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Improving Students' Creative Thinking Skills Through the *Discovery learning* Model on Class VII Motion and Force Material at SMP Negeri 18 Kota Jambi

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Abstrak

Artikel ini mendeskripsikan sebuah penelitian tindakan kelas yang bertujuan untuk meningkatkan kemampuan berpikir kreatif siswa. Penelitian dilakukan di SMP Negeri 18 Kota Jambi dengan melibatkan 34 siswa kelas VII C, terdiri dari 16 siswa laki-laki dan 18 siswa perempuan. Metode yang digunakan mencakup pendekatan kuantitatif dan kualitatif. Pengumpulan data melalui observasi, tes, dan dokumentasi pada beberapa tahapan meliputi: perencanaan, tindakan, observasi, dan refleksi. Kemudian dilakukan analisis data menggunakan metode kuantitatif dan kualitatif**.** Analisis kuantitatif dilakukan untuk mengolah data hasil tes kemampuan berpikir kreatif siswa. Sementara itu, analisis kualitatif digunakan untuk mendeskripsikan hasil observasi aktivitas guru dan siswa dalam pembelajaran dengan model *discovery learning*. Hasil penelitian menunjukkan bahwa penerapan model pembelajaran *discovery learning* berkontribusi terhadap peningkatan kemampuan berpikir kreatif siswa. Pada siklus pertama, persentase siswa yang mencapai ketuntasan sebesar 44,11%. Kemudian, pada siklus kedua, terjadi peningkatan ketuntasan klasikal menjadi 67,64%, meskipun belum mencapai indikator keberhasilan yang ditetapkan, yaitu ≥ 75%. Oleh karena itu, penelitian dilanjutkan ke siklus ketiga, di mana ketuntasan klasikal meningkat menjadi 79,41%. Berdasarkan hasil tersebut, dapat disimpulkan bahwa penerapan model pembelajaran *discovery learning* dapat meningkatkan kemampuan berpikir kreatif siswa kelas VII C di SMP Negeri 18 Kota Jambi.

Kata Kunci: *Berpikir Kreatif, Discovery Learning*

Abstract

This article describes a classroom action research aimed at improving students' creative thinking skills. The research was conducted at SMP Negeri 18 Kota Jambi, involving 34 students from class VII C, consisting of 16 male students and 18 female students. The methods used include both quantitative and qualitative approaches. Data collection through observation, tests, and documentation at several stages includes: planning, action, observation, and reflection. Then, data analysis is conducted using quantitative and qualitative methods. Quantitative analysis is conducted to process the data from the students' creative thinking ability tests. Meanwhile, qualitative analysis is used to describe the results of observing teacher and student activities in learning with the discovery learning model. The research results show that the application of the discovery learning model contributes to the improvement of students' creative thinking abilities. In the first cycle, the percentage of students who achieved mastery was 44.11%. Then, in the second cycle, there was an increase in classical completeness to 67.64%, although it had not yet reached the established success indicator, which is ≥ 75%. Therefore, the research continued to the third cycle, where the classical completeness increased to 79.41%. Based on these results, it can be concluded that the application of the discovery learning model can enhance the creative thinking abilities of seventh-grade students in class VII C at SMP Negeri 18 Kota Jambi.

***Keywords**: Creative Thinking or Discovery Learning*

Introduction

Currently, education in Indonesia emphasizes 21st-century skills. In the 21st century, learners must possess supporting skills. 21st-century skills are classified into four categories: critical thinking, creativity, communication, and collaboration (Sarah Vania et al., 2022). 21st-century skills have become a curriculum requirement that students must possess (Mulyasa, 2023). The latest curriculum initiated by the Minister of Education, Culture, Research, and Technology is the Merdeka Curriculum (Indarta et al., 2022). The Merdeka Curriculum is a government policy aimed at enhancing students' achievements in skills and improving educational standards and the quality of learning (Sari, 2023). Although the Merdeka Curriculum is expected to develop students' creative thinking abilities, the reality is different from the situation in class VII C SMPN 18 Kota Jambi.

Based on the results of the observations conducted in the VII C SMPN 18 class in Jambi City during the learning process, several issues were found, including students who tend to not ask questions and do not answer the questions given by the teacher, students who are not yet skilled in completing assignments, students who cannot explain or elaborate on the answers given, and students who cannot provide relevant examples related to the material being studied when asked by the teacher.

