



The Application of Project Based Learning Model in the Implementation of the Merdeka Curriculum to Enhance Students' Concept Mastery in IPAS Learning

Weryanti Laen Langi¹, Yohanis Padallingan², Marten Liling Parumbuan³

¹(Universitas Kristen Indonesia Toraja).

²(Universitas Kristen Indonesia Toraja).

³(UPT SDN 5 Makale, Tana Toraja,).

Email: weryanti@ukitoraja.ac.id¹

Email: yohanispadallingan@ukitoraja.ac.id²

Email: martenliling92@gmail.com³

Received: 10/08/2024

Accepted: 10/09/2024

Published: 01/10/2024

Abstract

The purpose of this research is to investigate the improvement of students' conceptual mastery in IPAS subjects through the implementation of the Project Based Learning (PjBL) model. This study is classified as a classroom action research with students from the fourth grade of SDN 5 Makale, totaling 29 students, as the subjects. Data analysis employs qualitative descriptive analysis. The research findings indicate that the implementation of the Project Based Learning (PjBL) model within the framework of the independent curriculum can enhance students' conceptual mastery. This is evident from the results of the students' conceptual mastery tests at the end of each cycle. The students' learning completeness in Cycle I was 51.72%, which increased to 86.20% in Cycle II.

Keyword: Project Based Learning (PjBL) Model, Independent Curriculum, Student Concept Mastery.

Abstrak

Tujuan penelitian yaitu untuk mengetahui peningkatan penguasaan konsep siswa pada mata pelajaran IPAS melalui penerapan model pembelajaran Project Based Learning (PjBL). Jenis penelitian ini yaitu penelitian tindakan kelas dengan subjek siswa kelas IV SDN 5 Makale yang berjumlah 29 siswa. Analisis data menggunakan analisis deskriptif kualitatif. Hasil penelitian menunjukkan bahwa penerapan model pembelajaran Project Based Learning (PjBL) dalam implementasi kurikulum merdeka dapat meningkatkan penguasaan konsep siswa. Hal ini dapat dilihat dari hasil tes penguasaan konsep siswa tiap akhir siklus. Ketuntasan belajar siswa pada siklus I sebesar 51,72% meningkat menjadi 86,20% pada siklus II..

Kata Kunci: Model Pembelajaran Project Based Learning (PjBL), Kurikulum Merdeka, Penguasaan Konsep Siswa

Introduction

The curriculum is a crucial element in facilitating the educational process across all levels. Its presence is essential for designing learning programs aligned with the intended objectives. This perspective is in line with the definition provided by (Nation at al., 2010), which portrays the curriculum as a guide encompassing principles, environment, and relevant needs pertaining to the ongoing learning program. In Indonesia, educational curricula often undergo changes in their implementation within educational institutions. Some curriculum models previously adopted in Indonesia include KTSP 2006, Curriculum 2013, and currently, the Independent Curriculum (Freedom of Learning) which is still in effect (Sekarwati at al., 2021).

Currently, in Indonesia, the Merdeka Curriculum is being implemented as the latest curriculum, which is an improvement upon the previous curriculum. The implementation of the Merdeka Curriculum is being carried out gradually and adjusted according to the readiness level of each educational unit. Starting from the academic year 2022/2023, the Merdeka Curriculum has been initiated for the first and fourth grades in primary schools, as well as in preceding years. The Merdeka Curriculum initiative is an effort to restore education in Indonesia in response to the loss of learning and learning gaps resulting from the Covid-19 pandemic. The focus of the Merdeka Curriculum is on essential contents, allowing students to comprehend lesson concepts and master competencies with sufficient time (Nurani at al., 2022). As its name suggests, the Merdeka Curriculum aims to provide freedom to teachers in utilizing teaching tools according to the needs and characteristics of students. The objective of learning in the Merdeka Curriculum is to enable students to experience freedom in thinking, innovating, learning independently, and being

creative, as well as feeling liberated in the learning process to achieve happiness (Daga, 2021). Essentially, the Merdeka Curriculum aims to provide freedom to educators and students to create a learning environment that meets their needs in order to enhance the quality of education.

