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Development of Contextually Based Mathematics Learning Modules in Improving Numeracy Literacy for Class V Students

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Abstract
This research is motivated by several issues, namely: the implementation of numeracy literacy learning in grade V elementary school has not been maximized due to the lack of additional teaching materials to support numeracy literacy learning, resulting in grade V elementary school students not being very interested in learning it. This study aims to obtain clear information about: 1) Development of contextual-based mathematics learning modules in improving numeracy literacy of grade V elementary school students; 2) The feasibility of contextual-based mathematics learning modules according to experts; 3) Student responses to contextual-based mathematics learning modules in improving numeracy literacy of grade V elementary school students. This research uses a research and development (R&D) method and the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) development model. Data collection methods in this study include: 1) Observation, 2) Questionnaire, 3) Interview. The data analysis technique used is qualitative descriptive statistics. Qualitative data are the result of validation scores from several experts, namely subject matter experts, language experts, and media experts. The results of this development study produce the feasibility of the developed module and student responses to the developed module. The assessment results for this module development obtained feasibility scores from several experts, namely: 1) media experts who obtained a score of 3.30 in the "Very Feasible" category, 2) language experts who obtained a score of 2.55 in the "Feasible" category, 3) subject matter experts who obtained a score of 2.92 in the "Feasible" category. It can be concluded that the average score is 2.92 with the criterion "Feasible". Then, the student responses to the developed module, which was tested on a small scale with 10 selected students, obtained an average score of 3.15 with the criterion "Interesting".
Keywords: Learning Media, Contextual, Numeracy Literacy

INTRODUCTION

In 21st century education, students are expected to have the skills needed for renewal, the ability to use information technology, and the ability to work with the skills necessary for life. These life skills are known as 21st century skills. In the 21st century, students' ability to read and write is one of the prerequisites for applying the skills needed in life. Schools play an important role in implementing literacy, especially numeracy. Therefore, literacy creates the most important unit in educational procedures. Students who are able to read and write will definitely have a better learning experience than other students. For example, a person has large and fertile land, but that person does not have sufficient knowledge in managing and obtaining income from that land. Without realizing it, cases in human life are closely related to making accurate decisions based on numbers and mathematical information. Solving mathematical problems is related to numeracy literacy. If there is no problem solving, then students' mathematics learning tools become stuck. Because the basis of learning mathematics is solving problems. Solving problems requires not only solving routine mathematical

problems, but also finding ways to solve contextual problems where reasoning is absolutely necessary in life in general.

In connection with contextual problems, this contextual approach to learning is a solution in building the ability to analyze, interpret and find solutions to problems using mathematical symbols and numbers. In mathematics learning schools, teachers must choose and use many strategies such as learning media, one of which is in the form of learning materials in the form of modules that can enable students to actively learn. Teaching materials are very important in learning because they really help teachers in conveying the intent of the learning material to their students so that the material is more easily accepted, more interesting and more satisfying for the students.* In order to create learning that is useful and enjoyable for students, facilities are needed and adequate infrastructure in the learning process. However, in the reality of the current teaching process, some teachers only rely on textbooks or textbooks available at school as a guide in teaching. However, at the same time, some shortcomings remain, for example, books only contain information about the subject, so educational aspects such as; Student motivation, goals and roles are often overlooked. Without realizing it, the learning process using the learning books currently used does not encourage students to have a sense of interest. Because, there is a shortage of mathematics package books as teaching materials, namely a lack of supporting materials, such as teaching manuals, problem solving manuals, which can be observed.

This makes students face problems in deepening the teaching material, thus causing students' interest in studying numeracy literacy learning material in mathematics learning is reduced. Based on this, to increase numeracy literacy in a meaningful and enjoyable way, teachers as facilitators should be able to create learning modules as teaching media. Learning modules are tools used for independent learning, because learning modules have study instructions so that students can learn independently without help from the teacher. Learning modules contain material that is structured and created in an interesting way to motivate students' learning. The learning module that researchers believe can help make it easier for students to direct their thoughts and increase student independence in learning, especially in numeracy-based mathematics learning. Learning through modules as teaching materials to support the learning process can foster students' interest in active learning so that they do not always wait for instructions and explanations from the teacher so that the learning process becomes more efficient, effective and meaningful. Learning modules are learning materials that are very important for a better understanding of learning content because the modules are arranged in a structured manner and in language that is easy for students to understand. The module that will be developed by this researcher will attempt to use a contextual-based approach. So that there is involvement between students' real life in their daily lives and the material studied, both in the family, at school and in society, to find meaning in this material for life.

