The Development of Thematic Teaching Materials Based on Local History Using Scientific Learning in Grade Four at Percobaan State Primary School Medan

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Abstract

This research initiates from the problem of learning outcomes and student interest in learning is still low. Thus, it triggers to conduct this research which aims to: (1) determine the effectiveness of using thematic teaching materials based on local history using developed scientific learning that can increase student positive responses and (2) Determine the effectiveness of using thematic teaching materials based on local history using scientific learning that is developed to improve student learning outcomes. It is a development research. The subjects in this study are 30 students in grade IV1 and IV2 at Percobaan state primary school Medan and the object in this study is a learning device in the form of local history-based teaching materials using scientific learning. The data collection instruments used consisted of test results and student interest in learning questionnaires. The results show that: (1) the student's response to the components and learning activities using learning tools oriented to the scientific learning model. They have reached the specified criteria, namely the response using learning tools is positive and (2) the effectiveness of the learning tools developed using the learning model, it can be seen that the obtained score is 86.67\% viewed from the minimum moderate learning outcomes. It has exceeded the predetermined tolerance limit, which is at least 85\% in moderate criteria.

I. Introduction

Learning is an effort to acquire competency knowledge, skills and attitudes needed to do a job. In order to realize the learning process and the atmosphere of student learning to actively develop their potential, the teacher plays an important role, as an effort to shape the character of the nation and develop the potential of students in the framework of educational development in Indonesia.

In the 2013 Curriculum, learning is carried out with an integrative thematic model and a scientific approach. Minister of Education and Culture Number 67 of 2013, it states that thematic learning is basically a model of an integrated curriculum using themes to link several subjects so that it can provide meaningful experiences to students. Integrative thematic learning is an approach used in the learning process that integrates several competencies and subjects into various themes. Students no longer learn the theme of heroism separately, but all subjects merge into one unified whole in a particular theme.

The scientific approach according to the regulation of minister of education and culture (2013: 233) learning includes several scientific activities, namely observing,
asking, reasoning, trying, processing, presenting, concluding, communicating. The positive side of a scientific approach is to encourage students to learn more actively on an activity basis. Through activities scientific students are able to develop aspects of attitude, knowledge and skills. In line with the aspects of attitudes, knowledge and skills, the competence to be assessed and measured is an authentic assessment. When students do scientific activities, their character will be formed. A scientific attitude is needed in a scientific approach that is contained in the activities carried out by students. Students are asked to have a scientific attitude, including being conscientious, caring, cooperating, honest, and responsible.

A teacher who prioritizes professionalism in carrying out tasks is sometimes faced with a dilemma to design appropriate teaching materials to be delivered in each learning process. This comes to the point of using books that have been determined by the school which has been approved by the local city education office. It provides opportunities for teachers to study and examine the contents of the book or worksheets according to school needs based on the curriculum and syllabus. Teachers are required to adjust the teaching materials in the book with the material that will be taught at each grade level being taught. It indirectly develops the professional aspects of teachers and pedagogical aspects.

Based on the results of observations by the writer in the learning process, they have used textbooks that are recommended for students, but no teaching materials have been developed that are used for learning adapted to local historical knowledge in the area where the researcher teaches. There are several textbooks, but most of them are old publications using KTSP Curriculum. There are not enough textbooks available for use by a number of students in one class consisting of 30 students.

There are no special library officers available to carry out library administration and management. There are two class IV teachers who teach in class IVA and class IVB. There are 30 students studying in grades IVA and IVB. Based on the teacher's information, grade IV students have average abilities is currently receiving lessons. The teacher agrees if it is necessary to develop teaching materials such as thematic teaching materials based on local history using scientific learning to teach the concept of my hero theme.

The problems with the textbooks used and the student learning outcomes above are quite concerning. It is due to the learning used by the teacher never pays attention to the content or contents of the books that are delivered to students, as a result students experience difficulties and are not interested in learning. For example, there are still many contents in student handbooks. The material is not in accordance with local history or wisdom. The content displayed in the book is mostly about the potential of other regions such as Java Island.

