

Description Needs Analysis of Physics Learning Class X at SMA Al-Kautsar

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ABSTRACT

This is a preliminary research study about the needs of teachers and students at SMA Al-Kautsar. Preliminary research study consisting of literature studies and field studies. The purpose of this study was (1) Determine the need for teachers to be appropriate instructional media and can help students to master the concepts and principles of physics; (2) Determine the needs of the students will be learning media that can help students to learn by inquiry model; (3) Analyze the implementation of physics learning in Al-Kautsar Bandar Lampung senior high school. This study used a descriptive method. The sampling technique used in this study is a cluster sampling. The subjects of this study were students of class X-1 consists of 30 students and 3 teachers of physics. Data was collected using a questionnaire. Data were analyzed qualitatively through four stages: encoding the questionnaire results, tabulation of data, analysis of qualitative data, and makes interpretation of analytical results, and make conclusions. The findings in this preliminary study are: (1) The physics teachers in Al-Kautsar high school have known the model of inquiry in learning, but in practice they often use models of lectures, discussions and assignments. (2) Teachers and students Al-Kautsar high school need a teaching material in the form of worksheets based scientific approaches that can help students understand the concepts and principles of physics and easily applied in teaching inquiry model. The conclusion of this study is to be developed LKS learning model of inquiry and scientific approach-based.

Keywords: Inquiry Model, Scientific Approach, Student Worksheet

INTRODUCTION

In the conduct of research and development of teaching materials in the form of Student Worksheet (LKS) with a model-based approach to scientific inquiry learning, the necessary preliminary study consisting of literature studies and field studies, field studies conducted to determine the objective conditions in the field by collecting various information, such as analysis of the needs of teachers and students will be media or instructional materials used in teaching and learning activities as well as the appropriate methods and approaches to be applied in learning activities in the classroom, so that the goal can be achieved physics subjects. In the literature study conducted among others, provide ideas in the research that will be conducted at this time, in order to obtain a new perspective.

Learning physics should through inquiry learning activities to foster the ability to think, work and scientific attitude and communicate as one of the important aspects of life skills (Ministry of Education, 2006). Inquiry learning puts the learner as a subject of study, students are not only acts as a receiver educators lessons through verbal explanation, but their role is to find their own core of the subject matter itself (Hosnan, 2014: 341). But the reality in the field physics of learning in school generally, teachers become a center of learning (teacher centered) and learners only be the object of any recipient. Learners less given the opportunity to develop thinking skills (Puspitasari and Aminah, 2014). Besides, the use of the current learning system where students were given only a verbal knowledge (lectures), so that learners receive knowledge in the abstract (just imagine) without experiencing itself. Actually physics subjects closely related between the concept and the surrounding environment (Damayanti, 2013).

Physics is one of the subjects that are considered difficult by most learners, such findings (Herman, 2014) study of physics is not so pleasant and difficult, especially when confronted with a lot of formulas. So that physics is not always considered a difficult lesson, the teacher should be able to develop teaching materials that can help learners to find it easier to learn physics. Several studies using teaching materials especially student worksheet, among others: (1) Toman, *et al*, (2013) Stating that the development of worksheetsbased constructivist approach allows students to participate actively during the learning process, helping students learn the subject better , and feels improve student success. (2) Mihardi, *et al*. (2013) says that the KWL worksheets combined with project-based learning, really effective to advance the process of creative thinking of students in solving problems of physics, not only calculate and determine solutions in analyzing the problem, but can contribute and alternative solutions. (3) Karsli and Ayas (2011), in a study using worksheets, lab activities effectively to improve student motivation and enables students to be active during the learning process.

Sarwi, et al (2012), the research results stated that the implementation of open inquiry wave models to develop critical thinking skills students of physics, shows that the inquiry experiment can develop scientific work and self-reliant attitude of students to achieve competency. While the experimental open-inquiry model effective to achieve competency experiments characterized by self-reliance, hard work, and develop critical thinking skills. In another study Sarwi and khanafiyah (2010) regarding the development of scientific work skills student teachers of physics through experiments wave of open-inquiry concluded that the model of open-inquiry can develop the skills of scientific work positively through experimental open inquiry activities in the course of wave. Thus the inquiry model can develop critical thinking skills and scientific work skills and ultimately improve student learning outcomes. Benefits of inquiry-based learning by Kubicek (2005) students can choose questions or to investigate their own problems, and can direct their investigation in the direction of their own choosing. Not only increase motivation but also more realistic, so as to build a better understanding of the natural sciences.

