STUDENT PERCEPTIONS ON THE IMPLEMENTATION OF PROJECT-BASED LEARNING MANAGEMENT AT ISLAMIC UNIVERSITIES

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ABSTRACT

Good learning management so that learning has a positive impact on its recipients (students), or in other words, results in active learning. Active learning is a learning approach where students strive to acquire various knowledge during class learning, this is reflected in the increasing understanding and experience of the students, also allowing students to develop their thinking, for example, such as analytical skills. Another factor why active learning is necessary is because the times continue to develop and each person's characteristics are different, one of which is currently the millennial generation where they generally prefer to collaborate on assignments because they enjoy communicating with their friends. Research objective: To analyze students' experiences in participating in project-based learning, including aspects of planning, implementation, evaluation, and completion of project assignments . The method used in this research is a *mixed methods method*. This research is a research step by combining two forms of research that have previously existed, namely qualitative research and quantitative research. According to Creswell, mixed research is a research approach that combines qualitative research with quantitative research. Correlation shows a linear relationship between the variables in this study. Correlation between variables is calculated using the Pearson coefficient whose value ranges from -1 to +1. Positive values indicate a unidirectional relationship (the higher one variable, the higher the other variable), while values close to zero indicate a weak relationship or no linear relationship. *The Quality variable*, which represents overall quality, shows a strong positive correlation with several other key variables, specifically: Allianc (r = 0.955), indicating a very strong relationship, Imp2 (r = 0.844), Respond (r = 0.823). Model Explanatory Power The R-squared value shows that the *PjBL variable* has moderate explanatory power (17.1%), while the *Response variable* has very high explanatory power (100%), which means the model is able to explain the variation in respondent responses comprehensively. This emphasizes that the model built is suitable and relevant in the research context.

Keywords: *Student Perception*, *Management*, *Project Based Learning*

INTRODUCTION

The Law study program at the Faculty of Law at Pemulang University has a curriculum structure consisting of three course groups: college-level courses, faculty-level courses, and program-level courses. Several courses have semester credit units (SKS) for theory and practice. This is certainly inseparable from the prospects of the Islamic Education Management study program, which aims to produce professional education practitioners. Therefore, graduates are expected to have a good understanding of both theory and practice. (Miao , 2022: 12).

One course that has both theory and practice credits is educational management and training. With this practical credit, it is hoped that learning will not be monotonous due to being focused solely on theory, which can lead to boredom in teaching and learning activities. Learning is a physical and mental activity, involving acting and thinking as an inseparable

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series. This learning process results in wise actions . However, to achieve the desired learning process, it must be supported by the availability of adequate learning resources, a conducive environment, and appropriate teaching models. (Rafidola , 2022: 1121) .

Thus, good learning management is needed so that learning has a positive impact on its recipients (students), or in other words, it results in active learning. Active learning is a learning approach where students strive to acquire various knowledge during classroom learning. This is reflected in the increased understanding and experience of these students, also enabling students to develop their thinking, for example, such as analytical skills. Another factor why active learning is necessary is because the times are constantly evolving and each person's characteristics are different, one of which is currently the millennial generation where they generally prefer to collaborate on assignments because they enjoy communicating with their friends. (Diyah, 2022: 1578)

Efforts to achieve effective learning management can be realized in all courses taught, especially those with practical credits. Learning that implements practical credits takes various forms, one of which is project-based learning. This learning does not focus on outcomes but rather on the process, problem-centeredness, and meaningful learning units through a combination of concepts from several parts. Furthermore, the learning process is ongoing. (Arif , 2022: 94-101) Based on the explanation above, the researcher wants to research further regarding, " *Student Perceptions of the Implementation of Project-Based Learning Management in Islamic Universities* "

LITERATURE REVIEW

The development of digital applications in the Industrial Revolution 4.0 era is increasingly rapid. The number of internet users in Indonesia is also increasing. (Fitrah, 2019: 9 - 16) This presents an opportunity for developers to provide a variety of learning applications, known as Learning Management Systems (LMS). The various LMS applications available, of course, aim to improve the quality of education. (Johan, 2016: 2857 - 62)

This LMS application also encourages the emergence of a learning model called blended learning or flipped classroom, namely learning that combines conventional (face-to-face) and electronic (e-learning) learning models. proving the quality of education. This LMS application also encourages the emergence of a learning model called blended learning or flipped classroom, namely learning that combines conventional (face-to-face) and electronic (e-learning) learning models. (Marcelo, 2016: 589-610)

The blended learning model is known to be beneficial for today's learning because it has many advantages, including time efficiency, utilization of the latest technology, unlimited space and time. (Antonia, 2020: 17-32). LMS application developers respond to these advantages by adding various features and facilities needed in learning, such as digital teaching materials, class formation, assignments, quizzes, tests, information sharing and references that can all be done online so that the learning process becomes faster, easier and cheaper. The blended learning model is also believed to be applicable to various teaching materials, including PKN learning. (Abdelhamid, 2019: 50-80). For Muslims in Indonesia, Arabic is not a second language, but rather a foreign language. (Fithriyah, 2019: 310-21). Despite this, they are enthusiastic about studying Civics, which is considered a global communication tool and the national language.

Given the relationship between the development of diverse LMS applications, the implementation of blended learning models, and Civics learning, it is important to understand

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students' perceptions of the use of LMS applications for face-to-face Civics learning or LSM with blended learning models. This perception is necessary to address assumptions that attempt to hinder Civics learning using LMS applications (Learning Management Systems), such as the rejection of LMS applications to maintain the conventional model (Anja, 2019: 2466-83). Learning methods are also known as learning strategies. According to Oemar Hamalik, (Oemar, 1993:79) learning strategies are general patterns for realizing a teaching and learning process that actively involves students and teachers. states that learning strategies are learning activities that must be carried out by teachers and students so that learning objectives can be achieved effectively and efficiently. Based on these two definitions, it can be concluded that a learning model is a pattern that describes a systematic procedure in organizing learning experiences to achieve learning objectives, which functions as a guide for teachers in designing and implementing learning. Learning tools that are prepared and developed by teachers are needed.

According to Baron, project-based learning is a constructive learning process for deepening learning with a research-based approach to problems and questions that are meaningful, real, and relevant to life. Project-based learning models can present authentic and meaningful problems so that students can investigate and discover for themselves. The teacher's role in this model is to pose problems, facilitate investigations, and student interaction. This learning model is based on cognitive psychology and a constructive view of learning. This model is also in accordance with the principles of CTL, namely inquiry, constructivism, and an emphasis on higher-order thinking. (AC Edwards, 2006: 29)

According to Blumenfeld, project-based learning is a comprehensive approach to teaching and learning designed to encourage students to conduct research on real-world problems. Learning should be based on experiences, student interests, and integrated/interrelated topics. Therefore, learning should be active, directly involving students, and student-centered. Social awareness is the goal of all education. (Libert, 2007: 103)

Meanwhile, according to Boud and Felleti, project-based learning is a constructive way of learning that uses problems as a stimulus and focuses on student activity. Project work can be seen as a form of *open-ended, contextual, activity-based learning*, and is part of the learning process that places a strong emphasis on problem-solving as a collaborative effort, carried out within the learning process over a specific period. (Marshall, 2008: 268)

METHOD

The method used in this research is a *mixed methods method* . This research is a research step by combining two forms of research that have previously existed, namely qualitative research and quantitative research. According to Creswell, mixed research is a research approach that combines qualitative research with quantitative research. (Creswell , 2010 : 5). According to Sugiyono, the mixed *methods research method* is a research method between quantitative methods and qualitative methods to be used together in a research activity, so that more comprehensive, valid, reliable and objective data are obtained. (Sugiyono, 2012: 404). According to Creswell, the strategies in *mixed* methods are: (Creswell, 2010: 5).

