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UTILIZATION OF THE GUIDED INQUIRY LEARNING MODEL TO DEVELOP STUDENTS' CONSERVATION CHARACTER

Sarwi[1], Wasisakti DP[1], Sutardi[2]

[1.] *Department of Physics Education Semarang State University Indonesia*
[2.] *SMA Negeri 5 at Semarang City, Central Java, Indonesia*

**e-mail: sarwi_dosen@mail.unnes.ac.id*

ABSTRACT

Development of learning process by using the guided inquiry learning model to develop the students' conservation character. The purpose of this research is to develop of SMA students' character through an application of guided inquiry learning model on physics measurement topics. The research was carried out by using prepost-test only one group design of physics course provided for SMA Negeri 5 of 32 (treament) students at Semarang City Central Java**.** Instruments of the observation sheets is used for collecting data of the guided inquiry and the conservation character scores. The data was analyzed by using descriptive percentage and coefficient correlation test. The results show that the students mastered of conservation character score is 82% (good) and guided inquiry score is 80% (good). The results also show the coefficient correlation (r count) = 0.76 (high) with p = 0,001 and α = 0.05; its show that between guided inquiry and students' conservation character scores in high correlated. This research can be concluded that utilization of the guided inquiry learning model effective to develop students' conservation character.

Keywords: guided inquiry model, physics measurement, conservation character

INTRODUCTION

The basic competencies is designed for students by a teacher, includes not only academic competence but with more emphasis on thinking skills, which is a basic life skill. Improvement of learning physics should be oriented to how students learn physics, in accordance with the nature of physics. Therefore, provisioning thinking skills are indispensable for students, which is useful both for teaching physics in the classroom as well as in solving the problems faced everyday (Liliasari, 2005). Inquiry learning model is one model that develop thinking skills and very strong use constructivist learning principles, namely the knowledge constructed by the students themselves. During the implementation process model of guided inquiry for content and process of inquiry taught using the principle of learning community and knowledge sharing (Laughlin, et al., 2007). Through the investigation, at the end of the learning process students can build the knowledge learned.

Syntax inquiry model, according to some experts there are differences, but the main activity of inquiry include the process: identify the problem, make hypotheses, collect and analyze data, and make decisions. Students who have conducted inquiry means to develop cognitive and affective aspects, which supports the learning patterns metacognition. So that learning takes place in a conducive need the involvement of students directly and actively. According Suparno (2007) states that the activities of experimentation guided inquiry will be managed effectively if it met the following requirements: 1) the freedom to find and search for information, 2) environment or atmosphere that is responsive, 3) focus on the problem that is clear direction and can be solved students, 4) low pressure (less pressure), which is not a lot of pressure so that students do more critical and creative thinking.

Research results in line (Alfisyhr 2011) suggests the application of guided inquiry on electricity dynamic for high school students received information that there is a positive relationship between the activity of inquiry with a mastery of dynamic power (r = 0:47) and the effective implementation of a model with a gain factor

<g> = 0.71 (high). Classical completeness results of the group that received treatment equal to 87.5% (standard 85%). The research results also implement guided inquiry type Group Investigation states to develop an effective inquiry activity and cognitive domains topic light reflection. Gain factor <g> obtained at 0.62 (moderate) and motor skills do the experiment 71% (scale 100) (Wahyuningsih, 2011). Both studies above demonstrate effective models of guided inquiry in providing a conducive learning facilities that enable potential students both emotionally and intellectually.

Learning physics through experiments guided inquiry is also used to develop the character of conservation value. While, the characters defined personal attitude steady consolidation process results in a progressive and dynamic, integration of statements and actions (Khan, 2010). Meaning that tune delivered Koesoema (2010) that the character is a dialectical movement of individual dynamic consolidation process so as to produce a stable personality trait. Character education emphasis on psychosocial elements tied to education and environmental context. Further stated character education is associated with an individual's personality traits or characteristics that show someone that comes from the process of accommodation and associated to the environment.

