The Implementation of Project Based Learning (PjBL) in Qualitative Research Methods and Action Research Courses in Education in Curriculum 4.0 Obe Postgraduate Education Doctoral Study Program, University of Jambi

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Abstract. This study aimed to discover the effectiveness of the English language learning model which can increase participation, activity, and learning outcomes in research methods and action research courses for doctoral students at the University of Jambi. Descriptive qualitative was used as a method of the present study. This study examined the results of implementing the (PjBL) approach for 16 meetings in the Qualitative Research Methods and Action Research in Education courses. The findings showed that Project-based learning (PjBL) has a reasonably good role in increasing doctoral education students' participation, activity, and learning outcomes at the University of Jambi. The contribution of the results of this research is also intended for lecturers to carry out project-based learning innovations to increase knowledge and develop learning. Several suggestions and recommendations have been proposed in the present study to gain a new better learning approach and policy.

Keywords: Classroom Action Research · PjBL · Project-based learning · Qualitative

1 Introduction

The mandate of Jambi University Statutes in Permenristekdikti No. 41 of 2018 articles 25, 26, and 27 related to the Vision, Mission, and Organization of the University of Jambi can be developed into UNJA's Vision is: Towards A World Class Entrepreneurship University Based on Agro-industry and Environment. Meanwhile, UNJA's mission is to expand access to education and provide quality tertiary education in Jambi. It also strengthens digital services to spur accuracy and accelerate the quality of education that prioritizes exploring Jambi's local potential. It is handled, connected and integrated to bring Jambi University to world-class. Building agro-industry and environmental centers of excellence is the main focus. Fostering a culture of innovation for UNJA residents supported by good governance. Concrete steps to be taken in the next four years are to carry out the Tri Dharma of Higher Education towards excellence.

The Directorate General of Higher Education such as Merdeka Belajar-Kampus Merdeka provides direction which "the State Universities (PTN) must carry out the transformation of higher education through harmonization of the Main Performance Indicators (IKU) of State Universities (PTN)". The Main Performance Indicator is PTN performance which will determine PTN classification and resource and budget support which the Directorate General of Higher Education will facilitate.

Jambi University as a State University within the Ministry of Education and Culture in setting performance targets is guided by the main tertiary performance indicators in the Decree of the Minister of Education and Culture of the Republic of Indonesia Number 754 / P / 2020. The Main Performance Indicator issued by the Minister of Education and Culture through the Decree of the Minister of Education and Culture Number 754/P/2020 is a new performance measure for tertiary institutions to create adaptive tertiary institutions based on more concrete outcomes. This policy is also a measuring tool to accelerate the implementation of the Merdeka Belajar-Kampus Merdeka.

This research grant is a stimulus in innovating and improvising learning so that participation, understanding, and student learning outcomes during a pandemic can increase. This learning innovation grant program is vital. It is considering the need for competency in teaching from human resources owned by Jambi University, especially the Doctor of Education Study Program, to improve the quality of learning. It also supports the achievement of the 7th PTN Main Performance Indicator (IKU) which the Ministry Education, Culture, Research, and Technology have set. Improving the quality of learning can be done by improving the quality of the learning process. It can be achieved by increasing the competence of lecturers on how to design learning methods so that they are more effective and get good attention from students. To increase the effectiveness of this learning, lecturers should provide innovative learning that can encourage students to learn more optimally. Thus, in carrying out the independent learning using a Learning Management System or modules or face-to-face learning in class with innovative methods, teaching aids, and other learning media. Determining appropriate learning strategies and models is needed by lecturers to achieve learning objectives so that it makes it easier for students to understand the material presented by the teacher.

The learning objectives to be achieved include creating an active atmosphere in the classroom during the teaching and learning process so that student learning outcomes are as expected. The Qualitative Research Methods and Action Research in Education course is one of the new courses listed in the Doctor of Education Study Program curriculum, which has adopted changes. The process of organizing learning that has been implemented can utilize the UNJA Learning Management System or e-learning. The implementation of the learning process has not been carried out interactively, some of the learning is still carried out with the lecture method, as well as assignments and discussions. The application of the learning model used is not well structured so student participation and learning outcomes cannot be appropriately measured.