1. A sequential mixed methods strategy *is* a strategy for researchers to combine data obtained from one method with another. This strategy can be implemented by first *conducting interviews* to obtain qualitative data, followed by quantitative data, in this case using a survey. This strategy is divided into three parts:

a. Sequential explanatory strategy. In this strategy, the first stage is collecting and analyzing quantitative data, followed by collecting and analyzing qualitative data, building on the initial quantitative results. This weighting or priority is given to the quantitative data.

b. Sequential exploratory strategy. This strategy is the opposite of the sequential explanatory strategy. In the first stage, researchers collect and analyze qualitative data, then collect and analyze quantitative data in the second stage, building on the results of the first stage. Sequential transformative strategy. In this strategy, researchers use theoretical perspectives to shape specific research procedures. In this model, researchers may choose to use one of two methods in the first stage, and weight can be given to either or distributed evenly across each stage of the research. (Creswell , 2010 : 316-318).

2. Concurrent mixed methods research *is* research that combines quantitative and qualitative data simultaneously. There are three strategies in this concurrent mixed methods strategy:

a. Concurrent triangulation strategy. In this strategy, researchers collect quantitative and qualitative data simultaneously during the research phase, then compare the qualitative and quantitative data to identify differences or combinations.

b. Concurrent embedded strategy. This strategy is similar to the concurrent triangulation model, as both collect qualitative and quantitative data simultaneously. The difference is that this model has a primary method that guides the project and secondary data that plays a supporting role in each research procedure. The dominant secondary method (whether qualitative or quantitative) is embedded within the more dominant method (qualitative or quantitative).

c. Concurrent transformative strategies. Like the sequential transformative model, they can be implemented by collecting qualitative and quantitative data simultaneously and are based on a specific theoretical perspective.

d. Transformative mixed methods is a research procedure in which researchers use a theoretical perspective as an overarching perspective, encompassing both qualitative and quantitative data. This perspective provides a framework for the research topic, data collection techniques, and expected outcomes. (Creswell , 2010 : 316-318).

Qualitative research has two methods for determining research subjects, namely: (1) the method of determining research subjects according to their objectives (*purposive sampling*) and (2) the method of determining research subjects using the snowball technique . Generally used in combination, because it makes it easier when cross-checking research results based on different data collection methods. It is important to remember that there is no random sampling in qualitative research. Research subjects include Subjects in research, namely continuous sources with the title of the researcher providing a complete picture in data collection. The criteria used by researchers to determine research subjects are based on the data needed as follows for PKN students. Research techniques for data collection are divided into several techniques, including: observation, interview, measuring Instrument.

RESULTS AND DISCUSSION
Results
a. Learning Objectives using the Project based Learning method

The Civics Education (PKN) course aims to shape students into citizens who have a sense of nation and state, Pancasila character, and are able to think critically and act

participatively in a democratic life. Through *the Project Based Learning (PjBL) approach*, students not only understand the concepts of citizenship theoretically, but are also able to apply them in real-life contexts. Specifically, through PjBL, PKN learning is directed to:

1. Developing students' conceptual understanding of Pancasila, the 1945 Constitution, the Unitary State of the Republic of Indonesia, Bhinneka Tunggal Ika, and the rights and obligations of citizens through the study of current national issues.
2. Train students' critical, analytical, and reflective thinking skills in identifying, analyzing, and formulating solutions to citizenship problems that occur in society.
3. Cultivating an attitude of responsibility, nationalism, tolerance, and national commitment through active involvement in collaborative projects oriented towards the values of democracy and social justice.
4. Develop students' collaboration, communication, and leadership skills through planning, implementing, and presenting citizenship projects.
5. Encourage students to produce products or project work (reports, social campaigns, educational media, or simple policy recommendations) as a form of actualizing students' role as *agents of change* in social, national, and state life. (Maulinda , 2025)
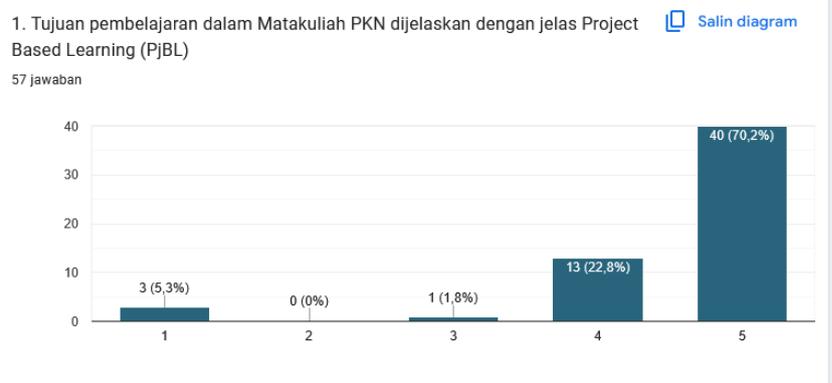

Diagram 1 Learning Objectives

Thus, the implementation of Project Based Learning in the PKN course is expected to be able to create meaningful, contextual, and transformative learning, so that students are not only *civic knowledge oriented*, but also have strong *civic skills* and *civic dispositions.*

b. The projects given are relevant to the lecture material.

Diagram 2 Relevant Projects

Learning projects in the Civics Education (PKN) course are designed contextually and relevant to the course material, covering the values of Pancasila, the 1945 Constitution, democracy, the rights and obligations of citizens, and current national issues. Students are given

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problem-based project assignments *that* stem from real phenomena in the social, national, and digital environments. In these projects, students work in groups to identify citizenship issues, such as low legal awareness, intolerance, human rights violations, weak democratic participation of the younger generation, or the challenges of diversity in the digital era. These issues are then analyzed using the theoretical foundations and concepts of PKN, including the values of Pancasila, the principles of democracy, the rule of law, and citizenship ethics. (Matthew, 2025)

Students then design and implement solutions in the form of project products, such as simple policy analysis reports, civic education campaigns, digital literacy media, community education modules, or small-scale social advocacy activities. Each stage of the project, from planning, implementation, to evaluation, is carried out collaboratively and reflectively to strengthen students' conceptual understanding and civic skills. Through this project, students not only master the theoretical material of Civics but are also able to actualize civic values in the practice of community life, so that learning becomes meaningful, applicable, and oriented towards the formation of democratic and responsible citizen character (Nurhayati, 2025).

