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IMPLEMENTATION OF THE MERDEKA BELAJAR CURRICULUM THROUGH THE APPLICATION OF PROJECT-BASED LEARNING MODELS TO IMPROVE STUDENT LEARNING OUTCOMES IN MATHEMATICS LEARNING

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Abstract:
The merdeka curriculum is a form of evaluation of the previous curriculum, namely the 2013 curriculum. In an independent curriculum, students are no longer forced to study subjects that are not their main interest. Therefore, a learning model is needed to support this independent curriculum's implementation. One suitable learning model to implement the curriculum is a project-based learning model. This study aims to improve student learning outcomes in mathematics learning through the Project Based Learning learning model. This type of research is classroom action research with data collection carried out through observations, and tests. The research subject is class XII in statistics subject totaling 26 students. The data analysis technique used qualitative and quantitative and was carried out for 2 cycles. The results showed that the application of the project-based learning model could improve student learning outcomes in learning mathematics. This can be seen from the average score of learning outcomes in the cognitive domain in the first cycle of 57.12% increased to 82.88% in the second cycle, the average score of learning outcomes in the psychomotor domain in the first cycle of 53.65% increased to 84.61%, and the average score of learning outcomes in the affective domain in the first cycle of 72.5% increased to 83.85%. This shows that the application of the project-based learning model can improve student learning outcomes.

Keywords: Merdeka Curriculum, Project-Based Learning Model

IMPLEMENTASI KURIKULUM MERDEKA BELAJAR MELALUI PENERAPAN MODEL PEMBELAJARAN BERBASIS PROJECT UNTUK MENINGKATKAN HASIL BELAJAR SISWA DALAM PEMBELAJARAN MATEMATIKA

Abstrak:
Kurikulum merdeka merupakan bentuk evaluasi kurikulum sebelumnya yakni kurikulum 2013. Kurikulum Merdeka ini diluncurkan demi mengejar ketertinggalan pendidikan di masa pandemi covid-19. Dalam kurikulum merdeka peserta didik

tidak lagi dipaksa untuk mempelajari mata pelajaran yang bukan menjadi minat utamanya. Olehnya itu, dibutuhkan model pembelajaran yang dapat menunjang pelaksanaan kurikulum merdeka ini. Salah satu model pembelajaran yang cocok untuk mengimplementasikan kurikulum tersebut adalah model pembelajaran berbasis proyek (project-based learning). Penelitian ini bertujuan untuk meningkatkan hasil belajar siswa pada pembelajaran matematika melalui model pembelajaran Project Based Learning. Jenis penelitian ini merupakan Penelitian Tindakan Kelas dengan pengumpulan data dilakukan dengan wawancara, observasi, dan tes. Subjek penelitian adalah kelas XII pada mata pelajaran statistika berjumlah 26 orang siswa. Teknik analisis data menggunakan kualitatif dan kuantitatif, serta dilakukan selama 2 siklus. Hasil penelitian menunjukkan bahwa penerapan model pembelajaran project-based learning dapat meningkatkan hasil belajar siswa dalam pembelajaran matematika. Hal ini dapat dilihat dari skor rata-rata hasil belajar pada ranah kognitif pada siklus I sebesar 57,12 % meningkat menjadi 82,88% pada siklus II, skor rata-rata hasil belajar pada ranah psikomotorik pada siklus I sebesar 53,65% meningkat menjadi 84,61%, dan skor rata-rata hasil belajar pada ranah afektif pada siklus I sebesar 72,5 % meningkat menjadi 83,85%. Hal ini menunjukkan bahwa model pembelajaran berbasis proyek dapat meningkatkan hasil belajar siswa.