Findings Wuri and Mulyaningsih (2014), in Their research on the application of the scientific approach to learning physics materials of heat to the critical thinking skills of high school students of class X, that learning physics with a scientific approach to improve students' critical thinking skills in the experimental class 1 and class 2 experiments with the criteria being, means that the scientific approach, students can give a simple explanation (clarification elementari), build basic skills (basic support), provide conclusions (inferences), provide further explanation (further classification), and set the strategy and tactics (strategy

and tactics). In addition, the results of research Tawil, et al (2014), resulted in the application of a scientific approach to cooperative learning model Think Pair Share (TPS) can increase students' understanding, communicating results, and can apply the concept that gained in solving problems on worksheets. Thus, learning the scientific approach can be combined with learning models to achieve the desired learning objectives.

Based on the above, the exposure, according to the physics course goals set out in the Standards of competence and basic competencies level curriculum for high school education in 2006, namely; (1) Establish a positive attitude towards physics to realize the regularity and beauty of nature and exalt the greatness of God Almighty; (2) Fostering scientific attitude that is honest, objective, open, resilient, critical and can cooperate with others; (3) Develop the experience to be able to formulate the problem, propose and test hypotheses through experimentation, design and assemble the experimental instruments, collect, process, and interpret the data, and communicate the results of the experiment orally and in writing; (4) Develop the ability to reason in thinking inductive and deductive analysis using the concepts and principles of physics to explain natural events and resolve problems both qualitatively and quantitatively; (5) Mastering the concepts and principles of physics and have the skills to develop knowledge, and attitude of confidence in preparation for continuing education at a higher level and to develop science and technology. So the purpose of this research are: (1) Determine the need for teachers to be appropriate instructional media and can help students to master the concepts and principles of physics; (2) Determine the needs of the students will be learning media that can help students to develop the experience to be able to formulate the problem, propose and test hypotheses through experimentation, design and assemble the experimental instruments, collect, process, and interpret the data, and communicate the results of the experiment orally and in writing ; (3) Analyze the implementation of physics learning in high school Al-Kautsar Bandar Lampung. While the results of field studies can be useful, namely: (1) Provide a vivid description of the implementation of the the learning that occurs in high school physics Al-Kautsar; (2) Provide input to the principal to improve the learning of physics in high school Al Kautsar; (3) As a reference for developing worksheets with inquiry-based the learning models scientific approach.

RESEARCH METHODS

The sampling technique used was cluster sampling, the sampling was carried out on the sampling unit, where the sampling unit consists of one group (cluster). Each item (people) in the selected group will be taken as a sample (Nasution R., 2003). While the study subjects were students of Al-Kautsar Bandar Lampung high school class X-1, amounting to 30 student. Research subject teacher is 3 subject physics teachers in Al-Kautsar high school .

Implementation of the field study was conducted on April 7, 2015. Data were collected by questionnaire analysis of the needs of teachers and students' needs. The processing and analysis of data is done through four stages. The first stage is a data coding results of the questionnaire; Second Stage tabulation of data to look class, nature, type, and frequency data so easy reading, categorizing, and analysis; The third stage, the analysis of qualitative data, which is analyzed by breaking and linking of data and information relating to the focus of research. The fourth stage, is to make the appropriate interpretation of the results of the analysis of problems and research questions and make inferences.

RESULTS AND DISCUSSION

On this occasion will be reported to the things that are found in the field based on the observations made during the field study.

1. Teacher Needs Analysis

Table 1. Summary of Questionnaire Results Disclosure Requirements Teacher Al-Kautsar Bandar Lampung High School

Nu.	Analysis Questions	Identification Of Problems	Identification
1	2	3	4
1	In starting the learning of physics, as much as 33.33% invites students to think to solve a problem and formulate a problem related to the material being taught	Most teachers in starting the lesson invites students to think have not solved a problem and formulate a problem when they start learning	required training Learning inquiry model
2	In the study of physics, as much as 33.33% of teachers providing instruction to students to make a temporary answer to the formulation of the problem is related to the material being taught	Most teachers have not give guidance to students to make a temporary answer of formulation problems related with the material being taught.	required training Learning inquiry model
3	In the study of physics, as much as 66.67% of teachers facilitate students to look for information / data needed and ways to determine a rational answer	There are teachers who do not facilitate the students to look for information / data needed and how to determine a rational answer	required training Learning inquiry model
4	In the study of physics, as much as 66.67% of teachers use worksheets to convey the subject matter	There are teachers who did not use the worksheets to convey the subject matter	Necessary understanding of the function and role worksheets in learning
5	A total of 66.67% of teachers said that by using worksheets, feel easier in the delivery of the subject matter	There are teachers say that by using worksheets, did not it easier in the delivery of the subject matter	Necessary understanding of the function and role worksheets in learning
6	In the study of physics, as much as 33.33% of teachers use worksheets to practice by utilizing laboratory activities	Most teachers do not use the worksheets to practice activities by utilizing the laboratory	Worksheets that required for practical activities in the laboratory