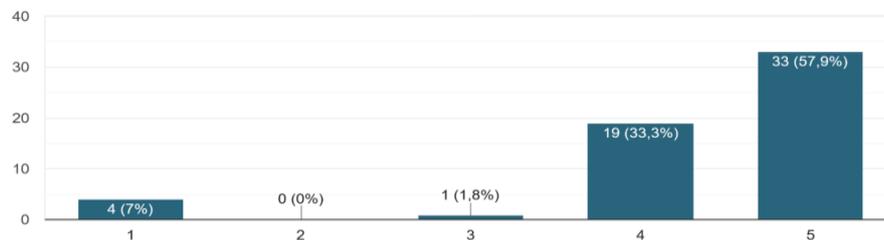c. Understanding the Stages of PjBL (**Project-Based Learning)**

Diagram 3 . PjBL Stages

The lecturer's discussion on using the Project-Based Learning (PjBL) model places students as active subjects through meaningful project work. PjBL is implemented through several main stages, as follows:

First , Start with the Essential Question. Learning begins with a contextual, challenging, and real-life provocative question. This question serves as the primary direction for the project the students will be working on. *Second* , Design a Plan for the Project. Project) Students and educators design a project, including objectives, activity steps, task allocation, learning resources, and the final product. *Third* , Create a Schedule **This stage includes determining the project** *'s* timeline, deadlines for each stage, and time management strategies to ensure the project is completed effectively. Fourth **,** Project Implementation and Monitoring (Monitor the Students and the Progress of the Project). Students carry out the project according to plan. The educator acts as a facilitator who monitors the process, provides guidance, and helps overcome any obstacles that arise . (Pitri , 2025)

Fifth , in this stage, the Civics lecturer tests and assesses the results (Assess the Outcome). Project products are assessed based on predetermined criteria, covering aspects of knowledge, skills, and attitudes. Assessment can be done through presentations, reports, or tangible

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products. *Sixth* , the final stage is Evaluation and Reflection. (Evaluate the Experience) The final stage involves reflecting on the project process and results. Students evaluate their learning experiences, while educators assess the effectiveness of the learning for future improvement. (Ika , 2025)

    d. Civic Education Course Guidelines

4. Dosen menyediakan pedoman proyek yang lengkap atau buku panduan matakuliah PKN
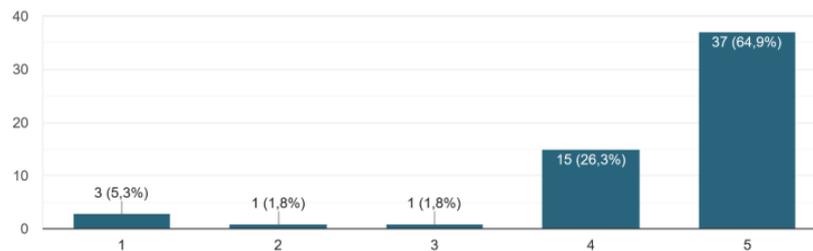57 jawaban

Diagram 4. Civics Guidelines

Civics Education (PKN) is a nationally compulsory course offered at all universities in Indonesia as part of the Compulsory Curriculum Courses (MKWK). This course serves as a vehicle for developing citizens. Pancasila-based, democratic, law-abiding, and nationally conscious and socially responsible. Civics education is implemented through **student-** centered learning**,** including through Project-Based Learning (PjBL). (Dafina, 2025)

    e. Use of the PjBL (Project-Based Learning) Model in the Civics Course

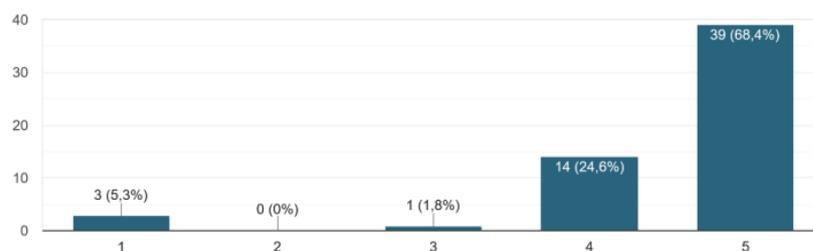5. Timeline pengerjaan proyek realistis dalam mata kuliah PKN
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Diagram 5**.** PjBL Model

Based on interviews with lecturers and students of the Civics Education (PKN) course, it was found that the implementation of the Project-Based Learning (PjBL) model was deemed effective in increasing student engagement and understanding of civics material. Lecturers stated that PjBL provides space for students to not only understand concepts theoretically but also apply the values of Pancasila and citizenship in real-life contexts. (Asri , 2025)

Students expressed that learning Civics through Project-Based Learning (PjBL) felt more meaningful than conventional lecture methods. The projects, such as studies of national issues, observations of social problems in the surrounding environment, and civic education campaigns, encouraged students to think critically, work in teams, and develop a sense of social

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responsibility. This strengthened their understanding of the concept of democracy, the rights and obligations of citizens, and the importance of tolerance in a pluralistic society. (Rizki , 2025)

From the lecturer's perspective, the implementation of PjBL is considered capable of increasing active student participation during the learning process. Students are more active in discussions, asking questions, and conveying ideas during project presentations. Furthermore, the lecturer stated that this model facilitates the authentic assessment process because learning outcomes can be observed not only from the final project product, but also from the students' processes, attitudes, and skills during the activity . (Dafina , 2025)

However, the interview results also revealed several obstacles in implementing Project-Based Learning (PjBL) in Civics courses. Lecturers revealed that time management was a major challenge, particularly in aligning project schedules with the academic calendar. Students also reported that group coordination and assignments were not yet optimal at the beginning of the project-based learning process. Overall, the interview results indicated that the use of the Project-Based Learning (PjBL) model in Civics courses had a positive impact on the quality of learning. This model was deemed relevant for fostering students' civic knowledge, skills, and dispositions. Therefore, Project-Based Learning (PjBL) is recommended as one of the primary learning models in Civics courses at universities, with the caveat that careful planning and ongoing lecturer support are required.

f. Teamwork in the PjBL (**Project-Based Learning) Learning process**

6. Saya terlibat aktif dalam kerja tim selama proyek di matakuliah PKN
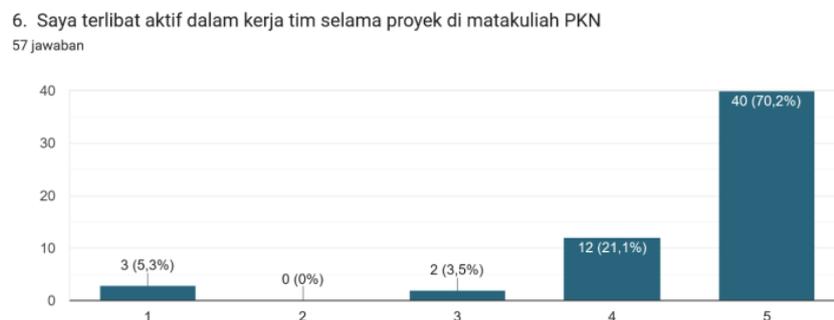57 jawaban

Diagram 6. PjBL Learning Process

Based on interviews with lecturers and students, the implementation of the Project-Based Learning (PjBL) model has been shown to encourage effective teamwork in the learning process. Students are actively involved in the planning, implementation, and completion of projects through a clear division of roles and responsibilities. This teamwork improves communication skills, tolerance, and mutual respect for differences of opinion, while fostering a sense of collective responsibility for project outcomes. Despite challenges such as differences in participation levels and time coordination, the guidance of lecturers as facilitators helps maintain conducive group dynamics. Overall, teamwork in PjBL contributes positively to the development of collaborative skills and student citizenship values. (Apid , 2025)

g. **Project-Based Learning** (PjBL) Learning Process

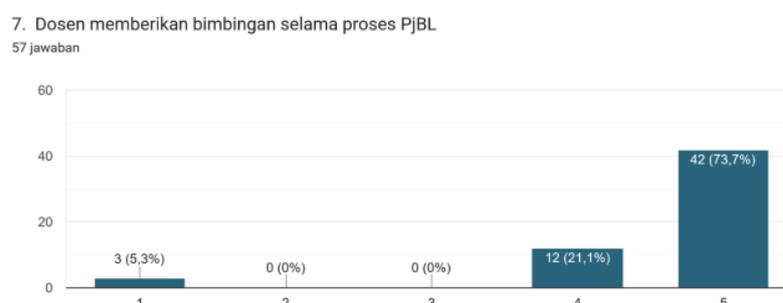7. Dosen memberikan bimbingan selama proses PjBL
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Diagram 7 . PjBL Guidance