In line with the interview conducted with the science teacher who teaches in the seventh grade at C SMPN 18 Kota Jambi, it was stated that during the learning process, there are materials that are actually difficult for students to digest, but the students do not dare to ask questions or their questions do not pertain to the material and are not precise. And it is also observed that students are still fixated on the concepts in the book, so the questions answered are only those in the book. If it is not in the book, they are confused about how to answer it. Students are not yet able to produce answers in their own words and explain the answers given. The teacher also stated that the problem could possibly be caused by several factors such as the students' lack of understanding of the material concepts, the students' lack of willingness to seek information, and the students' lack of creativity in learning. And for practical activities, they are rarely conducted, only for certain subjects where there are tools and materials available in the laboratory. The teacher also only uses the blackboard to explain the lessons.

Based on the description of the problem, one of the main issues in the seventh-grade class at CSMPN 18 Kota Jambi is the lack of students' creative thinking skills. Strengthened by Munandar's (2014) statement, the characteristics of individuals with creative thinking abilities are as follows: they can generate ideas and answers to solve problems (fluency), provide varied solutions (flexibility), produce unique answers using their own language or words that are easy to understand (originality), and can expand on an idea or elaborate on an answer in detail (elaboration skills).

The ability to think creatively is very important for every individual, so learning related to creativity must be implemented in schools. This is addressed in the Minister of Education, Culture, Research, and Technology Regulation No. 16 of 2022, Section Seven, Article 14, which states: "The implementation of learning in an educational atmosphere that provides sufficient space for initiative, creativity, and independence in accordance with the talents, interests, and physical and psychological development of students." students who possess creative thinking skills will be able to generate ideas and solve problems, therefore creative thinking skills are highly needed to be developed in the learning process (’Adiilah & Haryanti, 2023). This shows that creative thinking skills are important to possess.

To enhance students' creative thinking abilities, one of the efforts made is the selection of the appropriate model in learning. One of the models that can be used to enhance students' creative thinking abilities is the *Discovery learning* model (Ibad et al., 2018). Learning with the *Discovery learning* model can transform students' passive learning conditions into active and creative ones, as well as shift the focus of learning from being teacher-centered to student-centered (Riski et al., 2020). The *Discovery learning* model is very effective for implementation in science education (Laelatulfi et al., 2023). In science learning, students are required to discover new concepts, which necessitates them to possess high cognitive

abilities and creativity (Yuliawati & Panjaitan, 2017).

The *Discovery learning* model allows students to actively discover scientific concepts and principles that can be carried out through direct practical activities (Azizah & Fajeriah, 2021). However, teachers have not yet fully implemented activities that can develop students' creativity. Therefore, the researcher will try to develop students' creativity through practical activities. Practical work provides students with the opportunity to experience or perform tasks themselves, allowing them to independently discover facts and concepts, as well as cultivate and develop the required attitudes and values (Purnamasari, 2020). Considering that the *Discovery learning* model can enhance creative thinking skills, the researcher will attempt to apply it to solve classroom problems using the Classroom Action Research (CAR) method.

According to Arikunto et al. (2015), Classroom Action Research is a study that illustrates the cause-and-effect of the treatment, while also detailing what happens when the treatment is given, and presenting the entire process from the beginning of the treatment to the impact of the treatment. Thus, it can be said that Classroom Action Research or CAR is a type of research that presents both the process and the results, which conducts CAR in its class to improve the quality of its learning. According to the theory proposed by Kemmis and McTaggart, action research can be viewed as a spiral cycle of planning, action implementation, observation, and reflection, which may then be followed by the next spiral cycle. Based on that, the idea of implementing action research is an effort to improve the learning process.

Therefore, this study aims to examine the application of the *Discovery learning* model on the improvement of students' creative thinking abilities. The *Discovery learning* model is believed to be able to address this issue. This statement is in line with Zulayani's (2022) assertion, which states that with the implementation of the *Discovery learning* model, students can easily grasp the learning topics, enabling them to develop the material received and generate new, creative, and innovative ideas. Therefore, the researcher is interested in conducting a study titled "Improving Students' Creative Thinking Skills Through the *Discovery learning* Model on Motion and Force Material for Seventh Grade at SMP Negeri 18 Kota Jambi".

Method

This research is a classroom action research aimed at improving the system and process of learning in the classroom to enhance students' creative thinking skills. Each cycle of this research consists of four stages: planning, action, observation, and reflection. This research also aims to identify problems in classroom learning so that they can be studied and examined further. Thus, the quality of teaching and learning can be improved according to the identified issues.

