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Project Based Learning Planning Framework For Critical Thinking In Islamic Education

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General Background Twenty-first-century education necessitates the mastery of analytical skills, enabling students to evaluate perspectives and make rational decisions based on real experiences. **Specific Background** Within religious instruction, active student-centered methodologies serve as proven pedagogical approaches that cultivate these analytical competencies through authentic problem-solving and collaborative teamwork. **Knowledge Gap** Previous literature extensively documents the outcomes and implementation of these student-centered models, yet comprehensive studies exploring how educators systematically design and structure the preparatory stages remain significantly scarce. **Aims** This research investigates the strategic preparation methods utilized by teachers to facilitate project-centric frameworks for high school students in Surakarta. **Results** Utilizing a qualitative case study with interactive data analysis and triangulation, findings reveal a structured five-component preparation phase encompassing module formulation, learner characteristic assessment, objective alignment, contextual task design, and authentic evaluation creation. **Novelty** The distinctiveness of this study lies in the specific integration of religious content into a digital poster assignment addressing contemporary social issues, seamlessly aligning targeted evaluation rubrics with localized student experiences and religious values. **Implications** These empirical insights provide a foundational reference for educators, schools, and curriculum developers striving to design systematic, contextually relevant, and skill-oriented religious instruction.

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Highlights

- **Instructors formulate a five-step preparatory sequence encompassing module creation, learner analysis, objective alignment, task design, and authentic evaluation.**
- **Religious instruction integrates contemporary social issues through targeted digital poster assignments addressing localized student experiences.**
- **Comprehensive rubrics measure problem analysis, information evaluation, logical reasoning, and argumentation throughout the student work cycle.**

Keywords: Pedagogical Design; Teaching Modules; Authentic Assessment; Qualitative Case Study; Independent Curriculum

INTRODUCTION

Education in the 21st century requires students to be able to master the four main skills (4Cs): critical thinking, creativity, collaboration, and good communication. One of these skills is critical thinking, this ability is very important because it can make students analyze information, evaluate various perspectives, and be able to make rational decisions based on real experiences (Iftirosy et al., 2025). In PAI learning, critical thinking skills have a very important role. It is anticipated that learners will grasp religious literature and also possess the ability to assess, explain, and implement Islamic principles in their everyday activities (Rasyidi, 2024). This context is reflected in the efforts of PAI teachers at SMA Muhammadiyah Program Khusus Kottabarat Surakarta to connect PAI material with religious and social issues faced by students in their daily lives.

As one of the models of the learning approach, PjBL has proven to be very efficient in improving critical thinking skills (Ratu et al., 2021). In the PjBL learning model, students act as learning centers who must actively participate in working on real projects through activities, exploration, teamwork, problem solving, and self-evaluation (Syafila & A'yun, 2024). PjBL Learning offers students chances to cultivate knowledge via authentic everyday situations, making the educational experience seem more applicable and significant (Fariza & Kusuma, 2024). In PAI learning, the project can be realized in the form of the task of making digital posters, educational videos, Islamic values campaigns, and other creative works related to learning materials (Syirot, 2025).

The success in the implementation of PjBL is highly dependent on the quality of the planning prepared by teachers. Good learning planning can help teachers in compiling a targeted learning experience, choosing strategies that suit the characteristics of students, and can prepare assessments that are able to measure the achievement of learning objectives comprehensively (Mukhoyyaroh Nasution & Zulhimma, 2026). Teachers who are able to design good learning will find it easier to manage project activities so that learning goals can be achieved optimally (Istiqomah et al., 2023). Therefore, PjBL learning planning carried out by teachers is the main foundation in the implementation of Project Based Learning.

Numerous research works have indicated that PjBL effectively enhances the critical thinking abilities of students. Research conducted by Taabudilah et al. (2025) found that students' active involvement in problem-solving and completing religious projects through PjBL was effective in enhancing their critical thinking skills. In a similar vein, Wahid et al. (2023) revealed that the implementation of PjBL positively affects students' critical thinking in PAI learning. In the context of Islamic education Faisal et al. (2023)) showed that implementing PjBL in IRE could improve students' analytical and reflective abilities in understanding religious values. Sholeh et al. (2024) also found that the use of problem-based projects in IRE contributed to improvements in students' analytical and reflective abilities. In addition Jannah & El-Yunusi (2024), found that the application of PjBL in PAI learning has been shown to be successful in improving critical thinking skills and encouraging students' active engagement. However, many of these studies have primarily focused on the implementation and outcomes associated with PjBL. There is still a lack of research that specifically focuses on how PAI teachers plan their approach to creating a PjBL experience that aims to improve critical thinking in students. Previous studies have mainly highlighted the implementation and outcomes of PjBL, rather than the steps teachers take during the planning phase. Therefore, this study aims to fill that gap by exploring how PAI teachers organize and design PjBL initiatives to encourage students' critical thinking abilities.