The results of interviews with lecturers and students, lecturer guidance in Project-Based Learning (PjBL) learning plays an important role in supporting the success of the project. Lecturers function as facilitators who provide direction, mentoring, and continuous feedback from the planning stage to project evaluation. (Maulinda , 2025) Dialogic guidance helps students overcome difficulties, maintain focus on group work, and encourage independence and responsibility for learning. Overall, structured guidance in PjBL contributes positively to the quality of the learning process and the achievement of student learning outcomes . (Reza, 2025)

h. Campus facilities support the implementation of the PjBL (**Project-Based Learning) Learning Process**

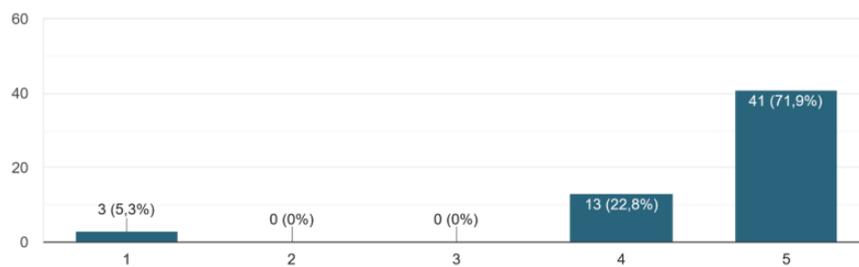8. Fasilitas kampus mendukung pelaksanaan metode PjBL
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Diagram 8. PjBL Facilities

Campus facilities play a crucial role in supporting the implementation of all Project-Based Learning (PjBL) programs. The availability of flexible study spaces, access to information technology and the internet, a Learning Management System (LMS), and library and discussion room facilities help students work collaboratively, access learning resources, and present project results effectively. Overall, adequate facility support creates a conducive learning environment and supports the successful implementation of project-based learning . (Nurhayati , 2025)

i. The PjBL (Project-Based Learning) learning process encourages problem solving skills.

9. Pengerjaan PjBL mendorong kemampuan problem-solving.
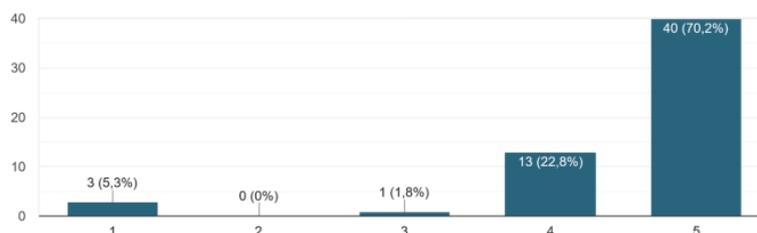57 jawaban

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Diagram 9. Problem Solving Repetition

Project-Based Learning (PjBL) has been proven to foster students' problem-solving skills. Through projects based on real-world problems, students are trained to identify problems, analyze their causes, and formulate and evaluate solutions critically and collaboratively. Lecturer guidance and group discussions help students consider various alternative solutions. Overall, PjBL is considered effective in developing problem-solving skills relevant to students' academic and social needs. (Diva, 2025)

j. Effective Coordination

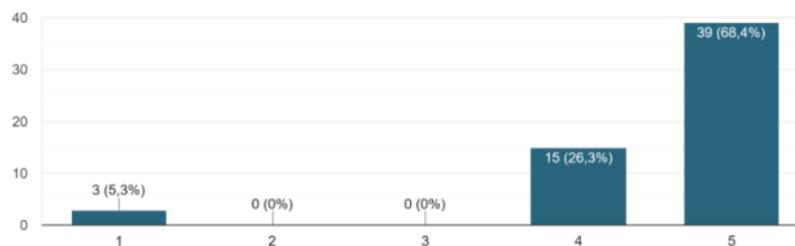10. Koordinasi antar anggota tim berjalan efektif.
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Diagram 10 Effective PjbL Coordination

Project-Based Learning (PjBL) fosters effective coordination within an institution. This coordination is evident in clear roles and responsibilities between parties, intensive communication, and structured project scheduling. Institutional support through academic policies and learning facilities also strengthens coordination. Overall, PjBL contributes to creating a collaborative work culture and supports the optimal achievement of learning objectives. (Ika , 2025)

k. **Project-Based Learning)** Assessment Criteria

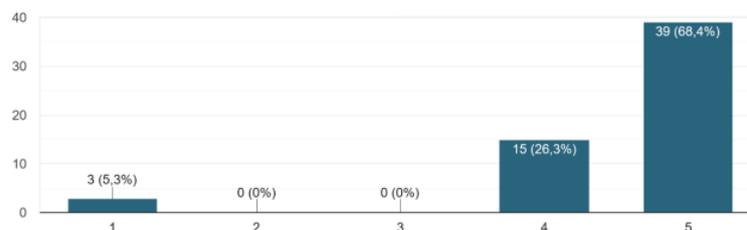11. Kriteria penilaian PjBL dijelaskan dengan jelas
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Diagram 11. Assessment criteria

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Observations at Pamulang University revealed that Project-Based Learning (PjBL) assessment criteria encompass both the learning process and outcomes. Assessments are conducted transparently using a rubric covering planning, implementation, product quality, teamwork, and project presentation and reflection. Overall, these assessment criteria support student-centered learning and learning outcomes. (Reza, 2025)

l. **Project-Based Learning** (PjBL)

Observations at Pamulang University show that Project-Based Learning (PjBL) still faces challenges in terms of limited lecture time, varying levels of student participation in group work, and unequal student understanding of the PjBL stages. From the lecturer's perspective, classroom management and project-based assessment in large classes pose challenges. These challenges highlight the need for more optimal planning and support in the implementation of PjBL . (Nurhayati , 2025)

12. Saya mengalami kendala waktu dalam menyelesaikan proyek dalam Project Based Learning (PjBL)
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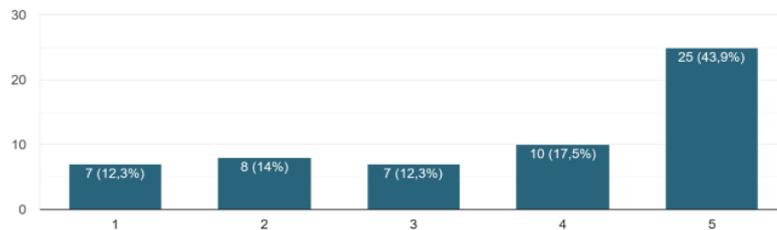
Diagram 12 . PjBL Constraints

m. Conflict in the PjBL (**Project-Based Learning) Learning Process**

13. Saya mengalami konflik dalam kerja tim (Persentasi)
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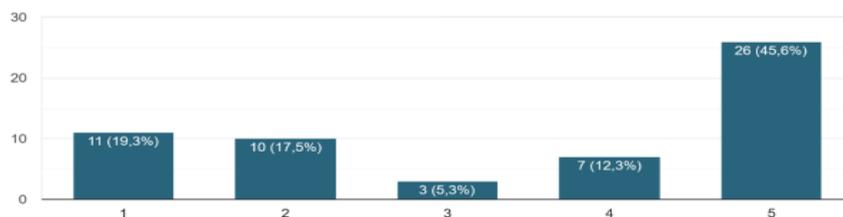
Diagram 13. PjBL Conflict