There are a number of strategies that can be used as a vehicle for character education (Khan, 2010), namely: a) creative approach, b) pictorical riddle approach, and c) the inquiry approach. In this study used guided inquiry approach, which uses the emotional process to develop the character of conservation and increase the potential of the intellectual. Type of inquiry are applied to studying the subject and measuring the amount of physics topics are guided inquiry. Experimental activity conducted through the drafting of experiments with the teachers, prepare teacher-led issues, implementation, accompanied by teachers, reporting and presentation of the report by the group. Teacher observation, guidance and help solve the problem if the study group had trouble. Teachers and technicians only provide mentoring and counseling students to produce the best solution.

Social aspects of character that will be developed in this research include disciplined, curious, polite, hard work, self-reliance, cooperation. Guided inquiry-based learning model cooperative is one way of learning the concepts and characters that aims to motivate learners to support each other and help one another, to master the competencies taught (Slavin, 2005). Thus the social impact of the group's work led to the awareness of the recognition of the advantages and disadvantages of each individual in the group. This technique proved to be positively applied to a relatively mature learners and schools of different types. Techniques guided inquiry barbasis cooperatively implemented by forming classes in small groups that membered 4 people. At this stage of the working group of lecturers / teachers provide worksheets and quizzes that must be completed by the group. The working group has advantages, namely: TIM emphasizes rewards, so that each member take an active role and develop a sense of individual responsibility.

Student involvement with the activities of thinking during the learning process, a positive impact on achieving mastery of concepts being studied (Slavin, 2005[7]; Muijs and Renolds, 2008[8]). For example, at this stage of the group work each member can put forward ideas and concepts are conceived to answer the given task lecturer. So cooperative inquiry learning based reward group based on individual achievements of all members of the group and has a major contribution to the achievement of learning outcomes (Slavin, 2005). Likewise, at the stage of presentation, participants can submit questions and give feedback, so the group presenter and hold his answer logically.

Objectives are achieved: 1) describe the inquiry skills, 2) develop the character of the conservation value of high school students. The expected benefits of the research results to develop a positive culture of moral character and conduct scientific work that is embodied in the experiment guided inquiry.

METHODS

This research was conducted at SMA 5 Semarang, Semarang, Central Java. The method used was experimental education with only one group posttest design (Creswell, 2009). The subjects were 32 students (treatment) participants in Physics Lessons on scale and measurement topics. Subjects were divided into 8 groups: Galileo, Henry, Dalton, Einstein, Faraday, Archimides, Bernoulli, Coulomb. Data was collected by using observation to observation sheet that contains 8 indicators skills guided inquiry (to formulate the problem, make hypotheses, designing experiments, melaukan experiments, collect data, analyze the data, make inferences, communicating the results) and 6 character values of conservation (discipline, courtesy,

curiosity, self-reliance, work hard, cooperation). The data was collected by using observation sheets with grading scores (Fay, et al., 2007). The data guided inquiry skills and character values of conservation processed using descriptive qualitative technique (Sugiyono, 2007). The degree of correlation between the two variables were processed using correlation test (r) (Nurgiyantoro, et al., 2009).

RESULTS AND DISCUSSION

The data was obtained two observers to the character of the conservation value of the data presented in Table 1. The same score is given by the second observer on indicators of discipline and manners. A more interesting result is the score of the four indicators (curious, self-reliance, hard work, cooperation) achieved by students with different scores 2 points. Based on these results mean score values obtained by the observer I and II is 81 and 83 (scale of 100).

Table 1 The Character of Conservation scores of high school students

Observer	NK-1	NK-2	NK-3	NK-4	NK-5	NK-6	Av
Obs_1	86	85	79	78	77	81	81
Obs_2	86	86	81	80	79	83	83

Description: (NK-1: discipline, Nk-2: polite, NK-3: curious, NK-4: independence, NK-5: work hard, NK-6: cooperation)

Furthermore, the data in Table 1 were made in the form of histograms presented in Figure 1.

