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Organizing Natural Science Lesson Materials in Primary School

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***Abstract*—Study materials organizing strategies is a method for organizing the contents of a selected field of study for learning. Organizing refers to an act such as the learning content selection and arrangement of learning content. The guidelines set out in the basic competence, developed from the teaching materials. The subject matter should be relevant to the developed standards and basic competencies specified in the standard content. Types of learning materials can be classified into four types, facts, concepts, principles and procedures, to find out the amount of learning material its necessary to determine the scope of learning materials. The scope of learning materials needs to be determined so that the material can be completely in accordance with the purpose of learning achieved by students. Learning resources includes the message, people, materials, equipment, techniques and environment or background. Learning resources should be chosen to suit the instructional materials which will be designed.**

Keywords—organizing strategies; teaching materials

I. INTRODUCTION

Good planning in the process of learning to teach natural science is needed, because planning is a guide when implementing learning. Good learning activities start with the correct design. Designing the right lesson has a very important meaning for teachers in order to fix and improve the quality of learning by establishing and developing optimal learning strategies to achieve the desired learning outcomes. Furthermore, Degeng explained that in developing the learning tools, the criteria that need to be considered are (a) can assist individual and group teaching activities, (2) can respond, (3) accommodate messages potentially, (4) able to provide learning opportunities which are in demand, and (5) provide suggestions and guidance as well as feedback information about the level of student learning progress achieved. Developing the learning tool as proposed by Degeng, it is necessary to study deeply and earnestly so that the five criteria in developing learning tools are really well implemented because that will become references for teachers in applying this learning tool [1]. In this regard, teachers need to have the ability to design learning strategies that are capable to develop critical thinking skills and solving problems, skills that students should have in carrying out the tasks and responsibilities they must do [2].

To help students achieve the basic competencies that contribute to competency standards is a lesson material or so-called teaching materials, is a learning system component that plays an important role. The subject matter is something to be learned and mastered by students, whether in the form of knowledge, skills, or attitude through learning activities is something that is presented by the teacher to be processed by the students in order to master the predefined competencies [3]. The strategy of organizing this lesson born from the question, how to design the lesson materials [4]. In designing learning materials that must be studied by the students, there is need to pay attention the characteristics of students about knowledge, experience and ability possessed by students and needed to learn natural science. Characteristics of students become guidance for teachers in designing lesson materials. Teachers should be able to choose the right learning strategy, which is strategy of organizing the lesson material. The guidelines set forth in the basic competencies, developed from teaching materials. The developed subject matter should be relevant to the basic competency and competency standards set forth in the content standard. Students have diverse experiences, knowledge, and abilities needed to learn. The diversity of student characteristics needs to be considered by teachers in designing learning materials. Teaching materials should be appropriate between the content of the material with instructional objectives, sufficiency made by people who master the field of science, the exact breadth and depth, the material tailored to the needs of students [5].

Some problems encountered in organizing science learning materials for elementary school students are: Difference in ability, Difference in place of residence, Difference in style of learning, and Difference in character. All these problems can be solved if the teacher can arrange the science learning materials with the suitable strategy. The Purpose of the organizing science learning materials for elementary school students are: Reach the goals of instruction, answer the problems of students, use the difference of students to reach the better result learning, develop critical thinking skills and solving problems, fit the learning needs of each student, and make the learning of science more meaningful.

II. DISCUSSION

A. Materials Lessons Organizing Strategy

Materials lessons organizing strategy is a method for organizing the content of the field of study selected for learning [1]. Organizing refers to an action such as the selection of learning contents, and the arrangement of learning content. Understanding in choosing the content of learning and structuring the content of learning becomes benchmark for teachers in adjusting student learning needs. Effective organizing can only be created where students can learn individually, because basically the goal to be achieved is students to learn individually even though the teaching is implemented in a classical. It is necessary to organize the content of instructional materials done in designing learning such as how to organize the content, the order of content, and how to choose the teaching materials. The organizing strategy of teaching content is a structural strategy. Structural strategy is a way to create sequences and syntheses facts, concepts, procedures, or related principles [6]. What Reigeluth and Merril have mentioned in organizing the teaching content there are two important activities that teachers need to do, that is how to make the content presentation order for the field of study, and the efforts are made to demonstrate to the students the relation between existing facts, concepts, procedures or principles within a field of study.

The very important stage in the design of learning is organizing the content of teaching. According to Degeng in designing the learning, we need to organize the content of teaching materials, such as the arrangement of content, the order of content and selection of teaching materials [1]. Synthesizer will make the topics in a field of study more meaningful for students by showing how the topics relate to the overall content of the field of study. The characteristic of field study content structure is a unity in creating or organizing the strategy of organizing teaching. Why is there a link between composing an organizing strategy with characteristic of field study content structure? This is because the structure of the content of the field of study has implications in the effort of making a sequence and synthesis between the contents of a field of study. Good planning requires consideration of the type of information, demonstrations, modeling, questioning opportunities, discussions, and exercises that are always required for students to understand certain concepts and develop certain skills. Although research finds the fact that all the things mentioned can support learning, but the process of designing learning requires teachers to be able to know when, for what, and how students do things.

B. Type and Coverage of Learning Materials

The types of learning materials can be classified into four types, namely facts, concepts, principles and procedures [7]. Fact-type material related to object names, people's names, place names, and events. Material types of concepts related to definition, understanding, essence. Material about principles relating to postulates, formulas, and paradigms. The last is the type of procedure material in the form of steps to do things in sequence. Fourth types of learning materials described by Merrill, ranging from material facts, concepts, principles and procedures can be applied in the real life.