As teachers, researchers feel that knowledge about the potential of the North Sumatra region such as natural resource potential, tourism potential, history and figures that can inspire our young generation. It can be used as role models. The limited thematic teaching materials are in the market and bookstores, especially those based on local history. It triggers researchers to develop this teaching material.

Introducing this local history is not only related to the stories of warriors and characters but also the background of the incident. This is the main study such as the struggle for power, the struggle for agricultural areas, trade and mining areas that have occurred in the area closest to the student’s residence environment. Introducing the triumph of the past kingdom and the form of its legacy and its impact on the lives of the people who live in the surroundings area.
Based on the above data, it is known that the learning outcomes of students at Percobaan Public Elementary School Medan can be categorized as low. The low learning outcomes of the students can be influenced by several problems faced by each teacher in grade IV. There is a relationship with the absence of development of textbooks that adopt an integrative thematic concept. Therefore, it triggers to develop teaching materials in the form of thematic teaching materials based on local history using scientific learning on the theme of my heroes.

This teaching material is expected to be developed in accordance with the needs and demands of the current curriculum, namely the 2013 Curriculum (K 13). Teaching materials that are able to develop the creativity of teachers and students, where all the potential of the local area can be developed into various Basic Competencies such as Social Sciences, Civics, Science and Indonesian Language. It can also be developed for Basic Competencies in Indonesian Language, and Social Studies. It has been the case for researchers who have applied it in the fourth grade of Percobaan public primary school Medan. It turns out that using the teaching materials that are around students is more useful and meaningful. It will be even better if this teaching material is developed in the form of a written work and in the form of a textbook.

To be able to fulfill all of this, one part of the learning tools that are important for the teacher to prepare is appropriate. Interesting and appropriate teaching materials is in accordance with the demands of the basic competencies to be achieved. Teaching materials can be easily mastered by teachers to be presented to students and students can easily accept and be challenged to learn it. In addition to the proper learning carried out by the teacher in the classroom, another thing that is considered equally important is the positive attitude of students towards learning the theme of my heroes which can lead to interest in learning. Hence, students learning outcome will also increase. Teachers need to foster student interest in learning to grow and develop, especially with an emphasis on student interest in learning that grows from within students. Student interest in learning will increase if student awareness of the importance of subject matter delivered by the teacher. Besides the awareness, it is also a clear purpose of the material presented by the teacher to make students understand which direction they want to be taken, it is possible that student interest in learning will increase.

Teacher as an evaluator has a role to increase interest in learning which in turn will improve student learning outcomes. Slameto (2013: 57) states that interest has a big influence on learning. Learning material being studied is not in accordance with student interests. Students will not learn if it has no attraction for them. If there are students who are less interested in lessons, the teacher must be able to make students have an interest in learning. To foster student interest, one of the efforts that can be done is by explaining things that are interesting and useful for life as well as something related to learning material. The learning carried out by the teacher must also adjust to the talents and abilities of students to be able to follow the learning carried out by the teacher. Local history is a very important factor for the cognitive development of students and it can affect student learning outcomes including material on the theme of my heroes.

Based on the description above, if learning is applied using scientific learning, it will be able to improve student learning outcomes, as well as student interest in learning. Therefore, it is hoped that early learning can be carried out by the teacher that can improve these abilities by implementing learning using scientific learning. It triggers to conduct research on the development of thematic teaching materials based on local history using scientific learning to improve students’ learning outcomes.
II. Review of Literatures

2.1. Teaching Material

Teaching material contains facts, concepts, principles and procedures that are relevant and are written in the form of items in accordance with the formulation of indicators and competency attainments. According to the Ministry of National Education (2008: 6) teaching material is all forms of material used to assist teachers in carrying out teaching and learning activities. The material in question can be written or unwritten material. Prastowo (2012: 17) elaborates teaching material is all materials (information, tools, and texts) that are arranged systematically. It displays a complete figure of competencies that will be mastered by students and used in the learning process with the aim of planning and studying the implementation of learning.