The Merdeka Curriculum emphasizes essential content, resulting in more concise, easily understandable, and deeply meaningful learning materials. The focus on core elements in the Merdeka Curriculum has led to several changes in elementary education, such as the integration of science and social studies into IPAS (Natural and Social Sciences). The purpose of this integration is to prepare elementary students to better engage with separate science and social studies curricula taught at higher levels (Faiz at al., 2022). IPAS instruction aims to raise students' awareness that humans, as members of society, not only need other humans but also heavily rely on the natural environment. In accordance with Decision BSKAP Number 008/H/KR/2022 regarding the achievement of the Merdeka Curriculum, the IPAS subject helps students enhance their awareness and curiosity about natural and social phenomena around them. IPAS instruction also fosters students' scientific attitudes, including increased curiosity, critical thinking, analytical skills, and the ability to draw accurate conclusions.

The findings at SDN 5 Makale indicate that although the IPAS learning process in the school is fairly effective, there are several shortcomings affecting students' understanding of concepts. According to interviews conducted with fourth-grade teachers on September 20, 2023, most students have a deficient understanding of IPAS learning, particularly in analysis skills. Students' analytical abilities in IPAS learning are also evaluated as insufficient. Topics that are difficult to grasp in IPAS learning

are those related to inanimate objects or natural phenomena occurring around them. An example of IPAS material in phase B is the types of forces and their everyday life benefits. This material is challenging to comprehend as it requires practical experience, and students need to feel the presence of those forces themselves. Material related to forces is also difficult for students to understand if presented solely in visual form or through verbal explanations. To support these findings, recording of fourth-grade students' knowledge scores in IPAS subjects at SDN 5 Makale for the Academic Year 2022/2023 was also conducted. The recorded results show that the majority of students have not yet reached the satisfactory category according to the established Benchmark Assessment. According to Agung at al.,(2021) in the field of education, guidelines such as the Benchmark Assessment are utilized to assess students' knowledge mastery levels. Based on the Benchmark Assessment guidelines, students' knowledge mastery is considered sufficient if their percentage falls within the range of 65 to 79. However, in reality, only 37.64% of students from the entire fourth-grade student population at SDN 5 Makale were able to achieve this category, while the remaining approximately 62.36% have not yet reached the expected standard.

The deficiency in mastering IPAS knowledge concepts can be triggered by several factors occurring during the learning process. Observations on September 22, 2023, identified several issues contributing to the low mastery of IPAS knowledge concepts. The primary issue is the lack of variation and innovation in the IPAS teaching methods used by teachers. Conventional methods such as lectures and question-answer sessions tend to dominate, making teachers the center of attention while students are less active in exploring the concepts

themselves. The use of engaging teaching aids or media is also lacking, with teachers often relying on images in textbooks. Furthermore, the lack of practical activities hinders students from applying the theories learned in their daily lives, leading to boring and less meaningful learning experiences. All these issues arise due to the adaptation of teachers and students to the ever-changing Merdeka Curriculum, demanding teachers to become more creative and innovative. Therefore, innovative approaches in lesson design are needed to achieve a more optimal level of mastery of IPAS knowledge concepts, aligning with the collaborative, applicative, innovative, and enjoyable goals of the Merdeka Curriculum.

Based on the aforementioned phenomenon, there is an evident need for improvement in the learning process to enhance students' engagement and mastery of concepts in the IPAS subject. Concept mastery plays a crucial role in the learning process as it assists students in comprehending various subject matters, including IPAS. According to Sari at al.,(2017) concept mastery involves students' efforts in recording and interpreting information from the subject matter to solve problems and analyze specific situations. Furthermore, (Dahar, 2011) elucidates that concept mastery encompasses students' understanding of concepts scientifically, both theoretically and practically in everyday life. Involving students directly in the learning process will facilitate their comprehension of subject concepts.

