



Improving Skills for Preparing Classroom Action Research Proposal Using Project-Based Learning Model for Prospective Elementary Teachers

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Abstract. There are still many obstacles in preparing thesis proposals for students, including students' readiness to face the thesis, mastery of research methodology, student persistence in completing a thesis, activeness and effectiveness of guidance with supervisors. The aims of this study were (1) to describe the application of PjBL to improve skills in preparing CAR proposals and (2) to improve skills in preparing CAR proposals by implementing PjBL. This study used a Classroom Action Research design cycle model with 116 research subjects. The sources of data used are students, lecturer colleagues, and documents. Collecting data with observation techniques, interviews, and tests. The validity of the data was obtained through triangulation of sources, techniques and experts. Data analysis used includes data reduction, data presentation and concluding. The research procedure includes planning, implementation, observation, and reflection. The results of the study show that (1) the steps for implementing PjBL include presenting the problem, compiling a project plan, compiling a schedule of project activities, monitoring project implementation, presenting project results, and evaluating project results; (2) the application of PjBL can improve skills in preparing CAR proposals for students. The implications of the results of this study are students can complete their thesis on time with good quality.

Keywords: Project Based Learning, Classroom Action Research

1 Introduction

The final project in the form of a thesis is one of the subjects that students must take to complete the undergraduate program. This course requires attention, especially regarding readiness, activeness, persistence, and communication skills. Completing a thesis for students is one of the subjects that still experience many obstacles. These obstacles are caused by (a) students' readiness to face the thesis, (b) mastery of research methodology, (c) student persistence in completing a thesis, and (d) activeness and effectiveness of guidance with supervisors. To overcome these obstacles, it is necessary to carry out various steps, strategies, models, approaches, and methods by institutions and supervisors so that students can complete this thesis course promptly

and with good quality. One strategy that needs to be taken is to equip students to be ready to face thesis courses and equip students to master various research methodologies. Classroom Action Research is one type of research method that students can use in preparing their thesis.

The Classroom Action Research (CAR) course, with a weight of 2 credits in the Elementary School Teacher Education (PGSD) Study Program, Faculty of Teacher Training and Education, Sebelas Maret University, is a compulsory subject that semester six students must take. This course provides students with provisions as a basis for taking course final assignments in the form of a thesis in semesters 7 and 8. One of the research approaches that PGSD study program students can choose is Classroom Action Research (CAR). Learning Outcomes of CAR courses are described as courses that equip students to be able to (a) formulate explanations of the basic concepts, goals and benefits of CAR in elementary schools, (b) determine problem-based research topics and formulate them into CAR research titles, (c) compiling the background of the research problem to formulating the objectives and benefits, (d) compiling the design of the CAR theoretical study by the research variables with reliable and up-to-date literature and sources, (e) compiling the CAR methods by the research problems and research objectives to be achieved, (f) describe the essence of the results and discussion of CAR, (g) describe the essence of the conclusions and suggestions.

In compiling a thesis, students must carry out two stages: the stage of preparing the thesis proposal and collecting and analysing thesis data. In both stages, students will be accompanied by supervisors. At the stage of preparing a thesis proposal, students must be able to properly prepare a proposal by the rules and procedures that apply in tertiary institutions. While at the stage of collecting and analysing thesis data, it can be done if the proposal has been presented in a seminar. To reach the proposal preparation stage, students must be equipped with the concepts and procedures for preparing thesis proposals and data collection techniques in the field. This debriefing must be accompanied by a comprehensive exercise or practice of all thesis components. This debriefing process can be done through the learning process in lecture activities. For this reason, research methodology lectures need to apply various learning methods and models by the characteristics and objectives of the course. The Project-Based Learning model is an alternative to solving the problem of preparing a thesis proposal.