Munadi (2012: 30) teaching material has an important role in learning including integrated learning. Therefore integrated learning is basically a combination of various disciplines that include natural sciences so that learning requires more complete and comprehensive than with monolithic learning. Majid (2008: 173) explains that teaching material is anything that is used to assist teachers in carrying out teaching and learning activities. It can be written or unwritten materials. Teaching material is specific objects used in teaching and learning activities that affects student learning.

Based on some of the expert opinions above, it can be concluded that teaching materials are all forms of material used to assist teachers in carrying out teaching and learning activities, the material in question can be written or unwritten material used in a lesson that affects student learning so that teaching objectives can be achieved.

2.2. The Nature of Interest in Learning

Learning in general means a change in behavior due to individual interactions with the environment. To be able to learn well, interest is needed that can spur individuals to learn. Interest is a constant tendency to pay attention to and enjoy some activities or things. Slameto (2013) explains that interest is a feeling of preference and interest in something or activity, without someone ordered. Muhibbin (2003) defines that interest is a tendency and high enthusiasm or a great desire for something. Interest in learning makes students want to learn. Zaini (2008: 84) says that interest has a big influence on learning. If the learning material is not in accordance with student interests, students will not learn because there is no attraction for them. Interest in learning will prevent boredom in studying. Hence, students can continue to pay attention to the teacher's explanation and even actively study at home.

Suryosubroto (2010) explains that interest is used by people in order to affect the quality of student learning outcomes achievement in certain themes. The intense concentration of attention to the material allows the student to study harder and finally achieve the desired achievement. Therefore, it is important for teachers to build interest in student learning continuously. In relation to student interest, the indicator is a monitoring tool that can lead to interest. There are several indicators of students who have a high interest in learning. This can be identified through the learning process, namely feelings of pleasure, attention in learning, interesting learning materials and teacher attitudes, and the benefits and functions of subjects (Department of Education and Culture, 2008).

Based on above theories, it can be concluded that interest is an activity so that individuals focus on a certain object or activity, not only providing satisfaction, but also providing a condition that generates and excites. It can get rid of other activities that are incompatible with the object being focus of individual attention. Interest is used in order to
affect the quality of student achievement in learning outcomes in the theme of my heroes. Indicators are monitoring tools that can provide instructions and information. In relation to student interests, indicators are monitoring tools that can lead to interest. To measure students' interest in learning, it involves interest in reading books, attention in learning, student activeness in learning, and knowledge.

2.3. Learning Outcomes

Learning outcome is change in behavior compared to before after experiencing learning. As a result of learning activities, students have mastery of the teaching material delivered in teaching and learning activities (Mulyasa, 2007: 134). Improving student learning outcomes is an important thing that must be considered by teachers so that every lesson delivered is useful. Sudjana (2009: 3) elaborates that learning outcome is change in student behavior. Benyamin Bloom (Purwanto, 2007: 48) divides three domains of learning outcomes, namely the cognitive, affective, and psychomotor domains. The cognitive domain is concerned with intellectual learning outcomes which consist of six aspects, namely knowledge or memory, understanding, application, analysis, synthesis, and evaluation. The first two aspects are called low level cognitive and the next two aspects include high level cognitive. The affective domain with respect to attitudes consists of five aspects, namely acceptance, answers or reactions, assessment, organization, and internalization. The psychomotor domain is concerned with the learning outcomes of skill and action. These three domains are the object of assessment of learning outcomes. Among the three domains, it is the cognitive domain that is most assessed by teachers in schools because it is related to the ability of students to master the content of teaching materials included in research. Learning outcomes are a form of achievement students as well as a symbol of the success of educators in learning students (Yusuf in Sitorus (2019). Learning outcomes can be explained by understanding the two words that make up it, namely "results" and "learning". (Utomo, 2020). The level of learning outcomes obtained by students is influenced by the ability of teachers to manage learning evenly according to the educational background of the teacher. (Simanjuntak, 2020).

Based on the above theories, it is concluded that learning outcomes are abilities possessed by students and are characterized by the development and behavior changes in students that are required from studying for a certain time. These learning outcomes can be expressed in the form of scores and test or exam results. The learning outcomes examined in this study are cognitive learning outcomes that include levels of knowledge (C1), understanding (C2), application (C3), and analyzing (C4).