One innovative instructional approach that can be utilized to actively engage students in the learning process and as a strategy to enhance understanding of IPAS concepts is the implementation of Project Based Learning (PBL) model. The Project Based Learning model encourages students to learn through projects or tasks that require them to actively seek

knowledge, solve problems, and apply learned concepts (Nurfitriyanti, 2016). This approach also involves collaboration among students in the form of teams to complete projects, share ideas, provide mutual support, and collaborate, which can aid students in understanding concepts more deeply as they need to explain their ideas to their peers. Project Based Learning also provides students with opportunities to learn more deeply and meaningfully as they are actively involved in the learning process, connecting concepts to the real world, and having the chance to apply them in practical situations (BIE, 2020). This approach has the potential to enhance students' understanding of concepts and equip them with the skills necessary to face future challenges.

Research Methods

This type of study is Classroom Action Research (CAR), conducted in two cycles. The procedure for each cycle consists of three steps: (1) planning, (2) implementation and observation, and (3) reflection phase (Kemmis at al., 2014). Classroom Action Research (CAR) was chosen as the research method due to its suitability for solving classroom issues identified during initial observation until the selection of a teaching model appropriate to the issues arising during the learning activities

The presence of the researcher in the school serves as a key instrument, while teachers act as observers. The key instrument implies that the researcher acts as the executor of the action. As the executor, the researcher serves as a teacher who designs the lesson plan, delivers instructional materials during the learning activities, and conducts assessments. The researcher also serves as the data collector, analyzer, and reporter of the research. The researcher's presence in this study occurred during the implementation of the learning

activities in the second semester of the academic year 2023/2024.

This research was conducted at SDN 5 Makale, located on Airport Road Pongtiku, Batupapan Village, Makale District, Tana Toraja Regency. The subjects of this classroom action research were fourth-grade students of SDN 5 Makale in the academic year 2023/2024, consisting of 29 students, comprising 17 male students and 12 female students. This study collected data on (1) the implementation of teaching activities by teachers in applying the Project Based Learning model, (2) the implementation of student learning activities in applying the Project Based Learning model, and (3) the improvement or lack thereof in students' mastery of IPAS concepts through the implementation of the Project Based Learning model. The instruments used to collect data included teacher and student observation sheets, concept mastery observation sheets, guidelines for teacher and student interviews, and test questions. The data sources in this research were the actions and words of teachers and students during the learning process.

Data analysis was conducted from the beginning of the research until all data were collected, then analyzed to ensure that the Project Based Learning model could improve students' mastery of IPAS concepts in fourth-grade classrooms at SDN 5 Makale. The data collected in the research consisted of observation data, interviews, documents, and tests. The researcher collected qualitative data using qualitative descriptive analysis techniques.

Success criteria were evaluated through research evaluation stages conducted per cycle, with a target average percentage achievement for the implementation of teacher teaching activities and student learning activities of $\geq 75\%$, and a target average percentage achievement for students' conceptual mastery classically set at 80%. The success criteria in this

action research are met if they fulfill the student conceptual mastery indicators. It is deemed successful if students who pass the learning evaluation test reach 80% with IPAS learning objectives completeness criteria of $\geq 75\%$.

Result and Discussion

1. Implementation of the Project Based Learning (PBL) instructional model

Learning activities in the implementation of the Project Based Learning model begin with: (1) providing each group with an explanation of the tasks and responsibilities to be undertaken by the group, (2) students in each group form groups of 5-6 individuals, (3) students in each group search for information from various sources, (4) armed with this information, students collaborate and discuss to understand the problem and seek solutions, which are then immediately applied, (5) the teacher evaluates the learning achievement regarding the material studied and each group presents their work, and (6) the teacher finds ways to appreciate both the process and the learning outcomes of individuals and groups.

The implementation of the Project Based Learning model in this study encompasses the aspects of teacher teaching activities, in terms of how teachers carry out the steps of the Project Based Learning instructional model, and the aspects of student learning activities, in terms of how students engage in learning activities in the learning process that utilizes the Project Based Learning model. The execution of teacher teaching activities and student learning activities is measured based on observation sheets provided. Observations

are conducted by two observers who observe the ongoing learning process and collect data on the implementation of teacher teaching activities and student learning activities. The observation results are used as a reflection material at the end of each cycle. In addition to observing teacher teaching activities and student learning activities, observations are also conducted to assess the development of students' mastery of concepts, observed in accordance with the observation guidelines.