Based on this study, there are still research gaps that need to be filled, namely the lack of an in-depth study on how PAI teachers plan in PjBL learning that is oriented towards the development of students' critical thinking skills. In fact, planning is an important initial stage in determining the success of learning implementation. The renewal of this study lies in the identification of interrelated components of PjBL planning in PAI learning, including: the preparation stage of project-free teaching modules, analysis of student characteristics, formulation of learning objectives oriented towards critical thinking, contextual project design, and preparation of authentic assessments with a critical thinking rubric. This research is very important because it can provide an overview or empirical insight into the planning practices carried out by PAI teachers in the context of modern Islamic schools, especially in SMA Muhammadiyah Program Khusus Kottabarat Surakarta which is known as a school with an orientation to strengthen character and academic quality.

Based on this description, this study aims to describe and analyze the planning of PAI teachers in creating a learning experience centered on PjBL to improve critical thinking skills in SMA Muhammadiyah Program Khusus Kottabarat Surakarta. From a theoretical point of view, this study is expected to make a significant contribution to the knowledge pool regarding PjBL-oriented PAI teaching planning and the improvement of critical thinking skills among students. Practically, the findings of this study can be a valuable guide for teachers, educational institutions, and decision-makers in developing PAI education that is innovative, contextually relevant, and skill-focused for the 21st century.

RESEARCH METHODS

This study utilizes a qualitative methodology with a case study framework to deeply explore the process of learning planning grounded in PjBL. The main focus of this research is the strategy of PAI teachers at SMA Muhammadiyah Program Khusus Kottabarat Surakarta in conducting PjBL learning planning to improve critical thinking skills in students. The case study design allows researchers to explore phenomena in a limited context by utilizing various sources of information (Creswell & Poth, 2024).

The subject in this study is an PAI teacher at SMA Muhammadiyah Program Khusus Surakarta who is directly responsible for designing and implementing PjBL. The determination of the research subject was carried out by purposive sampling because the selected teachers have experience in compiling PjBL learning tools and understand learning planning based on the development of students' critical thinking. The purposive sampling technique itself, as explained by Sugiyono (2022), is a method of determining samples based on specific criteria, where informants are selected because they are considered to be the most proficient in the research topic so that they are able to present in-depth and relevant data. In addition to PAI teachers, there were several students interviewed to support the data in this study.

In addition to PAI teachers as the main informants, this study also utilizes various learning documents such as teaching modules, learning objectives flow (ATP), assessment instruments, and other supporting documents as data sources to strengthen research results. The use of these various data sources aims to gain a comprehensive understanding of the PjBL learning planning process. As explained by Moleong (2023), the determination of subjects in qualitative research is based on their capacity to present information-rich cases, so that the phenomena studied can be understood in depth and holistically.

Qualitative research applies specific methods to collect non-numerical data in the form of narrative images." One of the

methods used in qualitative collection is through: interviews, observations, and documentation (Ardyan, et.al, 2023). So the researcher uses the following data collection techniques: Interviews are conducted to explore information in depth regarding PjBL learning planning including: (1) preparation and components for the PjBL learning module; (2) analyzing students' initial abilities, learning needs, participation, and collaboration; (3) formulating learning objectives; (4) creating contextual project designs, including driving questions, group formation, project stages, monitoring, and reflection; (5) assessment planning, creating indicators of processes, products, and critical thinking. Observations were made to look at learning planning documents and related to project-based learning preparation, and documentation was used to collect supporting data such as: teaching modules, ATP, assessment tools, and student project outcomes.

Data analysis for this investigation adopts the interactive model as outlined by Miles, Huberman, and Saldaña (2014), which involves three key stages: condensing data, presenting data, and formulating conclusions. To ensure the data's credibility, the research incorporates source triangulation, technique triangulation, and member checking. In the data condensation stage, the researcher performs the following stages: sorting, simplifying, and grouping information from interviews, observations, and documentation regarding PjBL learning planning. Furthermore, the condensed data is presented through descriptive narrative texts, matrices, tables, and charts to clarify the relationship between variables and recognize emerging patterns. This approach assists researchers in comprehending the interconnections among the data and identifying emerging patterns throughout the study. Finally, conclusions are drawn by interpreting the data from the analysis and being verified continuously to ensure the accuracy of the findings. The results of this conclusion present a comprehensive picture of PjBL learning planning by PAI teachers in optimizing students' critical thinking skills.

