



The Effect of Guided Inquiry Model Assisted by LKPD to Improve Students' Creative Thinking Abilities on Momentum and Impulse Materials at SMAN 1 Pagai Utara

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ABSTRACT

This research aims to show that students' creative thinking abilities can be improved in physics learning through a guided inquiry model so that students' creative thinking abilities can reach a high category in physics learning. This research is a pre-experiment with a one group pretest-posttest design. The population of this study were phase F students of SMAN 1 Pagai Utara. The sample in this research was taken using a simple random sampling technique. The research instruments used were essay test questions, observation sheets, and performance assessments. Based on the description that has been presented, the researcher wants to conduct research on the influence of the guided inquiry model assisted by LKPD to improve creative thinking skills.

Keywords: Guided inquiry; creative thinking; Momentum and impulse.



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I. INTRODUCTION

In the 21st century, education plays an increasingly important role in shaping individual learning abilities and supporting student development [1]. The learning process in the 21st century requires a change in approach. The new curriculum requires schools to shift from a teacher-centered learning model to a student-centered model [2]. In the 21st century, educators need to adopt various innovations in learning methods to achieve the expected educational goals [3]. These 21st century skills are very important to develop, because they can create students who have potential and are able to compete healthily to develop their potential.

One of the main goals of the school curriculum is to improve students' creative thinking abilities. Creative thinking ability is the ability that students have to explore solutions that are unusual, unique, and have never been discovered before by others. This creative thinking ability is an ability that every human being must have. By thinking creatively, students can solve various problems encountered in lessons, if students really try as hard as possible to solve problems. Creative thinking is a person's skill in analyzing new information and producing new ideas [4];[5];[6];[7];[8]. Creative thinking ability is

the ability that students have to explore solutions that are unusual, unique, and have never been discovered before by others [9]. Thinking is not only generating new ideas, but also the multifaceted ways in which they can be constructed and communicated. The challenges of the 21st century are characterized by increasingly complex and intricate challenges that require creative thinking skills [10]. This creative thinking ability is an ability that every student must have. By thinking creatively, students can solve various problems encountered in lessons, if students really try as hard as possible to solve problems. Creative thinking ability can be integrated into learning, one of which is in physics learning [11]. Creative thinking activities can be integrated into learning, one of which is in physics learning [13]. Creative thinking skills are very important in learning activities to improve higher thinking patterns in solving problems in physics learning [14].

Physics as a component of the curriculum aims to develop human intellect, attitudes, interests, abilities and creativity so that they can live in harmony with the laws of nature. Physics plays an important role in helping humans understand various natural phenomena and ultimately produce new knowledge [15]. Every process carried out to create scientific products must be based on a high sense of responsibility. Therefore, students are expected to be responsible for every decision taken when facing a problem [16]. Learning physics in schools not only encourages students to think critically, creatively, objectively, logically, and scientifically, but also contributes to the development of scientists who can improve the quality of a country [17]. Physics learning studies nature and its phenomena. Natural phenomena that are the object of physics study consist of the complexity of relationships between events that ultimately become facts, theories, concepts, principles, and laws of physics. Problems in physics can be solved if someone is able to understand the basic concepts of physics [18].

The progress of a country is greatly influenced by the quality of its education. Education itself is a teaching and learning process that involves interaction between students, teachers, and subject matter. Teachers have a role in optimizing and increasing the potential of students [19]. Teachers also have an important role in changing the paradigm of education, not only focusing on content, but also on student creativity [20]. High creativity can encourage students to create quality work, both in the form of products and ideas. Therefore, teachers need to keep up with the times so that they can vary the learning models used in the teaching and learning process in the classroom. One learning model that can improve students' creative thinking is guided inquiry.

II. METHOD

The type of research conducted is experimental research. The experimental method is a quantitative research method used to determine the effect of independent variables on dependent variables under controlled conditions.

The design of this study is pre-experimental designs with one group pretest-posttest design. This design can be described as follows:

Table 1. one group pretest-posttest design

Group	Pretest	Treatment	Posttest
Experiment	O ₁	X	O ₂

Information :

= pretest score O₁

X = Application of guided inquiry model

O₂= posttest value

III. RESULTS AND DISCUSSION

A. Results of students' creative thinking

Based on the test given to students of class XI phase F at SMAN 1 Pagai Utara, several problems were found. The first problem is that the level of creative thinking ability of students in class XI phase F is still relatively low. Proven from the results of students' answers to the essay-based test questions that have been given, the average value of students' creative thinking ability is obtained in Table 2 as follows.

