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DEVELOPMENT OF A MODULE BASED ON A CONTEXTUAL APPROACH TO SCIENCE LESSONS TO IMPROVE STUDENT LEARNING OUTCOMES IN THE HIGHER CLASS

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Abstract

The objectives of this research are: (1) developing a contextual-based science learning module on special characteristics of animals for grade 6 elementary school; (2) produce a contextual-based science learning module on the special characteristics of animals in grade 6 elementary school that is suitable for use. This type of research is research and development or known as research and development (R&D). This research was conducted at SDN 057226 Pondok Mangga school in the odd semester on November 11 2023 in Class IV. Data collection techniques in developing contextual learning materials use interview techniques. This development uses a 4-D model (Thiagarajan) which goes through 4 stages, namely: (1) Definition, (2) Design, (3) Development, (4) Dissemination. Interviews were conducted with class VI teachers, which investigated the use of educational materials used in school education. The method must explain the place and time of the research, type of research, research design, data source (including population if used), sampling technique (if used), data collection instruments and data analysis techniques.

Keywords : Contextual, module development, special characteristics of animals, science learning

Introduction

Learning is the process of student interaction with educators and learning resources in the learning environment. Learning is the assistance provided by educators to enable students to acquire knowledge and skills, master skills, and build attitudes and beliefs. In other words, learning is the process of helping students learn well. According to Degeng (in Parmiti 2014: 5). The aims of education stated in Law No. 20 of 2003 concerning the National Education System state that education in an active and effective learning process is able to develop students' self-potential, so that they have good religious spiritual attitudes, have noble morals, have good intelligence and have skills that can be useful for themselves, society and the nation. In line with this, Pane & Dasopang (2017) stated the importance of components in learning, namely that learning cannot be carried out well without learning components. One of the learning tools (media) that is effectively used in learning is module teaching materials. Modules are an example of teaching materials that can help students learn independently. Rahma (2020) stated that a module is a teaching material written so that students can learn without guidance from a teacher so that it will foster student independence in learning. Swstika (2019) also added that module development can provide opportunities for students to experience their cognitive abilities independently. Not only must different teaching materials be included in module development, but a contextual approach is the best because it is able to motivate students to understand the meaning of the learning material being studied. In science learning in elementary schools, the learning material is sometimes very abstract, making it difficult for students to understand it. The concept of science in SD/MI is always related to the everyday environment. Therefore, there are many phenomena that can be used as a resource for learning science because basically the environment is a laboratory for learning science. Science lesson concepts applied to everyday phenomena can be used as an effective learning

resource because they display concepts in a real way in the environment and differentiate them. According to Zimmerman, contextual learning can facilitate independent learning. This means, 1) Students are assumed to be aware of their potential and successfully utilize it in the self-regulation process to achieve optimal learning outcomes. 2) Students direct the feedback and reflection cycle during the learning process (Komalasari, 2009). According to Gagne and Marzano (Santyasa, 2011), self-regulated learning is based on constructivism. Self-regulated learning can guide student learning, and if the learning environment is organized to encourage independent learning, it can lead to effective and sustainable learning (Kobsiripat, Kidrakarn & Ruangsuwan 2011). All of this leads to improved student learning outcomes.

