El Midad : Jurnal Jurusan PGMI Vol. 15 No. 1 Juni 2023
p-ISSN 2087-8389 e-ISSN 2656-4289 p. 43-57
website : http://journal.uinmataram.ac.id/index.php/elmidad email : elmidadpgmi@uinmataram.ac.id

IMPROVING CONCEPT UNDERSTANDING OF NATURAL AND SOCIAL SCIENCE MATERIALS THROUGH PROJECT-BASED LEARNING IN ELEMENTARY SCHOOLS

Novi Indah Puspita Sari[1], Leli Lestari[2]
Institut Agama Islam Negeri Madura
Email: [1]vizayyari@gmail.com, [2]lelilestari@iainmadura.ac.id

Abstract

This study aims to determine how the application of project-based learning and its results in improving the understanding of the concept of IPAS material in grade IV students at Elementary school of Bunder 1 Pademawu, Pamekasan. This type of research uses the Mc. Taggart model which uses 4 stages. The research was carried out using 2 cycles and carried out as many as 2 meetings in each cycle. Data collection using observation techniques consisting of observation of teacher activities, student activities and tests. The results of the research conducted on tests carried out by students resulted in scores at the pre-cycle stage of students who had a complete score of 16.60% with an average of 41.97, in cycle 1 students who were complete by 50% with an average of 62.25 and in cycle 2 students who had a complete score of 75% with an average of 74.83. Meanwhile, when viewed from the observation of teacher activities by teachers in cycle 1 and cycle 2, namely 82.5%: 90%. In the observation of student activities by students in cycle 1 and cycle 2, namely 81.87%: 83,95%. In the observation of student activities by the teacher in cycle 1 and cycle 2, namely 81.67%: 85%. So it can be said that project-based learning can improve the understanding of the concept of IPAS. The better the application, the understanding gained by students will increase.

Keywords: IPAS Concept Understanding, Project Based Learning.

INTRODUCTION

The world of education has many changes, especially after the renewal of the education curriculum currently used in Indonesia. This is expected to be a change to maximize teaching and learning activities. Learning activities focus on the emergence of the potential of students as stated in Article 3 of Law Number 20 of 2003 which aims to "develop the potential of students to become human beings who are faithful and devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens" (UU Sisdiknas 2003, 2011).

The new curriculum, namely the independent curriculum, which was initiated by the Minister of Education and Culture Nadiem Makarim, learning must be fun and students should not feel burdened or stressed by what they learn and students can be free to choose their own creativity (Bastari, 2021). So, with the enactment of the

independent curriculum which emphasizes learning that is comfortable, conducive and fun, besides that in the independent curriculum learning emphasizes students' talents, interests and is free to choose according to student needs.

Factors that cause changes in the curriculum are dynamic developments and changes in the rapid social life of society, accelerated development of science and technology, political direction and state practices, and changing intellectual perspectives (Setiawati, 2022). So it can be said that changing the curriculum cannot be arbitrary, of course, it must have clear reasons and clear objectives so that in changing the curriculum the objectives and results to be achieved are clear, namely to improve the quality of learning.

Every curriculum change will have an impact, the impact can be positive or negative. The positive impact is that students do learning by following the times which means there is no difference between one school and another. Meanwhile, the negative impact is that by changing the curriculum relatively quickly it will cause problems not only in the learning process but also with regard to student learning outcomes. These problems can occur because teachers and students need to adjust to the new curriculum policy (Setiawati, 2022).

The purpose of the curriculum is to further improve the quality of children's imagination and creativity, gain human values, develop potential within themselves, develop critical thinking, and develop a committed and responsible person. The current curriculum requires students to have cognitive abilities in the real world, have noble character and be more active (Purnomo, 2019). Learning by using the memorization method is considered less effective because students will forget more easily in remembering a lesson, but if students are trained and then accustomed to learning using the method of understanding-analyzing-solving a problem, it tends to be better remembered by students.

Nugraheni, argues that the facts in the field are that students not only have to understand the theory but also the process to become more creative so that they can make a work to be utilized by the community, as for the efforts used in this case, namely using a learning model, but what is considered capable of overcoming this is the use of a project-based learning model which in its application uses projects in the core of learning (Siagian, 2021). In this model, the focus of learning is the project used

in learning, of course, the project that will be created and studied or applied must be in accordance with the teaching material to be taught, this is so that the projects produced by students are in accordance with the teaching material.

