

Impact of Flipped Classroom on Elementary Students' Creative Thinking in the Merdeka Curriculum

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Abstract

Creative thinking ability is the ability to create an idea to solve a problem. SDN Glagaharum is one of the elementary schools that has a relatively low creative thinking ability, this can be seen from the ability of students to understand the material in the Merdeka curriculum. To address this, researchers explored the use of the flipped classroom learning model. This study was conducted with the aim of knowing how the flipped classroom model affects the basic creative thinking skills of school students in implementing the Merdeka curriculum. Employing a quantitative experiment, the Posttest Only Control Group Design was employed with a population of 40 fourth-grade students from SDN Glagaharum. Two samples, IV-A (experiment class with 20 students) and IV-B (control class with 20 students), were utilized. Data analysis included normality and homogeneity tests, along with paired sample *t*-test conducted in SPSS 26. The findings revealed that the flipped classroom learning model had a significant effect on the creative thinking ability of fourth-grade students at SDN Glagaharum within the context of the Merdeka curriculum.

Keywords: Creative thinking skills, Flipped classroom, Merdeka curriculum.

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INTRODUCTION

Education is a tool to develop all aspects of life in terms of economy, society, technology, knowledge and character (Ilham, 2019). In a broad sense, education is life, which means that education is all knowledge that lasts a lifetime (Blossfeld & Von Maurice, 2019). Education has an effort to make the learning process more active so that students can grow their abilities. Teachers are one of the components of education to determine the success or failure of the learning process (Hidayah & Syahrani, 2022). One of the learning instruments that must be completed by educational institutions is the curriculum because the curriculum is at the heart of education.

The curriculum is a set of learning plans that have objectives as guidelines in the process of learning activities that have been previously programmed. The curriculum itself is a reference for each teacher in carrying out the learning process. Indonesia has made several changes to the curriculum. At the beginning of education in Indonesia using the 1974 curriculum called the Decomposition RPP. Over time the curriculum has changed from year to year (Manalu et al., 2022). The curriculum is a picture of the formation of character education that fully contributes

to the future of the nation. Whatever becomes a curriculum strategy must be in line with the educational goals that affect nation building (Marisa, 2021).

Curriculum changes are inseparable from the development of the digital era. Therefore, the government is trying to improve the quality of education in Indonesia by developing the curriculum used. Currently, the latest type of curriculum is the Merdeka curriculum. Where in this curriculum is defined as a learning design with the hope of making students learn more calmly, interestingly, freely and proving their natural talents that they have. The Merdeka curriculum centers on freedom and creative thinking (Fauzi, 2022). The Ministry of Education and Culture presents the Merdeka Belajar Program that starts with driving schools. This program prepares schools to create students with Pancasila character. The existence of this Merdeka curriculum aims to reorganize the national education system in Indonesia to keep up with the times. The Merdeka curriculum is acceptable because the vision and mission of education in Indonesia is to create quality students who are able to compete in all aspects of life (Fauzi, 2022).

The Merdeka curriculum is a mandate by the Minister of National Education Nadiem Anwar Makarim who wants Indonesian education to be responsive and independent (Anridzo, Arifin, & Wiyono, 2022). A Merdeka curriculum can be understood as freedom of thought, independence in creativity, and appreciation or response to current changes (Nasution, 2021). The Merdeka curriculum will realize active learning for students. The Merdeka curriculum will provide improvements to the education system in Indonesia and the learning process will become simpler (Achmad et al., 2022). In the learning process, the Merdeka curriculum demands freedom of expression of student creativity. The Merdeka curriculum learning activities are designed to increase students' ability to innovate and think creatively. Learning strategies and the use of media in implementing the Merdeka curriculum make it easier for students to think creatively. Thus, the implementation of the Merdeka curriculum in elementary schools emphasizes the freedom of students' creative thinking skills and student independence in elementary schools (Daga, 2021). The existence of the Merdeka curriculum students will have the ability to think creatively and have a positive character that is more resilient, so that they are able to face various challenges in the future more prepared and confident, while in the previous curriculum it was not emphasized for students to have creative thinking skills, because the previous curriculum only focused on students' understanding of the material (Muliardi, 2023).

