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The Application of Science Modul Based on Character to Train Scientific Attitude Of PGSD Student

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Abstract

The purpose of this study is to train scientific attitude of PGSD students. This study use qualitative descriptive approach. The subject of this study were student of class E2015 PGSD Kanjuruhan University. The instruments of this study such as observation sheet and student interview. In this study using Miles and Huberman data analysis. The Application of science modul based on character building have some steps, such as 1) giving the student an environment and concept problem, 2) doing observation, experiment and discussion the object of material 3) creating solutions of the problem, and 4) drawing conclution. The results of this study, the students of PGSD shows a good attitude, such as they have 65% curiosity, 68% putting evidence, 68% thinking critically, 80% flexibility and 73% Environmentally care. Based on the result of interview indicate that students more comfortable and challenged during the learning underway using scince modul based on character building.

Keywords: Science modul, Character based modul, scientiffic attitude

INTRODUCTION

Science is a knowledge of natural phenomena discussed about the activities that obtained from the finding of observation, experimentation and conclution. According *(7)* explains that science is a concept collection also scheme concept that discusses about natural phenomena that composed regularly the findings of the observation, Experiment, that are arranged one system. Science cannot stand alone.

Furthermore, Natural Sciences be related way to know about natural sistematically. CONCERNING nature operates systematically, science not only collection of Knowledge the form of Facts, concepts or Principles, but also is a process of discovery (2).

Science not only contains about concept collecting, but alsoscience is a knowledge using method or process to get the science product. Also in the Implementation of the Scientific Method constituted by scientific atitude. As follows *(6)* science consist of: 1). Attitude, 2). Process, 3). Product and 4). Application.

The fourth element of the science aspect can't be separated from each other. However, the reality kognitif or product aspect more payed than the other. The importance of development of the three domains, A key for someone to success for review science studies.

Flow also humanistic view that learning is not just the quality of cognitive development, but also a process of going from the individual that involves all parts, the existing domain or realm. For examples such as the domain of cognitive, affective and psychomotor (1)

One realm in science is the scientific attitude. Scientific Attitude can be defined

[6]: as an attitude based on a scientist during the process of obtaining the knowledge, attitudes consisted of curiosity about objects, natural phenomena, living beings, as well as the causal relationship raises new issues which can be solved through the proper procedure to be open minded. Someone attitudes greatly influence the success of students in the study of these subjects. The scientific attitude that needs develop in science learning (Khamrani in [7]:

a. Curiousity
   Curiosity attitude is the attitude to find out about things that are considered important for an individual. That characterized is by high interest and courius child's to natural behavior. Curiously begins with asking an questions.
b. Attitude Putting Evidence
   An attitude or effort collecting and using evidence to test and develop ideas, so it's not easy to believe in an idea if it has not been verified.
c. Flexible attitude towards new ideas
   Can be interpreted as an attitude to accept new concepts. In science the knowledge develop and the concept is still tentative. So that a change to a new concept should be acceptable students. Moreover, this attitude can be interpreted as an attitude to not impose their opinions and accept the opinions of others.
d. Critical thinking attitude
   Critical thinking attitude is the attitude of doing something or assessment based on the fact / evidence or logic to generate ways or new results of what they have [10](4).
e. Attitude environmentally care
   Enviromentally care is an attitude or action which seeks to prevent damage to the surrounding natural environment and develop efforts to repair the damage that has been occur and always want to help for other people and communities that need.

Development of scientific attitude needs to be developed at every stage of education. The development of this scientific attitude, can be trained in the learning process through the internalization of the teaching materials. One of the teaching materials that can be used is a character education based teaching materials.

The concept a character-based instructional materials is to develop the character of students through several activities that serve to train and to cultivate the values that want to develop.

Character education is a value investment the character system of the school community, which includes knowledge, awareness or willingness and action to implement the values [10]. The values of character education one of which is the scientific attitude.

The purpose of character education is basically to encourage the birth of children are growth and development of good character who will encourage learners to grow the capacity and commitment to do things best and do everything right[10].

The function of character education in college, [13] are: 1). The formation and development of students' potential, 2). Repair and reinforcement, 3). As the filter of culture and behavior of students.

Activities in the character-based teaching materials include the development of the concept of environmental problems and the concept of science teaching materials. To discuss and explore the materials, learners seeking information

conducted through observation, experimentation or discussion groups. The end result of discussions or activities concluding observations were made by learners. The teaching material is also presented several quotes for shaping the character reader related concepts learned. Besides these materials adopting the concept of problem-based learning.

Problems materials developed in this teaching materials, including environmental problems facing society and also the development of science concepts associated with the environment / nature.

Based on the purpose of this study was to investigate the application of teaching materials based on the characters to train scientific attitude of students.