Kata Kunci: Kurikulum Merdeka, Model Pembelajaran Berbasis Proyek

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INTRODUCTION

Education in Indonesia always experiences curriculum changes from time to time (Ananda & Hudaidah, 2021). Curriculum changes, of course, cannot be avoided and passed, but must always be lived and adapted to the needs and principles (Sadewa, 2022). Plate revealed that the failure of education is influenced by a curriculum that is not able to meet the demands of the times (Anggraena, Felicia, Dion, Pratiwi, Utama, Alhapip, & Widiaswati, 2021). Therefore, the curriculum must always be evaluated and then adjusted to the knowledge, progress, and demands of the market. Reporting from CNN Indonesia Nadiem Makarim stated that the merdeka curriculum was launched in order to catch up with education during the covid-19 pandemic, which with this curriculum will make learning activities more flexible. Although it has been inaugurated, this curriculum is not necessarily implemented in all schools, this depends on the readiness of each

school. The independent curriculum will be run as an additional option first during 2022-2024 in the context of post-pandemic learning recovery. Furthermore, it is hoped that this independent curriculum can be implemented thoroughly in all educational units. Currently, there are three curriculum options implemented, namely the 2013 curriculum, the emergency curriculum, and the independent curriculum (Iskandar, Rosmana, Anggraeni, Sulistyorini, & Anisa, 2022).

The independent curriculum is independent learning, namely a concept that is made so that students can explore their respective interests and talents (Maghfiroh & Sholeh, 2022). In an independent curriculum, students are no longer forced to study subjects that are not their main interest. Students can freely choose the material to be studied according to their respective interests (Simatupang & Yuhertiana, 2021). Therefore, a learning model is needed to support this independent curriculum's implementation. One of the suitable learning models to implement this independent curriculum is the project-based learning model. With the project, the focus of student learning is no longer solely to prepare for exam questions but can provide a meaningful learning experience for students (Mariyaningsih & Hidayati, 2018).

Project-based learning is a learner-centered learning model that provides students with a meaningful learning experience (Wahyu, Islam, & Rahmat, 2018). Project-based learning is a learning model that gives students the freedom to plan learning activities, carry out collaborative projects, and ultimately produce work products that can be presented to others (Hartini, 2017). The project-based learning (PjBL) model is a learning model that involves a project in the learning process (Wahyu, Islam, & Rahmat, 2018). Students learning experiences and concepts are built based on the products produced in the project-based learning process (Afriana, 2015). The purpose of implementing Project Based Learning is to improve students' ability to solve project-based problems, acquire new knowledge and skills in learning, and make students more active. in solving complex project problems with real product results, developing and improving students' skills in managing materials or tools to complete assignments, and increasing student collaboration.

The reality that occurs in the field, especially in the study of Statistics at MAN 1 Soppeng, shows that the mastery of student learning outcomes is still relatively low. Of the 27 students, there were only two to three students who were in the complete category. This then becomes material for reflection for

subject teachers to overcome these problems. In fact, from the results of reflection, information was obtained that students in the class needed a learning strategy or model that could maximize students' ability to collaborate with other friends through project-based learning by seeing that Statistics material had a very high chance of being applied to this model. It turns out that the project-based learning model is still minimally applied by teachers in this school, there are only a few subjects that use this model but the syntax of this model has not been implemented thoroughly. In learning mathematics itself, this learning model has not been applied. Student collaboration activities are still limited to working in groups to complete a bank of questions or practice questions and discuss material, the rest is done conventionally. Even though entering the era of learning recovery is expected to be able to implement learning models that can support the curriculum.

There have been many studies related to project-based learning models such as the PjBL model to improve student achievement (Rais, 2010); the PjBL model to increase student creativity (Sari & Angreni, 2018); the PjBL model to improve critical thinking skills (Kristiyanto, 2020); PjBL model to improve learning outcomes (Darmawan, Ramlawati, & Rante, 2022). The research as a whole provides positive conclusions regarding the application of the project-based learning model. However, among other studies, there is still no discussion of the project-based learning model combined with the merdeka curriculum, which of course the steps of this model are by the achievement indicators of the merdeka curriculum which are more oriented towards strengthening the profile of Pancasila students.