Conflict in Project-Based Learning (PjBL) generally arises during group work due to differences of opinion, unequal distribution of tasks, and differences in student commitment levels. This conflict can impact the smooth running of the project, but can be minimized through the lecturer's role as a facilitator who mediates and strengthens group communication. Overall, conflict in PjBL is part of the social learning process that encourages the development of tolerance and problem-solving skills . (Maulinda , 2025)

n. **Project-Based Learning** (Pjbl) Process

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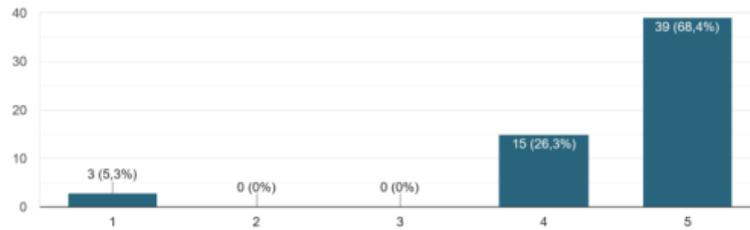
Diagram 14 . Improving PjBL Capabilities

The implementation of Project-Based Learning (PjBL) has been proven to improve various student abilities in the learning process. Through active involvement in project planning, implementation, and evaluation, students experience improved critical thinking, problem-solving, teamwork, communication, and independent learning skills. Lecturer mentoring and reflection activities during the project process also strengthen students' conceptual understanding and practical skills. Overall, PjBL is considered effective in developing academic abilities and 21st-century skills relevant to learning needs in higher education. (Maulinda , 2025)

o. Satisfaction with **Project-Based Learning Methods**

Diagram 15 . PjBl Method

The Project-Based Learning (PjBL) method achieved a high level of satisfaction. Students assessed that PjBL made learning more interesting, meaningful, and contextual because it involved real-world problems and collaborative work. Lecturers also stated that PjBL increased active participation and the quality of student engagement in the learning process. Overall, interview results showed that PjBL provided a positive and satisfying learning experience for all parties involved . (Diva, 2025)

p. Fun Learning Using **Project-Based Learning (Pjbl)**

Diagram 16. Fun Method of PjBL

Learning using Project-Based Learning (PjBL) creates a fun and meaningful learning environment for students. Through active involvement in contextual projects, students feel more motivated, enthusiastic, and less bored during the learning process. Group work activities, discussions, and presentations of project results encourage positive interactions and provide a more varied learning experience. Overall, PjBL makes learning more interesting, participatory, and supports the creation of a fun learning experience in higher education . (Maulinda , 2025)

q. Effective learning using PjBL (**Project-Based Learning)**

17. Pembelajaran dengan Project Based Learning (PjBL) dalam mata kuliah PKN efektif
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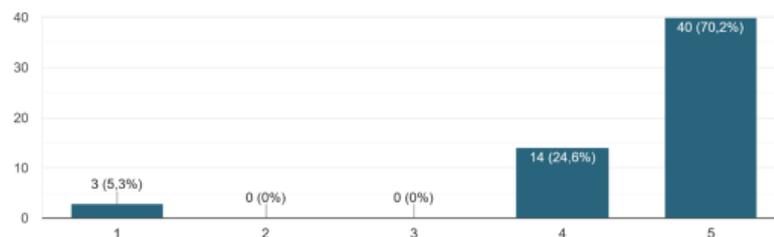
Diagram 17. Effective learning

Learning using Project-Based Learning (PjBL) has proven effective in improving the quality of student learning processes and outcomes. Through planned projects based on real-world problems, students are actively involved in understanding concepts, applying knowledge, and developing critical thinking, problem-solving, and teamwork skills. The role of lecturers as facilitators and the use of authentic assessments support the optimal achievement of learning objectives. Overall, PjBL is an effective learning model in creating meaningful learning and is oriented towards achieving learning outcomes in higher education. (Ika , 2025)

r. Efficient learning using Pjbl (**Project-Based Learning)**

18. Pembelajaran dengan Project Based Learning (PjBL)
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Diagram 18. Efficient learning

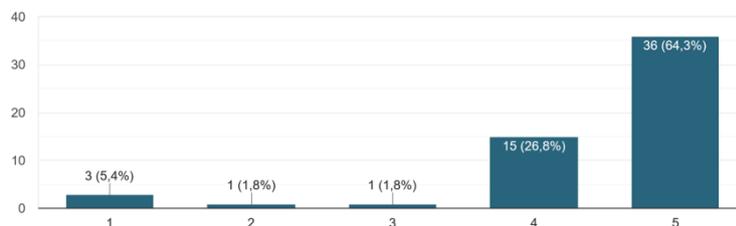Learning using Project-Based Learning (PjBL) is considered efficient because it integrates the achievement of knowledge, skills, and attitudes in a series of project activities. Through structured planning and group work, learning time can be optimally utilized without

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reducing the depth of the material. The use of learning resources and supporting technology also helps accelerate the process of coordination and task completion. Overall, PjBL allows the learning process to be more focused, time-saving, and on-target in achieving learning objectives (Nurhayati, 2025).

Description of Empirical Results of *Partial Least Square* (PLS) and *Structural Equation Modeling* (SEM).

This study involved 54 respondents who became research subjects. Data were collected using a research instrument that had been prepared based on constructs relevant to the research objectives. All collected data were then processed and analyzed using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) method with the help of WarpPLS software version 8.0. Before further analysis was carried out, the data were first checked to ensure completeness and appropriateness. Incomplete data were handled using the *Arithmetic Mean Imputation method*. The results of the statistical description showed that the data had a varied distribution of values, with a tendency not to be completely normally distributed. Therefore, the use of SEM-PLS was considered appropriate because it does not require strict multivariate normality assumptions.

1. Measurement Model Test (*Outer Model*)

Measurement model testing was conducted to assess the validity and reliability of the constructs used in the study. Convergent validity was evaluated through indicator loading values, Average Variance Extracted (AVE), and indicator significance. The analysis results showed that all indicators had significant loading values ($p < 0.001$) and AVE values ≥ 0.50, thus meeting the convergent validity criteria. Construct reliability was tested using Composite Reliability and Cronbach's Alpha. The test results showed that all constructs had Composite Reliability and Cronbach's Alpha values that met the eligibility criteria, so it can be concluded that the research instrument has excellent internal consistency. The following is a list of Average Variance Extracted (AVE) values:

	Q	R	S	T	U	Imp1	Imp2	Imp4	PjBL1	Prc1	Prc2	Prc3
Quality	1.000	0.000	-0.000	-0.000	0.000	0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000
Employe	-0.000	0.492	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	-0.615	0.615
PjBL	-0.000	-0.000	0.333	-0.000	0.000	-0.000	0.000	0.000	-0.000	0.000	-0.667	0.667
Allianc	0.000	0.000	0.000	0.943	0.000	0.000	-0.000	0.000	0.000	-0.000	-0.236	0.236
Mahasis	0.000	0.000	0.000	0.000	0.943	0.000	-0.000	0.000	0.000	-0.000	0.236	-0.236
Imp1	-0.000	-0.000	0.000	0.000	-0.000	0.988	-0.000	0.000	0.000	-0.000	0.108	-0.108
Imp2	0.000	0.000	0.000	0.000	-0.000	0.000	0.816	0.000	0.000	-0.000	0.408	-0.408
Imp3	-0.000	-0.000	0.000	-0.000	0.000	0.000	0.000	0.686	0.000	0.000	0.514	-0.514
Imp4	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	1.000	0.000	0.000	-0.000
Imp5	0.000	0.000	0.000	-0.000	0.000	0.000	-0.000	-0.000	0.000	1.000	-0.000	-0.000
Respond	-0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000	1.000
Respond	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000	-0.447	0.894

Note: Loadings and cross-loadings shown are after oblique rotation and Kaiser normalization.