RESULT AND DISCUSSION

PAI Teacher Planning in Project Based Learning (PjBL)

Learning planning is the most important stage in the implementation of education. The planning is used to determine the direction, process, and achievement of learning goals. In Islamic Religious Education, planning is not aimed at mastering religious materials alone, but is also expected to be able to form religious character, have noble character, and be able to practice in daily life. Therefore, the application of the PjBL learning model to PAI learning requires systematic planning, relevant to real situations, and oriented towards real learning experiences.

Based on data collected through interviews, observations, and documentation from one of the PAI teachers at SMA Muhammadiyah Program Khsusus Kottabarat Surakarta. It was found that PAI teachers prepare a well-organized PjBL which aims to improve students' critical thinking skills. The planning carried out is designed holistically, not only to refer to the fulfillment of knowledge achievements, but also aimed at equipping students with critical thinking skills. This includes the ability to analyze problems, formulate logical arguments, evaluate or assess the information obtained, and can provide solutions to problems related to daily life.

Based on the results of the research, the learning planning carried out by PAI teachers includes five main stages, including: (1) the preparation of teaching modules using the PjBL method, (2) analyzing the characteristics of students, (3) formulating learning objectives oriented to critical thinking skills, (4) designing contextual projects, and (5) preparing authentic assessments along with critical thinking assessment rubrics. The five components are interconnected, serving as a guide for PAI teachers in developing learning that is in line with the needs of students and the Independent Curriculum stand.

[Table 1. about here]

The results of the study show that PjBL planning is designed in a structured manner through the creation of teaching modules, analysis of student characteristics, formulation of learning objectives, contextual project design, and preparation of authentic assessments. This proves that the success of the implementation of PjBL learning is not only determined in the implementation of learning, but begins with the quality of planning prepared by teachers. The results of this study are in line with a study conducted by Tafakur, Retnawati, and Shukri (2023), which show that the efficiency of PjBL Learning improves critical thinking skills is greatly influenced by the quality of learning design, especially during the phases of goal setting, project activity planning, and evaluation.

Preparation of Project-Based Learning Teaching Modules

Teaching modules are a very important component of learning tools in the learning activity process. The teaching module is used by teachers as a guideline in carrying out the learning process so that it takes place in a structured, focused, and able to achieve the expected learning goals. In teaching PAI using the PjBL model, the teaching module must be designed to integrate learning objectives, materials, project implementation, learning resources, and assessments. Therefore, learning activities using the PjBL model are expected to be able to run optimally.

The results of the research findings in the initial stage carried out by PAI teachers were to prepare teaching modules based on Project Based Learning. The creation of teaching modules is carried out by referring to Learning Outcomes, Learning Objectives, and Learning Objectives Flow that apply to the Independent Curriculum. The teaching modules designed by PAI teachers contain complete components, including learning identity, learning objectives, meaningful understanding, triggering questions, project-based learning steps, assessments, and reflection tools. In addition, PAI teachers choose project topics that align with students' daily experiences, ensuring the educational process not only focuses on understanding the material but also provides authentic and meaningful learning.

The results of the interviews showed that before implementing PjBL learning, PAI teachers identified learning materials that were suitable to be developed in the PjBL approach. This consideration aims to ensure that project-based learning is truly achieved and can train students' critical thinking skills. The integration of objectives, activities, assessments, and reflections in the teaching module shows that learning tools are positioned as pedagogical guidelines, not just administrative documents. These findings are in line with Mukhoyyaroh Nasution & Zulhimma (2026) Regarding the teaching module of the teaching module in integrating objectives, strategies, activities, and assessments in an integrated manner.

In the perspective of constructivism, PjBL-based teaching modules can help students to build knowledge through authentic learning experiences (Mones & Irawati, 2023). The preparation of the teaching module reflects the main characteristics of Project Based Learning, namely learning that begins with a problem or

fundamental driving question, then continues with the process of investigation, collaboration, product preparation, presentation, and reflection. Thus, the project is not positioned as an additional task, but becomes the core of the learning process so that Enabling the development of critical thinking skills optimally (Prapsetyo et al., 2025). These findings support research Selasmawati & Lidyasari (2023), which states that the effectiveness of PjBL Learning in improving critical thinking skills depends on a learning design that is able to integrate project activities with learning objectives in a systematic manner.