Project Based Learning (PjBL) is a learner-centred learning model to investigate a topic in-depth. Learners constructively deepen learning with a research-based approach to problems and questions that are weighty, real, and relevant [1]. This learning model is built on learning activities and fundamental tasks that provide challenges for students related to everyday life to be solved in groups or individuals, creating a “constructivist” learning environment in which students construct their knowledge and educators become facilitators [2]. PjBL is a learning model that places students at the centre of learning. Its implementation in education has the potential to improve students' hard and soft skills [3]–[5]. In PjBL classes, topics given by the teacher will be developed by students both in groups and individually through a series of research activities or work projects monitored by the teacher [6]. This learning model also helps students improve their thinking skills to increase confidence and be active in

completing projects and making decisions [7]–[9]. PjBL is a learning model suitable for learning that produces certain products as output. This model suits students from elementary to university level [10], [11]. PjBL can also develop students' scientific process skills, thus increasing questioning skills, debating ideas, and drawing conclusions on problems. In addition, PjBL can increase collaboration between students and recognition of responsibility as a team member in their group [12], [13]. In working on the project, students are given various assignments and asked to complete the final product. These tasks include designing, solving problems, making decisions, investigating activities, reporting, etc. PjBL aims to develop students' skills through meaningful activities based on projects [14].

PjBL is valuable because it connects to real-world problems and encourages students to demonstrate knowledge practically. In addition, it involves students in ongoing inquiry activities and allows students to participate in them with different tasks in meaningful situations. PjBL also facilitates students to collaborate on conceptual understanding, apply prior knowledge, and gain skills by integrating several disciplines to create a project [15]. Furthermore, the benefits of PjBL are that it allows the ability of students to become higher [16], increases student achievement [17], challenges students to solve real problems, becomes a good collaborator, motivates students [18], increases knowledge of the material teaching so that it can meet the needs of students with various skills and learning styles [19]. By using PjBL, teachers can observe students' creativity through various projects. Creativity is a process that produces novelty, which is practical, sustainable, or satisfying for many people [20]. In learning, creativity has an important role [21]. One of the benefits of student creativity in learning is to increase student knowledge related to everyday life [22]. The stages of implementing learning with the PjBL model are (1) presenting problems, (2) compiling project plans, (3) compiling project activity schedules, (4) monitoring project implementation, (5) presenting project results, (6) evaluating results project [23], [24].

Based on the background study and problems above, the objectives of this research are (1) to describe the application of PjBL to improve skills in preparing CAR proposals for students and (2) to improve skills in preparing CAR proposals by implementing PjBL for students.

2 Method

This study used a Classroom Action Research (CAR) design cycle model. This research consisted of three cycles, each with 4 meetings. The subjects of this study were 116 students from the elementary school Teacher Education study program, Faculty of Teacher Training and Education - Sebelas Maret University, who were taking the Classroom Action Research course in semester 6 of the 2022/2023 academic year. The sources of data used are students, lecturer colleagues, and documents. The data collection techniques used are observation, interviews, and tests. The validity of the data in this study was obtained through source, technical, and expert triangulation. Data analysis used in this study includes data reduction, data presentation and conclusion [25]. The research procedure used is to use a cycle model, with stages in each

cycle including (1) planning, (2) implementation, (3) observation, and (4) reflection [26]. The indicator of the success of this research is when the implementation of the PjBL model and CAR proposal products each achieve a minimum of 80% of the specified indicators.

3 Results and Discussion

In this section, the results of research for three cycles will be presented using the stages of (1) planning, (2) implementation, (3) observation, and (4) reflection.

A. Planning Stage

The research planning stage was carried out collaboratively between researchers, colleagues, and students. At this stage, an in-depth discussion of the research plan was carried out to obtain the same understanding of several activities, namely (a) preparation of the lesson plan, (b) preparation of research instruments, (c) coordination of the research team with colleagues, observers, and student representatives. At this planning stage, the following project agenda has been prepared: (1) project 1 (meetings 1 – 3) preparation of problem identification, problem determination, determination of alternative solutions, objectives and benefits of CAR, (2) project 2 (meetings 5 – 7) preparation Research on literature, framework, and hypotheses, (3) project 3 (meetings 9 – 11) Formulation of CAR methods and instruments. Projects 1 to 3 are arranged as a Classroom Action Research proposal. The activity ended with presenting CAR proposals in groups and evaluating learning outcomes.