Because teachers are not yet able to differentiate between mathematics and numeracy literacy subjects, they still adapt to the themes studied in mathematics learning, so class teachers only use teaching materials from books available at the school, namely mathematics textbooks. Seeing the problems that have been described, action is needed to support the numeracy literacy movement that is taking place. For example, creating an environment that is conducive to numeracy activities, such as providing quality learning materials in the form of books and learning resources related to numeracy. Therefore, the aim of this research is to develop educational materials in the form of an educational module to improve contextual-based numeracy literacy in mathematics learning. As a solution to overcome this problem, schools need to have teaching materials to overcome current numeracy literacy problems. This

research refers to mathematics subjects. Mathematics lessons usually focus more on mastery skills alone. However, the teaching materials referred to here are not just mathematics materials, but can overcome contextual problems in numeracy literacy. The author will try to develop a contextual-based mathematics learning module to improve numeracy skills, namely as an interesting and fun teaching material for students in accordance with what students need in studying the material in the module to improve the numeracy literacy of students in class V elementary school. The novelty of the module that researchers will develop is a module with contextual depictions to attract students' attention and make it easier for students to understand mathematical concepts. Not only that, the material and practice questions presented are related to daily life and case studies to raise enthusiasm for learning in class V elementary school students.

RESEARCH METHODS

Research methods are the working methods used by the author in carrying out research. The development model that will be planned in this research uses the ADDIE development model from Robert Maribe Brach, which consists of Analysis, Design, Development, Implementation, Evaluation. These steps can be described as follows: Module development steps:

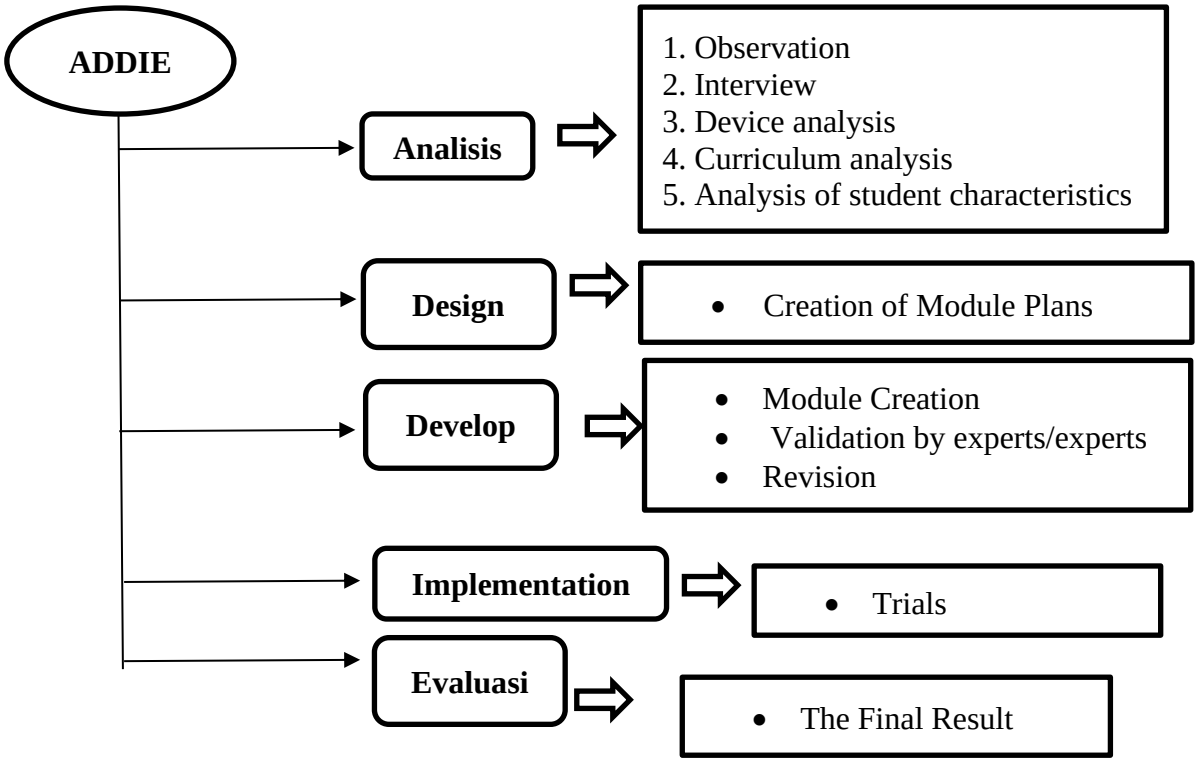

Figure 1. ADDIE Model R&D Procedure

The time and place of this research was carried out in accordance with the procedures carried out at SD N 2 Yehembang Kauh. This research was conducted in the even semester of the 2024 academic year. The trial of this module was carried out by several students in class V at SD N 2 Yehembang Kauh, namely 10 people (small group). In carrying out research (R&D), research uses 2 types of data collected, namely qualitative data and quantitative data. The data collection methods used in the research are observation and interviews (questionnaires). A questionnaire is a data collection technique through distributing questionnaires (list of

questions/filling in) to be filled in directly by respondents as is done in research to collect public opinion. 60 Questionnaires are used during module evaluation and testing. In this research, a questionnaire was given to material experts, media experts and students with the aim of assessing the feasibility of the numeracy literacy module in mathematics learning which will be developed according to their needs analysis.

1. Material Expert Eligibility Test. This questionnaire was created to determine the quality of learning materials from an educational perspective. The aspects reviewed are the suitability of the content, language, presentation and usefulness.
2. Media Qualification Test. Media experts are people who are competent in the field of media and graphics, while media experts in this case are learning media experts. In this media feasibility test, media experts review the quality of the modules created. The aspects reviewed are physical appearance and ease of use.
3. Linguist Qualification Test. This questionnaire was created to determine the quality of language suitability of the module being developed. In this language feasibility test, a linguist reviews the linguistic feasibility of the module being created.
4. Student and Teacher Response Questionnaire. This questionnaire is shown to students and teachers to find out students' perceptions of the modules being developed when applied in learning activities. The aspects assessed are presentation of material, language, appearance and benefits.

The data analysis technique in this research uses quantitative and qualitative descriptive analysis techniques. Quantitative data analysis is the result of data from the development of contextual-based mathematics learning modules to improve students' numeracy literacy, while qualitative data analysis is data sourced from input from validators at the validation stage.

Expert Validation Data Analysis

Table 1. Assessment Score for Each Answer

Score	Eligibility Answer Choices
4	Very good
3	Good
2	Not so good
1	Very Not Good

Next, the results of the validation analysis of the module are grouped into score interpretation criteria according to the Likert scale, then the feasibility of the module comes to a conclusion, the Likert scale interpretation criteria are as follows:

Table 2. Expert Validation Criteria

Quality Score	Questions Quality Aspects of Attractiveness
$3{,}26 < x \leq 4{,}00$	Very Interesting/Very easy to use
$2{,}51 < x \leq 3{,}26$	Attractive/ Easy to use
$1{,}76 < x \leq 2{,}51$	Quite Interesting/Difficult to Use
$1{,}00 < x \leq 1{,}76$	Less Attractive/ Very difficult to use

From the table above, it can be explained as follows:

1. The qualifications are very suitable for use, so there is no need for revision.
2. Qualifications are suitable for use, so minor improvements need to be made.
3. The qualifications are suitable enough to be used, so a little improvement and review is required repeat material.
4. Qualifications are not suitable for use, so major repairs are required.

Analysis of Product Trial Data

Student response questionnaires were given after a trial using contextual-based mathematics learning modules to improve numeracy literacy for fifth grade students at SD N 2 Yehembang Kauh. After getting the income score results from the student response questionnaire and then grouping them into score interpretation criteria according to the Likert scale, you will get a conclusion regarding the suitability of the media. Below is a form of score according to the Likert scale.

