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Teacher Experience in Implementing Project Based Learning at MI Muhammadiyah Karanganyar

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Abstract
The teacher has a fairly important role in making the knowledge taught acceptable to students well. In teaching the teacher must master the components contained in the learning process and be skilled in implementing them. One of these components is the learning method. Teachers teach in a monotonous way can affect students' critical thinking skills, can reduce children's learning enthusiasm and learning is dominated by the teacher so that students are less active and become passive, it is very difficult to detect the extent of understanding of all students, students easily forget what has been delivered, and does not stimulate students to read. One method that can be used by teachers is project based learning. The project based learning learning method is a learning method in which educators act as facilitators and the learning that teachers do can produce quality learning, because learning can produce success for students in terms of cognitive, affective, and psychomotor. This study aims to determine the experience of teachers in implementing project based learning at MI Muhammadiyah Karanganyar. This study uses qualitative research using a phenomenological approach. Data collection techniques by way of observation, interviews, and documentation. There are 3 stages in data analysis, namely, data reduction, data presentation, and drawing conclusions. So, the results of this study researchers were able to find out about the teacher's experience in using the PjBL method in learning, as well as the constraints experienced by the teacher when using the PjBL method..
Keywords: *Teacher Experience, Project Based Learning, Elementary School.*

INTRODUCTION

The existence of teachers for a nation is very important, especially for a nation that is currently developing, especially for the life of the nation in the midst of passing through the ages with increasingly sophisticated technology, and all the changes and shifts in values that tend to give the feel of a life that demands science and art at a dynamic level. to be able to adapt. The teacher is a person whose job is teaching (Big Indonesian Dictionary, 2008). Meanwhile, the word teacher in Arabic is called mu'allim and in English it is known as teacher which in a simple sense is someone whose job is to teach others. The teacher is the spearhead of education, because the teacher directly influences, fosters, and develops students' abilities in the learning process so that they become intelligent, skilled and highly moral human beings. As the spearhead, teachers are required to have the basic skills needed as educators and teachers.

Educators have so far been less creative in learning because they are used to and are too comfortable using the lecture learning method with simple PowerPoint and writing on the blackboard. Assignments and assessments have been carried out so far more in written form using paper. This is no longer relevant based on the times and demands of education in Indonesia today which emphasize HOTS (Higher Order Thinking Skills) learning. Student-centered learning and the use of technology are optimized so that teachers and students are accustomed to using a learning approach by making maximum use of existing media and infrastructure in schools to make it easier for students to understand the material in accordance with the competencies to be achieved. The roles and responsibilities of teaching staff are to design learning activities, as facilitators in student-centered learning activities, educators provide opportunities for students to build knowledge through projects that must be made by students. Educators provide

motivation and accompany the discussion process, create projects and provide reinforcement and answer questions raised by students.

In teaching and learning activities, the teacher has an important role in making the knowledge taught acceptable to existing students. Not only has a role to teach science, there are many roles of the teacher in the learning process. The role of the teacher as an educator is a role related to the tasks of providing assistance and encouragement (supporter), supervision and coaching duties (supervisor) and tasks related to disciplining children so that children become obedient to school rules and norms. live in family and society.

A teacher or educator who is involved in the teaching and learning process, wants the learning objectives that have been formulated or designed to be achieved effectively and efficiently. Therefore, the teacher must master the components contained in the learning process and be skilled in implementing them. One of these components is the teaching method. The teaching method is the method used by the teacher in establishing relationships with students during teaching (Hamid Abd, 2019). The role of the teaching method is a way to create the desired teaching and learning process to run well. Factors that can affect student learning are the strategies or methods used by the teacher when learning is not in accordance with the material being taught, which causes students to find it difficult to understand the material being taught, and the failure to achieve successful learning and low student achievement or motivation due to the teacher's way of teaching not exactly. The learning method is something that cannot be abandoned in the teaching and learning process, every time teaching the teacher is required to use these methods and methods not arbitrarily, but in accordance with the learning objectives, the conditions of the students and the situation and facilities in the school.

Factors that can affect student learning are the strategies or methods used by the teacher when learning is not in accordance with the material being taught, which causes students to find it difficult to understand the material being taught, and the failure to achieve successful learning and low student achievement or motivation due to the teacher's way of teaching not exactly. The learning method is something that cannot be abandoned in the teaching and learning process, every time teaching the teacher is required to use these methods and methods not arbitrarily, but in accordance with the learning objectives, the conditions of the students and the situation and facilities in the school.