2.4. Scientific Approach

The scientific approach is intended to provide understanding to students in recognizing and understanding various materials using a scientific approach. The application of the scientific approach to learning involves process skills such as observing, classifying, measuring, predicting, explaining, and concluding. The scientific approach has learner-centered characteristics, involving science process skills in constructing concepts, law, or principle, involves a cognitive process that has the potential to stimulate the development of the intellect (thinking skills), and it can develop the character of students.

Majid (2008: 193) describes that learning process using a scientific approach is intended to provide understanding to students in recognizing, understanding various materials using a scientific approach. Sani (2015: 92) explains that it is a scientific process. Therefore, the 2013 Curriculum mandates the essence of a scientific approach in learning. The scientific approach is believed to be a golden step for the development of students'
attitudes, skills and knowledge. Daryanto (2014: 51) reveals that learning with a scientific approach is a learning process designed in such a way that students actively constructing concepts, laws or principles through the stages of observing, formulating problems, proposing or formulating hypotheses, collecting data with various techniques, analyzing data, drawing conclusions and communicating found concepts, laws or principles. The scientific approach is an approach that is centered on students.

Based on the description, the scientific approach steps used in this study are observing (the process of collecting data by systematically direct observation of objects), asking questions (asking questions about the object of observation for things that are not yet understood or to add information from the object), collecting data (collecting data / information from observing and questioning activities), associating (examining more broadly and deeper into the information that has been obtained and identifying its relationship to what is in everyday life), and communicating (delivering the results of group discussions regarding the material being studied to find out the truth of the results of the discussion / get confirmation from the teacher).

III. Research Methods

3.1 Type of Research

It is Research and Development (R & D). It is the process of developing and validating educational products. The resulting educational products are not limited to learning materials such as textbooks, educational films and so on, but it can also take the form of procedures or processes such as teaching methods or methods of organizing learning. The stages of the research and development process usually form a consistent cycle to produce a particular product according to needs, through the initial product design step, initial product testing to find weaknesses, fix weaknesses, try again, and improve until finally a product that is considered ideal is found.

3.2 Place and Time of Research

This research is conducted at Percobaan State Elementary School Medan as a test instrument testing site, product testing in 2019/2020 academic year. The reason to choose this school is the similar research has never been carried out at the school. Furthermore, learning at Percobaan state primary school Medan uses scientific learning which is a series of learning activities that involve all students' abilities to search and investigate systematically, critically, logically, and analytically. They can formulate their own findings confidently. When the research is carried out on fourth grade students of the 2019/2020 academic year, it starts through observation activities at school. To collect data on needs analysis on August 9, 2019. Preliminary research is conducted in September 2019, and development research is carried out from September 2019 to October 2019.

3.3 Population and Sample

Population is a generalization area consisting of subjects that have a certain quantity and characteristics that are determined to be studied and then draw conclusions. The population in this study is all fourth grade students of Percobaan state primary school Medan. The population in this study is from 3 classes in schools, namely Percobaan state primary school north Medan, amounting to 90 students. The sample of this study is fourth grade students at Percobaan state primary school Medan. 30 students in class IVA are as the control class and 30 students in class IVB as the experimental class.
3.4 Data Analysis Technique

The implementation of this trial refers to Sadiman's (2006: 182 - 186), it describes that there are three stages of formative evaluation, small group evaluation, big group evaluation, field evaluation. The testing of teaching materials in this study is conducted in two stages, namely the small group test and the large group / class test.

IV. Results and Discussion

4.1 Research Results

The first trial is carried out in class IV2 with many trial subjects of 30 students. Learning in this class is carried out 4 times according to the learning plan provided. In this trial 1, instrument trials are carried out and trials using the scientific module learning tools provided. So that the data from trial 1 are analyzed to determine how much effectiveness the learning device is based on empirical data.

Student responses to learning include positive and negative responses. Positive responses can be seen from students 'statements that they are happy and interested in learning components and activities. Negative responses refer to students' statements that are not happy and are not interested in the components of learning activities. Student response data to components and learning activities fill with 30 students. It can be analyzed that the student response to all aspects of the components and learning activities is below 80%. This can be seen because students who are at least positive criteria are 12 students. If the results of this analysis are referred to the criteria set out. It can be concluded that the students' responses to the components and learning activities using learning tools oriented to the model have not reached the specified criteria.

