Development Of Social Science Teaching Materials By Using A Scientific Approach Based On The Surrounding Environment In Grade IV Students Of SD 1 Jati Kulon

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Abstract. Learning will be more meaningful if the learning process can integrate technology, nature, and culture, so that educational goals can be achieved. Behavioral changes that occur in a person are the result of the learning process. The development model used in research is a type of research R & D (Research and Development). The result of this research is that the resulting product in the form of social studies teaching materials based on a scientific approach based on the environment is the result of the development of existing teaching materials. The conclusions of this study indicate that social studies teaching materials based on a scientific approach based on the environment are proven to be effective in improving scientific thinking skills in the fourth grade students on the first semester of social studies learning in SD Negeri 1 Jati Kulon.

1. Introduction

The development of science and technology has an impact on human resources to develop and improve quality in order to be able to play a role in global competition. This is used by the world of education to improve the quality of education. The development of science and technology is increasingly rapid, resulting in quality human resources. Human resources who are well prepared will create people who have the toughness in thinking, behaving and acting.

Curriculum development continues to be carried out to improve the quality of education. Curriculum development is one strategy to increase educational attainment. Regulation of the Minister of Education and Culture number 65 of 2013 concerning Basic and Secondary Education Process Standards emphasizes the learning process must be carried out through discovery-based learning activities (Discovery Learning), problem-based learning (Problem Based Learning), and emphasis on scientific thinking skills (Scientific Approach). Student learning activities are more directed to the process approach, namely students find their own answers with a series of activities that support the process of finding answers.

Social science examines various social problems and phenomena that exist in society. According to Somantri (2001: 44), the purpose of social studies education in schools is to foster civic values, morals, state ideology, and religion so that in the future it is a provision for community life. Aligning the objectives of social studies in learning must consider the materials or tools used. Teaching
materials that can help stimulate scientific thinking skills are teaching materials that make students challenged so that students use their thinking skills to solve problems. Social studies teaching materials that support learning are needed in aligning existing social studies education goals. A preliminary study was conducted at SD Negeri 1 Jati Kulon, Kudus Regency, by observing and gathering information. Based on the results of observations and information from Mr. Sudjatmiko which was carried out on Monday, March 10, 2020 in social studies learning at SD Negeri 1 Jati Kulon, the problems that occur in the learning process are related to the scientific thinking skills of students in the new learning process to receive material from delivery teachers, have not explored students' scientific thinking skills. At the time of learning, students use social studies textbook teaching materials at school but the teaching materials used have not optimally developed students' scientific thinking skills. This can be seen from every time the teacher explains that during learning, only 35% of active students are active while other students are only silent as listeners and take notes. Below there is a research literature review that is relevant to the research carried out, namely as follows: (1) Research conducted by Iis Yeni Sugiarti (2014) with the research title Development of Social Studies Learning Tools with Contextual Approaches Assisted by Mind Maps on Natural Resources Distribution Material in Local Environment. (2) Research conducted by Muhammad Misabul Munir (2014) Development of Social Studies Learning Tools with a Constructivism Approach based on the Surrounding Environment at SD IV Honggosoco Kudus. (3) Kruidering-Hall., Vereijken, M.W.C., Jong, P.G.M., Beaufort, A.J., & Dekker, F.W. (2013) entitled Scientific education early in the curriculum using a constructivist approach on learning. (4) Nagl, M.G., Obadovic, & Segedinac, M., (2012) with the title Effective Teaching of Physics and Scientific Method. (5) Peter Heering, et al (2015) entitled Enabling Scientific Understanding Through Historical Instruments and Experiments in Formal and Non-formal Learning Environments. Flensburg Studies in the History and Philosophy of Science in Science Education. (6) Andersen, A.M., Dragsted, S., Evans, Robert., & Sorensen, H (2004) entitled The Relationship Between Changes in Teachers' Self-efficacy Beliefs and the Science Teaching Environment of Danish First-Year Elementary Teachers. (7) Valanides, N., Papageorgiou, M., & Charoula Angeli (2014) entitled Scientific Investigations of Elementary School Children. (8) Ratcliffe, Mary (2012) entitled Science Literacy and Scientific Values: Implication for Formal Education.