The data from observations on the implementation of the Project Based Learning instructional model indicate a significant improvement in both teacher teaching activities and student learning activities when using the Project Based Learning model from Cycle I to Cycle II. This improvement is evident in the aspect of teacher teaching activities, with an average score increasing from 60.41% in Cycle I to 83.33% in Cycle II. In terms of student learning activities, the average score increased from 59.99% in Cycle I to 82.21% in Cycle II. These results demonstrate that teachers have mastered and successfully implemented the steps of the Project Based Learning instructional model, while students have understood and demonstrated learning activities according to the steps of the Project Based Learning model implemented by the teachers.

The improvement in the implementation of learning activities from Cycle I to Cycle II is attributed to the enhancement of action planning and execution in Cycle II. Additionally, it is also due to guidance from the teacher and

the emergence of curiosity and interest among students in participating in learning activities. Students have also become accustomed to learning using the Project Based Learning instructional model and have understood its steps, enabling them to actively engage in the learning process.

2. Improvement in Students' Concept Mastery

The implementation of the Project Based Learning instructional model in this study also aims to determine whether there is an improvement in students' concept mastery. The level of students' concept mastery in this study is based on the scores obtained by students through tests. The use of tests to assess learning outcomes or students' concept mastery is supported by (Sudjana, 2017), who states that tests, as one of the tools for assessing learning outcomes, involve the assessment process of learning outcomes achieved with certain criteria and obtained through learning experiences. The learning outcomes obtained through these tests indicate the level of students' concept mastery of the learning material.

The results of students' concept mastery tests in Cycle I and Cycle II show a positive improvement in the level of concept mastery of fourth-grade students at SDN 5 Makale. In Cycle I, the average score obtained from the students' concept mastery test was 67.58. This indicates that the students' concept mastery scores in Cycle I did not yet meet the learning objectives completeness criteria (KKTP), which is within the score range of 75-100. In terms of the number of students who achieved the completeness

criteria in Cycle I, only 15 students or 51.72% out of 29 students did so. This means that the number of students whose concept mastery test scores met the criteria classically in Cycle I did not meet expectations, as the success criteria for the number of students achieving completeness classically is when the number reaches $\geq 80\%$ of the total students.

Overall, the suboptimal implementation of teaching strategies by teachers during the learning process is mainly due to the novelty of the learning process, resulting in students being unfamiliar with the learning conditions and seemingly unable to depart from their previous learning habits. Additionally, during the learning process, it is observed that some students do not pay attention to the teacher's explanations when delivering the learning material. Furthermore, the execution of discussions does not adhere to proper discussion guidelines, as group discussions are predominantly led by proficient students, some students still struggle to actively participate in discussions, students are hesitant to express their ideas or thoughts, and some students are still reluctant to present their discussion outcomes to other groups in front of the class.

The deficiencies identified in Cycle I were addressed or mitigated during the implementation of actions in Cycle II, and the results obtained indicate a significant improvement compared to the previous cycle. In Cycle II, the average score obtained from the students' concept mastery test was 84.59. This indicates that the level of students' concept mastery in Cycle II has reached the completeness criteria (KKTP) within the score

range of 75-100. In terms of the number of students who achieved the proficient category in Cycle 2, there were 25 students or 86.20% out of 29 students. This means that the results of the students' concept mastery tests in Cycle II meet expectations as they have achieved the predetermined criteria for student success classically, which is when they reach $\geq 80\%$.

The improvement in students' concept mastery from Cycle I to Cycle II is influenced by the successful implementation of actions in the learning process. Concept mastery refers to students' understanding of the learning material they have studied. By actively involving students in the process, it will have a positive impact on achieving concept mastery in the material being studied (Kurniawati et al., 2014). According to the Buck Institute For Education (BIE) in (Trianto, 2014), Project Based Learning is a learning approach that engages students in learning activities to solve problems and provides opportunities for students to express their creativity, thus enhancing student learning outcomes and creativity. The implementation of the Project Based Learning model is one of the learning models that provides meaningful learning experiences to students, thereby improving students' concept mastery of the subject matter.