Student learning outcomes can be seen from the results of students' work in completing the tests given. These learning outcomes are in the form of student scores from the tests given. Student test results are generally still low seen from the scores obtained. There are still students who get 6 out of the maximum score 24. Of the 30 students, there are 12 students who have not achieved their learning completeness. From the tests, students generally still make mistakes in solving the questions. Based on the data on classical completeness research, it only reaches 60%. So that classical learning outcomes are still not complete.

The conclusions from the results of the data analysis of the first trial are as follows: (1) there is an increase in the students' understanding of local historical concepts, (2) the ability to understand using scientific learning model-oriented learning tools in class IV2 has not yet reached the specified criteria, (3) the ability of the teacher to manage learning at each stage does not fully meet the good criteria, but when viewed from the overall average, the level of the teacher's ability to manage learning is in the fairly good category, (4) the student response questionnaire to each component and learning activity is negative. Based on the above conclusions, there are several indicators of effectiveness that have not reached the criteria set out. Therefore it is necessary to review the learning tools developed.

Trial II is carried out where student responses to learning included positive and negative responses. Positive responses are known from students 'statements that refer to be happy and interested in learning components and activities. Negative responses were students' statements that expressed displeasure and not interested in components. From learning activities, data on student responses to components and learning activities are filled in by 30 students.
It can be analyzed that student responses to all aspects of the components and learning activities are above 80%. This can be seen because students who are at least positive criteria are 28 students or 93.33% are already at the minimum positive criteria. If the results of this analysis are referred to as criteria, it can be concluded that the student's response to the components and learning activities using learning tools oriented to the model has reached the specified criteria.

Student learning outcomes can be seen from the results of students' work in completing the tests given. These learning outcomes are in the form of student scores from the tests given. Student test results are generally still low seen from the scores obtained. There are still students who get 13 out of the maximum score 24. Of the 30 students, there is still 1 student who has not reached the completeness of learning. From the tests given students generally still make mistakes in solving the questions. This error is in solving problems. Based on the data on the research findings, classical completeness has reached 97% so that classical learning outcomes are complete.

The learning outcomes of students who succeed in the posttest results of the first trial is 60.00% and in the second trial is 86.67%. This shows that the percentage of student learning outcomes who succeed increases by 26.67%. The conclusions from the results of the second trial data analysis are as follows: (1) The ability of the teacher to manage learning at each stage meets the good criteria, and when viewed from the overall mean, the level of the teacher's ability to manage learning is in the good category, (2) questionnaire for student responses to each component and learning activity is positive, (3) There is an increase in the ability of student learning outcomes who have succeeded in science students. If the conclusions of the results of data analysis in the second trial are referred to the criteria set out. It can be concluded that the application of the learning device products developed has met the criteria for effectiveness.

Based on the results of expert judgment and the conclusions of the results of data analysis on trial II, all aspects determined to state a device development product are valid and effective have been fulfilled, then the development cycle to get valid and effective learning tools has ended.

4.2. Discussions

The description and interpretation is carried out on the ability of successful student learning outcomes, student activities, the ability of teachers to manage learning, and student responses to learning device components. The results of the research above are very reasonable. The characteristics that exist in the problem-based learning model theoretically have several advantages and if these advantages are applied maximally in the classroom, it is very possible that the learning process and results will be better. It explains the relationship between the research results, the relationship with learning theory and other relevant research results.

The product of learning device development is valid if the assessment of the five validators of the entire learning device is in quite valid category. The results of the validation of all the learning tools developed are presented in Table 1 below.