B. Implementation Stage

At the implementation stage, the research was carried out for three cycles by carrying out three projects involving nine meetings. This stage of the learning implementation involved three classes with a total of 116 students. The implementation stage of this activity is carried out according to the lecture schedule in each class so it does not interfere with other academic activities. Each learning activity involves three observers. In the early stages, procedures are carried out according to the syntax of the PjBL model, which includes six steps, namely (1) presenting the problem, (2) preparing project planning, (3) compiling project activity schedules, (4) monitoring project implementation, (5) presentation and assessment of project results, (6) evaluation of project results [12, 25, 33, 38].

a. Presentation of Problems at the Beginning of Learning

Learning activities begin by giving challenging questions to students. In cycle I, the questions posed to students were (a) What problems did elementary school teachers face in planning, implementing, and evaluating learning in class? (b) What is the background of the problem? (c) What are the alternative solutions to the problem? (d) What are the objectives and benefits of alternative problem solving for classroom learning? These questions will lead students to the context of project-based learning and give as-

signments to students to carry out a controlled activity. The assignment topics are by the real world, namely classroom learning problems that are relevant to students and begin with an in-depth investigation through field observation activities and literature studies. In cycle II, the questions posed to students were (a) how to explore and develop a theoretical basis to support problem-solving? What is the framework of thinking that can be proposed for solving learning problems? In cycle III, the questions posed to students were (a) What is the method for solving learning problems that will be carried out? (b) and what is the procedure for solving the learning problem?

b. Project Planning

At this stage, collaborative activities are carried out between lecturers and students to develop project plans to be carried out. This activity is carried out continuously from cycle I to cycle III. Determination of activities to be carried out in the project from the initial stage to the end. The activities carried out in planning include (a) forming groups (3-4 students), (b) determining the size of the volume of project work, (c) determining agreements about the rules of the game, (d) selecting activities to be carried out in response to essential questions on the project (e) divide tasks with the responsibilities of each group member, and (f) determine the materials and tools needed.

c. Scheduling of Project Activities

At this stage, the lecturer and students collaboratively arrange a group activity schedule to complete the project. The purpose of this activity is to provide students with an understanding that to carry out a project, a workgroup requires a reasonable work schedule so that the project can be carried out according to plan. Even so, this activity is attempted to be carried out simply so that students can carry it out. This research was conducted for three cycles, with each cycle producing one project. Each cycle (project) is completed in 3 meetings.

d. Project Supervision

Lecturers are responsible for monitoring student group activities while completing projects. This supervision functions not only as a work control but also actually as a mentoring process. Monitoring is carried out by providing full facilities to students to carry out their activities perfectly. Supervision and monitoring activities are carried out at each meeting.

e. Presentation of results and Project Assessment

Assessment is carried out on the results of student group work in the project. Assessment is carried out to measure project achievement and student competence, provide feedback about the level of understanding students have achieved, and assist students in preparing follow-up actions for the next project. This assessment activity is carried out collaboratively be-

tween lecturers and fellow students crosswise, so that more objective results are obtained. Assessment activities are carried out in presentations and group discussions as well as classical activities at the end of meetings in each cycle/project.

f. Evaluation of Project Results

Learning activities end with the activities of lecturers and students reflecting on the activities and results of projects that have been carried out. The reflection process is carried out individually or in groups. Self-reflection is done to understand about himself in carrying out his duties and responsibilities as a group member in completing each of his projects. While group reflection is carried out to understand the achievements and shortcomings of the group in completing each project.