1	2	3	4
7	A total of 66.67% of teachers said that by using worksheets, students helped to make observations and actively asked related to the observed object	There are teachers say that by using worksheets, students are did not helped to make observations and actively asked related to the observed object	Required worksheets-based Scientific Approach
8	A total of 33.33% of teachers said that by using worksheets, students can more easily gather information / data required.	Most of the teachers said that by using worksheets, students are did not much easier to gather information / data required.	Required worksheets-based Scientific Approach
9	A total of 33.33% of teachers said that by using worksheets, students can more quickly process information / data and submit its conclusions.	Most of the teachers said that by using worksheets, students are not faster processing information / data and submit its conclusions.	Required worksheets-based Scientific Approach
10	A total of 100% of teachers said the need to develop specific worksheets based learning approach with specific learning model. For example: (Circle the Mr / Mrs needed) a. Scientific approach to inquiry learning model b. Scientific approach to discovery learning model c. Scientific approach to learning models increase the ability to think	All the teachers say is necessary to develop specific learning approach based worksheets with specific learning model. as much as 66.67% of teachers choose a as much as 33.33% of teachers choose b	needs to be developed worksheets-based Scientific approach by the inquiry learning model
11	A total of 100% of teachers agreed that if the developed worksheets scientific approach-based to inquiry learning model in teaching physics in particular vibration material	All teachers agreed that developed worksheets-based scientific approach to inquiry learning model in teaching physics in particular vibration material	Developed worksheets Scientific approachl-based to the mode inquiry learning

From Table 1, Summary of Questionnaire Results Disclosure Requirements Teacher Al-Kautsar High School , it is known that physics teachers Al-Kautsar high school is essential to learning training model of inquiry. Analysis of the questionnaire answers number 1, 2, and 3 are the questions steps inquiry learning model turns out they are have not fully implementing the learning by inquiry model. In addition, high school teachers Al-Kautsar also need an understanding of the function and role of the worksheets in the study, because the use of worksheets at SMA Al-Kautsar only as a material for giving the task, because the content is

only a summary of the material worksheets and practice questions. worksheets use should be involved during the learning process so that knowledge can be constructed through the help of student worksheets (Toman, et al, 2013). worksheets also should be able to play a part in practical activities in the laboratory, with the help of student worksheets can be more easily and focus in gathering information / data so that students can draw conclusions or provide answers to questions problems (problem formulation) in the underlying rational for the information / data accountable, not only by argument (Hosnan, 2014: 343). From the analysis of response (response teacher) numbers 7-11, that in Alkautsar high school should be developed worksheets based scientific approach and inquiry learning model, because Worksheets scientific approach based that students will learn to use worksheets that have been designed to aid scientific approach, so that students in the learning will be familiar with observing, ask, gather information, associate and communicate. While the teachers in the delivery of learning by using inquiry learning model in which syntax inquiry learning model in tune with scientific approaches such as (formulate the problem starts with observing, formulating hypotheses begins by asking, collecting information / data needed to test the hypothesis and so on.

2. Results of Student Needs Analysis

Table 2. Summary of Questionnaire Results Disclosure Requirements High school students of Al-Kautsar Bandar Lampung

Nu.	Analysis Questions	Identification Of Problems	identification
1	2	3	4
1	In starting the learning of physics, as much as 56.67% of the students said that the teacher had invited them to think to solve a problem and formulate a problem related to the material being taught	Almost half of the students said that the teacher has not invited them to think to solve a problem and formulate a problem related to the material being taught	Required Learning inquiry model
2	In the study of physics, as much as 76.67% of the students said that the teacher provides guidance to students to make a temporary answer of formulation problems associated with the material being taught	Almost a quarter of the students said that the teacher does not give guidance to students to make a temporary answer of formulation problems associated with the material being taught	Required Learning inquiry model
3	In the study of physics, as much as 66.67% of students say that teachers facilitate students to look for information / data needed and how to determine a rational answer	Almost half of the students said that the teacher does not facilitate the students to look for information / data needed and how to determine a rational answer	Required Learning inquiry model