Table 3. Student Response Questionnaire Scores

Criteria	Score
Strongly agree	4
Agree	3
Disagree	2
Strongly Disagree	1

Furthermore, the results of obtaining student response questionnaire scores fall into groups according to the score interpretation criteria based on the Likert scale, so it can be concluded regarding the suitability of the media, the score interpretation criteria according to the Likert scale are as follows:

Table 4. Module Attractiveness Criteria

Quality Score	Questions Quality Aspects of Attractiveness
3,26 < x ≤ 4,00	Very Interesting/Very easy to use
2,51 < x ≤ 3,26	Attractive/ Easy to use
1,76 < x ≤ 2,51	Quite Interesting/Difficult to Use
1,00 < x ≤ 1,76	Less Attractive/ Very difficult to use

RESEARCH RESULTS AND DISCUSSION

This development and research produced a contextual mathematics learning module based on numeracy literacy. The development of this research was carried out at SD N 2 Yehembang Kauh. In accordance with the development and research carried out regarding the module. Researchers took steps to develop ADDIE, researchers here carried out 5 stages, namely as follows:

Analysis Stage (Analyze)

At this stage, to take into consideration in preparing the module, the researcher carried out analysis through several scopes, namely observation, interviews and needs analysis.

1. Observation. At this stage, based on observations made by researchers on March 10 2024, Thursday at 14.30 WIB at SD N 2 Yehembang Kauh regarding the realization of numeracy literacy learning in mathematics subjects at elementary schools involving one of the class V homeroom teachers at SD N 2 Yehembang Kauh, it contains information regarding numeracy literacy learning for students in class V of SD N 2 Yehembang Kauh. The fact is that numeracy literacy learning in mathematics subjects is still not carried out optimally because the numeracy literacy teaching materials used are still mixed with mathematics learning package books from schools, so the homeroom teacher follows the learning through the general instructions in the learning package book.
2. Interview. This interview stage was conducted on March 19 2024 at 16.00 WIB to obtain initial data and obtain valid information as input for research into the development of contextual mathematics learning modules based on numeracy literacy. Based on interview data conducted by researchers at SD N 2 Yehembang Kauh with class V teachers. The reality

that occurs in the field is that there are still students in class V at SD N 2 Yehembang Kauh who have not been able to solve numeracy literacy-based questions. It can also be seen that the implementation of developing numeracy literacy has not been carried out optimally, because teachers have not been able to differentiate teaching materials between mathematics learning and numeracy literacy, but are still adapting to the themes studied in mathematics learning. Apart from that, the availability of teaching materials does not yet accommodate the content, especially numeracy literacy learning, so the homeroom teacher only uses teaching materials from books available at the school, namely mathematics textbooks.

3. Analysis of Learning Tools. At this stage, the researcher conducted interviews in class V of SD N 2 Yehembang Kauh regarding the book teaching tools used in the lesson. numeracy literacy takes place. Researchers found that the numeracy literacy learning process in class V of SD N 2 Yehembang Kauh only used mathematics textbooks provided by the school. This causes students to lack appropriate teaching materials, especially for studying numeracy literacy at school.
4. Analysis of Student Characteristics. At this stage, researchers obtained data that fifth grade students at SD N 2 Yehembang Kauh in the process of teaching and learning activities still tended to be less active and less interested when asked to participate. This is due, one of the reasons, is that the learning guidebook is still combined with mathematics learning, as a result, it does not create a sense of interest and interest in students to learn numeracy literacy more deeply, so we can conclude that learning is not yet optimal.
5. Curriculum Analysis. At this stage, researchers obtained data information through direct observation on July 12 2024 by conducting an interview with one of the class V homeroom teachers at SD N 2 Yehembang Kauh. The results of the interview stated that SD N 2 Yehembang Kauh is currently still using the 2013 Curriculum.
6. Needs Analysis. At this stage the researcher distributed a needs analysis questionnaire to students and teachers in class V of SD N 2 Yehembang Kauh. Researchers collect this information related to numeracy literacy to determine teacher needs and student needs for the learning modules that will be developed. so that we can know which products will be developed according to the needs of teachers and students.