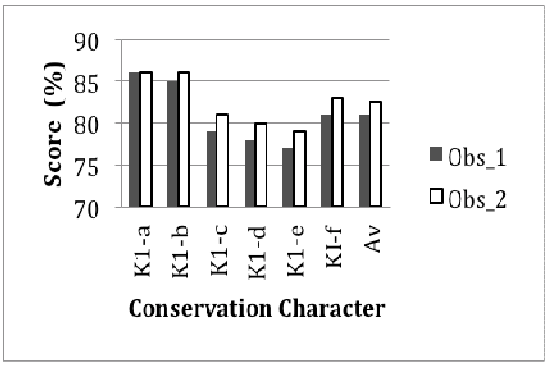

Figure 1 Data Six Conservation Characters Indicator Value Creation recorded by two observers

In Table 1, the indicator curiosity, independence and hard work has yet to reach a high score indicates less than a score of 80 for the results of the scoring observer I. Indicators and polite student discipline has been showing a very good attitude to the average score of 86. The fact that more interesting is an indicator of hard work has not yet reached a satisfactory level. Results of the analysis of all the indicators mean score is 82. It can be expressed high school students need to be guided and trained work habits and solve problems and engage in laboratory activities. Character scientific value are identified them honest, objective, and is responsible has not been cultivated on the activities of the learning process both in class and in laboraatorium. Results of data collection guided inquiry skills students are presented in Table 2.

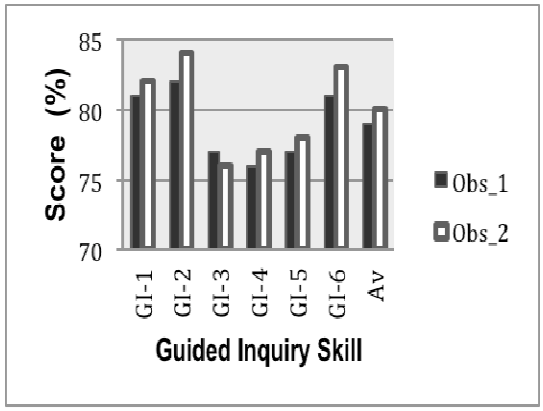

Figure 2 Score Guided Inquiry Skills of High School Students

The results also reveal the relationship between guided inquiry skills scores and scores of characters conservation produces a correlation coefficient of 0.76 (high). This shows aktivitsa students in carrying out the inquiry has been showing strong conservation character. This correlation figure illustrates the positive linear relationship between two variables.

The results of data analysis revealed between guided inquiry skills and character of the conservation of students in the high category. Some observations indicate that each member of the group given the task, then collected and discussed and at the end of the activities of all members of the group (4 students) involved discussion in pairs to determine the best solution (Slavin, 2005). It is supported by the results of the study (Laughlin et al., 2007) that small groups can work effectively to find the best solution of the task or problem.

The results of the data collection inquiry skills shown students shown in Figure 2. The results of the analysis revealed that three indicators designing, gather data, and analyze the data is still quite low. It can be understood that the class X immature in developing ideas for the design and data collection has not been thorough and incomplete in the writing unit of physical quantities. Ability to analyze the data has not shown a high yield because the unfamiliar trained in discussing and studying based on the literature. Results of the study (Wenning, 2006) guided inquiry skills most difficult student is analyzing the data to be deduced. The use of experimental of guided inquiry models effective to develop students' character conservation values. During completing a task or problem every member work together in a compact manner and is responsible for obtaining the best solution. According to Khan (2010) stated that the inquiry learning model can develop mental processes to conduct scientific methods and improve motor skills and intellectual potential learners.

CONCLUSION

Guided inquiry learning model is able to actively involve the students in implementing learning physics concepts on the size and measurements. Variable inquiry skills and character of conservation has a strong association with the correlation coefficient (r) = 0.76 (high). Guided Inquiry is also able to develop the character of the conservation of students effectively with a mean score of 82. The guided inquiry learning is able to display indicators guided inquiry skills and character of the conservation of students optimally.

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