C. Observation Stage

The third stage of the research procedure is carrying out learning observations with the application of PjBL. Learning observation activities are carried out by 3 observers using the instruments that have been provided, namely (a) learning implementation instruments with the Project Based Learning model (30 indicators), (b) project implementation instruments (30 indicators), and (c) learning achievement test instruments regarding mastery of the substance of the Classroom Action Research course (80 items).

Based on the results of observing the implementation of the action for 3 cycles, the following data is obtained on the application of PjBL to improve skills in preparing CAR proposals.

Table 1. Observation Results of Applying the Project-Based Learning Model

Project-Based Learning Steps	Cycle I	Cycle II	Cycle III	Average	Percentage (%)
1. Problem Presentation	3,63	3,74	3,80	3,72	93,00
2. Project Planning	3,60	3,51	3,63	3,58	89,50
3. Scheduling of Project Activities	3,49	3,63	3,83	3,65	91,25
4. Project Supervision	3,54	3,54	3,60	3,56	89,00
5. Presentation of results and Project Assessment	3,69	3,80	3,86	3,78	94,50
6. Project Evaluation	3,60	3,43	3,43	3,49	87,25
Average	3,59	3,61	3,69	3,63	90,75

Scale: 0 – 4

Based on table 1 above, the stage of presenting the problem has gone well. The objectives of the activities to be carried out on the project are also clear so that students understand the problems and objectives of working on the pro-

ject. At the project planning stage, students still experience difficulties in determining the focus of the project to be worked on. This happens because they do not have sufficient information about the conditions underlying the learning problems in the classroom. For this reason, observation activities are needed in schools in order to find the types of learning problems and their background. At the project scheduling stage, students find it difficult to divide their time in working on the project. The time available for each project is 3 meetings. This time span is used to understand the problem, determine the type of project and to work on the project. At the project monitoring stage, the lecturer monitors the project progress that students are working on in groups during face-to-face meetings. This monitoring activity is carried out continuously so that if there are obstacles in project work, a solution can be immediately found. The stage of presenting the results and evaluating the project is carried out through presentations and then group discussions alternately. With PjBL, it can be used to determine the level of mastery of project material, train the courage to express opinions and be accountable for them, and increase activeness, creativity [30]. By using PjBL, we can observe student creativity through the various projects they are working on. Creativity is a process that produces novelty, which is practical, sustainable or satisfying for people [20]. and critical thinking, increasing motivation, and increasing student self-confidence [31]–[39]. However, in presentation activities and group discussions, there is still a dominance of the role of some group members.

For this reason, there is still a need for equal distribution of roles in presentation activities and group discussions. In the final stage of implementing the PjBL model, a series of evaluation and reflection activities are carried out. Evaluation activities are used to determine the level of competency achievement as planned. At the same time, reflection activities are used to find out about what has been produced through the project and what constraints were found while working on the project. By finding these obstacles, a follow-up plan can be determined to improve the achievement of project results. Based on the description above, it can be concluded that the application of the PjBL model can be carried out properly according to the existing syntax.

After working on three projects in three cycles, an output is produced as a CAR proposal as a product of the CAR course. Proposal evaluation uses proposal components, research instruments, and group presentation activities using 30 indicators and three observers crosswise in each class. A summary of the results of observations about the CAR proposal is presented below.

Table 2. Classroom Action Research Proposal Product Assessment Results

Proposal Component	Average Score	Percentage (%)
Introduction	3,51	88,75
Literature Review, Framework & Hypothese	3,34	83,50
Research Methods	3,59	89,75
Bibliography	2,91	72,75
Research Instruments	3,76	94,00

Proposal Component	Average Score	Percentage (%)
Presentation Activities	3,58	89,50
Everage	3,52	88,00

Scale: 0 – 4

Based on table 2 above, the first component in the proposal is Chapter I, namely the Introduction which consists of the background to the problem, the problem formulation, the research objectives, and the benefits of the research. In general, this component has been achieved well. The deficiencies found are empirical evidence about the real problems and their background in schools. This is because students do not have sufficient knowledge about the real conditions of schooling. For this reason, separate time is needed to dig up information about real school problems. Chapter II discusses literature review, frameworks, and hypotheses. In general, this component has been fulfilled. Weaknesses obtained in this component is the need for literature that is used both in quantity and quality.