From the problems found in this course, innovation is carried out by developing interactive learning to increase participation, understanding, and student learning outcomes. So that the expected learning outcomes are realized. To realize these learning outcomes, a more innovative learning model is needed to stimulate motivation, process,

and increase student participation and learning outcomes by solving project-based problems. And to support this, learning can be carried out by implementing a project-based learning model complemented by discussions on specific problems. The Project Based Learning (PjBL) model is student-centered learning. According to [1] the Project Based Learning (PjBL) model is learning that emphasizes meaningful assignments so that students can carry out investigations, carry out problem-solving processes, and produce products. This learning model can train students' thinking skills in solving problems so that student creativity emerges.

In the end, it is hoped that the Project Based Learning learning model can also foster student learning motivation, this is because in this learning model students are directly involved in every step of the Project Based Learning model, starting from the project determination steps, project design, schedule preparation, project completion, delivery of results up to the process evaluation step and student results have a significant role and are actively involved.

Based on the previouse explanation, the researchers found that it is necessary to determine whether the project-based learning model can increase students' participation and learning activities in the courses of Qualitative Research Methods and Action Research in Education. The researchers also found that it is needed to see whether the project-based learning model can improve student learning outcomes in the Qualitative Research Methods and Action Research in Education courses.

2 Literature Review

2.1 Project-Based Learning Approach

The application of project-based learning is a learning model in which students work on a project to gain an understanding of the material contained in the project being worked on [2]. Learning activities involve lecturers and students to achieve an educational goal. Lecturers play an important role in teaching and learning activities. Lecturers are not only limited to delivering material, but lecturers also have a role in planning, carrying out, and evaluating learning by applying appropriate learning models for students.

The learning process that occurs now is still using conventional learning models. Lecturers give a lot of lectures while students only listen and take notes on material delivered by lecturers in class. This makes students tend to get bored with the learning process given by lecturers. The project-based learning process is expected to stimulate student learning activities and increase student understanding of the material presented by lecturers. In addition, student learning outcomes are also expected to increase with the application of this learning model. In Project Based Learning learning, students or students are given assignments according to the theme/topic of learning by doing real projects. Implementation of the Project Based Learning learning model will encourage the growth of independence, responsibility, self-confidence, and critical thinking and analysis in students.

The project-based learning model is a learning model that involves focusing on questions and meaningful problems, problem-solving, decision-making, the process of finding various sources, providing opportunities for members to work collaboratively, and closing with presentations of real products. The project-based learning model focuses

on a discipline's core concepts and principles, facilitating students to investigate and solve problems. Other meaningful assignments are student-centered and produce tangible products [3]. Project-based learning (PjBL) is an application of active learning. In simple terms, project-based learning is a teaching that tries to link technology with everyday problems that students are familiar with, or with college projects. In project-based learning, students are encouraged to be more active in lectures.

There are five criteria for project-based learning: centrality, focusing on questions or problems, constructive investigation or design, student autonomy, and realism. This means that student-centered learning as a subject must master the material through questions that require verification, investigation, and analysis. Students also have the freedom to develop the results of their analysis and creativity in building solutions to their problems. The results of student autonomous thinking need to be presented and discussed to lead to an appropriate and appropriate solution. Therefore, besides being required to be able to think critically, students must also have good creativity to find solutions to the problems posed.

Project Based Learning or project-based learning is learning that involves students designing, solving problems, making decisions, or providing opportunities for students to produce real products Thomas. Furthermore, Project Based Learning is designed for complex problems students must investigate and understand. Project Based Learning is learning using projects as a learning approach. Students work in real terms to produce realistic products [4]. In line with the previous opinion, [5] stated that Project Based Learning is a project carried out independently or in groups within a certain period with the ultimate goal of producing a product, then the results are displayed or presented. The characteristics of the Project-based Learning approach include that students concrete problems, find solutions, and work on projects in teams to overcome these problems.