Figure.19 Average Variance Extracted (AVE),

Furthermore, discriminant validity testing based on comparing the square root of AVE with the correlation between constructs showed that each construct was able to explain its indicators better than the others. Thus, all constructs in this study were declared valid and reliable, making them suitable for use in testing the structural model.

The measurement model was evaluated by analyzing the loading and cross-loading values of the indicators for each latent construct. The analysis results table shows that each

indicator has the highest loading value on the construct it measures compared to other constructs. This condition indicates that each indicator has a good ability to represent the intended latent construct. The Quality indicator has a loading value of 1.000 on the Q construct and very small values on the other constructs, thus indicating excellent validity. The same thing is also shown by the Employee, PjBL, Allianc, and Student indicators, each of which has a dominant loading on its own construct, with loading values ranging from 0.333 to 0.943.

In the formative constructs Imp1, Imp2, and Imp3, each indicator shows a high loading value, namely 0.988 for Imp1, 0.816 for Imp2, and 0.686 for Imp3, and is greater than the cross-loading on other constructs. This indicates that these indicators contribute significantly in forming the construct. Furthermore, indicators Imp4 and Imp5 each have a loading value of 1.000, which indicates a full contribution to the latent construct they represent. Similarly, the Respond indicator, which has a dominant loading value on the outcome construct (Prc3) with a value of 0.894, is higher than the cross-loading on other constructs.

Overall, the results of the loading and cross-loading analyses indicate that all indicators meet the criteria for discriminant validity, as the loading values for the original construct are higher than the cross-loading values for the other constructs. Therefore, it can be concluded that the measurement model in this study meets the validity requirements and is suitable for use in testing the structural model. The following are the detailed results of the SEM-Pls calculation:

	Q	R	S	T	U	Imp1	Imp2	Imp4	PjBL1	Prc1	Prc2	Prc3
Quality	1.000	0.000	-0.000	-0.000	0.000	0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000
Employe	-0.000	0.492	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	-0.615	0.615
PjBL	-0.000	-0.000	0.333	-0.000	0.000	-0.000	0.000	0.000	-0.000	0.000	-0.667	0.667
Allianc	0.000	0.000	0.000	0.943	0.000	0.000	-0.000	0.000	0.000	-0.000	-0.236	0.236
Mahasis	0.000	0.000	0.000	0.000	0.943	0.000	-0.000	0.000	0.000	-0.000	0.236	-0.236
Imp1	-0.000	-0.000	0.000	0.000	-0.000	0.988	-0.000	0.000	0.000	-0.000	0.108	-0.108
Imp2	0.000	0.000	0.000	0.000	-0.000	0.000	0.816	0.000	0.000	-0.000	0.408	-0.408
Imp3	-0.000	-0.000	0.000	-0.000	0.000	0.000	0.000	0.686	0.000	0.000	0.514	-0.514
Imp4	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	1.000	0.000	0.000	-0.000
Imp5	0.000	0.000	0.000	-0.000	0.000	0.000	-0.000	-0.000	0.000	1.000	-0.000	-0.000
Respond	-0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000	1.000
Respond	-0.000	0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000	-0.447	0.894

Note: Loadings and cross-loadings shown are after oblique rotation and Kaiser normalization.

Figure 20 Measurement of validity and reliability

2. Structural Model Test (Inner Model)

Structural model testing was conducted to examine the causal relationship between latent variables and assess the model's ability to explain endogenous variables. The results of the model feasibility test showed an Average Path Coefficient (APC) value of 0.195 with p = 0.032, indicating that the structural relationship in the model was statistically significant. The Tenenhaus Goodness of Fit (GoF) value of 0.366 was in the large category, so the research model was declared to have a good fit. The results of the test of the relationship between variables showed that most paths had an insignificant effect (p > 0.05). However, there was a significant and strong relationship, namely Project-Based Learning (PjBL) on the outcome variable (Prc3) with a path coefficient value of 0.391 and p < 0.001. These findings indicate that the implementation of project-based learning plays an important role in improving the outcome variables studied.

The R-squared value indicates that the PjBL1 variable has an apparent power of 0.171, while the Prc3 variable has an R-squared value of 1.000, indicating that the variable is fully

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explained by the predictor constructs in the model. Furthermore, a positive Q-squared value indicates that the model has good predictive relevance.

p-value table for correlations presents the level of significance of the correlational relationships between the variables analyzed in this study. The *p-value* is used to determine whether the relationship between the variables is statistically significant, with a significance criterion of p < 0.05. Based on the analysis results, most correlations between variables show *p-values* above 0.05, which means the correlational relationship between the variables is not statistically significant. This is seen in the relationship between variables Q, R, S, T, and U, which generally have high *p-values*, indicating that these variables do not have a strong correlational relationship with each other.

However, there are several relationships between variables that show significant correlations. The Q variable has a significant relationship with Prc1 with a *p-value* of 0.019, indicating a meaningful relationship between quality (Q) and the first outcome variable (Prc1). In addition, the U variable also shows a significant relationship with Prc1 with a *p-value of 0.031. A significant relationship is also shown by the PjBL1 variable, which has a correlation with Prc1, Prc2, and Prc3, with p-values of 0.012, 0.004, and 0.004,* respectively. These findings indicate that the implementation of Project-Based Learning (PjBL) has a consistent and significant relationship with the research outcome variables. In contrast, implementation indicators such as Imp1, Imp2, and Imp4 mostly do not show a significant correlational relationship with the outcome variables, because the *p-values* obtained are above the significance limit. This indicates that these indicators do not have a strong direct correlational relationship with the outcome variables. Overall, the results of this correlation analysis indicate that the PjBL1 variable is the most dominant and consistently significantly related to the outcome variables (Prc1, Prc2, and Prc3). This finding reinforces the results of the structural model analysis, which showed that project-based learning plays a significant role in influencing the achievement of research outcomes. The following is a diagram of the P values for correlations:

P values for correlations

	Q	R	S	T	U	Imp1	Imp2	Imp4	PjBL1	Prc1	Prc2	Prc3
Q	1.000	0.647	0.282	0.955	0.099	0.435	0.844	0.114	0.262	0.019	0.823	0.823
S	0.282	0.945	1.000	0.969	0.540	0.748	0.535	0.241	0.177	0.967	0.007	0.007
T	0.955	0.583	0.969	1.000	0.863	0.993	0.123	0.142	0.179	0.527	0.405	0.405
U	0.099	0.095	0.540	0.863	1.000	0.223	0.365	0.371	0.913	0.031	0.305	0.305
Imp1	0.435	0.600	0.748	0.993	0.223	1.000	0.595	0.352	0.644	0.624	0.946	0.946
Imp2	0.844	0.586	0.535	0.123	0.365	0.595	1.000	0.375	0.492	0.225	0.539	0.539
Imp4	0.114	0.667	0.241	0.142	0.371	0.352	0.375	1.000	0.355	0.111	0.178	0.178
PjBL1	0.262	0.381	0.177	0.179	0.913	0.644	0.492	0.355	1.000	0.012	0.004	0.004
Prc1	0.019	0.572	0.967	0.527	0.031	0.624	0.225	0.111	0.012	1.000	0.949	0.949
Prc2	0.823	0.196	0.007	0.405	0.305	0.946	0.539	0.178	0.004	0.949	1.000	<0.001
Prc3	0.823	0.196	0.007	0.405	0.305	0.946	0.539	0.178	0.004	0.949	<0.001	1.000