METHOD

This study uses a descriptive qualitative research. The subjects were students of class E PGSD 2015. The instrument used in this study was the observation sheets, interview. This study uses triangulation data collection techniques are observation, interviews and documentation. Data were analyzed using Miles and Huberman, such as Display of data, data reduction and inference.

RESULT

Based on research known that the application of the character based teaching material consists of several steps; 1). Orientation environmental issues and concepts of material science about plants, 2). Analysis of environmental issues and the concept of materials science about plants, 3). The collection of information, 4). Inference.

At the stage of the orientation problem, students are given questions about the concept of plant material. To answer these questions the students formed a small group consisting of 5 persons. In addition to questions about the concept of plant material, students are also provided environment issues such as pesticides, global warming, bag plastics diet, landslides and flood in several places in Indonesia.

The questions then analyzed and discussed to answer questions that have been raised in the teaching materials. When analyzed, the students are also planning steps used to answer questions that have been presented. At a later stage, students activites is collect data. Data collection activities performed by students through several steps such as: discussion, observation or experiment activities that are tailored the context of the material being studied. At the end of the stage, the students make their conclusions were presented.

The application of character-based teaching materials, demonstrate the scientific attitude of students have appeared on the first and second meetings. The data of scientific attitude students as follows in table 1:

Tabel 1. Table of scientific attitudes

No	Aspect	Fisrt Meet	Second Meet
1.	Curiosity	34 %	65%
2.	Putting Evidence	23%	68%
3.	Thinking critically	25%	68%
4.	Flexibel	44%	80%
5.	Enviromantally Care	42%	73%

Based on data in Table 1 it is known that student scientific attitude was incraease from the first meeting to the second meeting. The increase occurred in the fifth aspect is developed.

DISCUSSION

Application of character-based teaching materials IPA presents several

steps and consists of 1). Orientation problems, 2). Analysis of problems, 3). Data collection and 4). Inference.

At this stage of the orientation problem, students get both issues related to the concept and environmental issues. Through this stage, students can train scientific attitude of students such as curiosity, critical thinking and care to the environment. Questions can make an individual to develop the ability to think it, of the activity of thinking this will bring up the attitude of curiosity. This is in accordance with the opinion of [5] which states that the students' thinking skills can be developed through problem-solving strategies. Further according to [5], [4] the submission of questions can be used to develop the thinking skills of students. Ask activities useful to gather information, generate response learners and determine the extent to which the curiosity of learners and focus the attention of learners [10].

The second stage is an analysis of the issue. At this stage students discuss and plan how to answer the question posed. In planning how students conduct a discussion with a friend in the group, through this stage, students can develop an attitude of scientific as attitudes evidence, critical thinking, flexible and care to the environment, because students do a discussion activity that makes the student brainstorm to receive opinions from others (flexible). Group learning can develop inter-group relationships, acceptance of classmates, arguing with each other and hone knowledge [8], [9]. If each person to be a source learning, it means each person rich of knowledge and experience [12]

The third stage in the presentation of these materials is the collection of data. At this stage, students can choose how to collect data that is tailored to the characteristics of the material. For example, for the material of the structure of plants, students collected data through observation, but on the photosynthesis material student conducting an experiment, in breeding plants material, the student use observation to the plants. This stage students carry out learning from experience, so the learning not only meaningful for students, but also can grow the thinking skill and student activites in learning process.

This is consistent with the theory of Ausuble (2000) in [4] which states that learning would not be meaningful if they merely rote learning, learning can be meaningful if someone is able to link the owned concept with a concept that has been met. This is also supported by the theory of learning Burner is a prose invention. Burner recommend student in learning process through actively partispate with concepts and principles, to get experience student must do experiments and find the principles them self [12]

At this stage, students can develop an attitude care to the environment, because students are given some environmental issues that are relevant to daily life - today. Students are asked to analyze and create solutions to these problems. Through the development of the solution will be able to make students more care, more concerned with the problems of the environment around students.

The final stage is a drawing conclusions, through drawing conclusions students can reflect on the learning that has been implemented before. Reflect is a thinking manner about new concept or flash back thinking about what has been done the past. Student precipitate what the newly learned as a new knowledge structure [12]. This stage meaningful for student learning and can make develop critical thinking,

curiosity and attitude put the evidence first before making any conclusions because student make a relation knowledge has been done the past.

CONCLUSION

The conclusions of this research are:

a. The Aplication of the character based teaching material consists of several steps such as problem orientation, problem analysis, data collection and conclusions.
b. Application of teaching materials can enhance students' scientific attitude such as have 65% curiosity, 68%, Putting evidence, 68% thinking critically, 80% flexibility and 73% Environmentally care.

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