Therefore, from the problems above, researchers who are assisted by one of the teachers will conduct research related to the implementation of the independent curriculum through the project-based learning model in mathematics, which is expected with this research to be one of the first steps to determine the readiness of teachers to face the era of independent learning. with a more effective and efficient learning model to achieve better learning goals and quality education in the future. In addition, by applying the project-based learning model, it is hoped that it can improve student learning outcomes as measured by increasing the completeness of student learning outcomes in Statistics.

METHODS

This research is a Classroom Action Research that aims to improve students' creative thinking skills through the application of the Project Based Learning learning model based on the Independent Curriculum. The flow of this research uses the Kemmis & McTaggart model with stages that can be described as follows.

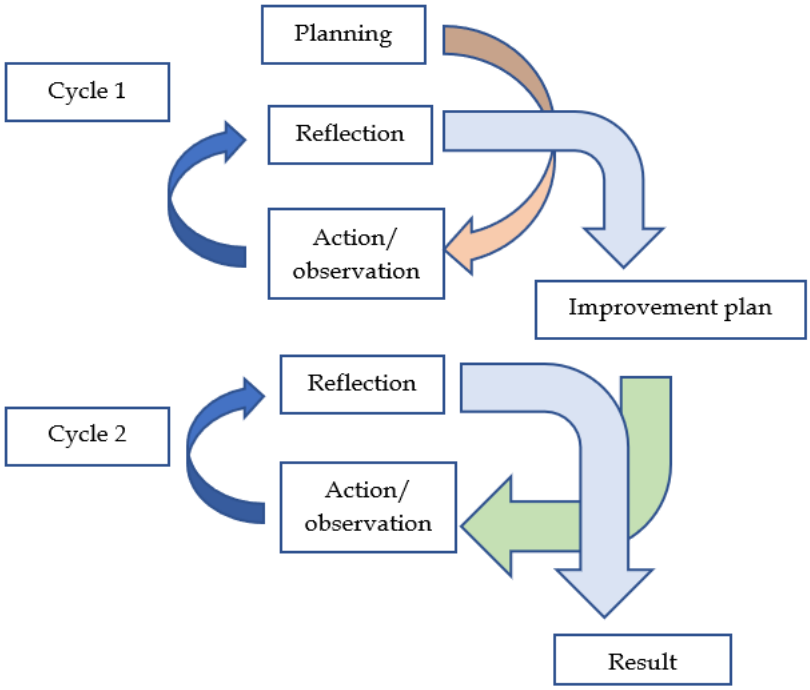

Figure 2. Classroom Action Research Flow

The research procedures above are described as follows:

1. Action Planning (Planning)

Based on identifying problems at the pre-CAR stage, an action plan is prepared to empirically test the determined action hypothesis. This action plan includes all the action steps in detail. All the needs for implementing CAR, starting from teaching materials/materials, teaching plans that include teaching methods/techniques, as well as observation/evaluation techniques or instruments, are carefully prepared at this planning stage. At this stage, it is also necessary to take into account all the obstacles that may arise during the implementation stage. By anticipating more than expected the implementation of CAR can take place well to the predetermined hypothesis. The action planning stage is carried out as follows: (1) Asking permission from the

principal and class X teacher of MAN 1 Soppeng. (2) Observing the learning techniques used by the previous class teacher. (3) Develop a Learning Implementation Plan (RPP) based on the Merdeka Learning curriculum with a PjBL model with 2 cycles and each cycle for two meetings. (4) Making research instruments in the form of observation sheets, pretest, and posttest questions.

2. Acting

This stage is the implementation (implementation) of all the plans that have been made. At this stage, the application of the PjBL model learning is carried out on Statistics material by the teacher which takes place in the classroom. The steps taken by the teacher of course refer to the applicable curriculum, and the result is expected to be in the form of increasing the effectiveness of the involvement of collaborators just to help the researcher to be able to sharpen the reflection and evaluation he doing on what is happening in his class. In this reflection process all experiences, knowledge, and learning theories are mastered and relevant.