Conclusion

The results of the classroom action research conducted at SDN 5 Makale are as follows:

1. The Implementation of Project Based Learning Model in the Implementation of the Merdeka Curriculum to Enhance Students' Understanding of IPAS Concepts

in Grade IV of SDN 5 Makale was carried out very well according to the learning improvement plan through two cycles, namely Cycle I and Cycle II. The observation results of teacher teaching activities in Cycle I only reached 60.41% in Cycle I, increased to an average of 83.33% in Cycle II, while student learning activities in Cycle I were only 59.99% in Cycle I, increased to 82.21% in Cycle II.

2. The application of the Project-Based Learning Model in the Implementation of the Merdeka Curriculum can improve students' mastery of IPAS concepts in Grade IV of SDN 5 Makale, as evidenced by the increase in the average concept mastery test scores from Cycle I to Cycle II. The average concept mastery test score of students in Cycle I, which was 67.58, increased to 84.59. The classical learning completeness of students also increased from Cycle I to Cycle II, thus achieving the success criteria of the action. The classical completeness of students in Cycle I, which was 51.72%, increased to 86.20%.

Reference

- [1] Nation, I. S. P. and Macalister, J. (2010). Language Curriculum Design. New York: Routledge.
- [2] Sekarwati, E., & Fauziati, E. (2021). Kurtis dalam Perspektif Pendidikan Progresivisme. E-Jurnal Pendidikan dan Sains Lentera Arfak. 1(1). 29-35.
- [3] Nurani, Dwi. dkk., (2022). Serba-Serbi Kurikulum Merdeka Kekhasan Sekolah

- Dasar. Jakarta: Tim Pusat Kurikulum dan Pembelajaran (Puskurjar), BSKAP.
- [4] Daga, Agustinus Tanggu. 2021. Implementasi Pendidikan Karakter Selama Pandemi Covid-19 di Sekolah Dasar. Jurnal Pendidikan Guru Sekolah Dasar. Vol. 10. No. 4. 2021. Hal. 836-851.
- [5] Faiz, A., Pratama, A., & Kurniawaty, I. (2022). Pembelajaran Berdiferensiasi dalam Program Guru Penggerak pada Modul 2.1. Jurnal Basicedu, 6(2), 2846–2853.
- [6] Agung, A., & dkk. (2021). Peran Kepemimpinan Kepala Sekolah dalam Meningkatkan Etos Kerja Guru PAI di Sekolah. Jurnal Ilmiah Wahana Pendidikan, 7(4), 400-411.
- [7] Sari, D.K. 2017. Peningkatan Hasil Belajar IPS Menggunakan Model Kooperatif Tipe Numbered Heads Together (NHT) pada Siswa Kelas 6 Sekolah Dasar. Jurnal Penelitian Pendidikan, 34(1), 9-14.
- [8] Dahar, R. 2011. Teori-Teori Belajar. Jakarta: Erlangga.
- [9] Nurfitriyanti, M. (2016). Model pembelajaran project based learning terhadap kemampuan pemecahan masalah matematika. Formatif: Jurnal Ilmiah Pendidikan MIPA, 6(2).
- [10] BIE (Buck Institute for Education). (2020). What is project-based learning (PBL)?. <https://www.pblworks.org/what-is-pbl>.
- [11] Kemmis S, Mc Taggart R., dan Nixon. R. 2014. The Action Resarch Planner. New york: Springer.
- [12] Sudjana, N. (2017). Penilaian Hasil Proses Belajar Mengajar. Bandung; PT Remaja Rosdakarya.
- [13] Kurniawati, I. D., Wartono., & Diantoro, M. 2014. Pengaruh Pembelajaran Inkuiri Terbimbing Integrasi Peer Instruction Terhadap Penguasaan Konsep dan Kemampuan Berpikir Kritis Siswa. Jurnal Pendidikan Fisika Indonesia, 10(2014), 36-46.
- [14] Trianto. 2014. Model-model Pembelajaran Inovatif Berorientasi Konstruktivistik. Jakarta: Prestasi Pustaka.