According to information obtained from Mr. Sudjatmiko on Monday, March 10, 2020, the causes of low scientific thinking skills are: 1) the teaching materials used in learning have not conditioned students to think scientifically on teaching materials that are still conceptual, 2) the teaching materials used have not guided students in the discovery process, 3) students do not know the stages of scientific thinking skills that must be passed in the discovery process using existing teaching materials. The learning process using existing teaching materials has not been able to bring up a maximum increase in scientific thinking skills as evidenced by the large number of students who have not yet completed social studies subjects. The problem is the low social studies learning outcomes based on the 2020 academic year semest 2 report cards at SD Negeri 1 Jati Kulon for the 2019/2020 academic year. At SD Negeri 1 Jati Kulon, out of 31 students, there were 3 students who did not complete the report card score with KKM 69, the lowest score was 65 and the highest score was 88. The low score of student social studies learning outcomes was also based on the results of the 2018/2019 academic year semester 2 in SD Negeri 1 Jati Kulon. At SD Negeri 1 Jati Kulon, out of 31 students, only 18 students passed the KKM 69, the lowest score was 43 and the highest score was 77. Based on the interpretation of learning outcomes, the quality of learning still needs to be improved so that the KKM can be exceeded. Learning outcomes that are still low, namely 60% of students who exceed the completeness of the KKM indicate that the social studies learning process needs to be improved. This kind of condition which continues will cause student learning outcomes to be less than optimal.

With this research, it aims to obtain an in-depth picture of the improvement of students' scientific thinking skills by using teaching materials based on a scientific approach based on the surrounding environment and producing social studies teaching materials based on a scientific approach based on the surrounding environment developed in grade IV SD students.
2. Theoretical Based

Teaching materials according to Prastowo (2014: 17) are materials that are systematically arranged in which according to the demands of the existing curriculum, which contains competencies that must be mastered by students so that it allows students to learn to use these teaching materials with the goals they want to achieve. Meanwhile, Majid (2008: 173) explains that teaching materials are all forms of material (both information, tools and text) that are used to assist teachers / instructors in carrying out teaching and learning activities that are systematically arranged.

Teaching materials or learning materials according to Belawati (2003: 1.12) explain that teaching materials are materials or subject matter that are systematically arranged which contains a number of competencies, which are used by teachers and students in the learning process so that learning objectives can be achieved. Teaching materials or teaching materials contain substances / components of the curriculum. While teaching materials according to the Ministry of National Education (2008: 151) are learning materials or learning materials that are systematically arranged which teachers use to convey curriculum messages in the learning process in schools. The material in question can be written or unwritten.

According to Al-lamri (2006: 84) social knowledge with substantial material coverage as explained from the basic outline to its maturation is a subject area that demands multi-ways and strategies, multi-methods and media, multi-approaches, and target expectations within the framework of achieving goals. Meanwhile, according to Hidayati (2008: 3) social science is an interdisciplinary approach from social sciences lessons. Social science is an integration of various branches of social sciences, such as sociology, cultural anthropology, social psychology, history, geography, economics, political science, and so on.

Social studies education learning emphasizes the educational aspects rather than concept transfer because in social studies learning students are expected to gain understanding of a number of concepts and develop and train their attitudes, values, morals, and skills based on the concepts they have (Solihatin, 2008: 15). Based on content standards, the scope of social studies subjects in elementary schools includes the following aspects (BNSP, 2006: 175): (1) people, place and environment, (2) time, sustainability and change, (3) social system and culture, (4) economic behavior and welfare.