The effectiveness of project-based learning can be seen in research conducted by B Rosleny and Muhajir which shows that there is an effect of the Project Based Learning Model on Social Studies Learning Outcomes in Elementary School Students (Rosleny, B., & Muhajir, 2022). In line with the results of research conducted by Novita Purwandari that the Application of Project-Based Learning Models can improve Process Skills and Science Learning Outcomes in Madrasah Ibtidaiyah students. The application of project-based learning is indeed familiar in learning, but the application of this learning in IPAS subjects is still relatively new. IPAS learning itself emerged along with the implementation of the independent curriculum which was recently implemented. This is a novelty in this research.

Some of the reasons why the author chose this research theme are; First, based on the results of interviews with Raudatus Syarifah as a teacher and Sahrullah as the principal, it is found that the average teacher at SDN Bunder 1 rarely uses learning media with the reason that educators do not use learning media because the time needed to make media is not easy and will take up a lot of time. Second, the fact that in the field for grade 4 at SDN Bunder 1 has used an independent learning curriculum which no longer uses thematic or theme learning but returns to subjects with several different things, namely science and social studies subjects which are combined into IPAS subjects. IPAS learning examines living and non-living things in nature and interactions and examines human life which is a social creature that is required to interact with its environment. That is what attracts researchers to examine learning that has actually been around for a long time but then updated.

This IPAS learning makes it easier for researchers to research topics on project-based learning so that students can produce a concrete work in the form of learning media. Apart from the learning that attracts researchers' attention, it is also the application of the independent learning curriculum that expects active and effective learning and student-centered. Although previously the learning applied was student-centered, in the end the teacher had a role in solving the problems in the LKS. Another reason is that learning using the Project Based Learning method has never

been applied in the agency. Uniquely in the independent learning curriculum there are several demands in learning, namely that there is at least project-based learning at least twice each school year which has the aim that students get reinforcement about Pancasila students.

LITERATURE REVIEW

Concept understanding is the act of understanding or understanding a draft idea that has been shaped from a real or concrete thing. Meanwhile, Suherman defines concept understanding as students' understanding of teaching material and re-explaining it in other languages that are easy to understand, apply and are able to be applied by the students themselves (Febriyanto, 2018).

There are several factors that cause student learning outcomes to not be maximized. First, the lack of teaching materials that have a direct impact and are in accordance with the characteristics of students. Second, there are students who think they have learned when they have done the homework given by the teacher. Third, knowledge related to concepts and learning processes that are still difficult for students to understand because students listen more without being supported by practice. Fourth, students have not been able to optimize cooperation between friends in completing a project (Putra Prabawa, 2013).

Boss and Kraus define the project-based learning model as learning that focuses on problem solving by students by applying the knowledge gained to work on projects so as to produce authentic products. Project-based learning is also interpreted as a learning model in which the process uses projects and students can explore, assess, interpret and synthesize information in order to get broader learning outcomes.

Learning outcomes are not only in the form of knowledge but there are aspects of skills and attitudes. Assignments in this learning model are more focused on assignments to students that are packaged in the form of projects that will have a good impact on student creativity (Pantiwati, 2020). From these two definitions, it can be interpreted that the project-based learning model is in learning that produces a product that has uses for oneself and the public. With this learning model, it is also expected that students are able to explore, assess, interpret and collect information.

Project-based learning is learning that emphasizes students to produce a real object that can be used by the community or in the classroom environment itself.

Meanwhile, Padiya defines project-based learning as learning whose implementation can provide lessons for students in mastering psychomotor aspects in the application of everyday life so that teaching and learning activities can have meaning or meaning (Rosinda, 2018).

The project-based learning model emphasizes students who find a problem and find a way out of their own problems. This learning model has the advantage of being able to facilitate students in making processes in determining a result, getting used to students being responsible in processing information and producing a product in the form of concrete learning media (Kristanti, 2016). This learning model is in line with the educational objectives in Law Article 3 no 20 of 2003 which emphasizes the potential of students. This potential is in the form of creativity from these students in producing a real product that is authentic.