Creative thinking applies a variety of understandings and skills that result in new ideas, the ability to evaluate and describe. Creative thinking is very important to find alternatives that can help solve various problems. Creative thinking will be a prefix to face the problems that exist in the current era of globalization. The capacity for creative thinking in Indonesia is still low, the average student's creative thinking ability is 28.53% which is less creative (Damayanti, Santyasa, & Sudiatmika, 2020). The main factors that influence students' lack of creative thinking are factors from the family and internal factors in the student (Salsabila, Widodo, & Kasmad, 2021). To deal with students' low creative thinking skills, namely by using learning models that can motivate students to actively participate in the learning process (Rahajeng, Santyasa, & Suswandi, 2018).

Students' creative thinking skills can be developed and improved by applying various learning strategies. The use of appropriate learning strategies is one way to

improve students' creative thinking (Suliawati, Fakhri, & Sugiharta, 2020). Creative thinking requires persistence, discipline, and high concern. Creative thinking as the ability to realize new thoughts in producing various opinions. Students who think creatively always try to give meaning to the learning process. Natural and Social Sciences is one of the subjects that involves active students in developing their creative thinking.

Based on observations made by researchers at SDN Glagaharum, it was found that students' creative thinking skills towards the Merdeka curriculum were low. This can be proven during the learning activity process, it was found that most students did not respond regarding the material in the Merdeka curriculum. Therefore, researchers are interested in developing a learning model using flipped classroom. In the current era, the use of the flipped classroom model is expected to provide opportunities for students to learn independently by utilizing digital materials provided by the teacher. This allows students to have sufficient time for discussion in class. Given the rapid development of technology, teachers need to utilize technology as a learning tool so that students can learn more effectively. In addition, the ease of internet access owned by students can also be utilized to support the teaching and learning process (Yulianti & Wulandari, 2021).

In this research, the learning theory that supports the flipped classroom model is Piaget's constructivism theory. The theory refers to generative learning where students produce their own knowledge. With this effort, it can help students learn their knowledge. Another theory that helps the model is Vygotsky's social constructionism theory. In this theory, where students must foster their interactions with friends during the learning process such as forming discussion groups (Savitri & Meilana, 2022). What is done in this study is to implement learning to provide an increase in creative thinking skills by applying the flipped classroom learning model. Flipped classroom is a model that uses a mixed learning strategy, namely activities outside the classroom and activities in the classroom. The principle of the flipped classroom model is that the material from the teacher will be studied first by students by providing materials in the form of videos or other materials to be discussed at the next meeting. Furthermore, students carry out discussions related to learning material to be studied in the classroom together. The model successfully stimulates meaningful learning and encourages student activeness (Turnip & Cendana, 2021). In the flipped classroom learning model, the teacher becomes a facilitator who assists and guides in learning activities, while students are required to be active in learning (Supriati & Febriani, 2021).

Flipped classroom have been widely applied in education. The reason the flipped classroom learning model is used in education is that the use of time in the classroom will be more efficient, learning is more active, and improving the relationship between students and teachers. Through the flipped classroom learning model, teachers use online learning to make it easier for students to access and learn learning materials anywhere and anytime (Rusnawati, 2020). The flipped classroom learning model utilizes time in the classroom to conduct quality learning. Therefore, learning activities in the classroom are more focused. With this learning model, it can optimize students' abilities and try to foster creativity in accordance with the characteristics of the Pancasila learner profile which is a characteristic of the Merdeka curriculum. So that students' creativity and talents can develop.