One of the root causes of the poor quality of education in Indonesia is the low quality of teachers in teaching. From 2012 to 2015, as many as 1.3 million out of 1.6 million teachers who took the Teacher Competency Test (UKG) which measures competence in managing learning and understanding of the subjects taught did not even achieve a minimum score (Kristini, A., Purnami, A. S., & Mulyono, R, 2023). The cause of the low quality of teachers is the teacher recruitment process which does not focus on selecting professional students, but on meeting the demands of the State Civil Apparatus (ASN). The low quality of teachers starts from competence and teaching ability. Currently, teachers should have many opportunities to develop their abilities, including how to develop ways of teaching using appropriate methods and in accordance with the material being taught.

In the case of 60 teachers in DKI Jakarta, it shows that almost 75 percent of teachers do not prepare the learning process properly. Teachers tend to prepare lessons by prioritizing the material being taught, not the learning objectives. Other facts also reveal that teachers also tend to teach using a monotonous method, meaning they do not use creative and interesting learning methods to arouse students' enthusiasm for learning in class. In line with this fact, teachers are further expected to be competent in terms of research, which aims to produce innovations in learning both in learning methods or learning media (Erni, 2020).

The teacher's method of teaching is monotonous and only lectures can result in low student understanding of the material taught by the teacher. As a result of the teacher's method of teaching in a

monotonous way it can affect students' critical thinking skills, can reduce children's learning enthusiasm, learning is dominated by the teacher so students are less active and become passive, it is very difficult to detect the extent of understanding of all students, students easily forget what has been delivered , and does not stimulate students to read. If the problem is not given a solution then what will happen is learning is monotonous, does not vary, and will not develop. The low teaching skills of teachers make students' critical thinking very low, while students' critical thinking skills are not easy to apply in elementary school students, but critical thinking skills can be learned and trained during learning, with the right method.

Project based learning is a learning method in which educators act as facilitators. This learning method has been widely developed in developed countries such as European and American countries. Project Based Learning is a learning approach that has the following characteristics: students make decisions about a framework, there are problems or challenges posed to students, students design processes to determine solutions to problems or challenges that arise (Global School Net, 2000). proposed, students are collaboratively responsible for accessing and managing information to solve problems, the evaluation process is carried out continuously, students periodically reflect on activities that have been carried out, the final product of learning activities will be evaluated qualitatively, and the learning situation is very tolerant of mistakes and changes.

Project based learning is a learning method that encourages students to apply critical thinking, problem solving skills, and gain knowledge about the real problems and issues they face. In this project-based learning, educators will act more as facilitators who guide students through the learning process. Project based learning is learning that places more emphasis on solutions that occur daily through hands-on practical learning experiences in the community (Sundari, P., & Ernawati, F. Y, 2021). Project-based learning is a strategy to change traditional classrooms that focus on contextual learning through more complex activities. Project-based learning is a learning model that involves students actively designing learning objectives to produce real products or projects. This project based learning method is different from direct learning which emphasizes the achievement of educator ideas and skills. The educator's role in this method is to present problems, ask questions, facilitate investigations, and dialogue.

Given that each student has a different learning style, project-based learning provides opportunities for students to explore content (material) using various ways that are meaningful to them, and conduct experiments collaboratively. Using the project-based learning method encourages growth. creativity, independence, responsibility, self-confidence, and critical and analytical thinking in students. The application of this method, of course, adjusts to the learning material and the level of student development.

The advantages of project based learning learning methods are training students to use reasoning in solving business problems, training students in making hypotheses in solving problems based on simple business concepts, training critical and contextual thinking skills with real problems they face, training students to do testing in proving hypotheses, and training in making decisions about problem solving by: encouraging students to participate actively and concentrate in discussions, stimulating students to think by returning questions to them, encouraging students to make problem analysis, synthesis of problems, carry out evaluation, compiling a summary of the results of the evaluation.

Science learning which gives students the opportunity to construct their own concepts, will provide direct experience to explore and understand the natural surroundings scientifically Science learning by providing direct experience can foster cognitive thinking skills (cognitive thinking skills), psychomotor skills (psychomorphic skills) and social skills (social skills). One school that has implemented learning using the project based learning method is MI Muhammadiyah Karanganyar. Therefore, researchers need to look at how project based learning is implemented by teachers in schools in Natural Sciences subjects.