The location of this research was conducted at SMP Negeri 18 Kota Jambi. The subjects in this study are the 7th-grade C class students of SMPN 18, totaling 34 people, consisting of 16 male students and 18 female students. The instruments used in this study include observation sheets of teacher and student activities in the implementation of the Discovery Learning model and test questions on students' creative thinking abilities. The data collection methods used include test techniques in the form of essay questions given at the end of each cycle and non-test techniques in the form of observation sheets. Data analysis in this study uses both quantitative and qualitative methods. Quantitative analysis is conducted to process data from students' creative thinking ability tests. Meanwhile, qualitative analysis is used to describe the results of observing teacher and student activities in learning with the Discovery Learning model. And the success indicator in this study is if at least 75% of students have achieved the Learning Achievement Criteria (KKTP) with a score of ≥ 65.

Result and Discussion

After processing the data, evaluation, and reflection on the actions taken in the conducted research, it is evident that the application of the *discovery learning* model can enhance students' creative thinking abilities on the topic of Motion and Force in class VII C at SMP Negeri 18 Kota Jambi.

An overview of the improvement in students' creative thinking abilities with the

application of the *discovery learning* model in each cycle, tested through descriptive tests given to students at the end of each cycle, can be seen in the following table:

Table 1. Improvement of Students' Creative Thinking Skills Each Cycle

Observed Aspects	Cycle			Percentage (%)		
	I	II	III	I	II	III
The number of students is completed	15	23	27	44,11	67,64	79,41
The number of students is incomplete	19	11	7	55,88	32,35	20,58

Based on table 1, the results of the action implementation in cycle I show that the percentage of students' creative thinking ability is 44.11%. From the data, it is known that 15 students have achieved mastery, while 19 students have not yet mastered the material. In cycle II, there was an increase in the percentage of students' creative thinking ability to 67.64%, with 23 students achieving mastery and 11 students not yet mastering the material. Thus, compared to cycle I, there was an increase in the number of students who achieved mastery by 8 students.

Although there has been an improvement, this achievement still does not meet the success indicators set in the research. According to the specified success criteria, the *discovery learning* model is considered capable of enhancing students' creative thinking abilities if the classical completeness percentage reaches 75%. Therefore, the results in cycle II indicate that the learning process still needs to be improved to meet the established success standards.

According to Rahmawati et al. (2023), if the reflection results in cycle II still do not meet the target, the researcher needs to plan cycle III with the same stages as the previous cycle. Based on this, the researcher decided to proceed to cycle III in order to achieve the set targets and obtain more optimal results.

In cycle III, the percentage of students' creative thinking ability increased to 79.41%, with an additional 4 students achieving mastery compared to the previous cycle. Thus, the number of students who successfully completed their studies increased to 27, while 9 students have not yet achieved completeness. Because the expected target has been achieved, this research is declared successful and does not need to be continued to the next cycle. These findings are in line with the opinion of Rahmawati et al. (2023), who state that if in cycle III the expected targets have been achieved and performance indicators have been met, the next step for the researchers is to compile the research conclusions.

Based on the explanation above, it can be concluded that each cycle in this study shows an increase in students' creative thinking abilities, although only a few more students improved in each cycle. This shows that the application of the *discovery learning* model in science education on the topic of Motion and Force is capable of enhancing students' creative thinking skills.

The results of this study are in line with the findings of Yasin & Nasruddin (2022), which state that *discovery learning* is a series of learning activities that actively involve students in discovering their own knowledge. Through this method, students are encouraged to think analytically and strive to solve problems independently, thereby enhancing their creativity in learning and providing new experiences in the learning process. Furthermore, according to Armawita et al. (2024), learning through the *discovery learning* model encourages students to become more independent and creative in solving challenges that arise during the learning process. Thus, they can develop new and more innovative ideas. Based on these theories, it can be concluded that the application of the *discovery learning* model can enhance students' creative thinking abilities.

