Analysis of Additional Teaching Materials for 8th Grade Junior High School

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Abstract
This study aims to examine the need for additional teaching materials for science learning among students at MTs Negeri 2 Ngawi. This study uses a research and development method known as Research and Development (4D). This research development model was adapted from the development of 4D-Models (define, design, development, and dissemination). The subjects in this study were class VIII students of MTs Negeri 2 Ngawi. Observations on science learning, interviews with teachers and students, and the distribution of questionnaires on the need for additional teaching materials indicate that in addition to the textbooks already owned by students, additional teaching materials are also needed according to the characteristics of students. The textbooks owned by students also have several shortcomings, ranging from the limited material presented and the lack of experimental exercises. This research was conducted to explore the analysis of student needs and classroom conditions to find solutions for the development of teaching materials to be used. The results of this study can be concluded that students need teaching materials that allow them to conduct direct experiments to receive the material effectively.

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INTRODUCTION

The use of appropriate teaching materials is very important in the learning process. According to Lestari (2013), "teaching materials are equipment that is arranged systematically and attractively to find certain learning objectives, including learning materials, boundaries, evaluation methods, and methods used". Furthermore, according to Pentury (2017), "teaching materials are all printed and non-printed items needed by students to complete learning activities to achieve certain goals, which in practice are provided by the teacher". For learning to be maximized, teachers need teaching materials that are by the characteristics of students and the current curriculum. Teaching materials play an important role in helping students achieve learning objectives and competencies. Andi Prastowo in (Ulin Nuha, et al: 2012) said that "teaching materials are a collection of learning tools containing knowledge derived from basic competencies and contained in the curriculum and arranged systematically and used by students to learn". Another role of teaching materials is to provide facilities during learning, both regarding their substance and presentation (Khaerudin Kurniawan: 2005). Teaching materials also provide information or a relatively

operational description for the management of the learning process (Mohammad Harijanto: 2007).

Muslaini et al. (2018) found that "teaching materials can provide student-centered learning concepts and are more effective in supporting classroom learning". Student learning outcomes will also increase when using teaching materials that suit student needs. If the teaching materials match the characteristics of the students, the students will be more enthusiastic and motivated. Thus, teachers must consider seriously preparing teaching materials. Teachers must understand the needs of students so that the material can be delivered per the educational curriculum.

In the learning process of Natural Sciences at MTs Negeri 2 Ngawi which was carried out on November 24, 2021, several problems were found, including (1) the use of textbooks as learning resources based on the analysis of the books that still provided general explanations of the material and did not provide learning activities. actively; (2) The use of the learning model still leads to teacher-centeredness as evidenced in every meeting the teacher gives a lecture which causes the learning to be passive and not to the 2013 curriculum; (3) Low skills in research, assignment assignments, and questions in the textbook only emphasize the cognitive aspect, as well as the lack of students' abilities during practical activities so that in evaluating the learning of class VIII B students at MTs Negeri 2 Ngawi in the odd semester of 2021/ 2022 out of 28 students only 6 students have reached the KKM and 22 students have not reached the KKM so that students can understand the learning material presented, the teacher must prepare teaching materials that are following the needs of students.

The use of additional teaching materials will greatly affect the learning objectives than just using textbooks. Additional teaching materials used can be in the form of textbooks, modules, handouts, and others and are of course adapted to the needs of students and the learning environment. Teachers play an important role in determining teaching materials that suit the needs of students. This is supported by Indrani, et al (2017) who say a teacher must be able to compile teaching materials that suit the needs of students and the class. When compiling the material itself, the teacher will be freer to modify the material according to the needs of his students. So that science learning can run well and as it should, this research was conducted to improve the quality of teaching materials needed by class VIII students of MTs Negeri 2 Ngawi to overcome problems that arise in the learning process. In addition, this needs analysis also helps teachers identify the need for additional teaching materials to help students better understand the material being studied or presented.

METHODS

The research used here is a Research and Development (RnD) type and adapts from the 4-D Model (define, design, development, and dissemination) developed by an Invalid source specified. The define stage is carried out to collect various information related to the research to be carried out. developed includes several steps including (1) preliminary analysis to seek and collect information and study the problems faced by teachers in the field; (2) Student analysis is carried out to collect data through observation or interviews which will be used as a reference in determining the appropriate approach method with students' difficulties; (3) Analysis of teaching materials which aims to thoroughly examine what teaching materials are used by teachers during learning and the relevance of teaching materials whether they are per the needs of students. The design stage aims to plan the initial product, including the selection of relevant learning media suitable for the material and the form of presentation that is adapted to the learning materials developed based on the data

obtained in the defined stage. The development stage is the stage to produce product development which is carried out through two steps, namely: (1) Expert appraisal followed by revision; (2) Developmental testing is conducted to determine the effectiveness of the developed product. And the dissemination stage is the final step in development research which aims to disseminate product development.