In previous research, there was research related to the flipped classroom model that can improve students' creative thinking. However, it does not focus on the Merdeka curriculum. The results of the research conducted show that the flipped classroom model is very good for providing better student creative thinking results (Simamora & Siregar, 2021). Furthermore, researchers found research related to the flipped classroom model and did not focus on creative thinking and in the implementation of the Merdeka curriculum. However, research (Rusnawati, 2020), proves that the flipped classroom model can make students' learning outcomes and motivation better. The Minister of National Education explained that the Merdeka curriculum has the advantage of emphasizing essential material and developing student competencies at each stage. This curriculum provides freedom for schools, teachers and students to innovate, learn independently and increase creativity through creative thinking skills (Rahmadayanti & Hartoyo, 2022).

The purpose of this study is to describe how the use of the flipped classroom model can support students in improving their creative thinking skills. This model has a unique and strong impact on the ability to think creatively in the application of the Merdeka curriculum, especially facing the challenges of 21st century education. Therefore, researchers will attempt to discuss how the flipped classroom model affects students' creative thinking skills in implementing the Merdeka curriculum.

RESEARCH METHODS

This study uses quantitative methods. The quantitative method focuses on variables and the relationship between one variable and another (Fatmawati, Riyanto, & Setyowati, 2021). Quantitative methods aim to establish facts, convey statistical descriptions, measure theory, relationships between variables, describe and predict results (Khotimah, Kuswandi, & Sulthoni, 2019). This type of research uses quasi-experimental research. The location of this research was at Glagaharum Elementary School. In this study, the population was grade IV students of SDN Glagaharum. In class IV there are two classes, namely class IV-A and IV-B with a total of 40 students, so that each class consists of 20 students in class IV-A and 20 students in class IV-B. The sampling method used in this study is the total sampling method, which means that all members of the population become research samples. So the number of samples used is 40 students obtained from two classes, namely classes IV-A and IV-B at SDN Glagaharum. The research design used posttest only control group design, presented in Figure 1. After the experiment ended, both classes were given a Posttest. The steps taken to conduct this research were first to identify the experimental group. Second, giving different treatments to the two classes, namely in class IV-A using the flipped classroom model and in class IV-B using the conventional model.

Class	Treatment	Posttest
Experiment	X	O ₁
Control	–	O ₂

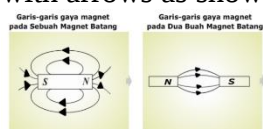
Figure 1. Posttest Only Control Group Design

The following is the description for Figure 1: X=Treatment using flipped classroom model; (–) =Without treatment using the flipped classroom model; O=Observation/measurement result.

The above design can be explained as follows. Stage 1, researchers compiled learning tools in the form of syllabus, lesson plans, teaching materials, assessment instruments. Stage 2, researchers conducted a flipped classroom learning model to improve creative thinking. At this stage, the experiment class used the flipped classroom learning model. Before starting the learning process in class, students get material to study first. If there are obstacles in the process of understanding, students will be allowed to take notes on material that they do not understand. After the process of providing material, the researcher will evaluate the material that has been distributed to students through the formation of study groups. The formation of study groups is intended to complete a project given by researchers to determine students' creative thinking skills.

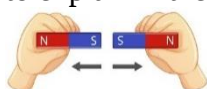
Posttest Question

1. Magnetic force is always used in everyday life, one of which is when someone opens the refrigerator door which helps the refrigerator door close tightly. Try to explain what you know about the meaning of magnetic force!
2. Magnetic objects are objects that can be attracted by magnets. Name 3 examples of magnetic objects!
3. Magnets have certain properties, among others, that have the power of attraction to certain objects. Try to explain what you know about the strength of the magnetic force of attraction to certain objects!
4. Not all objects can be attracted by magnets because of the properties of magnets. Objects that cannot be attracted by magnets are called nonmagnetic. Name 3 examples of nonmagnetic objects that you know!
5. The magnetic field is depicted with magnetic lines of force, and is expressed with arrows as shown below.



Try to summarize what you know about magnetic fields after you see the picture!

