar media helps teachers in the learning process	4
		4. The suitability of the material with the exercise questions on the rotar media card (rotating wheel)	4
		5. Rotar media (rotating wheel) can make students active in learning	5
2.	Media content design	6. Not using too many fonts in the writing on the learning media	5
		7. Appropriate shape, colour, and size	4
		8. The design of the media parts is in accordance with the material	5
		9. Image placement does not interrupt the understanding of the material	5
		10. The font type on the rotar media (rotating wheel) is clear and easy for students to understand	4
Total			46
Percentage			92%
Criteria			Very feasible
Validity			Very valid

The results of the assessment by the teacher get a total score of 46 with a percentage of 92% which is very valid and feasible without revision.

Table 8. Student Response Questionnaire Score

Respondent	Display Aspect				Learning Aspects				Total	Percentage	Criteria
	1	2	3	4	5	6	7	8			
01	4	5	5	4	5	4	5	5	37	92,5%	Very good
02	5	5	4	5	5	5	5	5	39	97,5%	Very good
03	5	4	4	5	5	5	5	5	38	95%	Very good
04	4	3	5	4	5	5	5	5	36	90%	Very good
05	5	4	5	4	5	5	4	4	36	90%	Very good
06	5	5	5	4	5	5	5	5	39	97,5%	Very good

07	5	5	5	5	5	5	5	5	40	100%	Very good
08	4	4	5	5	5	5	4	4	36	90%	Very good
09	4	4	3	5	5	5	3	5	34	85%	Very good
10	4	5	4	4	5	5	5	4	37	92,5%	Very good
11	4	5	5	4	4	5	4	4	35	87,5%	Very good
12	5	4	5	5	3	5	5	4	36	90%	Very good
13	4	5	4	4	5	4	5	4	35	87,5%	Very good
14	5	5	5	5	5	5	5	5	40	100%	Very good
15	5	5	4	5	5	5	5	5	39	97,5%	Very good
16	5	4	5	5	4	4	5	5	37	92,5%	Very good
17	5	5	5	5	5	5	5	5	40	100%	Very good
18	3	4	5	5	3	4	4	5	33	82,5%	Very good
19	5	4	5	5	5	5	5	5	39	97,5%	Very good
20	5	4	5	3	4	5	5	4	37	92,5%	Very good
21	4	5	4	4	5	5	5	4	36	90%	Very good
22	4	5	5	4	5	4	5	5	37	92,5%	Very good
23	3	5	3	3	4	5	5	4	32	80%	Good
24	4	5	5	4	4	3	5	3	33	82,5%	Very good
Overall Total										960	
Percentage										92%	
Criteria										Very good	

The results of the student response questionnaire were determined by calculating the average score of respondents, namely grade V students of SDN 101866 who took part in learning by using the rotating wheel media in mathematics lessons. Based on the results of the student response questionnaire, a percentage of 92% was obtained and categorised as valid or feasible.

5. Evaluation

The evaluation stage is the final step in the ADDIE model. It is crucial to assess if the developed product meets expectations. Evaluation occurs at each stage of the ADDIE model. In this study, the evaluation aimed to improve the product. Experts validated the product during development, while field trials were conducted during implementation. Student responses were collected to gauge practicality. The evaluation stage evaluates the validity and feasibility of the smart wheel product. The material expert validator rated it 80% valid. The media expert validator rated it 92% very valid. Teachers' responses also scored 92%.

Table 9. Validator Assessment

No	Validator	Percentage
1.	Mr. Nuri Ramadhan, S.Pd., M.Pd (material expert validator)	80%
2.	Mr. Wahyu Hidayat, S.Pd., M.Pd (media expert validator)	92%
Total		172%
Average		88%

The chart form of the expert validators' assessment can be presented in the following figure:

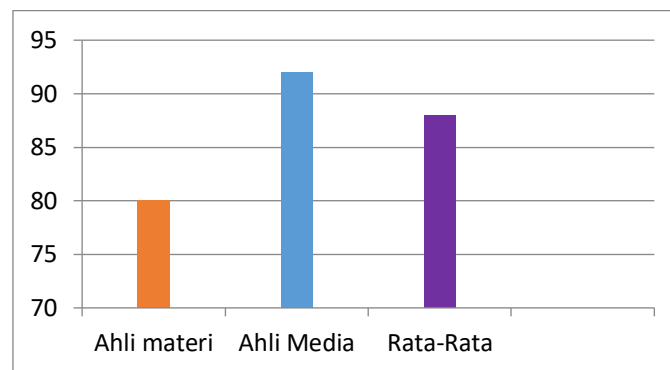


Figure 2. Expert Validation Chart

In terms of material and media, it is in accordance with the function of learning tools that help students learn in accordance with the learning steps, so that students can learn enthusiastically and actively. With the rotating wheel learning media (rotar) in mathematics lessons students can learn with or without a teacher accompanying them.