Analysis of Student Characteristics as a Basis for Planning

Analysis of student characteristics is an important component in planning PjBL-based learning. The success of this learning model depends on readiness, basic knowledge, experience, student interests, and students' ability to investigate and complete the projects made. In connection with the enhancement of critical thinking skills, the analysis of students' characteristics can be carried out by identifying the ability of students to be able to understand problems, make conclusions, conduct evaluations, and formulate logical reasons in making conclusions.

The results of the study showed that PAI teachers analyze the characteristics of students first before designing learning activities. The analysis is about students' initial abilities, ability to work together in groups, students' participation in learning, and characteristics of students' learning environments. Information about the analysis of student characteristics is used as a basis for determining the level of difficulty in making projects, learning strategies, group formation, and mentoring during the learning process. PAI teachers also strive to adjust the project to the ability of the students so that each group has the same opportunity to complete the project optimally. PAI teachers also consider religious topics relevant to students' daily experiences as the focus of the project. It aims to increase students' motivation to learn and inspire them to analyze the various issues they face on a daily basis.

When choosing a project theme, PAI teachers try to relate to the students' experiences so that they can provide greater opportunities to improve students' critical thinking skills. Students not only gain knowledge but are also prepared to study various social and religious situations before finding solutions for their learning projects. According to Taabudilah et al. (2025), contextual projects encourage students to connect religious concepts with the reality of daily life. According to Taabudilah et al. Chang et al. (2024), Projects that are authentic and relevant to learners' real-life experiences are proven to improve students' behavioral, emotional, and cognitive engagement during project-based learning.

The findings in this study reinforce the ideas conveyed by Syafila & A'yun (2024), which states that project-based learning will be more effective if it is designed based on the needs and real experiences of students. Student needs analysis also allows teachers to determine the appropriate level of project complexity so that it can facilitate the development of critical thinking skills optimally

[Table 2. about here]

Formulation of Learning Objectives Oriented to Critical Thinking Skills

The formulation of learning objectives is a very important stage in PjBL learning planning because it is used to determine project activities to be carried out, determine learning resources, make assessments, and to evaluate PjBL learning activities and the achievement of competencies possessed by students.

At the stage of formulating learning objectives, the results of the findings of this study show that the formulation of PAI learning objectives does not only include mastery of the material, but also aims to improve students' critical thinking skills. In this case, PAI teachers design learning objectives so that students have the ability to recognize problems, analyze the information obtained, evaluate various sources of information, formulate arguments based on evidence, and formulate solutions to the problems studied.

In the indicator, critical thinking skills are integrated into learning objectives and project activities, thus the teacher's planning has determined the competencies for high-level thinking developed through learning activities. PAI teachers are also of the view that students' critical thinking skills must be trained on an ongoing basis through active interaction in learning. This is done to provide opportunities for students to explore information, discuss, and express opinions rationally. These results are in line with the findings of Wahid et al. (2023), who show that the application of PjBL in PAI learning has a positive impact on improving critical thinking skills if from the beginning the learning objectives have been designed to develop high-level thinking skills.

The formulation of learning objectives indicates a transformation of the learning approach, from teacher-centered to student-centered learning. The preparation of learning objectives in the 21st century is required to focus on developing higher-level thinking skills (Tasrif, 2022).

Contextual Project Design

Contextual project design is a very important element when implementing PjBL learning because at this stage it must be able to connect learning materials with students' life experiences. From these activities, students are expected to be able to produce a project, recommendation, or the right solution.

At the stage of designing the project that will be done by the students. The findings of the study revealed that PAI teachers chose projects related to PAI material that were relevant to students' daily experiences. The project designed is the creation of a digital poster about Islamic values with the theme of avoiding adultery behavior in daily life. Before the project is implemented, PAI teachers prepare basic driving questions, divide groups, determine project completion steps, set activity schedules, and prepare monitoring mechanisms for the development of each group's projects.

All stages of the project are systematically designed through several stages, namely: problem orientation, project planning, project implementation, presentation of results, and learning reflection. Planning can provide a clear direction for students in completing the project and provide guidelines for teachers in the learning process. The planning of learning projects carried out by PAI teachers also takes into account the characteristics of the material and the needs of students. In addition to being contextual with the real lives of students, this project is not limited to being an assessment instrument, but also functions as a means of knowledge formation through investigation, discussion, and reflection activities. In the perspective of constructivist theory, learning will be more nutritious if students can build their own knowledge through real experience. Therefore, the project designed by PAI teachers makes students to develop analytical skills, problem-solving, collaboration, and scientific communication. Research conducted Zalukhu et al. (2024), reinforces this finding, where PjBL learning has been proven to have a significant influence in improving students' critical thinking skills through their active involvement in solving real project-based problems.