Based on this opinion, information is obtained that Project Based Learning learning is learning that encourages students to actively learn, ask questions, investigate, explain, and provide problem-solving both independently and in groups. Besides, students are also asked to produce a real product and interpret it based the results of the investigation. According to Rais in [6] the steps in implementing the Project Based Learning approach are as follows:

1) Opening the lesson with a challenging question (start with the big question) Learning begins with a driving question which can assign students to carry out an activity. The topics taken should be following real-world realities and begin with an in-depth investigation.
2) Planning a project (design a plan for the project). Planning is carried out collaboratively between educators and students. Thus students are expected to feel ownership of the project. Planning contains the rules of the game, the selection of activities that can support answering essential questions by integrating various supporting subjects, and informing the tools and materials that can be used to complete the project.
3) Arrange a schedule of activities (create a schedule). Educators and students collaboratively arrange a schedule of activities in completing the project. The project completion time must be clear, and students are given directions to manage the time available. Let students try to explore something new, but educators must also keep reminding students if student activities deviate from the project objectives. Students

carry out projects that take a long time to complete. Therefore the educators ask students to complete their projects in groups outside of school hours. When learning is carried out during school hours, students only need to present the results of their projects in class.

4) Supervise the course of the project (monitor the students and the project's progress). Educators are responsible for monitoring the activities of students while completing the project. Monitoring is carried out by facilitating students in each process. In other words, educators act as mentors for student activities. Educators teach students how to work in a group. Each student can choose their respective roles without putting aside the group's interests.

5) Assessment of the resulting product (assessment of the outcome). Assessment is carried out to assist educators in measuring standard achievement, play a role in evaluating each student's progress, provide feedback about the level of understanding that has been achieved by students, and assist educators in developing subsequent learning strategies. Product assessment occurs when each group presents its product to the other groups.

6) Evaluation (evaluate the experience). At the end of the learning process, educators and students reflect on the activities and results of projects that have been carried out. The reflection process is carried out both individually and in groups. At this stage, students are asked to express their feelings and experiences while completing the project.

2.2 The curriculum of the Doctoral Education Study Program Based on 4.0 OBE

With the issuance of Presidential Regulation Number 8 of 2012 concerning the Indonesian National Qualifications Framework (KKNI) and Law Number 12 of 2012 concerning Higher Education, all tertiary institutions have been encouraged to comply with these provisions. The IQF is a statement of the quality of Indonesian human resources whose qualifications are based on the ability level stated in learning outcomes. Universities as producers of educated human resources need to measure their graduates, and whether the graduates produced have 'ability' equivalent to the 'ability' (learning achievement) formulated in the IQF qualification level. As a national agreement, graduates of doctoral programs, for example, must have at least "ability" equivalent to "learning achievement" formulated at level 9 of the IQF. In compiling or developing curricula, higher education institutions must refer to the IQF and the National Higher Education Standards.

The challenge universities face in developing curriculum in the Industrial Revolution 4.0 era is to produce graduates with new literacy skills including data literacy, technology literacy, and human literacy with noble character based on an understanding of religious beliefs. Universities need to reorient curriculum development that can answer these challenges. The higher education curriculum is a program to produce graduates, so the program should guarantee that graduates have qualifications equivalent to the qualifications agreed upon in the IQF. The concept developed by the Directorate General of Learning and Student Affairs so far, in compiling the curriculum begins with establishing a graduate profile translated into a formulation of graduate learning outcomes. The formulation of abilities in the IQF descriptors is expressed in learning outcomes (translation from learning outcomes), where competencies are included or part of learning

outcomes (CP). The use of the term competence used in higher education (DIKTI) is found in SN-Dikti.