The requirements for project-based learning models are mastery and understanding of the material to be taught and mastery of scientific skills. In addition to the requirements that have been listed, there are also characteristics that become the identity or characteristics in this learning, namely first, the implementation is initiated by students who do the planning. Second, students do the planning. Third, students conduct investigations or observations. Fourth, students carry out report activities carried out by students when they have reached the final stage in the form of a real product (Rosinda, 2018).

Science and social studies subjects in the independent learning curriculum are made into one content in the subject of Natural and Social Sciences (IPAS) which is expected to be able to provide stimulation to students in organizing the natural environment and social environment in an integrated manner. The basic things in this IPAS learning are first, strengthening basic competencies and as an understanding of logistics, secondly project-based learning must be carried out at least twice in one school year as a form of strengthening the profile of Pancasila students (Direktorat Sekolah Dasar, 2022).

METODOLOGY

This research approach is a type of classroom action research (CAR). CAR is an educator's effort to improve the quality of the learning process which is expected to have an impact on learning outcomes. This research focuses more on the process and

product during the action process. Researchers or educators must know for sure the impact of the activities carried out, besides that CAR can be said to be research that has a continuous cycle because in CAR requires getting results that can improve learning outcomes in a better direction (Arikunto, 2019).

The reason researchers use the Classroom Action Assessment approach is because researchers want to know that project-based learning can affect student understanding and bring better changes to a concept of Natural and Social Science material. In this study, researchers chose to process data using a quantitative approach because this research focuses more on an increase in understanding of a concept experienced by students.

This research design has three variables, the first is the input variable, namely grade 4 students totaling 12 students at the Elementary School of Bunder 1. Second, the process variable is the application of project-based learning. The third is the output variable in the form of increasing understanding of the concept of natural and social science material (IPAS). The data collection technique uses observation to collect data on the application of project-based learning which includes teacher activities and student activities in project-based learning. There are two observation sheets each, namely the teacher activity observation sheet and the student activity observation sheet. Tests are used to determine the increase in understanding of the concept of IPAS material after the application of project-based learning both from cognitive, affective and psychomotor aspects.

The data that has been collected is analyzed using qualitative and quantitative methods (mixed method). Indicators of success are used to be a requirement for students to achieve success in learning activities. Learning is said to be successful if the completeness meets the minimum requirement of 75% (Tampubolon, 2014). The success indicator in this study is to improve the understanding of IPAS material through project-based learning. Rated complete if the score or student score exceeds the maximum completeness criteria set by the agency, namely 70.

RESULT AND DISCUSSION

A. Hasil Penelitian

1. Implementation of Project-Based Learning on Watershed Materials for Grade 4 Students of SDN Bunder 1

a. Cycle 1

The observation stage was carried out when the learning process was carried out. Observation of the teacher has the aim of knowing the extent of the teacher's activities when carrying out teaching and learning activities using project-based learning in science learning. This activity is guided by an observation sheet which has 10 aspects. Regarding scoring using a Likert scale with points 1-4 the maximum score is 40 and the minimum score is 10. The overall percentage of observations of teacher activities by the teacher is 82.5%. With an average number of 33, it is categorized as "very good.

Observation of students has the aim of knowing the extent of student activity when carrying out teaching and learning activities using project-based learning in science learning. This activity is guided by an observation sheet which has 10 aspects. Regarding scoring using a Likert scale with points 1-4 the maximum score is 40 and the minimum score is 10. The overall percentage of student activity observations by students is 81.87%. With an average number of 35 it is categorized as "very good".

Observation activities of student activities by the teacher. Observation of students has the aim of knowing the extent of student activity when carrying out teaching and learning activities using project-based learning in science learning. This activity is guided by an observation sheet which has 10 aspects. Regarding scoring using a Likert scale with points 1-4 the maximum score is 40 and the minimum score is 10. The overall percentage of observations of student activities by the teacher is 81.67%. With an average number of 35 it is categorized as "very good". Overall, the acquisition of observations of cycle 1 activities on observations of teacher activities by teachers obtained 82.5% and on observations of student activities by students 81.87% while on observations of student activities by teachers 81.67%.

b. Cycle 2

In cycle 2 using the observation guidelines and the same criteria, the results of the activity in cycle 2 obtained the overall percentage of teacher activity observations by the teacher of 90% with an average number of 36 things that were categorized as "very good". As for student observations by students, it was obtained an overall percentage of 83.95% with an average number of 33.58, this was categorized as "very good". Furthermore, the overall percentage of student activity observations by the teacher is 85%. With an average number of 34 things it is categorized as "very good". Overall,

the percentage of activity observations yielded data, namely the observation of teacher activities by the teacher yielded 90% and the observation of student activities by students was 83.95%, while the observation of student activities by the teacher was 85%.