Table 5. Teacher Interview Data Results

No	Informant		
	R&D	1)	Regarding literacy, especially numeracy literacy, we only apply the material in mathematics books.
		2)	At this time, the implementation of numeracy literacy in our school has not yet been implemented to the maximum.
		3)	The current response from students in class V does not seem very interested.
		4)	The current numeracy literacy learning process is by following the instructions in the Mathematics book.
		5)	There are several obstacles experienced in implementing numeracy literacy learning activities, namely because they have not cultivated and also do not have teaching materials specifically for numeracy literacy learning.
		6)	Our numeracy literacy learning implementation process only uses packet math books.
		7)	The number of books that I use as a reference is only one, namely a mathematics textbook.
		8)	Regarding learning models, I use learning models such as assignments and practice.
		9)	The learning approach is often carried out using a scientific approach.
		10)	To apply numeracy literacy learning with everyday life I have done.

		11)	Yes, I use context close to students' daily experiences by connecting mathematical topics to real world situations.
		12)	Currently, there are no supporting facilities for learning numeracy literacy.
		13)	Good teaching materials for numeracy literacy learning should be teaching materials that suit the students' abilities.
		14)	Specializing in making teaching materials related to numeracy literacy has never been done before.
		15)	Strongly agree with the development of teaching materials, especially in the form of numeracy literacy-based learning modules because they can enrich learning models, especially numeracy learning.

Researchers obtained data from an analysis of teacher and student needs that some of the fifth grade students at SD N 2 Yehembang Kauh still do not know what is meant by numeracy literacy, and are still unable to differentiate between learning mathematics and numeracy literacy. Apart from that, there are also no supporting books to improve numeracy literacy at SD N 2 Yehembang Kauh. So some students experience difficulties in learning numeracy literacy. To minimize the problems at SD N 2 Yehembang Kauh, the teaching materials used are sufficient, but there are no other sources of teaching materials to support the existing books and relate them to the daily lives of students as a community in Bali Province. Based on the problems carried out, the researchers obtained a solution to solve the problems that occurred, namely by developing a contextual mathematics learning module based on numeracy literacy. This module can be used as supporting teaching material for existing books.

Table 6. Observation Results of Materials, Teaching Materials, and Learning Objectives

No	Aspect	Realization
1	Formulation of KI and KD	The formulation of KI and KD refers to the 2013 curriculum, where the learning process is student-centered.
2	Material	The development and organization of material is in accordance with KI and KD. However, in determining the learning method there is still one type, namely scientific.
3	Syntax	The steps for learning activities are detailed starting from learning activities, core and final.
4	Material	Teachers have not prepared teaching materials in the form of contextually based modules that are appropriate to the KD, material and level of development of students.
5	Tool materials	There is only one type of learning resource used, namely mathematics textbooks.
6	Learning model	A learning model that uses a scientific approach. In learning planning, the development of numeracy literacy has not been cultivated which should have been fostered from the beginning.

At this stage, the next evaluation will be carried out according to the results of the curriculum analysis, analysis of student characteristics, analysis of learning tools and analysis of student needs. After that, the researchers developed a contextual mathematics learning module based on numeracy literacy with the lesson material Calculating Fractions in accordance with the 2013 curriculum. The learning module aims to overcome problems that occur in class V of SD N 2 Yehembang Kauh so that they are motivated to study numeracy literacy more deeply and not boringly.

Design (Planning)

At this stage the researcher will design teaching materials in the form of learning modules. The preparation of learning modules on Fraction Counting Operations material will be balanced according to the basic competencies of the 2013 curriculum.

Develop Stage (Development)

At this stage, a learning module design is developed which aims to produce a good learning module. The terms of reference have been designed, completed and made into actual learning modules. Here the researcher created a module using the Corel Draw x5 application to facilitate the module creation process. The completed learning module is then printed for consultation and validation by language experts, media experts and material experts to test the suitability of the module.

Implementation (Implementation Stage)

After improvements have been made based on input from the validator, the next step will be to test the module on class V students at SD N 2 Yehembang Kauh, the aim of which is to determine the response of students and teachers to the attractiveness of the module that has been developed. Researchers conducted a trial (small group) in Class V of SD N 2 Yehembang Kauh with 10 students. Before the learning module was distributed to students, the researcher first opened the lesson by saying hello and introducing himself to the students. Next, the researcher distributed the learning module to the students to carry out the learning process activities contained in the module. After the learning process was complete, the researcher gave students a response questionnaire to fill out.