Research Subjects

The main component of a study is the research subject. The research subject is the place where the data is obtained which is then used as a research variable (Arikunto, 2010). The subjects in this study were 28 students of class VIII B, consisting of 13 male students and 15 female students, as well as a science teacher for class VIII MTs Negeri 2 Ngawi.

Instruments

The instruments used to collect data are needs analysis questionnaires and interview guidelines. The following is a grid of interview guidelines and instruments used:

Table 1. Interview Guidelines

No	Aspect	Indicators
1	Science Learning	Application of
		Problems that occur
		Evaluation system
2	Teaching Materials	Types of teaching materials
		Availability of teaching materials
		Problems in use
		Teachers' efforts to meet teaching materials

The interview guide above is further used to develop interview instruments for teachers to determine the need for teaching materials and how to learn science in the classroom. Meanwhile, for class VIII students, an analytical questionnaire was used based on the following grid.

Table 2. Needs Analysis Questionnaire Grid

No	Indicator
1	Use of student books
2	Availability of companion books
3	Need for additional teaching materials
4	Level of student understanding of science lessons
5	Student interest in additional teaching materials

The grid is then used as a guide for preparing student needs questionnaires. The questions in the needs analysis questionnaire consist of 5 questions according to the grid that has been prepared, namely: (1) Do you have difficulty using the books available for self-study at home?; (2) Do you use other books when studying?; (3) In your opinion, do you need books/additional other teaching materials to make it easier to understand the material?; (4) Do you think learning science is fun and easy to understand?; (5) Would you be interested if you were given another study book?

Research Procedure

The results that will be used as data in this study refer to the results of interviews with teachers and the results of needs analysis questionnaires on students. The science subject teacher of class VIII MTs Negeri 2 Ngawi will be interviewed about the use of teaching materials and how the learning system in the classroom and the need for teaching materials that suit students. While the needs analysis questionnaire for students will be given to class

VIII B students of MTs Negeri 2 Ngawi, totaling 28 students. Students will fill out a questionnaire with 2 answer choices, namely 'yes' or 'no', students will fill in according to their respective opinions without coercion from anyone. Through the answers to the questionnaire, conclusions will be drawn about whether students need additional teaching materials or not.

Data Analysis

Analysis of the student needs questionnaire using the Guttman scale. In the Guttman scale, the score obtained is rated 1 for the 'yes' answer and a score of 0 for the 'no' answer (Widiyoko, 2012). The technique used to analyze the needs questionnaire is a percentage based on the Guttman scale. The percentage for each possible answer is obtained by dividing the frequency obtained by the number of samples and then multiplying by 100 (Munggaran, 2012). The percentages obtained are explained as follows:

Percentage (in %)	Category
0 – 1	None
2 – 25	Somewhat
26 – 49	Less than half
50	Half
51 – 75	More than half
76 – 99	Most
100	Fully

Source: Munggaran (2012)

If the percentage shows results more than or equal to 50%, it can be concluded that students need additional teaching materials to support learning.

RESULTS AND DISCUSSION

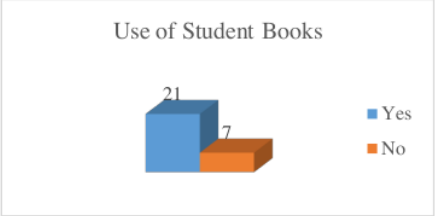
Based on the research that has been done, it is found that teachers need additional teaching materials besides the textbooks that students already have. This was conveyed by a grade VIII science teacher at MTs Negeri 2 Ngawi who stated that: (1) the textbooks used by students were school investments; (2) the books used are good enough and suitable for use during learning, but the material presented is only general and less widespread; (3) the experiments presented in the textbook are very few and do not even exist in one chapter, where experiments are very much needed in science learning; (4) if you have to compile teaching materials, the teacher still has difficulty in making them because of the limited time they have; (5) additional material provided by the teacher at the time of learning is usually obtained from the internet.

According to the explanation above, it is known that the textbooks owned by students have several shortcomings, starting from the lack of material presented and limited experiments to train students' understanding. Teachers should look for other references to provide more knowledge to students, but time is limited. Through this research, researchers hope to help teachers find optimal teaching materials for students. For learning to be meaningful for students, teaching materials must be adapted to the needs of students and the applicable curriculum (Ningrum & Suparman, 2018).

In addition to interviews, an analysis was also conducted using a questionnaire on the need for additional teaching materials given to class VIII B MTs Negeri 2 Ngawi with a total of 28 students. The research questionnaire contains 5 questions, each of which has a 'yes' or 'no' answer choice. The results of the needs questionnaire analysis are shown as follows.