This acquisition shows that there is an increase in the results of observations of teacher and student activities. Where in cycle 1 teacher activity by the teacher obtained results with a percentage of 82.5% and in cycle 2 obtained results with a percentage of 90% which increased by 7.5%. In observing student activity by students in cycle 1, the results were obtained with a percentage of 81.87% and in cycle 2, the results were obtained with a percentage of 83.95%, an increase of 2.08%. Whereas in the observation of student activities by the teacher in cycle 1 the results were obtained with a percentage of 81.67% and in cycle 2 the results were obtained with a percentage of 85%, an increase of 3.33%. The increase can be seen in the following diagram:

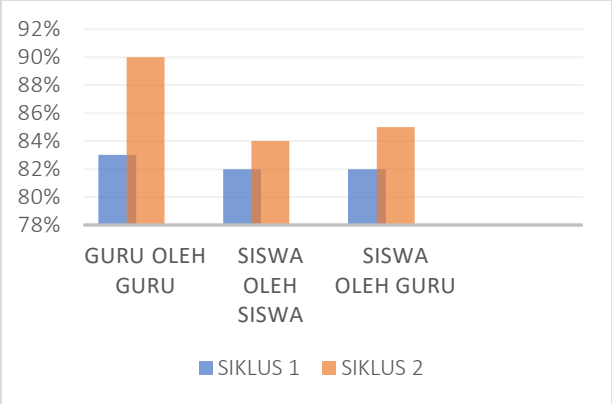

Diagram 1.1 The results of observing the learning activities of teachers and students in cycles 1 and 2

2. Understanding the Concept of Science Material Through Project-Based Learning in Grade 4 Students at elementary school of Bunder 1

Based on the test results at the pre-cycle stage conducted by student researchers whose scores exceeded the maximum completeness criteria (completeness) only reached 16.60% (2 students) which, if taken an average of only 41.97, this is still very low. with the indicator of success that the researcher wanted, namely 70%. Based on the completeness of the learning outcomes in the pre-cycle, it is necessary to take corrective action in order to increase the understanding of the concept of science

Vol. 15 No. 1 Juni 2023
p. 43-57
email : elmidadpgmi@uinmataram.ac.id

teaching materials in class IV. Then corrective action is carried out in cycle 1 by implementing project-based learning.

In cycle 1 it is known that student scores have increased where the lowest score obtained by students is 37 and the highest score is 89 with an average of 62.25. And from the results of the data above it can be seen that students who have scores above the minimum completeness criteria are 6 people and 6 others have scores that are still below the minimum completeness criteria. The percentage of students' classical completeness was 50% and students who had not scored more than the minimum completeness criteria or could not be said to have completed it were 50%. Despite the significant increase, the percentage of completeness obtained by students has not reached the target of 70%, so this result requires researchers to continue at cycle 2 stage by applying reflection notes on the implementation of cycle 2 in i.

In cycle 2, students' scores increased with the lowest score obtained by students, which was 67 and the highest score was 90 with an average of 74.83. And from the results of these data it appears that students who scored above the minimum completeness criteria were 9 people and 3 others had scores that were still below the minimum completeness criteria. If the results of this test score are calculated in the form of a percentage of students' classical completeness, then it is said to have completed as much as 75% and students who have not received a score that exceeds the minimum completeness criteria or cannot be said to have completed as much as 25%. Improving student learning outcomes from pre-cycle to cycle 2 is explained in the following diagram:

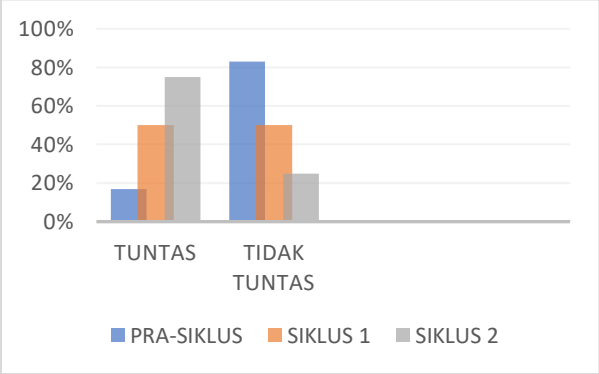

Diagram 1.2 Student learning completeness at the pre-cycle stage, cycle 1 and cycle 2

B. DISCUSSION

1. Implementation of Project-Based Learning on Watershed Materials for Grade 4 Students of SDN Bunder 1

Project-based learning is one of the methods in learning that can be used in teaching and learning activities. However, this type of learning emphasizes students to be more creative and play a role in learning because in this learning students are more emphasized to be able to make or create their own projects that are in accordance with the material being studied at that time. This is in line with the requirements of project-based learning, namely that students must be active in teaching and learning activities, understand the material to be created in a project and easily apply it in everyday life (Rosinda, 2018).

Before taking action, researchers and teachers conducted interviews in which they asked whether project-based learning had ever been applied in the class. Researchers observed that teachers in carrying out teaching and learning activities had not yet implemented this project-based learning but in this agency there was a P5 subject (Projek Pengutan Pemuda Pancasila) which also emphasized students to be able to make a real object but not in IPAS learning, meaning that the project object was combined by the teacher with other subjects that were interrelated so that a real object was created.

Researchers in this case prepared several things that could support the implementation of this project-based learning starting from teaching modules, achievement test sheets, teacher observation sheets by teachers, student observation sheets by students, student observation sheets by teachers, and assessment criteria explaining that the role of educators is not only a giver of information but also has the duty to direct and provide facilities to learners or students (Sagala, 2017). This project-based learning, researchers carried out 2 cycles in which each 1 cycle was carried out 2 times the meeting.

In the first cycle of the first meeting, the researcher prepared lesson plans, observation sheets and achievement test sheets. Researchers opened teaching and learning activities by saying greetings, reading prayers, asking for news, taking attendance, and checking students' readiness to learn. Before the learning process, the researcher starts with *"Tepuk Semangat"* which aims to further arouse the enthusiasm of

students, then the educator provides an apperception, namely by recalling the learning in the previous meeting with the learning that will be explained today, namely in the IPAS subject matter of the Force Around Us.

The researcher divides the group which is divided into 3 groups of 4 people each. Followed by the speaker explaining the steps of project-based learning, then the researcher explained the tasks that must be carried out, namely in the form of making a tool or real object related to the material that was currently being studied. After discussing with a group of friends, each student discussed with the researcher that the project for the force chapter was a catapult because it was motivated by the achievement test questions previously done by students. This is in line with the principle of Driving project-based learning which means focusing on problems or statements that stimulate students in undergoing a concept (Hamzah, 2019). After there are no more questions asked by students about the project assigned, students are then invited to play "guessing" about the learning that matches what is taught.

In the second meeting of cycle 1, students were ready with the tools they had prepared and in accordance with the instructions explained in the previous meeting, but there was one group that did not explain or record how to make the catapult. After this, students were directed by the researcher to leave the classroom and then go to the field to rush to try the tools they had made. This is in line with the characteristics of project-based learning where research is carried out in groups that produce realistic and applicable products (Hamzah, 2019). In this study, researchers divided students into groups and the project was a real object in the form of a catapult. After all trying, students are directed back to the classroom to immediately compile their reports into written form. After that, they presented the results of their research in front of the class. After all performed and corrected by their friends, the researcher asked to answer the questions yesterday with the addition of the student activity observation sheet. After all was done the class ended with prayer and greetings.