Evaluation

This learning module evaluation stage is carried out to produce good module teaching materials. Modules are tested based on the results of module development according to the validator, and those that have been completed are revised according to suggestions from expert validators. Researchers received responses from students and teachers who said that the module currently being developed was interesting and good, so it can be concluded that this contextual mathematics learning module based on numeracy literacy has been developed and can be used to produce a final product.

Discussion

Development of a contextual mathematics learning module based on numeracy literacy for fifth grade students at SD N 2 Yehembang Kauh. As a result of this research and development, a contextual mathematics learning module product based on numeracy literacy was born. The mathematics learning module was developed using the ADDIE development model. This development module uses 4 stages, namely, first analysis by conducting initial research by collecting information on the module to be developed. The second design is planning the modules that will be developed. The third development is developing the design of the content and appearance of the module as well as carrying out validation by several experts, namely. language experts, material experts and media experts to determine the feasibility of the module being developed. Then revise the module based on the assessments, input and suggestions from experts. Fourth, implementation, namely conducting small-scale module trials to determine the response to the attractiveness of the module being developed. Fifth, evaluation, namely the results of the module developed. This developed module discusses material about fraction calculation operations. In the mathematics learning module developed, there are pictures and illustrations based on students' daily lives. Annette believes that teachers solve problems by carrying out activities for dual purposes. This means that mathematical communication is not only about understanding mathematics, but also about problem solving.

Feasibility of a contextual mathematics learning module based on numeracy literacy for fifth grade students at SD N 2 Yehembang Kauh according to experts. The results of the

assessment by several experts were the first validation by media experts who got a score of 3.30 in the "Very Decent" category, the second validation by language experts got a score of 2.66 in the "Decent" category and the third validation by material experts got a score of 2.88 with "Decent" category It can be concluded by several experts, namely material experts. linguists and media experts who obtained a score of 2.98 which has the criteria "Decent". This is supported by the module content sheet containing Higher Order Thinking Skill (HOTS) questions. The HOTS questions require students to think at a higher level by involving students' reasoning in order to hone students' thinking skills. Based on the EU Skills Panorama, it is stated that numeracy literacy abilities and skills are closely related to the application of basic knowledge, mathematical principles and processes in everyday life. As Quiin said, numeracy skills are used to solve everyday problems.

Student responses to the contextual mathematics learning module based on numeracy literacy for class V students at SD N 2 Yehembang Kauh. The module developed was carried out on a small scale trial on 10 selected students in class V of SD N 2 Yehembang Kauh. After the learning process took place, the researcher gave a sheet of paper in the form of a questionnaire on students' responses to the contextual mathematics learning module based on numeracy literacy and obtained an average score of 3.27 with the criteria "Very Interesting". In the sense that the module developed by the researcher is very interesting and suitable for use by fifth grade SD/MI students as teaching material for teachers and students. Because the module sheets contain daily problems and things they have seen. In line with Jean Piaget's learning theory in his theory Ruseffendi said that the concrete operational stage is a mental action regarding in relation to real life. "In this connection, mathematics learning is not only real objects used in mathematics learning, but learning topics are packaged in concrete events included in real situations of everyday life

CONCLUSION

Development of a contextual mathematics learning module based on numeracy literacy. This research and development produced a contextual mathematics learning module product based on numeracy literacy. The learning module was developed using the ADDIE development model. The module developed in this section discusses material about fraction calculation operations. Module Eligibility According to Experts The results of the evaluation by several experts who first validated the media expert who got a score of 3.30 with the "Very Eligible" category, the two linguists got a score of 2.66 with the "Eligible" category and the three material experts got a score of 2 ,99 with "Eligible" category. Student Responses to the Contextual Mathematics Learning Module Based on Numeracy Literacy. Student responses to the module developed which was carried out on a small scale on 10 selected students in class V of SD N 2 Yehembang Kauh towards the contextual mathematics learning module based on numeracy literacy received an average score of 3 .27 with the criteria "Very Attractive".

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