From the description of the background, the formulation of the problem in this study is, "What is the teacher's experience in implementing Project Based Learning at MI Muhammadiyah Karanganyar? and what are the obstacles that teachers experience when implementing Project Based Learning at MI Muhammadiyah Karanganyar?"

The purpose of this study, which refers to the formulation of the problem, is to find out the teacher's experience in implementing Project Based Learning at MI Muhammadiyah Karanganyar.

METHOD

Researchers used qualitative research with a phenomenological approach, to analyze the teacher's experience in implementing project based learning at MI Muhammadiyah Karanganyar by seeking information from the parties involved and concerned about the application of the project based learning model at MI Muhammadiyah Karanganyar. In this study the researcher will focus on his observations at the 4th grade level of MI Muhammadiyah Karanganyar. A phenomenological approach that focuses on listening and looking more closely at detailed explanations and individual understanding of their experiences. In this study, the research object was a grade 4 science teacher who applied the project based learning method, while the subject of this study was MI Muhammadiyah Karanganyar. In this research, the data needed are in the form of primary data and secondary data. Primary data was collected using interviews and observation methods, while secondary data was obtained based on the results of library research, namely by collecting, reading and even understanding theories in books, journals or the internet related to this research.

There are 3 data collection techniques used to support this research, namely first observation, in this study focusing on in-depth observation of the teacher's experience in using project-based learning methods. The two interviews were conducted with science subject teachers who used project-based learning during learning. Third, documentation, in general, is in the form of archives, correspondence, pictures or photographs, other complementary data and there are also other notes related to the main topic of research. In analyzing qualitative research data there are three stages of analysis namely data reduction, analyzing to sharpen, organizing data, removing data that is not needed so that it will make it easier to find conclusions that can be verified to be used as problems in research. Presentation of data includes classifying and identifying data by describing data sets that have been grouped or categorized based on indicators related to teacher experience in implementing project based learning at MI Muhammadiyah Karanganyar. Drawing conclusions, giving meaning and explaining the results of presenting the data that has been obtained through data analysis of the teacher's experience in implementing project based learning.

RESULT AND DISCUSSION
Result

Before using the projcet based learning method, the teacher also uses lecture, discussion and other learning methods. One of the reasons then the teacher uses the project based learning method is because the teacher wants to do a lesson that produces a project and students can understand a process to produce a work and students can present the results of their project. Before using the PjBL method in the learning process, there are several aspects that are considered by the teacher. As stated by the science teacher for grade 4 MI Muhammadiyah Karanganyar, namely the first is material, because to gain students' understanding what steps are needed for an analysis of the material. For example, material A is simply delivered by lecture and B is carried out by discussion, then this is a project to gain students' deeper understanding of the material. The second is the readiness of students, not all students can receive material using the PjBL method, students are an integral part of this project. The three tools and media

or materials, for example the teacher must discuss the parts of the plant body to find out the understanding of the parts of the plant, the teacher must prepare the tools and materials to reach KD, for example we need plants, where students look for plants, need picture books A3 must already be prepared and isolated.

The preparations that the teacher makes before using the project based learning method include preparing learning scenarios that will be included in the lesson plan, preparing tools and materials to be used in making projects in learning, then conveying information to students to prepare themselves for learning, and the teacher makes a rubric process assessment and student outcomes. In using the project based learning method, what the teacher can feel is that learning becomes quality. Because it can affect the development of students from any aspect. When applying the project based learning method, schools also play an important role in supporting the facilities and infrastructure that teachers need based on a predetermined curriculum. Class 4 material that can be used by teachers using the project based learning method is 75% in the 2022/2023 school year. Material indicators that can be carried out with project based learning are that science material can produce products.

The differences that occur make an influence on the development of students' abilities from several aspects of affective, cognitive, and psychomotor. In terms of cognitive frankly the teacher hasn't researched further related to cognitive, perhaps it can be compared with the grades of classes that are not taught by the teacher. In terms of affective, it can be bold, because students are used to presentations. This is different from students who are not used to working in groups or presenting, students who are used to carrying out projects, then there is a group then socialization occurs, then resolves conflicts in this learning process, then he is able to communicate. In terms of psychomotor when carrying out PjBL students are active, not just passive and only listen to the teacher's side of the lecture like that.