In the second cycle of action activities also carry out the same activities as cycle 1, in this second cycle the implementation is also carried out in 2 meetings, but what is different in the second cycle is that the researcher is more detailed in the assignments and rules that students must obey while in the field and also in this second cycle it is only limited to repairing the tools they made because some of the tools they made were

broken and the rubber was loose. In the second cycle of the first meeting after students got the material back students were immediately directed to the field to carry out experimental activities again in this second cycle it was seen that students were more serious in carrying out research activities in the field, after all trying their tools and compiling their respective reports students returned to class and then presented their results achievement tests and student activity sheets could not be given on this occasion because the IPAS subject time was up and the class ended with prayers and greetings.

In the second meeting of cycle 2, students are directed to answer achievement test questions and fill out student activity observation sheets and here they look more serious about doing the questions and filling out the questionnaire. After all is done because the remaining time is still long so students are invited to carry out just ice breaking by the way students are invited to play crossword puzzles. In order for students to be more enthusiastic about answering questions in the form of crossword puzzles here researchers use carareward and punishmant. After finishing the class ended with prayer and greetings.

2. Understanding the Concept of Science Material Through Project-Based Learning in Grade 4 Students at elementary school of Bunder 1

Based on the test results at the pre-cycle stage conducted by researchers, students who have scores exceeding the KKM (complete) only reach 16.60% (2 students) which if taken on average is only 41.97, this is still very low with the success indicator desired by researchers, namely 70%. Therefore, this requires corrective action by researchers to improve understanding of the concept of IPAS teaching material in class 4. During the observation activities, there were several things that caused learning to be less conducive so that it had an impact on students' lack of understanding. So it is necessary to take action to improve these learning activities. Actions taken in learning activities contained in the first phase.

In cycle 1 showed a significant improvement, the percentage of completeness obtained by students has not reached the target of 70%, so this result requires researchers to continue at the cycle 2 stage by applying reflection notes in the implementation of cycle 2. This is in line with the argument stating that every program is not perfectly structured but is always open to an improvement based on perceived

experience (Majid, 2007). Meanwhile, when viewed from the observation of teacher and student activities in cycle 1, it can be said that it is good which in the observation of teacher activities by the teacher gets 82.5% results, while the observation of student activities by students gets 81.87% and observation of student activities by teachers 81.67%.

In the implementation of cycle 2 the researcher began to apply notes that were previously corrected in cycle 1. The obstacles experienced during the implementation of cycle 1 were as follows: the teacher lacked motivation, the teacher did not explain how the flow of project-based learning worked, students did not focus on learning , students don't listen to instructions, there are still some students who are silent and don't take part in teaching and learning activities, there are some students who fight over tools with the excuse of borrowing which ends in just playing around, tools that are not sturdy enough so that some break and the rubber comes off. In fixing this, the things implemented by the researcher for cycle 2 are as follows: the teacher explores the material more and provides the right motivation so that students get rid of their bad habits a little, the teacher is more strict with students, the teacher details the procedures and rules that are must be carried out and obeyed by students, providing gurna ice breaking to increase student enthusiasm and focus, teaching not only with voice can use active speakers so that students are even more curious about the lessons to be learned, form study groups, and apply rewards and punishments to students. With that, it is hoped that learning in the second stage can run smoothly and as it should be conducive teaching and learning activities. this is in line with the concept of teaching planning seen from the point of view of teaching planning which is used as a process which means development in an organized manner that is used specifically on the basis of learning theory used to measure and ensure the quality of learning (Majid, 2013).

The percentage in the implementation of cycle 2 increased even more, the percentage reached 75%, initially in the pre-cycle it was only 16.60% and in cycle 1 it was only 50% and increased again to 75% in cycle 2 while for the teacher's activity sheet by the teacher it reached 90%. and for the observation of student activities by students it reaches 83.95% and for student observations by teachers it reaches 85%. This is in the second cycle, both achievement tests and activity observations have

increased. Based on the research results obtained by students in the pre-cycle, cycle 1 and cycle 2, it can be seen that project-based learning can improve students' understanding of the science material concepts in grade 4 Elementary school of Bunder 1 Pademawu Pamekasan.

CONCLUSION

The results of this research can be understood that the improvement of learning needs to be done by the teacher so that student learning outcomes also increase. Not only implementing it, but there needs to be improvement and improvement in using learning models, in this case, especially project-based learning. Research that has been carried out on increasing understanding of the concept of natural and social science material through project-based learning in grade 4 students at Elementary school of Bunder 1 Pademawu Pamekasan, the authors provide a conclusion, namely by using project-based learning which is divided into 2 cycles showing an increase in understanding of the science concept in the material. style around us in grade 4 Elementary school of Bunder 1 Pademawu Pamekasan.