Use of Student Books

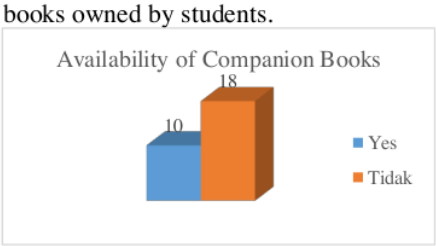
The books that are usually used during learning are student package books that have been provided by the school. The analysis was carried out to find out whether students had difficulty in using the student books used. The following is data related to the use of student books.



Based on the data obtained, it was found that 21 students had difficulty using student books independently. If it is converted into a percentage according to Munggaran (2012), it shows a percentage of 75% for the difficulty of using student books. And if translated according to Munggaran (2012), the percentage shows that more than half of students have difficulty using student books when studying on their own. Therefore, additional teaching materials are still needed to make it easier for students to understand learning.

Availability of Companion Books

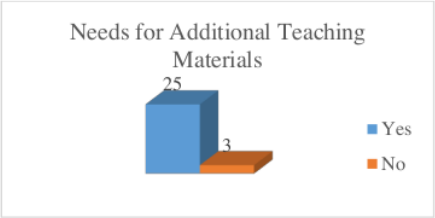
Companion books are used to support the main books provided by the school. But not all schools facilitate companion books. Both teachers and students have to search privately if they want additional companion books. The accompanying book obtained is also uncertain according to the needs and characteristics of students. The following is the availability of companion books owned by students.



The data shows that 10 students have a companion book while 18 students do not have a companion book. If it is converted into a percentage according to Munggaran (2012), it shows a percentage of 36% which indicates that less than half of students have companion books. This makes it difficult for students to learn independently.

Needs for Additional Teaching Materials

Additional teaching materials can be in the form of textbooks, modules, handouts, and others and are of course adapted to the needs of students and the learning environment. Kristiyaningsih (2015) said that learning in schools can be carried out optimally if the learning resources and facilities used are under the needs of students. The main books provided by the school are only student books, there are no other additional teaching materials that make it difficult for students to broaden their knowledge. The following is data related to student needs for additional teaching materials.



The data in the diagram shows that 25 students need additional teaching materials. If it is converted into a percentage, according to Munggaran (2012), it is 90%, which means that most students need additional teaching materials in addition to the student's main book that has been provided by the school. Mohammad (Yuliarti, 2016) explains that textbooks are divided into two, namely the main book and companion books or additional teaching materials. The main book is the main book that is used during learning every day. While companion books or additional teaching materials serve to support the main book used (Andi, 2011).

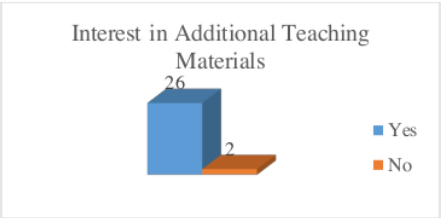
The Level of Understanding of Science Lessons

Science is related to how to find out about nature systematically, so science is not only the mastery of a collection of knowledge in the form of facts, concepts, and principles but is also a process of discovery (Astuti, 2020). The following is data related to the level of students' understanding of science lessons.

The data obtained shows that only 7 students find it difficult to understand science lessons. If it is converted into a percentage according to Munggaran (2012), it is 25% which shows that only a small number of students have difficulty understanding science lessons.

Interest in Additional Teaching Materials

The existence of additional teaching materials can help students to maximize their learning process. The level of student understanding will also increase when they do not only use one learning resource. In the following, data on student interest in additional teaching materials are presented.



26 students agree when given additional teaching materials. If converted into percentage form according to Munggaran (2012) as many as 93% stated that most students were interested in teaching materials provided other than the student's main book. According to students, the existence of additional teaching materials can complement the material and also train

students' abilities and be used as training material if they feel left out of the material at school.

CONCLUSION

Based on the needs analysis conducted on teachers and students as well as observations of the science learning process at MTs Negeri 2 Ngawi regarding the development of teaching materials, it can be concluded that the demand for additional teaching materials is very high, as evidenced by the lack of content in the available textbooks. This shows that students need more specific science information. The development of teaching materials will also include experiments in each field of study to improve investigation, data collection, and processing skills. In addition, the developed teaching materials can support student activities during the learning process.

SUGGESTION

From the research that has been done, suggestions that can be given include: (1) Teachers should use teaching materials that are under the characteristics of students and the current curriculum; (2) For schools, it is recommended to provide teaching materials as well as facilities and infrastructure that can improve students' ability to explore more knowledge; (3) To students, it is recommended to be more active and enthusiastic in participating in learning so that learning is more meaningful.

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