Project based learning encourages students to fulfill their curiosity, project-based learning makes students directly connected with tools and materials that can help students think creatively to complete a product. The impact of learning encourages students to respond out of curiosity with creative steps, for example, when the worksheet is available, there are already tools and materials, then the steps to produce an existing project are how students think creatively. to finish the sale.

Student independence will grow in this project based learning learning process, because there are several projects that must be completed independently, while projects completed in groups students can practice independence such as discussing, collaborating and others. If for example the project has to be completed alone, of course this will encourage students to complete the project and encourage students to be independent, but if the project has to be done in groups, it means the value is how he discusses, how he collaborates, in groups.

A project completed by students either individually or in groups and presenting the product is part of the student's responsibilities in the project based learning learning process. Responsibilities relate to students later presenting project results, this is not carried out in classes that do not use the project based learning method, when students carry out presentations there is a sense of responsibility for how students feel about what they have to do in the learning steps in LKPD. Student presentations are part of the responsibility.

Critical or analytical thinking of students who grow because of project-based learning, this is a form of positive impact experienced by students in completing a project and producing products. This feeling arises, when for example the project of making alternative energy sources students can turn on the result is a series of mysteries, a series of potatoes that have been connected with cables and alligator clamps, they can turn on this light. Then a question arises from the students, "how many quintals of potatoes does it take to power the whole house?" This could be the beginning of a critical thinking process.

Difficulties in applying the project based learning learning model starting from the project based learning method and the students can be used as a solution for each other because the project based learning method and students are interrelated, as explained by the teacher in the interview. Difficulties exist because it could happen when we prepare tools and materials but these difficulties can be overcome, for example related to alternative energy materials. The teacher asked the students to bring copper plates, zinc plates, students were confused about looking at home with their parents what kind of copper plates the plates were, finally students brought thick copper and thick zinc, and when they tried it didn't work. This means that the process failed, but as time goes by, this year the material can be used again tomorrow, meaning that the difficulty earlier can be solved by the teacher trying it first, the tools and materials are clear using nails this can work, no copper plate can be replaced with 500 Then, students can carry out the project-based learning steps.

Discussion

The implementation of research at the Muhammadiyah Elementary School (MI) Karanganyar is located at Jalan Citarum I No.9 District and Karanganyar Regency. The geographical location of MI Muhammadiyah Karanganyar is around the school complex in Karanganyar, with the northern border being the front road facing Karanganyar Muhammadiyah High School, to the east it is bordered by building 2 Muhammadiyah Karanganyar High School and to the west it is bordered by Karanganyar 1 Public High School and to the south it is bordered by the residents' rice fields. The location of MI Muhammadiyah Karanganyar is very strategic because it is in an urban area and is in the area of the school complex in Karanganyar, access to go to MI Muhammadiyah Karanganyar is very easy.

Interviews were conducted directly involving one resource person, namely a science teacher MI Muhammadiyah Karanganyar. The identity of the object in this study is as follows:

Name	Supriyadi, M.Pd
Gender	Male
Date of brith	8 Juni 1980
Work	Guru IPA MI
Last education	Pascasarjana Universitas Muhammadiyah Surakarta (2018)
Address	Jurangrejo, Ngadiluwih, Matesih, Karanganyar

The results of this study show the teacher's experience in applying learning with the PjBL method at MI Muhammadiyah Karanganyar. From the results of research conducted by researchers, the teacher's experience in applying the project based learning method in science subjects is divided into 5 parts, namely pre-planning, planning, implementation of learning, learning assessment, and learning obstacles.

Pre-planning researchers found that not all science material could use the PjBL method, there were some materials that were more appropriate using lecture, conventional, and other learning methods. The teacher used the PjBL method because he wanted students to be able to do something that produces products and students can understand a process to produce a work and be able to present the work. There are several aspects that need to use the PJBL method, first is the material, because this material is to gain students' understanding. Second, the readiness of students, not all students can accept learning using the PjBL method, students become an integral part of this project. Third, tools and media or materials because they require real media for children to know and understand the parts being studied, and the right time to use the PJBL method. Of the 4 materials in class 4 for the 2022/2023 school year, there are 3 materials that can use the PjBL method, namely material form of matter, energy, and magnetism. It can be said that 75% of class 4 material can use the PjBL method.