Based on the description above, it is concluded that Social Sciences teaching materials are all materials (both information, tools and text) which are arranged systematically according to the existing social knowledge curriculum and contain a number of learning messages that will be conveyed to students with coverage of substantial material in which it examines a number of facts, events, concepts that come from the social life of the community selected using social science concepts that are used for the benefit of learning in order to achieve learning objectives. The scientific approach according to the Ministry of Education and Culture (2013: 18) is an approach to learning that adopts scientific steps in building knowledge through scientific methods. Scientific learning activities are carried out through the process of observing, asking, trying, associating, and communicating. This scientific approach is expected to make students active, eager to increase knowledge, and solve problems logically and based on facts.

According to the Ministry of Education and Culture (2013: 12), scientific skills have indicators that appear in the learning process based on a scientific approach, namely: (1) the ability to observe problems, (2) the ability to ask questions raises problem formulations, (3) the ability to reason and generate hypotheses, (4) ability to perform hypothesis testing, (5) ability to compile and present data, (6) ability to communicate, (7) ability to create. Falidan (2014: 35) describes indicators of scientific thinking skills, namely: (1) observing skills, (2) questioning skills, (3) reasoning skills, (4) trying skills, (5) presenting skills, (6) communicating skills, (7) creating skills.

Based on the description above, it can be concluded that the application of scientific thinking skills that is raised in the scientific approach is a process in which finding the truth. Scientific thinking skills with a scientific approach are interrelated, scientific thinking skills are part of the results of a scientific approach which is a skill. From the indicators described in the previous research, 5 indicators were selected in accordance with the scientific approach used. Indicators of scientific thinking skills in this
study are: (1) observation skills, (2) questioning skills, (3) reasoning skills, (4) experimental skills, (5) communication skills.

3. Method
The development model used in research is a type of research R & D (Research and Development). This research method uses mix methods (qualitative and quantitative) and development uses the Four-D modification from Thiagarajan. Qualitative in this study is data about the initial conditions of students before doing the research (define), using data triangulation. The quantitative in this research is data regarding the validity of teaching materials, test questions and test the effectiveness of teaching materials. The data collection techniques and instruments include: (1) written tests, (2) observation, (3) questionnaires, (4) documentation. This research was conducted to improve or develop existing products or create new products by testing the effectiveness of the products produced. The products developed and tested in this research are syllabus, lesson plans, teaching materials, and evaluation tools.

The development of this teaching material refers to the Four-D Models put forward by Thiagarajan, Sammel, and Semmel (1974: 6-11) which consists of 4 stages, namely define, design, development and disseminate. ). The disseminate stage was not carried out due to time and implementation considerations as well as the consideration that at the develop stage a good teaching material product had been produced. The purpose of the define stage is to define and define the fundamental problems faced by teachers and students in social studies learning, as a reference for the need for the development of teaching materials. Activities carried out in the define stage are preliminary analysis, student analysis, analysis of assignments and concepts, and formulation of learning objectives. The design stage aims to design teaching materials so that social studies textbooks are obtained based on a scientific approach based on the environment in accordance with the learning being carried out. The develop stage aims to produce revised teaching materials based on input from experts whose activities include: validation by experts, limited trials, extensive testing and draft assessment.

4. Results and Discussion
The development of social studies teaching materials based on a scientific approach based on the surrounding environment for fourth grade elementary school students refers to the development model according to Thiagarajan which flows through 3 stages, namely: (1) define, (2) design (design), and (3) develop (development). The learning tools developed include a syllabus, lesson plans, teaching materials with a scientific approach based on the surrounding environment, and evaluation tools.