To know the numbers of learning materials there is a need to be determined the scope of learning materials. The scope of instructional material needs to be determined so that the specified material must be perfectly in line with the learning objectives achieved by the students. If the material is not determined in scope, it will be difficult for the teacher to know which materials that must be learned by the students. Material coverage needs to be organized, managed by taking into account the learning needs of children referring to the curriculum. The scope of learning materials to be developed, need to pay attention to the sequence of instructional materials that will be developed. In developing teaching materials to note the hierarchy of teaching materials systematically arranged in the form of maps, which is the result of learning precondition analysis in the next stage, until the realization of a map of teaching materials that complete [8]. Map of teaching materials is a very important part in determining which teaching materials to be applied. This resource map is also used to find out whether the teaching materials developed are related to one or more teaching materials, or whether the materials are not related to other teaching materials. The linkage between teaching materials and unrelated teaching materials that one with other teaching materials need to be studied by the teacher, so that the materials that have been prepared in the form of map really can be applied to the students. It is very important for teachers to understand that complete and systematic learning materials can be implemented.

To determine the teaching materials in accordance with the curriculum and core competencies and basic competencies are subject matter. Teaching materials or subject matter needs to be selected and adapted to the characteristics of the student's needs. The key ingredients of instructional materials to be used need to be well understood by teachers in formulating core competencies and basic competencies, with the aim those students can easily understand the subject matter presented by the teacher. It should be understood that students have a very heterogeneous ability. Therefore, the teaching materials to be used should be well designed and take notice to the diversity of students' abilities. Each student is a unique individual with the potential of different abilities [9]. Designing the learning process that noteworthy are the general characteristics of students, namely [10]: (1) socioeconomic conditions, (2) cultural factors, (3) gender, (4) growth, (5) learning styles, 6) learning ability. In creating a learning process that can help students achieve optimal ability, it is necessary to consider the characteristics of students. When examine the characteristics of each student as proposed by the Cruickshank, there is very diverse. This diversity requires precision in designing instructional materials in accordance with the existence of individual students. The characteristics of students are defined as the characteristics quality of the students, which generally include academic ability, age and maturity level, motivation of subject, experience, skill, psychomotor, cooperative ability, social skill [11]. Therefore, the characteristics of students need to be understood by the teacher, so that in designing the teacher's learning can adjust by needs, abilities and problems faced by students. Thus, the characteristics that exist in the

child need to be understood by the teacher, so that goals can be achieved.

C. Learning Materials Sources

Learning resources are sources that support learning including supporting systems, materials, and learning environments [12]. Learning resources are all sources (data, people or objects that can be used to provide facilities or learning facilities for students. The learning resources include messages, people, materials, tools, techniques and environment or background [13]. Learning resources which will be used should be selected to fit the designed instructional materials. The learning resources are also tailored to the strategies, learning methods, and student abilities. Student association and integration between the abilities of each characteristic needs to be tailored to the learning resources, methods, and learning strategies that will be used. There are so many learning resources around us that can be used for learning purposes and teachers are just one of the many sources of learning available [3]. Because it can be understood that teachers should be able to choose teaching materials to be used and the source of learning that suits the student needs, because learning resources that match or in accordance with the teaching materials and the ability of students will have an impact on the goals to be achieved. Teaching materials are all forms of materials used to assist teachers in perform teaching and learning activities. Well-designed teaching materials will make it easier for students to learn a basic competence coherently. If students can learn a basic competence coherently, then the student is able to master all the competencies as a whole and integrated. Teaching materials are information, and tools that are needed by teachers in designing learning and used to implement learning. Anwar and Harmi describe the process of developing a syllabus teacher are required to formulate learning resources and learning materials that include references or literature [3]. Learning resources are developed in accordance with the substance of learning materials and level of needs. All of them need to be well designed to make it easier for students to attend lessons. The source setting, only a tool or means to achieve what must be done. The ultimate goal is to get students to learn together. The role of teachers as a source of learning is a very important role. The role as a learning resource is related to the mastery of the subject matter

III. COVER

Materials lessons organizing strategy is a method of organizing the content of the field of study selected for learning. Organizing refers to an action such as the selection and the arrangement of learning content. Learning resource and learning resources strategy are very important and should be considered when preparing the plan. In preparing the lesson plans a strategy is needed to prepare the learning process. If the strategy is well prepared and designed, and take notice to student learning needs, the students will easily understand the subject matter. In designing the learning needs to organize the content of teaching materials, such as structuring the contents, the order of content and selection of teaching materials. The subject matter is something that will be studied and mastered by students, whether in the form of knowledge, skill, or attitude through learning activity is something that is presented by teacher to be processed by students in order to master the predetermined competence. The strategy of organizing the lesson material is a method for organizing the content of the field of study selected for the lesson. Organizing refers to an action such as the selection of learning contents, and the arrangement of learning content. The types of learning materials can be classified into four types, namely facts, concepts, principles and procedures. The scope of instructional material needs to be determined so that the specified material must be perfectly in line with the learning objectives achieved by the students. If the material is not determined in scope, it will be difficult for the teacher to know which materials that must be learned by the students. Learning resources are all sources (whether is data, people or objects that can be used to provide facilities or ease of learning for students.

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