Planning that needs to be prepared from the teacher's experience includes learning scenarios, after analyzing the needs of the material then the teacher develops learning strategies or scenarios that will be included in the lesson plan. Both tools and materials. The third is conveying to students to prepare themselves for the learning day using the PjBL method. And the four LKPD and then the teacher looks at the rubric for assessing the process and performance of students from the results of their projects. With this, the teacher's reason for using the PjBL learning method is so that students do something that can produce a product and by using this method students can understand a process for producing a work, and can present the work, it is also hoped that PjBL learning can also increase student creativity.

This project-based learning learning method has differences from other learning methods, which the teacher feels is that PjBL learning requires a long time of preparation, while other methods can be done conventionally by simply coming to class with a laptop and then presenting pictures or showing videos on the LCD. And, in the PjBL method it is necessary to involve students and the readiness of students is necessary, and many involve several aspects including aspects of tools and materials that need to be prepared in advance.

Implementation of learning is designed to stimulate students to be active in project-making activities in groups and interactions arise between each group. Teachers who use the PjBL method are able to carry out the 5M well, namely observing by observing the making of projects carried out in groups while in class, asking questions by giving questions to students when analyzing the making of projects carried out by students, reasoning by making students provide reasoning according to the material that is being provided by the teacher, try with the teacher providing projects to students so that students play an active role during learning, and form networks by making reciprocal activities between teachers and students as was done in this class during presentations in front of the class about projects that have been made.

In the experience experienced by the teacher, grade 4 students who receive learning using the PjBL method can encourage the growth of creativity in students, this happens because students are used to the tools and materials used in completing a product in learning, then the growth of motivation in students , great curiosity in students plus learning methods that require students to be active to make students motivated to take part in class learning, growing independence in students, there are several projects in the PjBL learning method that make students complete projects individually, while in groups you can training students to discuss and collaborate, growing a sense of responsibility to students, students who have completed projects and presented them this can make students feel responsible for the results they are working on, and the last is to think critically on each student, before working on a project students will observing and listening to the teacher's explanation first, in this case there will be questions that make students think critically.

There are 3 aspects that can be used to see the success of this method for students namely, cognitive, psychomotor, and affective aspects. The first aspect is cognitive, from the teacher's experience they have not researched further related to this cognitive aspect, but you can compare the scores of classes that use the PjBL method with classes that do not use the PjBL method, of course they are much different. Classes that use the PjBL method have much higher scores than classes that do not use the PjBL method. Where this is because PjBL learning makes learning centered on students and develops their skills in problem solving, encourages students to improve their cognitive learning outcomes and develops collaboration and communication skills between students.

This success is presumably because the learning process using the PjBL method is more fun, and makes students interested, and not monotonous, where this model presents various problems that exist in the real world, making projects and giving a sense of responsibility to each individual in the group so that students in in a group really work well together for the sake of the group. As stated by Aulia & Ria,

(2018) the Project Based Learning model which is developed through group discussions and collaboration, students will be trained with discipline in working on projects according to a predetermined schedule so that students are more independent in their groups when doing assignments and are able to express ideas based on problems faced, and actively communicate in project discussions and presentations.

The project based learning learning model shows better student learning outcomes compared to the inquiry model, because students become enthusiastic in making projects and encourage them to be more active, this is supported by research conducted by (Efa, 2019) where the research results show that there is significant differences in students' cognitive outcomes using project based learning and inquiry models, where project based learning models are better than inquiry models because project based learning encourages and makes students active and creative in making projects in the learning process. Cognitive abilities of students can also be seen based on the components of cognitive abilities of students according to the ability of students to answer material questions from tests given on aspects of cognitive abilities. Students in the experimental class using the PjBL and inquiry models have the ability to build basic skills better than the control class using conventional models. This is because the conventional model is monotonous and seems boring to students.

Second, from the psychomotor aspect, from the results of interviews with science teachers, the PjBL method makes students more active because they don't just listen to the teacher's lectures. Project based learning has an effect on psychomotor skills because there are many benefits that can be achieved through the application of this Project Based Learning model, for example: (1) students become active; (2) learning becomes more interactive or multidirectional; (3) learning to be student centered); (4) the teacher acts as a facilitator; (5) developing students' higher order thinking skills; (6) giving students the opportunity to manage their own activities or task completion activities so as to train them to become independent; (7) can provide a deeper understanding of concepts or knowledge to students.