For this reason, development is still needed in literature searches in the form of national and international journal articles that support literature review according to research variables. Furthermore, Chapter III is a research method that includes time and place of research, research design, data collection tools and techniques, validity and data analysis and research procedures. In general, this component has been completed to achieve a score of 3.59. The drawback to the research method component is that students still need to be fixated on one type of classroom Action Research design, namely the cycle model. For this reason, it is necessary to develop another model.

Furthermore, in data analysis, students are still fixated on one type of data analysis, namely data reduction, data presentation, and concluding. Presumably, it still needed the development of other data analysis techniques. In the bibliography component, it can be seen that it has only achieved the most minor score, namely 2.91.

The drawback of this component is that students still use limited types of literature to compile proposals. This is because the time to explore the library is limited. The literature for preparing proposals is still limited to books national journal articles. It takes time and opportunity to explore library materials in the form of up-to-date books, and national and international journal articles. Furthermore, the instrument components, in general have been well equipped to achieve a score of 3.76. The proposal includes learning scenarios, data collection instruments according to research variables, and learning tools. In this component, there are still some things that need to be improved, especially in the data collection instrument, namely regarding the development of indicators from research variables. This ability needs to be supported by adequate literature. After the research proposal has been fully prepared, presentations and group discussions are continued alternately. These presentations and discussion activities can improve collaboration, creativity and communication skills [40], [41]. In the presentation activity, what was observed were presentation

material, mastery of the material, answers to questions that arose, and cooperation during the presentation.

Based on Table 2 above, the presentation activity has reached a score of 3.58. This means that the presentation activities and group discussions have gone well. Weaknesses found in presentation activities are limited time, roles and dominance in presentations are not evenly distributed. Based on the description above, it can be concluded that applying the Project Based Learning model can improve skills in preparing Action Research proposals for Elementary school Teacher Education students as prospective elementary school teachers. Students give positive responses and feel happy with implementing the Project Based Learning model, even though there are still perceived deficiencies [42], [43].

D. Reflection Stage

At the final stage of the research activity, comprehensive evaluation and reflection activities were carried out on all stages and types of activities. Evaluation and reflection activities are carried out to determine the follow-up of all research activities that have been planned and carried out so that research activities can be better with research results that can be accounted for. The series of research activities have been carried out as a whole following the planned stage. Based on the action and data analysis results, it can be concluded that (1) the application of PjBL improves the skills of preparing Classroom Action Research proposals for students, and (2) the application of PjBL can improve the skills of preparing CAR proposals for students. The advantages in applying the PjBL model are (a) increasing the courage to express opinions and being accountable for them, (b) increasing activeness, (c) increasing creativity, (d) increasing critical thinking, (e) increasing motivation, and (f) increasing confident, (g) improve collaboration, (h) improve learning outcomes about Classroom Action Research, and (i) produce products in the form of CAR proposals. In addition to the existing advantages, there are still some deficiencies found in the application of the PjBL model, namely (1) time to work on projects is still lacking, (2) in presentation and discussion activities there is still a dominance of roles in several groups, (3) in preparing proposals there are still deficiencies, namely at the identification stage and the causes of the problem are not supported by sufficient field data, as well as in writing literature reviews it does not make use of relevant literature, both in quantity and quality.

4 Conclusion

Based on the results of the action and research data analysis, it can be concluded that (1) the application of PjBL improves the skills of preparing CAR proposals for students carried out using the syntax of (a) presenting problems, (b) preparing project plans, (c) compiling schedule of project activities, (d) monitor project implementation, (e) present project results, (f) evaluate project results; (2) the application of PjBL can improve the skills of preparing CAR proposals for students. This has an impact on

improving learning outcomes in CAR courses for students. The implications of the results of this study are students can complete their thesis on time with good quality.

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