In response to the changes in regulations, guidelines and policies in recent years, the Doctor of Education study program manager at the University of Jambi deemed, it necessary to evaluate the curriculum to update it in harmony with the current rules and regulations. The Doctor of Education Study Program curriculum at the University of Jambi is designed to be Outcome Based Education or "OBE 4.0 Curriculum". Curriculum 4.0 OBE is structured based on clear and careful determination of the types and levels of abilities (competencies) that students must master upon graduation so that they can respond to challenges in the real world. With this foundation, the learning process is focused on preparing graduates with competencies relevant to the needs of the world of work.

The stages of formulation of Outcome Based Education include three main aspects: (a) Formulation of the types and levels of ability that students must master upon graduation *(Outcome Based Curriculum).* (b) Determination of learning forms that can help students master the targeted abilities (Outcome Based Learning and Teaching). And (c) Formulation of an assessment system that can measure abilities *(learning targets)* that have been mastered by students *(Outcome Based Assessment).*

The formulation of the Outcome Based Education curriculum in the Doctor of Education Study Program applies the following basic principles: (a) *Clarity of Focus*, or the clarity of the focus of the learning curriculum. (b) *Designing Back*, or declining curriculum formulation models. This approach derives instructional details from predetermined outcomes (main targets).

(c) *High Expectations* are the implementation of high achievement targets by lecturers that encourage all students to show their best abilities to answer learning challenges. And (d) Expanded Opportunities, namely the availability of variations in approaches and learning experiences that enable students to achieve learning goals according to their character, interests and potential. Overall the stages of updating the curriculum in the Doctor of Education Study Program at the University of Jambi in 2021 are following the flow as shown in Fig. 1.

Graduate Profile is the role graduates can perform in a particular field of expertise or work after completing their studies. The profile is determined based on the results of a study of the needs of the job market required by the government and the business world and industry, as well as the need to develop science and technology. To carry out the roles stated in the profile, it is necessary to have "ability" that must be possessed.

On the one hand, the Mandate of the Statutes of the University of Jambi in Permenristekdikti No. 41 of 2018 articles 25, 26 and 27 related to the Vision, Mission and Organization of Jambi University have been developed into UNJA's Vision is: 'Towards A World Class Entrepreneurship University Based on Agro-industry and Environment'. Meanwhile, UNJA's mission is to expand access to education and provide quality tertiary education in Jambi. It also aims to streng the digital services to spur accuracy and accelerate quality of education that prioritizes exploring Jambi's local potential which is handled in a connected and integrated way to bring Jambi University to world class. Building agro-industry and environmental centers of excellence is the main focus. Fostering a culture of innovation for UNJA residents supported by good governance.

Fig. 1. Flowchart of Updating the 2021 Doctoral Education Study Program Curriculum

Concrete steps to be taken in the next four years are to carry out the Tri Dharma of Higher Education towards excellence.

Based on analysis of needs (market signals) through tracing graduates, input from stakeholders, professional associations or scientific colloquiums, and trends in scientific/expertise development going forward, it shows that the market currently requires education experts to address issues of access, relevance and quality of education. Both quantitatively and qualitatively. The market requires a driving force of experts to improve the quality of knowledge-based human resources by utilizing the potential of existing resources. Thus the market requires professionals who can develop students' Plenary Intelligence (spiritual intelligence, naturalist intelligence, emotional intelligence, social intelligence, musical intelligence, linguistic intelligence, intellectual intelligence, logical-mathematical intelligence, visual-spatial intelligence, and kinesthetic intelligence. It also aims to enhance the Entrepreneurial character (excellent personality, fighting spirit, independent, innovative, creative, productive and global-minded) towards Pancasila people.