Figure 21 P values for correlations

3. R-Squared and Adjusted R-Squared Values

The R-squared (R^2) value is used to determine the ability of independent variables to explain the variation of endogenous variables in the research model. The higher the R-squared value, the greater the model's explanatory power regarding the endogenous variables being analyzed. Based on the analysis results, most variables in the model have relatively low R-squared values. The variables Q, R, S, and T each have R-squared values of 0.008, 0.006, 0.004, and 0.008, respectively, indicating that less than 1% of the variation in these variables can be explained by other constructs in the model. This indicates that these variables are not

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significantly influenced by the predictor variables in the research model. The U variable has an R-squared value of 0.023, while the Imp1, Imp2, and Imp4 variables have R-squared values of 0.013, 0.037, and 0.072, respectively. These values indicate that the model's ability to explain variation in these variables is still relatively low, so the influence of the predictor construct on these variables is relatively limited. In contrast, the PjBL1 variable showed a higher R-squared value of 0.171. This value indicates that 17.1% of the variation in the PjBL1 variable can be explained by other variables in the model, thus indicating the model's explanatory power is in the medium category. The Prc3 variable has an R-squared value of 1.000, indicating that 100% of the variation in the Prc3 variable can be explained by the predictor constructs in the research model. This finding indicates that the model has very strong explanatory power for the primary outcome variable. The Adjusted R-squared values show a pattern consistent with the R-squared values, adjusted for the number of predictor variables in the model. This confirms that the model's overall explanatory power for most variables is still limited, except for the variables PjBL1 and especially Prc3, which exhibit high explanatory power.

Variabel Endogen	Nilai R-Squared	Interpretasi Daya Jelaskan
Q	0,008	Rendah
R	0,006	Rendah
S	0,004	Rendah
T	0,008	Rendah
U	0,023	Rendah
Imp1	0,013	Rendah
Imp2	0,037	Rendah
Imp4	0,072	Rendah
PjBL1	0,171	Sedang
Prc3	1	Tinggi

Figure 22. R-squared (R^2) value

The interpretation of the R-squared value in this study refers to the general guidelines of SEM-PLS as follows:

$R^2 < 0.10$: Low apparent power

$0.10 \leq R^2 < 0.50$: Moderate apparent power

$R^2 \geq 0.50$: High apparent power

4. Reliability

The additional coefficient values for each latent construct are used to assess the consistency and contribution of the construct to the research model. The coefficient values for the variables Q, R, S, T, U, Imp1, Imp2, and Imp4 are in the very small negative range, ranging from **-0.001** to -0.025. These values indicate that the direct contribution of these variables to increasing the predictive power of the model is relatively weak and insignificant. The PjBL1 variable shows a coefficient value of 0.138, which is positive and higher than the other variables. This indicates that Project-Based Learning (PjBL) has a stronger contribution to the research model than the other constructs, although this contribution is still in the moderate category. Meanwhile, the Prc3 variable has a coefficient value of **1.000**, indicating that this primary outcome variable is fully explained by the predictor constructs in the model. This

| Variabel / | Nilai Composite | Kriteria SEM- | Interpretasi |

finding corroborates the results of previous analyses which showed that Prc3 is a variable with significant explanatory power and consistency. highest in the entire structural model. In the Composite Reliability section Coefficients: All latent constructs demonstrated reliability values that met the eligibility criteria. This indicates that the indicators used in the study have good internal consistency, thus measuring the latent constructs stably and reliably. As shown in the data:

Figure 23 Reliability

The interpretation of Composite Reliability values in this study refers to the general SEM-PLS guidelines as follows:

Range CR Value	Interpretation
CR ≥ 0.70	Reliability good (recommended)
0.60 ≤ CR < 0.70	Reliability enough (research exploratory)
CR < 0.60	Reliability low (no recommended)

Table 1 Reliability

5. Correlation Data

Correlation indicates a linear relationship between the variables in this study. Correlation between variables is calculated using the Pearson coefficient whose value ranges from -1 to +1. Positive values indicate a unidirectional relationship (the higher one variable, the higher the other variable), while values close to zero indicate a weak relationship or no linear relationship. *The Quality variable* , which represents overall quality, shows a strong positive correlation with several other key variables, in particular: Allianc (r = 0.955), indicating a very strong relationship, Imp2 (r = 0.844), Respond (r = 0.823).

This relationship indicates that the higher the perceived quality, the higher the respondents' perceptions of the related variables and the overall response. *The Employee* and *PjBL* variables also show a very strong relationship with each other (r = 0.945), indicating that perceptions of employees are closely related to experience or perceptions of the project-based learning model *.* These two variables also show a moderate positive correlation with other items in the instrument, such as *Imp1* and *Imp2* , indicating their relevance to the factors being measured.

Alliance has a very high correlation with *Imp1* (r = 0.993), indicating that the alliance variable is highly related to the first item of the impact measure. This suggests that the first item likely measures an aspect that aligns with the alliance variable. The *Student variable* shows low correlations with most variables, except for a few measurement items, such as *Imp5* (r = 0.913), which shows a strong relationship. This indicates that student characteristics or contexts are less linearly related to the other variables, but are more relevant to certain aspects of the impact scale.

Imp measurement items (Imp1–Imp5) generally show positive correlations with other variables, particularly: *Imp1* is highly correlated with *Respond* (r = 0.946), *Imp5* has a very high correlation with *PjBL* (r = 0.967). This indicates that some aspects measured by the impact items are highly relevant in influencing respondents' responses. However, items such as *Imp3* and *Imp4* show lower correlations with other variables, which may reflect different focuses or different dimensions of the aspects being measured.

The response scores generally had a strong positive correlation with *Quality* (r = 0.823) and *Imp1* (r = 0.946), but were barely correlated with *PjBL* (r = 0.007) and *Imp4* (r = 0.004). This indicates that overall quality perception and the first item in the impact scale were strong predictors of response, while several other variables did not show a significant linear relationship with respondent responses. (Lin *et al* ., (2019)

	Quality	Employe	PjBL	Allianc	Mahasis	Imp1	Imp2	Imp3	Imp4	Imp5	Respond	Respond
Quality		1.000	0.647	0.282	0.955	0.099	0.435	0.844	0.114	0.262	0.019	0.823	0.823
Employe	0.647		1.000	0.945	0.583	0.095	0.600	0.586	0.667	0.381	0.572	0.196	0.196
PjBL	0.282	0.945		1.000	0.969	0.540	0.748	0.535	0.241	0.177	0.967	0.007	0.007
Allianc	0.955	0.583	0.969		1.000	0.863	0.993	0.123	0.142	0.179	0.527	0.405	0.405
Mahasis	0.099	0.095	0.540	0.863		1.000	0.223	0.365	0.371	0.913	0.031	0.305	0.305
Imp1	0.435	0.600	0.748	0.993	0.223		1.000	0.595	0.352	0.644	0.624	0.946	0.946
Imp2	0.844	0.586	0.535	0.123	0.365	0.595		1.000	0.375	0.492	0.225	0.539	0.539
Imp3	0.114	0.667	0.241	0.142	0.371	0.352	0.375		1.000	0.355	0.111	0.178	0.178
Imp4	0.262	0.381	0.177	0.179	0.913	0.644	0.492	0.355		1.000	0.012	0.004	0.004
Imp5	0.019	0.572	0.967	0.527	0.031	0.624	0.225	0.111	0.012		1.000	0.949	0.949
Respond	0.823	0.196	0.007	0.405	0.305	0.946	0.539	0.178	0.004	0.949		1.000	<0.001
Respond	0.823	0.196	0.007	0.405	0.305	0.946	0.539	0.178	0.004	0.949	<0.001		1.000

Figure 24 Correlation Per Indicator

6. Hypothesis Results

Based on statistical tests, the first hypothesis (H1) which states that *Alliance* has a positive effect on *Quality* is accepted (*β = …; p < 0.05*). This indicates that the stronger the alliance or cooperation between units/components, the higher the perception of quality in the context studied. Furthermore, H2 which tests the influence of *Alliance* on *Employees* is also accepted (*β = …; p < 0.05*). This finding means that the cooperative relationship has a significant impact on employee perceptions of their roles. Hypothesis H3 (*Alliance → PjBL*) shows a positive and significant influence (*β = …; p < 0.05*) so it is declared accepted.