Teachers must develop teaching materials that can be used in the learning process, this is quite reasonable because, first, the teaching materials that are already available are not sufficient according to the demands of the curriculum, second, the teaching materials that are available are not in accordance with the target characteristics, both physical, social and geographical environment. , culture and student characteristics. Third, there is a demand for solving learning problems (Depdiknas in Astika, 2014). Therefore, educators can create modules tailored to the characteristics of their own students. In addition to the social, cultural, and geographic environment, student characteristics also include their developmental stage, their initial abilities, interests, family background, and other factors. Daryanto (2013:9) explains the characteristics of modules that can increase motivation, namely; 1) self-instruction, meaning producing a module that allows a person to learn independently, 2) self-contained, meaning all the required learning material is contained in the module, 3) stand alone, meaning the module developed does not depend on other media or does not have to be used together. -the same as other learning media, 4) adaptive, meaning the module should have high adaptive capacity towards developments in science and technology, and 5) user friendly, meaning the module should be friendly to the user. As a result of interviews conducted by researchers with class VI teachers at SD Negeri 057226 Pondok Mangga, Sri Wulandari, researchers found information that there were no modules used as teaching materials because the school only used the 2013 curriculum thematic package books for educators and students as guides. Learning Resources. This means that so far educators have mostly used student packet books to convey material to their students, while the material in the 2013 curriculum student packet books is very concise, so educators have to look for more comprehensive material outside of the packet books. Modules also provide many benefits such as feedback (Nasution, 2017). Students who use this module will receive feedback by knowing the level of their learning. In primary school IPA learning, the teaching materials tend to include learning activities related to life in the environment. Efforts are needed to improve the understanding of science learning, a learning approach is needed, one of which is a contextual approach. It is hoped that the research titled "module development based on a contextual approach to IPA lessons to improve students' learning outcomes in higher classes" can improve a variety of innovative learning activities to achieve learning goals and encourage students to understand the subject matter easily.

Research Methodology

Place and Time of Research

This research was conducted at SDN 057226 Pondok Mangga school in the odd semester on November 11 2023 in Class IV

Type of Research

According to Sugiono, researchers use research and development methods , known as research and development (R&D), to create certain products and test their effectiveness. Researchers developed contextual-based module learning materials for the science subject Special characteristics of animals in class VI elementary school to improve student learning outcomes.

Product Development steps

The research and development (R&D) steps used in this research adapted Thiagarajan's work methods and learning material development. This research and development planning is research that develops products so that students can learn to understand them better. According to its use in research and development In this research, researchers used the 4-D (Four D) device development research method. This model was developed by Sivasailam Thiagarajan, Dorothy S. Semmel and Melyn I Semmel. This 4-D model was chosen to be developed because it is the recommended model for developing teaching aids. The feasibility of the product being developed is then tested through product qualification and trials. 4-D model development consists of four stages: Define, Design, Develop, and Disseminate. Here are some steps:

1. Define stage. There are four main stages in the Define stage, namely preliminary analysis, concept analysis, task analysis, and formulation of learning objectives. The aim of this stage is to determine and define the needs for developing contextual learning-based module learning materials with the theme Always Save Energy.
    a) Front-End Analysis (Front-End Analysis) Front-end analysis is carried out by interviewing teachers to raise and explain the main learning problems. Based on the results of the researcher's interview, it is known that there are no modules that can be used as teaching materials, because the school only uses these teaching materials as textbooks for the 2013 curriculum subjects for teachers and students. This means that until now teachers have only used student textbooks to convey material to students, whereas the material in the 2013 curriculum student textbooks is very dense so teachers have to look for various additional materials related to the material presented in the student textbook learning materials. This shows that students need additional cues from the teacher to make it easier for students to absorb the material presented. Based on this analysis, researchers developed contextual-based module learning materials in accordance with the indicators and learning objectives of class VI students.
    b) Concept analysis (concept analysis) Concept analysis has been proven to identify, determine and systematically organize relevant concepts. This analysis is the basis for preparing learning objectives. This analysis is based on basic knowledge and basic competencies about the characteristics of living things
    c) Formulation of learning objectives (Definition of learning objectives) The formulation of learning objectives is based on the results of concept analysis and task analysis to determine the behavior of the research object. To determine what research will be presented in the module teaching materials, the researcher formulates learning objectives, sets a grid of questions and determines the extent to which these objectives have been achieved.
2. Planning Stage (design) The purpose of this planning stage is to prepare learning materials in contextual-based modules about the characteristics of living things. This plan includes:
    a) Preparation of comparative reference tests (creation of criteria reference tests) Designing comparative reference tests is the first step that connects the definition stage (Define) with the planning stage (Design).
    b) Media selection (Media selection) The purpose of media selection is to identify learning environments that are relevant in terms of material characteristics and in accordance with student needs. Media are selected to match student analysis, concept analysis, and task analysis. This is useful for helping students achieve the expected basic skills.
    c) Format selection: By selecting the format that will be developed, the learning content, learning materials, organization and design of the content of the module learning materials as well as the module design which includes layout, drawings and writing are planned.
    d) Initial design (Initial design) Based on the results of the analysis, a preliminary project is obtained. The original design in question is an interactive multimedia design before testing.
3. Development Stage The aim of the development stage is to produce educational material in context-based modules about the characteristics of living things. At this stage the researcher also carried out feasibility/validation tests on the module learning material products developed for validators with three expert validators, namely language experts, material experts and media experts. After obtaining expert approval, the next step is to make improvements based on input and suggestions from experts.
    a) Feasibility Test/Validation. The feasibility or validation test functions to determine whether a media is valid or not according to certain criteria. This is done by testing the feasibility of the product design by experts (media and material experts) and accepting suggestions and criticism for checking references. The results of this validation will be used as material for improvements to perfect the interactive multimedia being developed.
    b) Review The validation data is then analyzed for review. The updated product is the result of development and polishing based on validation results from experts (linguist experts, media experts and material experts), which are then tested on students.
    c) Product testing Finished products are made based on advice from experts and education experts and then tested on students in educational activities at school. By conducting experiments, you can find out whether the contextual learning material in the module is interesting or not. In this research, researchers used two methods, namely small group experiments and large group experiments as