REFERENCE

Arikunto, S. dkk. (2019). *Penelitian Tindakan kelas (Langkah-langkah penelitian Tindakan Kelas)*. PT Bumi Aksara.

Bastari, K. (2021). Belajar Mandiri dan Merdeka Belajar Bagi Peserta Didik, Antara Tuntutan dan Tantangan. *Academia: Jurnal Inovasi Riset Akademik*, *1*(1), 68–77. https://doi.org/10.51878/academia.v1i1.430

Direktorat Sekolah Dasar. (2022). *Hal-hal Esensial Kurikulum Merdeka di Jenjang SD*. ttps://ditpsd.kemdikbud.go.id/artikel/detail/hal-hal-esensial-kurikulum-merdeka-di-jenjang-sd

Febriyanto, B. (2018). Peningkatan Pemahaman Konsep Matematika Melalui Penggunaan Media Kantong Bergambar Pada Materi Perkalian Bilangan di Kelas II Sekolah Dasar. *Jurnal Cakrawala Pendas*, *Vol. 4*, *No*, 34.

Hamzah, A. (2019). *Penelitian Berbasis Proyek Metode Kuantitatif, Kualitatif, dan R&D Kajian Teoritik & Contoh Penerapannya*. Literasi nusantara.

Kristanti, Y. D. (2016). "Model Pembelajaran Berbasis Proyek (Project Based Learning Model) Pada Pembelajaran Fisika Disma." *Jurnal Pembelajaran Fisika*, *Vol. 5,* 123.

Majid, A. (2007). *Perencanaan Pembelajaran Mengembangkan Standar Kompetensi Guru*.

Remaja Rosdakarya.

Majid, A. (2013). *Perencanaan Pembelajaran*. PT Remaja Rosdakarya.

Pantiwati, Y. dkk. (2020). "Penerapan Model Pembelajaran Berbasis Proyek Untuk Meningkatkan Pemahaman dan Kualitas Media Pembelajaran Buatan Mahasiswa." *Bioedukasi: Jurnal Pendidikan Biologi*, *Vol. 13*. *N*, 9.

Purnomo, H. (2019). *Tutorial Pembelajaran Berbasis Proyek*. K-Media.

Putra Prabawa, D. G. (2013). Pengembangan Bahan Ajar Multimedia Berbasis Proyek Untuk Meningkatkan Hasil Belajar Siswa SMK. *Jurnal Pendidikan Dan Pengajaran*, *Vol. 46*, *N*, 207.

Rosinda, Y. T. (2018). *Model Pembelajaran Berbasis Proyek (PBP) dan Penerapannya dalam Pembelajaran di Kelas*. Deepublish.

Rosleny, B., & Muhajir, M. (2022). No Title. *Pengaruh Model Pembelajaran Project Based Learning Terhadap Hasil Belajar IPS Pada Siswa Kelas V Di Madrasah Ibtidaiyah. In Prosiding Seminar Nasional Pendidikan Dasar.*

Sagala, S. (2017). *Konsep dan Makna Pembelajaran Untuk Membantu Memecahkan Problematika Belajar dan Mengajar*. Alfabeta.

Setiawati, F. (2022). "Dampak Kenijakan Perubahan kurikulum Terhadap Pembelajaran di Sekolah". *Nizamul 'Ilmi :Jurnal Manajemen Pendidikan Islam (JMPI) 7, No. 1*, 2.

Siagian, R. (2021). "Pembelajaran Berbasis Proyek Pada Pokok Bahasan Bhan Alam untuk Meningkatkan Kreativitas Siswa Kelas VIII SMP Negeri 1 Sigumpar." *Journa Of Applied Technology And Informatics*, *Vol. 1*, *No*, 50.

Tampubolon, S. (2014). *Penelitian Tindakan Kelas sebagai Pengembangan Profesi Pendidik dan Keilmuan*. Erlangga.

UU Sisdiknas 2003. (2011). SL Media.