6. Magnets have an attractive force towards certain objects, usually objects attracted by magnets are iron, steel, nickel, and cobalt. Try to mention and explain why this can happen?
7. Write your opinion about the benefits of magnets related to everyday life!
8. In general, magnets come in four shapes. Name the 4 shapes of magnets!
9. Some magnets like bar magnets have two ends. Name and explain these two poles?
10. If the different poles of a magnet meet, there will be a force of attraction. Try to explain if the two poles that meet are the same what will happen!



As for the control class, researchers used conventional learning in the form of the lecture method. Stage 3, after the two classes apply the learning model tried by the researcher, the researcher will give posttest questions to measure the creative thinking skills of the two different classes, namely the experiment class and the control class.

A research instrument is a tool used by researchers to collect complete data. The instrument used by researchers is a question instrument. The question sheet is used as a data collection tool to find out how much students have achieved in learning activities carried out in the form of a number of questions. Researchers use cognitive tests in the form of description questions with data collection techniques in the form of posttest questions given at the end of learning. The posttest question used by researchers in collecting data has been presented.

Data collection techniques using tests. This stage was carried out by researchers to students. The creative thinking ability test is a test measuring students how creative they think in their work. The purpose of the test will assess the creative thinking ability of students in elementary school in answering questions and assessing the extent to which students' creative thinking processes have developed.

Data analysis in this study is using normality test, homogeneity test, and paired sample *t*-test which conducts different tests between two paired samples. The two samples have the same subject, but are given different treatments. The data analysis used the SPSS version 26.

RESULTS AND DISCUSSION

The evaluation results that have been carried out with the application of the normality test using the Shapiro Wilk test to verify that the data obtained comes from a normal distribution. If the significance value is more than $\alpha=0.05$, it can be assumed that the posttest results for the experiment class and control class have a normal distribution. In accordance with the basic principles in making normality test decisions. The results of the normality test are recapitulated in Table 1.

Table 1. Normality Test			
Class	Statistic	<i>df</i>	<i>Sig.</i>
Experiment Class	0.839	20	0.003
Control Class	0.939	20	0.229

In Table 1, it can be seen from the available table that the calculations carried out using the SPSS 26 application prove that the *Sig.* value of the experiment class is *Sig.*=0.003 < 0.05= α , and the control class is *Sig.*=0.229 > 0.05= α . It is stated that the experiment class posttest data is not normally distributed while the control class is normally distributed.

The next step after the normality test is to test for homogeneity with the analysis results listed in Table 2.

Table 2. Homogeneity Test				
	Levene Statistic	<i>df1</i>	<i>df2</i>	<i>Sig.</i>
Based on Mean	2.593	1	38	0.116

In Table 2, the posttest data analysis shows that $Sig.=0.116>0.05=\alpha$. It is known that the significance value in the posttest results for the experiment class and control class is balanced because the value exceeds the error rate.

Furthermore, the experiment class applied the flipped classroom model to improve the creative thinking skills of elementary school students. The first step is learning at home, then continued with classroom activities, and finally assessment. In the experiment class, the learning model was different from the control class. The material is presented directly in the classroom by utilizing power point presentations without any prior delivery of material outside the classroom.

After the learning was completed, the experiment and control classes were given a posttest to evaluate the final understanding of both. From the final results, the average score of the experiment class using the flipped classroom method was 94.75, while the control class only reached 34. Table 3 explains descriptive statistics of the posttest data.

Table 3. Descriptive Test of Experiment Class and Control Class Statistics

	N	Minimum	Maximum	Mean
Experiment Posttest	20	85	100	94.75
Control Posttest	20	20	55	34.00

Based on Table 3, the posttest results of the two classes were significant. The experiment class had an average of 94.75 with a maximum value of 100 and a minimum value of 85. Meanwhile, the control class averaged 34.00, with a maximum value of 55 and a minimum value of 20. The data proved to be normally distributed and homogeneous. The next step is to test the hypothesis using the paired sample *t*-test. The purpose of the hypothesis test is to look for differences that exist between the experiment class and the control class. To analyze the effect of the flipped classroom learning model on the creative thinking skills of elementary school students, the paired sample *t*-test test was used, with the results in Table 4.