The implementation of the *discovery learning* model in teaching can also be seen through the activities of teachers and students during the learning process. An overview of the activities of teachers and students in the implementation of the *discovery learning* model in each cycle, as filled out by the observer, can be seen in the following table:

Table 2. Teacher and Student Activities in the Implementation of the Discovery Learning Model in Each Cycle

Observed Aspects	Percentage (%)			
	Teacher Activity		Student Activity	
	P1	P2	P1	P2
Cycle I	75,56	80,00	60,14	64,85
Category	Good	Good	Quite	Good

			good	
Cycle II	85,56	87,78	76,07	77,24
Category	Very good	Very good	Good	Good
Cycle III	93,33	94,44	85,77	82,72
Category	Very good	Very good	Very good	Very good

From the percentages obtained, it shows that teachers and students have carried out all the implemented activities, although there were some obstacles in each cycle. The increase in the percentage of teacher and student activities in each cycle is due to the *discovery learning* model, which requires students to find things on their own through group activities, making students more active in searching, discovering, and presenting their findings. Meanwhile, the teacher becomes a facilitator for the students in their learning.

Based on Table 2, the implementation of the *discovery learning* model shows a significant increase in teacher and student activities in each cycle. The teacher's activity in cycle I was in the good category, with percentages of 75.56% and 80.00%. In cycle II, the teachers' activity improved to the very good category with percentages of 85.56% and 87.78%. This improvement indicates that the teacher is becoming increasingly proficient in managing learning with the *discovery learning* model. In cycle III, the teacher's activity reached 93.33% and 94.44%, remaining in the very good category, indicating that the teacher was able to optimize their role in enhancing student engagement in learning through the *discovery learning* model.

Meanwhile, student activity also improved from cycle to cycle. In the first cycle, the percentage of student learning activities using the *discovery learning* model was still in the fairly good category with percentage values of 60.14% and 64.85%. Next, in cycle II, the percentage of student learning activities was 76.07% and 77.24%, indicating that student learning activities with the *discovery learning* model were in the good category and there was an increase in the percentage of activities from cycle I to cycle II. Then, in cycle III, the percentage of student activity was 85.77% and 82.72%, which falls into the very good category, indicating an improvement from cycles I and II to cycle III.

From the explanation, it can be concluded that in each cycle there is an increase in teacher activity in managing learning with the *discovery learning* model and an improvement in student activity in implementing learning with the *discovery learning* model. This shows that the gradual implementation of the *discovery learning* model successfully increased the involvement of teachers and students in the learning process, which in turn encouraged the improvement of students' creative thinking abilities.

In general, the improvement in students' creative thinking skills by applying the *discovery learning* model can be seen in the graph below:

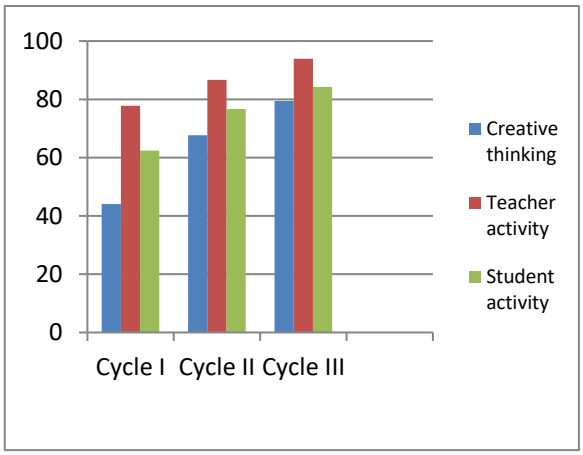

Figure 1. Graph of the increase in students' creative thinking abilities as well as the activities of teachers and students in the implementation of the discovery learning model

From the image, there is a significant increase in students' creative thinking abilities and the implementation of the *discovery learning* model in each cycle. The results of this study are in line with the findings of Zulayani (2022), which state that the application of the *discovery learning* model can enhance students' creative thinking abilities. Through this model, students find it easier to understand the learning material, enabling them to develop new ideas that are more creative and innovative.

In this study, after going through three cycles, the classical completeness level reached 79.41%, indicating that the success indicators have been achieved. Thus, it can be concluded that improving students' creative thinking skills through the *discovery learning* model on the topic of Motion and Force in class VII C at SMP

Negeri 18 Kota Jambi stopped at cycle III, because it has shown improvement and successfully met the research achievement indicators.

Conclusion

Based on the results of the classroom action research that has been conducted, it is known that by applying the *discovery learning* model, students' creative thinking skills in the Motion and Force material for class VII C at SMP Negeri 18 Kota Jambi can be improved.

This result is evident from the increasing percentage of classical completeness in each cycle. In cycle I, the classical completeness of students' creative thinking ability was 44.11%, then increased to 67.64% in cycle II, and reached 79.41% in cycle III. In Cycle III, the *discovery learning* model successfully helped improve students' creative thinking skills in the topic of Motion and Force, allowing students to meet the success criteria that had been established.

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