3. Observing Action

Observation activities are carried out simultaneously with the implementation of the action. The data collected at this stage contains the implementation of the actions and plans that have been made, as well as their impact on the process and instructional results collected with the help of observational instruments developed by the researcher. At this stage, it is necessary to consider the use of several types of research measuring instruments for the benefit of data triangulation.

4. Reflection

This stage is the stage for processing the data obtained during observations. The data obtained are then interpreted and sought for explanation, analyzed, and synthesized. In this data review process, it is possible to involve outsiders as collaborators. The involvement of collaborators is only to help researchers to be able to more sharply reflect and evaluate. In this process of reflection, all experiences, knowledge, and instructional theories that are mastered and relevant to the previous class actions, become material for consideration and comparison so that a solid and valid conclusion can be drawn. This reflection process plays a very important role in determining the success of Classroom Action Research.

RESULTS AND DISCUSSION

This research is a class action research study that will be carried out in August 2022 on Statistics material. The subjects used in this study were class XII, totaling 26 people. In this research, the data collected is an assessment of cognitive knowledge, skills, and attitude values. This research was conducted in two cycles. The reason for this classroom action research using two cycles is because seeing from the results of student learning in the first cycle has not met the average score of completeness learning outcomes so it needs to be continued by giving the same learning activity in the next cycle. Following are the results of the first cycle obtained from the 3 assessment domains below.

Table. 1 Learning Outcomes based on Cognitive domain Cycle 1

Description	Result
Average	57,12
Highest score	75
Lowest score	45
Finished	1
Not finished	25
Classical completeness	3,85%
Learning outcomes	57.12%

From the results of the analysis above, it can be observed that the average student score is 57.12 with a classical completeness percentage of 3.85%. It consists of 1 person who has completed and 26 people who have not completed or are under the KKM 75.

Table. 2 Learning Outcomes based on the psychomotor domain Cycle 1

Description	Result
Average	53,65
Highest score	70
Lowest score	40
Finished	0
Not finished	26
Classical completeness	0%
Learning outcomes	53,65

From the results of the analysis above, it can be observed that the average practice value of students is 53.65 with a classical completeness

percentage of 0%. In the psychomotor domain of cycle I, it turned out that no one met the KKM, meaning that no one met the criteria for completeness.

Table. 3 Learning Outcomes based on the Affective domain Cycle 1

Description	Result
Average	72,5
Highest score	85
Lowest score	60
Finished	15
Not finished	11
Classical completeness	57,69%
Learning outcomes	72,5%

From the results of the analysis above, it can be observed that the average affective value of students is 75.2, with a classical completeness percentage of 57.69% in other words from 26 students there are 11 students who do not meet the criteria for completeness.

Based on the learning outcomes test in cycle 1, student learning outcomes obtained are still relatively low and many students have not completed this research, then this research is continued in the second cycle. In the second cycle, 4 meetings were held where the first meeting discussed the previous material and the second discussed the next material, besides that students were given the opportunity to make improvements to the assigned project, monitor students regarding the progress of the project, and finally, evaluate the tools made.

Table. 4 Learning Outcomes based on Cognitive domain Cycle 2

Description	Result
Average	82,88
Highest score	100
Lowest score	70
Finished	24
Not finished	2
Classical completeness	92,31%
Learning outcomes	82,88%

From the results of the analysis above, it can be observed that the average value of students in cycle 2 has increased by 82.88 with a classical

mastery presentation of 92.31% or there are 24 students who meet the criteria for learning mastery and the remaining two students who have not completed.