Table 4. Analysis Result Effect using Paired Sample *t*-test

	Mean	Confidence Interval		<i>t</i>	<i>df</i>	<i>Sig.</i> (2-tailed)
		Lower	Upper			
Experiment-Control Posttest	60.750	56.573	64.927	30.438	9	0.000

Based on Table 4, the paired sample *t*-test test table above using the SPSS 26 application, the results obtained with a significance value of .000. Therefore, it can be concluded that $Sig.0.000<0.05=\alpha$. So, it can be said that the flipped classroom learning model has a significant effect on the experimental class.

This is in line with research conducted by Simamora and Siregar (2021) that the benefits of the flipped classroom learning approach as described in theory have been proven empirically, so these results prove that the creative thinking skills of elementary school students can be improved by using the flipped classroom learning approach. Students who were guided using the flipped classroom model produced more scores compared to the class that was guided with the conventional model. This shows a significant difference in learning outcomes. The success of improving the ability to think creatively in grade IV students of SDN Glagaharum

cannot be separated from the application of the flipped classroom learning model. The flipped classroom learning model is very effective because students prepare subjects from home. This can be seen from the high average academic results of students. Students taught using the flipped classroom model achieve better learning outcomes compared to students taught using conventional models (Efendi & Maskar, 2020). The application of this model can provide students with innovative and efficient creative thinking skills.

The flipped classroom model is very good for student activeness in the classroom and better communication between teachers and students (Ariyana, Anggraini, & Apriliani, 2022). In implementing the Merdeka curriculum using the flipped classroom model, teachers will have more time to provide learning feedback and students will gain a better understanding. Therefore, the flipped classroom model is highly recommended to be implemented in education in Indonesia. This is in accordance with several previous studies which show that the application of the flipped classroom model is very successful and increases the creative thinking skills of elementary school students (Farida et al., 2019). The flipped classroom learning model reduces direct instruction and increases individual interaction. In this model, students must prepare themselves by reading the material before entering class and participating in discussions to solve problems with the help of classmates and teachers. This concept is in line with the implementation of the Merdeka curriculum, where the teacher acts as a liaison for students to be active and independent in the learning process (Listianti & Rahim, 2022).

Education carried out by applying the flipped classroom model focuses on students' efforts to learn actively and understand concepts well during the teaching and learning process and shares opportunities for them to innovate with each other in utilizing existing technology according to their abilities. The flipped classroom learning model promotes and improves student learning and creative thinking (Fedistia & Musdi, 2020). The principle of the flipped classroom model is that teachers reduce face-to-face teaching delivery and maximize individual relationships with students. In addition, it provides opportunities for students to be invited to explore their knowledge independently and use techniques that are suitable for their learning patterns. In addition, teachers provide opportunities for students to develop their understanding independently and use strategies that match their learning characteristics (Mirlanda, Nindiasari, & Syamsuri, 2019).

CONCLUSION

After analyzing the data, it can be concluded that the flipped classroom learning model provides much better results in developing the creative thinking skills of elementary school students who apply the Merdeka curriculum, compared to using conventional models. This is evident from the comparison of the average scores of the two classes, namely between the experiment and control classes. Therefore, the hypothesis stating that there is a meaningful influence on the improvement of students' creative thinking skills in class IV-A SDN Glagaharum is accepted. This can be seen from the average value of students' creative thinking skills in the experiment class of 94.75 and the control class of 34.00. Therefore, the ability to think creatively obtained through the application of the flipped classroom model is very effective, so the use of the flipped classroom model has a positive impact on

the achievement of creative thinking skills of elementary school students in the implementation of the Merdeka curriculum.

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