Teaching materials based on a scientific approach based on the surrounding environment are developed to improve scientific thinking skills, so it is necessary to test the effectiveness of the effect of the application of teaching materials on improving scientific thinking skills. The aspects observed in the scientific thinking skills instrument include aspects of observing, questioning, gathering information, associating, and communicating. Scientific thinking skills are developed by compiling descriptors that appear in the learning process. The scale used is a Likert scale with a score range of 4 (very good), 3 (good), 2 (sufficient) and 1 (poor). The results of the observation of scientific thinking skills are in Table 1.
Table 1. Test Results of the Effectiveness of Scientific Thinking Skills

| No | Aspect of Skills         | Research Class |         |         |
|----|--------------------------|----------------|--------|--------|
|    |                          | Control        |        |         |
| 1  | Observe                  | 3.06           |        | 3.68   |
| 2  | Ask                      | 2.51           |        | 3.38   |
| 3  | Gathering Information    | 2.43           |        | 3.36   |
| 4  | Associate                | 2.32           |        | 3.32   |
| 5  | Communicate              | 2.21           |        | 3.31   |
|    | Amount                   | 12.53          |        | 17.04  |
|    | Average                  | 2.51           |        | 3.41   |
|    | Level of Effectiveness   | 62.63%         |        | 85.22% |
|    | Criteria                 | Good           |        | Very good |

The results of the acquisition of scientific thinking skills in the control class are the observing aspect of 3.06 (good), the questioning aspect 2.51 (good), the information gathering aspect of 2.43 (not good), the association aspect of 2.32% (not good) and musty communicated by 2.21% (not good). The acquisition of a summary of all aspects of scientific thinking skills is 12.53 or 62.63%.

The results of scientific thinking skills in the experimental class in the observing aspect were 3.68 (very good), the questioning aspect was 3.38 (very good), the information gathering aspect was 3.36, the associating aspect was 3.32 (very good), and the communicating aspect of 3.31 (very good). The recapitulation of the sum of all aspects of scientific thinking skills is 17.04 and the effectiveness level of scientific thinking skills in the experimental class reaches 85.22%. An explanation of the results shown can be seen in Figure 1.

![Diagram of Scientific Thinking Skills for the Control Class and Experiment Class](image)

Figure 1. Diagram of Scientific Thinking Skills for the Control Class and Experiment Class

The recapitulation of the results of scientific thinking skills between the experimental class and the control class can be seen in Table 2.
Table 2. Recapitulation of Scientific Thinking Skills Results

| Scientific Thinking Level Criteria | Class   | Very good | Good  | Not good | Poor | Amount |
|------------------------------------|---------|-----------|-------|----------|------|--------|
| Control                            | 0       | 18        | 14    | 0        | 0    | 0      |
| Experiment                         | 24      | 7         | 0     | 0        | 0    | 0      |

The results of scientific thinking skills in the experimental class were as many as 24 students (77.42%) succeeded in meeting the criteria very well and 4 students (22.58%) met the good criteria. These results are much more significant when compared to the control class, because in the control class only 18 students (56.25%) obtained good criteria and 14 students (43.75%) obtained unfavorable criteria. The results of the achievement if interpreted by the predetermined criteria that 85% of students must obtain aspects of scientific thinking skills with good criteria, it can be concluded that the experimental class using teaching materials based on a scientific approach based on the surrounding environment succeeded in exceeding these criteria because the average achievement aspects of scientific thinking skills reached 85.21%.

5. Conclusion
Social studies teaching materials based on a scientific approach based on the surrounding environment are the development of teaching materials that use the stages of a scientific approach in their learning syntax. In accordance with the objectives of developing teaching materials, the implication of applying teaching materials is to improve students' scientific thinking skills. Another implication is an increase in learning outcomes and student activity in solving problems systematically.

Social studies teaching materials based on a scientific approach based on the surrounding environment are proven to be effective in improving scientific thinking skills in social studies learning map materials and natural appearances around class IV semester I SD Negeri 1 Jati Kulon in the 2019/2020 academic year. The effectiveness indicator is based on learning outcomes and the increase in the stages of scientific thinking skills.

The effectiveness of social studies teaching materials based on a scientific approach based on the environment can be seen from: (1) there is a significant increase in learning outcomes; (2) learning outcomes achieve completeness. Social studies teaching materials based on a scientific approach based on the surrounding environment have been proven to be effective in improving scientific thinking skills on the theme 7 Beautiful Diversity of My Country for grade IV semester I SD Negeri 1 Jati Kulon for the 2019/2020 academic year.

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