Table. 5 Learning Outcomes based on the Psychomotor domain Cycle 2

Description	Result
Average	84,61
Highest score	95
Lowest score	70
Finished	25
Not finished	1
Classical completeness	96,15%
Learning outcomes	84,61%

From the results of the analysis above, it can be observed that the average practice value of students in cycle 2 has increased by 84.61 with a classical mastery percentage of 96.15% in other words there are 25 students who meet the criteria for completeness and 1 person is left who has not been completed.

Table. 6 Learning Outcomes based on the Affective realm Cycle 2

Description	Result
Average	83,85
Highest score	95
Lowest score	75
Finished	26
Not finished	0
Classical completeness	100%
Learning outcomes	83,85

From the results of the analysis above, it can be observed that the average affective value of students in cycle 2 also increased by 83.85, with a classical completeness percentage of 100% in other words all students met the criteria for maximum completeness.

Based on the results of data analysis, the data obtained from students' cognitive learning outcomes for cycle 1 and cycle 2 as shown in the table below.

Table.7 Students' Cognitive Learning Outcomes

Aspect	Cycles	Average	Learning Outcomes Presentation
Learning Outcomes	cycle1	57,12	57,12%
Cognitive	cycle 2	82,88	82,88%

Comparison of students' statistical learning outcomes scores in cycle I and cycle two is presented in the form of a graph as follows.

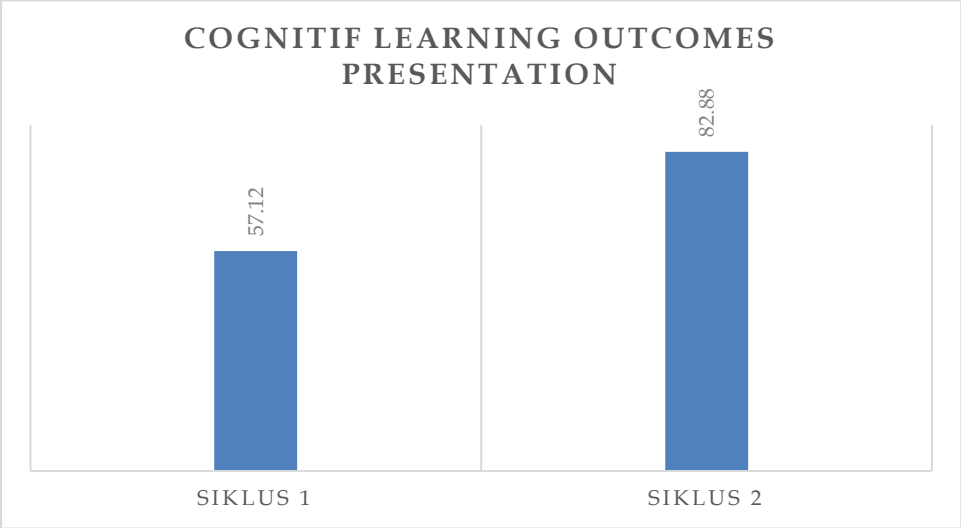

Figure 1. Cognitive Learning Outcomes Presentation

Comparison of the score of psychomotor learning outcomes in statistics subjects for students in cycle one and cycle two can be seen in the following table 8.

Table.8 Students' Psychomotor Learning Outcomes

Aspect	Cycles	Average	Learning Outcomes Presentation
Learning Outcomes	cycle1	53,65	53,65%
Psycomotor	cycle 2	84,61	84,61%

A comparison of psychomotor learning outcomes can be seen in the following graph.