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<th>category</th>
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</tr>
<tr>
<td>2</td>
<td>Module</td>
<td>Valid</td>
</tr>
<tr>
<td>3</td>
<td>Questionnaire of students response</td>
<td>Valid</td>
</tr>
<tr>
<td>4</td>
<td>The succeeded students learning test</td>
<td>Valid</td>
</tr>
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</table>

Table 1. The Validation Results of Learning Devices
The effectiveness of device development products in the application of scientific learning models on the subject of simple aircraft, can be seen from 3 indicators, namely: 1) students who have understood successful student learning outcomes if there are 85% of students who take the test already have the ability, at least moderate (obtaining a gain value of more than or equal to 3.00 or at least moderate), 2) the ability of the teacher to manage the learning at least in the good enough category, 4) positive student responses to the components of learning tools and activities. Device development products are effective if they meet the three indicators above. The following describes the results of research on the effectiveness of learning device development products oriented to the scientific learning model.

Based on the results of the analysis of student response data on trials I and II, it is concluded that students have a positive response to learning components and activities. Student responses in trial I and II always meet the criteria set out. This indicates that the application of learning tools developed oriented scientific learning model can foster motivation and interest in student learning in carrying out learning. This can be seen because students who are at the minimum positive criteria are 28 students or 93.33% have been in the minimum positive criteria. If the results of this analysis are referred to the criteria it can be concluded that the student's response to the components and learning activities using learning tools oriented to a scientific model based on local history has reached the specified criteria.

The positive response of students cannot be separated from the condition of learning with the scientific learning model, including: the problems posed by students originate from problem. It is close to the student's real world or it can be reached by students' imaginations to show usefulness in student life through problem solving. The results of this study are in line with Sanjaya (2013: 215) that learning strategies with problem solving can be applied: (1) When the teacher expects that students are not only able to remember the material, but also to master and understand it well, (2) If the teacher intends to develop students' rational thinking skills, namely the ability to analyze situations, apply the knowledge they have in new situations, recognize the differences between facts and opinions, and develop the ability to make judgments objectively; (3) When the teacher expects that the student's ability to solve problems and create students' intellectual challenges,(4) If the teacher wants to encourage students to be more responsible in their learning, (5) If the teacher wants students to understand the relationship between what is learned and the relationship between theory and reality.

Furthermore, based on the results of research on the first trial, of the 30 students who take the pretest there is no students (0%) who get score more than or equal to 3.00 or moderate. After learning using scientific learning model-oriented learning tools, post-test results obtained from 30 students, there are 18 students (60%) who get score more than or equal to 65% or at least complete). Furthermore, the results of the research on in the second trial, it is found that of the 30 students who take the pretest, there is 1 student (3.33%) who get score more than or equal to 65% or at least complete. Another thing that can determine the second trial has been successful is by looking at the obtained score. In the second trial, it is found that of the 30 students who take the test if they observe the pretest and posttest scores that a score of more than or equal to 86.67% or at least 0.3 are using moderate criteria. It is known that there are 26 students who are at the minimum criteria for an obtained score or 86.67% in the moderate minimum category. This has exceeded the predetermined tolerance limit, which is at least 85% in moderate criteria.
This is in line with Abidin (2014: 158) states that further learning develops into a learning model that helps students as things that first appear during the learning process. The problem is presented as naturally as possible and then students work with problems that require students to apply their knowledge and abilities according to their level of psychological maturity and learning ability. Arches in (Trianto, 2009: 92) argues that scientific is a learning approach where students work on authentic problems with a view to compiling their own knowledge, developing inquiry and higher-order thinking skills, developing independence and self-confidence. So that it seems that the lesson is boring problems like this usually occur in students of subjects that require higher understanding, one of which is learning about simple aircraft.

V. Conclusion

Based on the results of the analysis and discussion in this study, several conclusions are drawn as follows: (1) Student responses to learning components and activities using learning tools oriented to the scientific learning model have reached the established criteria, namely the response using local history-based scientific learning tools is positive and (2) the effectiveness of the learning tools developed using a scientific learning model based on local history, it can be seen that the score of learning outcomes through an obtained score of 86.67% when viewed from the success of learning outcomes is at least moderate. This has exceeded the predetermined tolerance limit, which is at least 85% in the moderate criteria.

References

Simanjuntak, L., Sriadhi, and Saragi, D. (2020). The Effect of Project Based Learning Models and Learning Motivation on Civics Learning Results in 4th Grade Primary