The resulting formulation of graduate learning outcomes strives to fulfill the provisions listed in the SN-Dikti and KKNI and includes aspects of Soft-Skills, Hard-Skills, and Competitiveness (SHC). Soft-Skills have indicators such as: 1) the ability to communicate *(communication)*, 2) the ability to think structured and mathematical logic *(numeracy),* 3) the ability to manage information effectively and efficiently *(information and technology skills),* 4) the ability to develop all self-intelligence simultaneously (learning how to learn), 5) the ability to solve problems independently *(problem-solving)*, and 6) the ability to build cooperation (working with others). Besides, hard-skills gave some indicators. In which the indicators are used as reference including 1) specific

basic abilities according to the scientific background *(specific technical skills based)*, 2) skillful in implementing their field of expertise *(subject competencies)* and, 3) mastering knowledge relevant to their knowledge (major knowledge related). Thus competitiveness has indicators that are used as references, namely entrepreneurial skills *(entrepreneurship)*, agility at work (employability), and the ability to be able to learn continuously and adapt to new situations *(lifelong learning).*

3 Methodology

This research is a type of descriptive qualitative research. This study was set in the Doctor of Education Study Program at the University of Jambi. This study aims to reveal problems related to the effectiveness of the English learning model which can increase participation, activity and learning outcomes in Project Based Learning courses located at research locations in more depth through data collection procedures such as observation and interviews. In this case, several researchers in this study acted as lecturers and observers who carried out classroom learning activities while collecting research data.

The first data collection technique is observation. Observation activities were carried out starting from August-December 2022. These observation activities were carried out in conjunction with implementing learning activities in the Qualitative Research Methods and Action Research in Education Doctoral Education course at the University of Jambi which were held for 16 face-to-face meetings. Plus, this research process includes study materials at each meeting.

To collect observational data in this study, there are steps that researchers need to carry out. These steps align with the flow of Project Based Learning lectures implemented in classes which are the object of research. In this regard, the first step that the researchers carried out was to design a learning model based on Project Based Learning (PjBL). After carrying out the design process, the next step is determining the cases that will be carried out based on the topic of the lectures that have been carried out. In the third stage, the activities carried out by the researchers were implementing projects/cases for students related to the lecture topic. At this implementation stage, the researcher also carried out the process of dividing small groups to solve the cases that had been given. Then, after the groups are divided, the next step is to give timing to students to analyze the cases given. The next stage is asking each group to hold an open discussion forum between groups.

Furthermore, the researchers gave inquiry questions related to the topic of discussion to spark discussion and argument. After completing all these stages, the final step is to conduct review activities on lecture material by linking the given case or project. The activity was carried out by lecturers (researchers) and students. Lastly, after all the learning activities were carried out, the researchers reviewed the students' learning outcomes, which were used as data in this study.

4 Finding and Discussion

4.1 The Influence of Project-Based Learning (PjBL) On Doctoral Students' Participations and Activities

Project based learning is a learning process that involves a lot of student collaboration in socializing and working in a group while participating in the learning process. Through the activities contained and packaged in the project based learning learning approach, students are expected to be able to participate actively and have high motivation to complete the projects that have been given.

Based on the results of the research, the researchers found that several motivations arose from the students of the Jambi University doctoral education program to participate during the learning process. The results of observations show that students are active in participating in solving problems or cases that the lecturer in class has given. These findings also revealed that the discussion activities carried out by doctoral education students were active and had a good level of intensity. Based on the learning assessment results based on indicators of participatory activity assessment, the researchers found that students had a weight of 10% for participation and activeness assessment. The results of this study are related to research found by [7]. He explained that Project based learning is a learning approach that can direct students to form participation and achievement during the learning process.

Then during the observation process, the researcher found the enthusiasm and enthusiasm of students in participating in the learning process and completing the project they were working on. The researchers also captured some enthusiasm and motivation to discuss and solve problems in their groups. High curiosity was also found and resulted from implementing the PjBL learning approach. This was shown by the enthusiastic participation of the doctoral students during the inter-group discussion process. This is shown through the process of exchanging information, experiences in direct learning in discussion forums between groups.