follows: (1) Tests in small groups. This step is carried out with the aim of finding out students' answers and providing an assessment of the quality of the development product. The experiment was carried out with 5 students representing the target group. Experiments were carried out to determine students' reactions to the products being developed so that they could evaluate the products being developed (2) Tests in large groups. Media developed or created at this stage will definitely be close to perfect after passing the first stage. In large group experiments, the number of students who have different characteristics is greater according to the characteristics of the target population (3) Product revision If based on product testing it is known from the answers of teachers and students that contextual learning material about the characteristics of living things is more interesting and more useful for learning, then it can be said that the learning module material developed has been completed, in this case the result is the final product. However, if you have not achieved a perfect score, the development of this module requires correction and refinement so that it is suitable for use in schools (4) Learning media (modules) After the product is declared valid, the learning media is ready to be used in learning in the form of contextual-based module learning materials.

4. Disseminate Stage After testing and revision, the next stage is dissemination of the results of developing contextual-based module learning materials. In this step, the product is distributed online by uploading the application in .pdf format to the Academia.edu account created by the researcher. The steps for developing a 4-D model are as follows:
   a) Data Collection Techniques
      Data collection techniques in developing contextual learning materials use interview techniques.
      1. Interview
         Interviews were conducted with class VI teachers, which investigated the use of educational materials used in school education. The method must explain the place and time of the research, type of research, research design, data source (including population if used), sampling technique (if used), data collection instruments and data analysis techniques. The description of the research method is written in detail and clearly in paragraph form.

Result & Discussion

This research and development was carried out at SD Negeri 057226 Pondok Mangga School on 11/11/2023 to see the results of the feasibility and attractiveness of contextual modules that underwent expert and practitioner training stages. This development uses a 4-D model (Thiagarajan) which goes through 4 stages, namely: (1) Definition, (2) Design, (3) Development, (4) Dissemination. The following is a detailed explanation of each step:

1. Definition (Define)
   In this step the researcher completes the definition or identification step what is needed, concepts, assessments, learning specifications will be applied later in the module, how to analyze as follows:
   a. Initial Final Analysis (Front-End Analysis)
      At this stage the aim is to find out the most important problems in the learning process, to find out existing learning materials that need to be developed. Analysis was carried out at the pre-research stage by conducting interviews with class VI teachers at SD Negeri 057226 Pondok Mangga. Based on interviews with trainers, it is known that the trainers do not use educational materials in the form of contextual-based thematic modules in their teaching activities.
   b. Learner Analysis
      At this stage, information was obtained that the learning materials used by students were still less interesting. However, initial analysis of teachers in this research are developing learning materials as new modules that schools need as additional references in learning activities and to help students improve their knowledge.
   c. Concept Analysis
      At this stage the task is to conduct interviews with teachers to identify the main concepts that will be taught and study in detail the concepts that will be taught. At this stage the main parts are designed and arranged sequentially and according to core competencies (KI) and basic competencies (KD).
   d. Formulation of Learning Objectives
      At this stage the aim is to combine the results of the previous stages then determine the research objectives.

The research objectives become the basis for the formulation and design of the products to be developed. From concept analysis obtained learning objectives that can be achieved in science learning materials in the form of

contextual learning modules.

2. Design Stage (Design)

At the definition stage, after definition, the researcher completed the design stage with the following results:

a. Module framework creation

The module framework includes the preparation of learning materials, namely:

1) Opening part

This section consists of the front cover of the module, foreword, core competencies, basic competencies, indicators and learning objectives.

2) Module content section

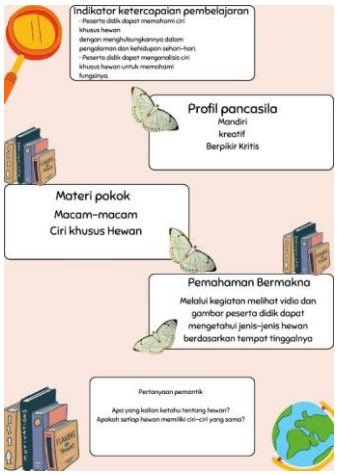
This section is full of material about the special characteristics of living things. This module contains learning materials and experimental tasks as well as student proficiency tests.

3) Development Stage (Development)

The development stages carried out by researchers at the development stage are as follows:

a. Module Creation

At this stage the researcher created a module that he developed himself based on the results of research conducted at SD Negri 057226 Pondok Mangga, starting with designing the material using a contextual approach. The parts in making this module can be explained as follows:



Assessment Instruments

A. Attitude Assessment

NO	STUDENT'S NAME	CHANGE IN BEHAVIOR												PROCESSED SCORES
		POOR				DISCIPLINE				RESPONSIBILITY				
		4	3	2	1	4	3	2	1	4	3	2	1	
1														
2														
3														
4														

MAXIMUM SCORE: 12

SCORE VALUE: Total Score Obtained

_____X 100

Maximum Score

VALUE SCORE:

4 (Very Good)	3 (Good)	**2 (** Good Enough **)**	1 (Need Assistance)
86-100	**71-85**	**61-70**	**60**

INFORMATION:

4 = If Four Indicators Are Visible
3 = If Three Indicators Are Visible
2 = If Two Indicators Are Visible
1 = If Indicator is Visible

ASSESSMENT INDICATORS

NO	ATTITUDE	ATTITUDE ASSESSMENT INDICATORS
1	Poor	a. Interact with friends in a friendly manner b. Communicate using soft, non-offensive language c. Behave politely d. Say hello to the teacher
2	Discipline	a. Doing tasks on time b. Do the assignment well according to the teacher's instructions c. Don't make things noisy d. Don't be late for school
3	Responsibility	a. Carry out picket duties b. Active in discussion activities c. Tidy up study tools after use d. Carry out tasks with your own abilities

Conclusion

Based on the results of research and discussion, development of science modules This contextual based uses types R&D research (research and development) using models 4D development, namely: (1) Define, (2) Design, (3) Develop (development), (4) Disseminate (Dissemination) has met the feasibility criteria with validity and is very practical. So that students are able to learn well and student learning outcomes increase slightly compared to before.

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