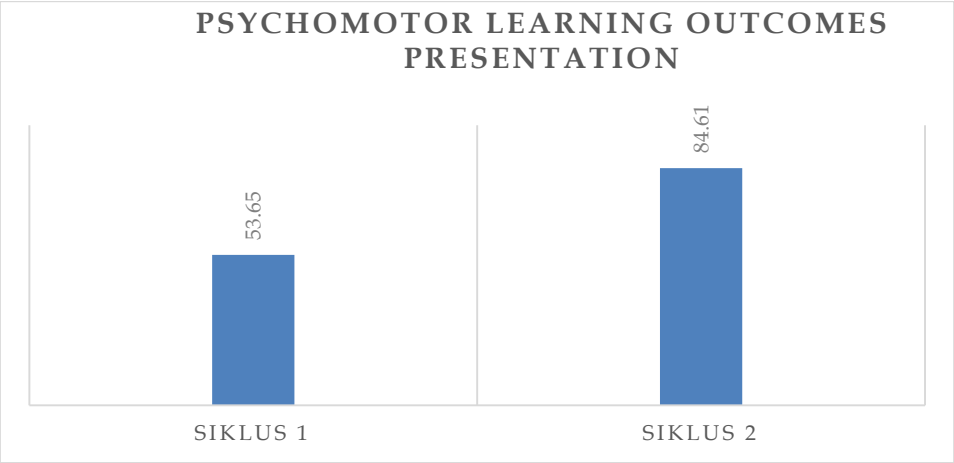

Figure 2. Psychomotor Learning Outcomes Presentation

Comparison of the score of affective learning outcomes in statistics subjects for students in cycle one and cycle two can be seen in the following table.

Table.9 Students' Affective Learning Outcomes

Aspect	Cycles	Average	Learning Outcomes Presentation
Learning Outcomes	cycle1	72,5	72,5%
Psycomotor	cycle 2	83,85	83,85%

A Comparison of affective learning outcomes can be seen in the following graph.

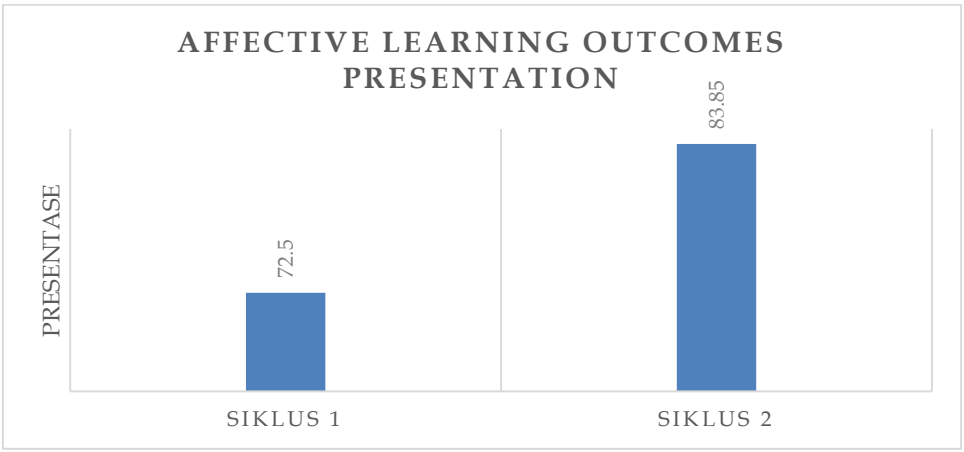

Figure 3. Affective Learning Outcomes Presentation

From the data above, the researcher can conclude that the percentage of learning outcomes from cycle I and cycle II for the cognitive, psychomotor and affective domains shows a significant increase. This is in line with Kristiyanto's opinion (2020) which states that the project-based learning model can improve students' critical thinking skills and student learning outcomes, as well as Darmawan, Ramlawati, and Rante (2022) who states that student learning outcomes improve after the project-based learning model is applied. This shows that the application of the project-based learning model can improve student learning outcomes for class XII Statistics subjects at MAN 1 Soppeng.

CONCLUSION

The results of this study indicate that the application of the project-based learning model to class XII students in statistics can improve student learning outcomes. This can be seen based on the average score of learning outcomes in the cognitive domain in the first cycle of 57.12% increased to 82.88% in the second cycle, the average score of learning outcomes in the psychomotor domain in the first cycle of 53.65% increased to 84.61%, and the average score of learning outcomes in the affective domain in the first cycle of 72.5% increased to 83.85%.

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