The average assessment of student response questionnaires in Class V SDN 101866 Batang Kuis Pekan is 37 with a percentage value of 92% which is categorised as Valid / Appropriate. Thus, based on the five stages of research development (ADDIE) in this study, it is obtained that the rotar learning media product (rotating wheel) in grade V mathematics lessons at SDN 101866 Batang Kuis Pekan developed has met the elements of feasibility and effectiveness of product use for grade V students.

Discussion

Based on the results of the research previously described, the steps of developing a rotating wheel media for mathematics lessons for grade V students use 5 stages of ADDIE development, namely Analysis, Design, Development, Implementation, Evaluation. At the analysis stage, problem analysis and learning analysis are carried out on flat area material. From the results of the analysis of problems and learning, it is obtained that the material is

suitable, namely the material of the area of flat shapes to be developed in a rotary wheel as a learning media for grade V elementary school.

During the Design stage, activities include sketching the rotary wheel on canvas, preparing materials like plywood boards, creating questions in Word, crafting the plywood board into a rotary wheel media, coloring it for easier development, and creating an assessment tool for quality assessment. Research instruments consist of questionnaires for media and material experts, tests for learning outcomes, and student response questionnaires, all validated by lecturers and revised as needed. In the Development stage, the researcher creates the rotating wheel media using suggested improvements from a supervisor's feedback. The media was then validated by experts and revised based on their suggestions, resulting in a highly valid assessment of 86%. This indicates that the developed rotary wheel media is considered very valid by media and material experts.

During the Implementation stage, a rotating wheel media was tested for math learning at a school. The test took place in class V at SDN 101866. Students were excited to use the rotating wheel media for learning. Students worked in groups to answer questions on the box to assess their skills. The completion rate of the test was 97%.

The developed rotary wheel media is effective for students, as shown by the positive results from the learning outcomes test and student response questionnaire. The rotary wheel media for flat area material is practical and easy to use in learning activities. Evaluation stage involves revising the media if needed, but no revisions were necessary in this study. The final product, Rotating Wheel Media for Mathematics in Class V SDN 101866 Batang Kuis Pekan, is of good quality, being both valid and effective.

About the Feasibility of Rotar Media (Rotating Wheel) in the Mathematics Learning Process of Grade V Students, Yuliasih et al. (2023) said that learning media is a tool used by teachers in the learning process to help deliver learning messages in all forms in the form of material or events that build certain conditions as an intermediary in the teaching and learning process to achieve a learning goal that has the benefit of being able to clarify messages so that they are not too verbal, overcome limitations, provide stimuli that can equalise understanding and can provide effective and efficient learning.

Material and media experts, along with teacher and student questionnaires, tested the feasibility of using rotary wheels for education. Indicators on the questionnaires were assessed by validators. The product will be tested at school if validated. Overall, the rotating

wheel product for Math is considered valid and feasible for fifth grade students, with an 86% average score.

Likewise, with the assessment of the teacher's response questionnaire sheet with an average percentage score of 92% and students with a score of 92%, the category is valid or feasible to use for grade V students. So that from the feasibility test of the rotar media (rotary wheel) it is stated that the media developed is suitable for use by grade V students of SDN 101866 Batang Kuis Pekan. The feasibility of rotar media (rotary wheels) in terms of learning materials is based on product development that pays attention to the elements of learning design (ATP, CP, learning objectives) as well as the feasibility of media must be in accordance with the principles of elementary student development.

This research is in accordance with the research and development conducted by Larasati & Suryaman (2021) who showed that the development of this learning media on the results of the analysis, the media feasibility test obtained a percentage of 88% from the material expert, 98.9% from the media expert, 80.6% from the results of the trial on a small group of 89% and 80% in a large group of class II SD 2 Gelanggang. Of the three acquisition categories, this learning media is in the category of very feasible to use as a learning media in thematic theme 6 subjects in class II SD 2 Gelanggang.

Research conducted by Chasifatul Chalimah (2020) about the development of smart wheel media on addition and subtraction of ordinary fractions with unequal denominators in MI, the smart wheel media products that were tested received feasibility with a percentage of 96% from material expert validation, 88.33% from media expert validation and the results of trials on students received an average response of 100%. From the results of each learning media expert this is categorised as very feasible to use as a learning media for mathematics in class V.

Research conducted by Riyani (2019) which reveal that there is an influence on the rotating wheel props used on the mathematics learning outcomes of grade IV students of SD Bengkulu at a significant level of 5%. From the discussion above, it can be concluded that the development of a learning device in the form of rotar learning media (rotating wheels) students must meet the eligibility criteria so that the products developed can be implemented for grade V elementary school students. Especially the fifth grade of SDN 101866 Batang Kuis Pekan.

CONCLUSIONS

The research and development of Rotating Wheel media in Mathematics Learning at SDN 101866 Batang Kuis Pekan showed that the media is valid and suitable for fifth-grade students. Expert evaluations rated the material and media aspects as valid. Student questionnaires also indicated high acceptance of the media. Testing with 24 students and their teacher further supported the effectiveness of the Rotating Wheel as a teaching tool. Recommendations include using the learning tools as an alternative for teachers, encouraging schools to implement such media, and suggesting further research to improve the Rotating Wheel for educational purposes.

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