Table 2. Average Value of Creative Thinking Ability of Grade XI Phase F Students of SMAN 1 Pagai Utara

No	Class	Number of Students	Average Value of Creative Thinking Ability	Category
1	XI.F1	18	41.5	Lack of creativity
2	XI.F2	21	34.3	Lack of creativity
3	XI.F3	16	31.6	Lack of creativity

Based on Table 1, it can be seen that the lack of creative thinking skills of students at SMAN 1 Pagai Utara in the syntax fluency (fluence) is still in the very low category. It turns out that when students work on questions related to mentioning ways that can be done by truck drivers to get wages according to the agreement, 25% can only answer at level 2, namely there are incorrect answers and there are details.

B. Student Questionnaire Analysis Results

The results of the questionnaire analysis given to 56 students at SMAN 1 Pagai Utara can be seen in Table 3.

Table 3. Results of student questionnaire analysis

No	Student Needs Analysis Results
1	57.1% of students stated that they still use printed textbooks in learning.
2	76.8% of students stated that they did not understand the material on work and energy.
3	87.5% of students stated that they still do not understand every physics lesson material.
4	62.5% of students stated that teachers did not provide LKPD before physics lessons.

Based on Table 3. Students still use printed textbooks in learning. Students also still do not understand each material in physics lessons.

Table 4. Interview Results

No	Question	Teacher Interview Results
1	Has class XI of SMAN 1 Pagai Utara used the independent curriculum in physics learning?	Yes. Currently, class XI of SMAN 1 Pagai Utara is using the curriculum
2	What is your response to the independent	It is very good to be applied to physics lessons because with differentiated learning we can see the potential of

- curriculum in the students. How to teach it using various learning physics learning models. The strategy used is that physics teachers must process for grade XI? be right in choosing learning models, dividing students into groups, teaching students to use appropriate media so that physics learning can be mastered by students.
- 3 What teaching Textbooks, teaching modules, virtual laboratory materials do you use simulations such as phet, virtual laboratories from the in the physics learning ministry of education for physics learning materials. In process? addition, it also uses relevant sources from the internet.
 - 4 What teaching When the teacher carried out a demonstration materials do you use? simulation using a virtual laboratory, students were very enthusiastic in carrying it out and observing because they directly experienced the physics phenomenon. Therefore, students like it when they do it directly without just theory but students can explain the phenomenon of how the ball falls vertically, horizontally, moves parabola, students witness it directly.
 - 5 Have you ever used Yes. When using virtual laboratory practice, you use LKPD during the LKPD learning process?
 - 6 What is your response Students are still confused in implementing the steps of if you use LKPD in using LKPD, so they must be guided properly by the the learning process? teacher so that students can implement it. After students can, then students can be creative themselves to try to do the practicum but also in accordance with the instructions in LKPD
 - 7 What learning model The learning model that you use in physics learning is do you use in the problem solving, where students are given case studies physics learning and can solve the cases. process?

- 8 What are the obstacles you face in using this model? Because of the large number of students with various characters, the problem with the model is when given a case, there are students who do not understand and understand a little. So the strategy for using a model must really be made a team first so that students who really understand can explain to students who do not understand. Like the problem solving learning model is implemented cooperatively

- 9 What are the obstacles you face in the learning process? In learning, the main obstacle is the mindset of students because they assume that learning physics is difficult and always identical to formulas. Therefore, the learning that is carried out does not only use the lecture method but uses learning using demonstrations with virtual laboratory simulations because laboratory equipment in schools is very limited so that virtual laboratories are used with Phet simulation or virtual laboratories of the Ministry of Education.

- 10 Have you ever used questions to improve students' creative thinking skills? Yes. You have created higher level questions to improve creative thinking skills. The questions you use are like making a person's mass used with their own mass, thus triggering students' creativity to work on the questions.

- 11 What would your response be if LKPD was made to improve students' creative thinking skills? I strongly agree that LKPD can improve students' creative thinking skills because with LKPD teachers and students can learn from each other and gain experience from you yourself. I also hope that this LKPD can train students to think more creatively so that making physics fun can be realized. This LKPD can also be used as additional teaching materials for schools, especially in physics learning so that later it can be applied more deeply in the future with the

LKPD to improve students' creative thinking skills.

- 12 How would you respond if the LKPD you created contained material on business and energy? Very good LKPD on the material of effort and energy because this material is considered difficult by students. Sir hopes that this LKPD is made very creatively so that students can easily understand what effort is, what energy is, and what are the examples, how are the phenomena.

Based on Table 4 above, it shows that students have difficulty understanding the material on work and energy. Students have difficulty understanding what work, energy, examples of it, and its phenomena in everyday life.

IV. CONCLUSION

Based on the research results conducted at SMAN 1 Pagai Utara class XI phase F, the results of students' creative thinking are still relatively low. The teaching materials used by teachers are not yet varied. Therefore, the researcher wants to conduct research on the influence of guided inquiry models assisted by LKPD to improve students' creative thinking skills.

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