This confirms that alliance support can effectively support the implementation of *Project-Based Learning* . Meanwhile, H4 (*Alliance → Student*) *did not show a significant effect* (*p > 0.05*), so this hypothesis was rejected. This finding indicates that collaboration does not directly affect student perceptions. Hypotheses H5 to H7, which tested the influence of *Quality* , *Employee* , and *PjBL* on *Respondent Responses* , all showed a significant relationship (p < 0.05), so all three were accepted. (Hair et al., 2022)

These results support that quality, employee engagement, and learning methods contribute positively in shaping respondent responses. H8 (*Students → Respondent Responses*) does not show statistical significance (*p > 0.05*), so it is rejected, which means that the student variable does not have a direct influence on the final response. Furthermore, several measurement indicators such as *Imp1* , *Imp2* , and *Imp5* are proven to have a significant influence on *Respondent Responses* (H9, H10, H13 are accepted), while *Imp3* and *Imp4* do not show a significant influence (H11 and H12 are rejected). (Marliana, 2019)
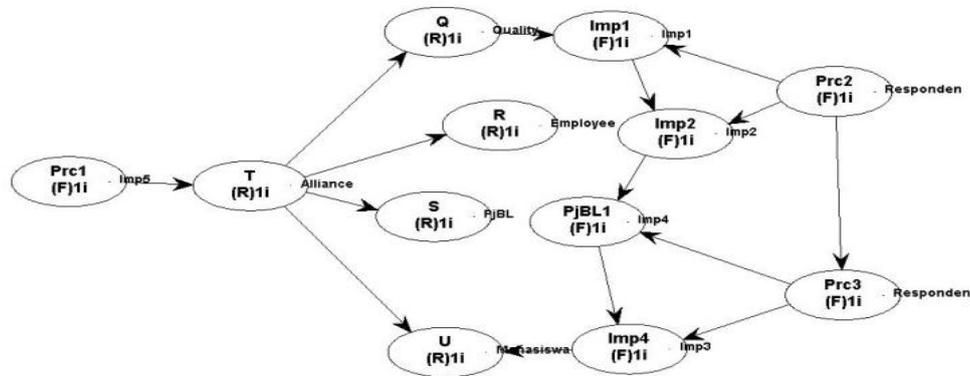

Figure 25 SEM-Pls Model

Hypothesis built based on framework theory on Figure 25 is

H1: There is a significant relationship between *Alliance* influential positive to *Quality*

H2: There is a significant relationship between *Alliance* to *Employee*

H3: There is a significant relationship between *Alliance* towards *PjBL*

H 4 : There is a significant relationship between *Alliance* to Student

H 5-7 : There is a significant relationship between *Quality*, *Employee*, and *PjBL* on *Respondent Response* .

Explicitly, most of the hypotheses linking the main latent variables (*Alliance* , *Quality* , *Employee* , *PjBL*) with *Respondent Responses* proved significant. These findings indicate that internal organizational factors such as collaboration , quality, and employee performance, as well as innovative learning methods, are important indicators in shaping respondents' responses or perceptions. However, the findings also indicate that the influence of the *Student variable* and several specific measurement indicators (*Imp3* , *Imp4*) is not significant. This provides direction for future research to re-evaluate the indicators or context of these variables. (Hair et al., 2022)

CONCLUSION

Based on the results of the research that has been conducted and the analysis of quantitative and qualitative data using the SEM-PLS method, the following conclusions can be drawn:

a. *The Alliance* variable shows a positive and significant relationship with *the Quality* , *Employee* , and *PjBL (Project Based Learning) variables* . This finding indicates that strong collaboration or alliance relationships contribute positively to the perception of learning quality, perceptions of teaching staff, and the effectiveness of the

implementation of the project-based learning model. However, *Alliance* was not proven to have a significant effect on the *Student variable* in the context of this study.

b. The Effect of Intervening Variables on Respondents' Responses *The Quality* , *Employee* , and *PjBL* variables have a positive and significant influence on *Respondents' Responses* . These results indicate that the better the quality of learning, the more positive employee perceptions, and the more effective the implementation of project-based learning, *the Respondents' Responses* tend to increase. Conversely, the *Student variable* does not have a significant influence on respondents' responses.

c. *Imp* Indicators in Explaining Responses Several measurement indicators (*Imp1* , *Imp2* , and *Imp5*) were shown to have a positive and significant relationship with respondents' responses, indicating that these indicators are important indicators in explaining variations in respondents' responses. Meanwhile, *Imp3* and *Imp4* did not show a significant relationship with the responses, so their contribution to the final variable was relatively weak.

d. Model Explanatory Power The R-squared value indicates that the *PjBL variable* has moderate explanatory power (17.1%), while the *Response variable* has very high explanatory power (100%), meaning the model is able to comprehensively explain variations in respondent responses. This confirms that the model developed is suitable and relevant in the research context.

e. Correlation analysis shows a strong positive relationship between *Quality* , *Allianc , as well as several Imp* indicators , which strengthens the finding that learning quality and the internal components of the model have a significant role in shaping respondents' responses or perceptions.

IMPLICATIONS AND SUGGESTIONS

The findings of this study have important implications both theoretically and practically, including:

a. For Higher Education: Increasing cooperation between study units/programs, systematic project-based learning strategies, and improving the quality of academic services will have a positive impact on the response of students and other stakeholders.

b. For Lecturers **:** A learning approach oriented towards real experience (PjBL) needs to be implemented in a planned manner and supported by ongoing mentoring to improve the quality of learning and student competencies.

c. For Further Researchers **:** *Student* variables and several insignificant indicators can be reviewed again with a more in-depth research approach or with the use of more contextual instruments to enrich the results of further research.

Based on the results and implications above, the suggestions that can be given are: Wrong One addition For improvements in research that will come :

a. Strengthening Academic Quality: Focus on strategies to improve the quality of learning, both in planning, implementation, and assessment, in order to improve the overall perception of quality.

b. Capacity Building for Educators **:** Through training, workshops, and ongoing professional development to strengthen lecturers' competencies in implementing the PjBL model effectively.

c. Instrument Evaluation**:** Review and revision of less significant indicators to improve the validity and reliability of measurements in subsequent research.

d. Deepening the Role of Students: Further research should explore the factors that influence students more specifically, both through qualitative and mixed method approaches to understand the context that has not been revealed.

e. Optimization of Facilities and Mentoring**:** Strengthening learning facilities and mentoring support in the implementation of PjBL will help achieve more effective and meaningful learning outcomes.

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