Third, from the affective aspect, in the explanation the science teacher explains that this PjBLl method can produce students who are able to present learning projects with confidence, students can respect other people, then students' curiosity increases. Students who are used to carrying out project learning in groups of students will be more accustomed to socializing, and in these groups when problems occur students are able to solve these problems and be able to communicate them.

Learning activities using the project based learning model are directed at planning, scheduling, and producing project results to solve problems that occur in people's lives, so as to foster an attitude of responsibility, discipline, and collaboration with others. All learning activities are ultimately expected to help students master the material and foster better student attitudes in accordance with the goals of a teacher besides teaching, namely educating.

There are 2 learning assessments used by teachers, namely the process stage assessment (non-test technique) is an assessment used by science teachers at MI Muhammadiyah Karanganyar using an attitude scale. This assessment is carried out to observe student behavior during the learning process. In this observation, students do not need to be told that they are being observed. Then the results stage (test technique) is by looking at the results of student products, in this assessment students present their product results in front of the class and see how students answer questions asked by other students. And the results of student work from working on the LKPD that the teacher has provided. In the coverage measured in the test technique described above, the teacher has carried out all the existing coverage properly.

Evaluation of the learning faced by the teacher in applying the project based learning method of learning is the obstacle faced by the teacher in implementing the project based learning method of learning in the classroom starting from students who are sometimes busy alone, talking with other group

friends, this happens because students do not really understand by way of project work. Sometimes there are some tools and materials that students bring are not quite right to make the project, it can be said that these tools and materials are hard to come by because they are still foreign to students' ears and not just any place provides the tools and materials needed. Another obstacle felt by the teacher is that the time it takes to complete a project takes quite a long time while on the other hand there is still other material that must be completed, plus using the PjBL method requires more energy to help students complete a project.

The solution made by the teacher to solve the problems contained in the learning process of project based learning in class 4 MI Muhammadiyah Karanganyar is from his experience to solve problems related to students who don't understand. regarding project work, the teacher has also prepared his own tools and materials, so that when students bring the wrong tools and materials there are other tools and materials that students can use to make projects.

CONCLUSION

The learning that the teacher does by using the project based learning method requires careful preparation, starting from learning scenarios, lesson plans, worksheets, and assessment rubrics for students. The application of the project based learning model, according to the teacher, has many differences from other methods. Supriyadi feels that project based learning requires a long preparation, while other methods can be done conventionally by simply coming to class with a laptop and then presenting pictures or showing videos on it. LCD. And, in the PjBL method it is necessary to involve students and the readiness of students is necessary, and many involve several aspects including aspects of tools and materials that need to be prepared in advance.

Project based learning also generates a lot of success for students and can be seen from a cognitive, affective, and psychomotor perspective. The first aspect is cognitive, you can compare the scores of classes that use the PjBL method with classes that don't use the PjBL method, of course they are much different. Classes that use the PjBL method have much higher scores than classes that do not use the PjBL method. Where this is because PjBL learning makes learning centered on students and develops their skills in problem solving, encourages students to improve their cognitive learning outcomes and develops collaboration and communication skills between students. Second, from the psychomotor aspect, from the results of interviews with Mr. Supriyanto, this project based learning method makes students more active because they don't just listen to the teacher's lectures. Third, from the affective aspect, in the explanation the science teacher explains that this project based learning method can produce students who are able to present learning projects with confidence, students can respect other people, then students' curiosity increases. Students who are accustomed to carrying out project learning in groups of students will be more accustomed to socializing, and in these groups when problems occur students are able to solve these problems and be able to communicate them. Project-based learning that teachers do can produce high-quality learning, because this learning can foster student independence, student creativity, critical thinking, student responsibility, and student motivation.

The obstacle that teachers experience when learning using the project based learning method is the lack of facilities and infrastructure in schools, in terms of the tools and materials used when making learning projects. Students during learning are sometimes busy alone and talking with other groups, this happens because students really understand how to do projects. Then, students are sometimes less precise in bringing tools and materials. Another obstacle in terms of time, because project based learning takes a long time while on the other hand there is still a lot of material that must be completed next, plus this project based learning method requires more energy to help students complete a project.

The solution used by the teacher to overcome the existing obstacles is that the teacher will ask the students again which part is lacking in understanding and explain again. For the obstacles to tools and materials, the teacher overcomes them by preparing the tools and materials themselves, so that when students bring the wrong tools and materials there are other tools and materials that students can use to make projects.

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