Based on the findings in this study, the researcher found that all students were highly involved. This project-based learning (PjBL)-based learning approach has enabled students with various abilities to participate in the learning process. Besides, the researcher found that no students were passive in discussion activities. Not only that, during the learning process it was also seen that the students being taught also had a high work ethic and confidence during the discussion. This is very beneficial for students. Because, with the formation of active participation, work ethic and high self-confidence can make learning materials and learning activities more useful and meaningful for them.

These findings align with the explanation put forward by They explained that learning based on Project Based Learning (PjBL) is a learning approach that can increase students' motivation and active involvement. In addition, Mioduser and revealed that the learning activities contained in the PjBL approach also positively affect learning activities in class, such as providing opportunities for students who are less active to also be involved in the discussion process. This will create an interesting and meaningful learning process for students.

4.2 The Role of Project-Based Learning (PjBL) in Improving the Learning Outcomes of Doctoral Students

After conducting several learning meetings in the Subject of Qualitative Research Methods and Action Research in Education, researchers have evaluated the learning outcomes of doctoral students at the University of Jambi. At the end of the learning process the lecturers succeeded in expressing student learning outcomes categorized into two aspects. These aspects consist of: (1) project results, and (2) cognitive/knowledge (assignments, quizzes, UTS, and UAS).

Based on the findings, the researchers found that the project results had the greatest contribution among the other evaluation results. The findings reveal that the weight of the value of the assessment of project results has a percentage of 50%. Which one. This value is indicated by the ability of students to provide logical and rational arguments in the academic realm. Apart from that, the arguments given by the doctoral education students during the discussion process also took place sequentially according to the case/problem related to the issue of qualitative research. Based on the assessment results on the indicators/aspects of the project results, the researcher concluded that Project based learning can provide opportunities for students to explore arguments in learning activities. Besides, more meaningful learning activities can be created through a project-based learning (PjBL) approach. In line with the findings in this study, the research findings put forward by that the PjBL approach can create students' creativity and exploration processes. It can be demonstrated by several learning outcomes such as reports, assessments, results in the form of products and others that aim to find answers to problems.

Then, the next aspect of assessment is cognitive or knowledge. Based on the findings, this aspect has several types of assessment and results such as; (1) assignment scores (10%), (2) quiz scores (5%), (3) UTS scores (10%) and (4) UAS scores (15%). The findings reveal that the value of the assignment (10%) is indicated by the ability of the students to analyze the scenario cases given in group discussions. During the discussion process, the students carried out quite good activities as shown by their collaboration between groups. Then to see the participation and activeness of students, researchers also prepared quiz questions for students. Based on the results of observations, the researchers found that after the material was delivered, the students answered the quiz questions the researchers gave well. Besides that, in the eighth week the researcher who acted as a lecturer in the class managed to find a student's UTS score of 10%. These results indicated that the students could present the results of their arguments with the team in groups well in the Qualitative Research Methods and Action Research in Education Courses. Lastly, the latest findings on the cognitive aspect are indicated by the UAS score of (15%). This value indicates that students can provide comments, both pros and cons regarding opinions from other groups regarding cases given by lecturers in class.

5 Conclusion

Based on the research and discussion results, it can be concluded that this Project Based Learning-based research is one of the choices that lecturers in the OBE 4.0 curriculum can apply. Students are invited to continue to participate in giving their arguments both

pro and con. By involving students in groups, the learning process becomes more active. Students have also been able to analyze phenomena or cases around them and relate them to existing theories.

Recommendation

Some educational practitioners have already implemented this Project-Based Learning-based research. Still, the appearance of being demanded to be implemented this year at the University of Jambi is a new beginning and step. As educators and lecturers implementing Project Based Learning-based research for the first time, many obstacles are faced, especially in understanding the concept of Project Based Learning itself. For this reason, there is still much to be improved in methods, application, implementation, and evaluation processes in implementing Project Based Learning.

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