1	2	3	4
4	In the study of physics, as much as 86.67% of students said that in addition to the textbooks they use Worksheet	a few students said that in addition to textbooks they do not use Worksheet	Required the use of worksheets that right in the learning process
5	By using worksheets, as much as 66.67% of students say that they find it easier to accept and understand the subject matter	Almost half of the students said that if they did not use the worksheets find it easier to accept and understand the subject matter	Required the use of worksheets that right in the learning process
6	In the study of physics, as much as 66.67% of the students said that the worksheets facilitated by utilizing laboratory practicum	Almost all of the students said that the worksheets does not facilitate practical activities by utilizing the laboratory.	worksheets required for practical activities in the laboratory
7	By using worksheets, as much as 63.33% of students said that helped to make observations and actively asked related to the observed object	Almost half of the students said that if they did not use the worksheets helped to make observations and actively asked related to the object observed.	Required worksheets Scientific Approach-based
8	By using worksheets, as much as 63.33% of students say that can more easily gather information / data needed	Almost half of the students said that if they did not use the worksheets can more easily gather information / data required.	Required worksheets Scientific Approach-based
9	By using worksheets, as much as 80% of students say that it can more quickly process information / data and conclusions expressed either orally, in writing, or other media	There are a few students said that by using the worksheets slower in processing information / data and submit their conclusions	Required worksheets Scientific Approach-based
10	as much as 80% of students say that Should be developed worksheets-based learning approach specific to a particular model lesson so that they will be more focused and easier to understand the subject matter	There were a few students do not Require to be developed worksheets specific learning approach based with specific learning model	Required worksheets Scientific approach-based to be developed by the inquiry learning model

1	2	3	4
11	as much as 78.33% of students said that they agreed that if the developed worksheets-based scientific approach to inquiry learning model in teaching physics in particular vibration material	There are nearly a quarter of the students they do not agree if developed worksheets-based scientific approach to inquiry learning model in teaching physics in particular vibration material	Required worksheets Scientific approach-based to be developed by the inquiry learning model

From Table 2, Summary of Results of Questionnaire Disclosure Requirements students Al-Kautsar high school, it can be seen that the students of Al-Kautsar high school is essential to learning the inquiry model because from identification of problem and wished for almost half of the students in learning physics teacher invites them to think to solve a problem, formulate a problem, formulate answers while, collecting information or data to determine a rational answer, it is a step-by-step inquiry learning model. From the identification of the problem is also found most of the students have been using worksheets however nearly half were still difficult to understand the physics of matter and this is because worksheets only as a means to complete a task and exercise. It also found the students need worksheets scientific approach-based. So the researchers concluded that need to be developed worksheets based scientific approach to inquiry learning model at SMA Al-Kautsar to facilitate teachers and students in learning activities for learning more effectively and efficiently to achieve the objectives of subjects Physics.

3. Analysis of the implementation of learning Physics

From Table 1 we can see that the implementation of physics learning in Al-Kautsar high school is not yet fully implement inquiry learning as recommended in annex 3 Permendiknas no. 22 of 2006. Most teachers in starting the lesson has not invited students to think solve a problem and formulate a problem, the teacher has not provided guidance to students to make a temporary answer of formulation problems associated with the material being taught, means that the teacher has not taught students to formulate a hypothesis. Teachers also did not facilitate the students to look for information / data needed and how to determine a rational answer. It is also supported by the data in Table 2, that the students feel teachers are not yet fully implement inquiry learning.

From the identification of the above findings, the researchers discovered the need for improving and enhancing the quality of learning physics in Al-Kautsar Bandar Lampung high school, one of the most urgent thing to do is to increase the quality of teachers' abilities in designing and implementing learning activities using the inquiry model physics. This can be achieved through providing the knowledge and abilities of inquiry to teachers in designing and conducting experiments / practicum in teaching physics, as well as develop teaching materials such as worksheets with learning inquiry-models and scientific approach-based.

CONCLUSION

Based on the research objectives and exposure to the above, it can be concluded as follows:

(1) The teachers and students Al-Kautsar high school need the teaching materials in the form worksheets scientific approach-based to the inquiry model of learning that can help students understand the concepts, principles, and laws of physics; (2) Physics teachers in high school Al-Kautsar already know the model of inquiry in learning physics, but the implementation is not fully using the learning model of inquiry. Therefore, it is necessary that provides knowledge and abilities of inquiry in designing and conducting experiments / practicum in teaching physics; (3) It should be developed worksheets inquiry learning model scientific approach based.

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