The Learning Steps of Project Based Learning (PjBL) designed by PAI teachers include: Determination of fundamental

questions, Project planning by students, Preparation of activities, Implementation and monitoring of projects, Testing of results, and Evaluation of learning. These stages are in line with the syntax of PjBL which places students as the center of learning and is oriented towards authentic problem solving to develop critical thinking skills described by Hidayatullah et al. (2026). These findings are in line with the PjBL theory put forward by various previous studies that projects that demand exploration and problem-solving can improve students' analytical, evaluative, and reasoning skills. Research conducted by Taabudilah et al. (2025) and Wahid et al. (2023) also proves that students' critical thinking skills in PAI learning have been proven to increase through participation in project-based activities.

[Table 3. about here]

Preparation of Authentic Assessments and Critical Thinking Rubrics

Authentic assessment is an assessment action carried out by teachers to see the mastery of students' competencies through the tasks given. In PAI learning with the PjBL model, authentic assessment is used to obtain comprehensive information about students' ability to understand religious material, formulate arguments, analyze problems, be able to use information sources, and produce a product.

The latest finding of this study is the preparation of an authentic assessment conducted by PAI teachers. The application of authentic assessment not only emphasizes the final results of the project, but PAI teachers also use it to evaluate the entire learning process of students during the implementation of Pjbl. In addition, PAI teachers also use the critical thinking assessment rubric which measures four main indicators, namely analyzing problems, evaluating information, drawing logical inferences, and compiling evidence-based arguments. Each of these indicators is assessed using an assessment scale that can allow PAI teachers to conduct assessments objectively and systematically. In addition to the assessment rubric, PAI teachers also prepare assessment instruments for group work processes, product creativity, product product presentation, and learning reflection. Therefore, the assessment is designed to reflect authentic assessments because it assesses various aspects such as: knowledge, skills, and attitudes in a comprehensive and integrated manner.

The assessment of the process and product shows that assessment is an integral part of the learning process, not just an evaluation at the end of the activity. PAI teachers do not only focus on the final product in the form of digital posters, but also assess the participation, cooperation, thought process, and reflection of the students. These findings are in line with Sangadah (2025) money states that authentic assessments are very relevant to the characteristics of PjBL because they are able to provide a more comprehensive picture of student development. Shodiq et al. (2025) revealed that the assessment rubric can also help teachers in measuring Achievement of learning objectives systematically and objectively. These findings are supported by research Oktaviyanti and Viyanti (2025), which shows that the application of Assessment for Learning (AfL) in PjBL learning is able to improve students' critical thinking skills because of the feedback provided continuously during the learning process.

Research Implications and Novelty

The empirical contribution of this study is expected to enrich the study of PjBL learning in PAI subjects, complementing previous researches that mostly only focused on aspects of the effectiveness of PjBL on learning outcomes and critical thinking skills, this study focused on the learning planning stage which is the main foundation for its successful implementation. The distinctive findings of this study lie in the adjustment of PAI teachers in aligning PAI content, student characteristics, contextual religious issues, digital poster products, and critical thinking assessments in one planning sequence. The five components identified in this study should therefore not be interpreted as a new generic instructional design model, but rather as an empirical description of how teachers at the research site operationalize PjBL planning for PAI. This contextual linkage is the main point of the novelty of this study.

In particular, this study shows how teachers choose PAI topics that are close to students' daily religious experiences, translate them into digital poster projects, formulate critical thinking indicators before implementation, and assess both processes and products. This configuration illustrates how the general principles of the Independent Curriculum are adapted to the specific demands of PAI learning in the research site. This configuration also clarifies the logic of practical planning that can be examined in further studies in various school contexts.

CONCLUSION

This study shows that PAI teachers at SMA Muhammadiyah Program Khusus Kottabarat Surakarta organize PjBL learning to improve students' critical thinking skills through an integrated planning process. This process connects PjBL-based teaching modules with student characteristics, learning objectives, contextual project activities, and assessments. PAI teachers make learning plans to PAI content: teachers plan digital poster projects on Islamic values with the theme of staying away from adulterous behavior in daily life and also prepare motivational questions, creating groups, monitoring, presentations, reflections, and project assessments. Critical thinking is observed through masala indicators, information evaluation, logical inference, and student argumentation.

An important contribution of this research is to affirm the vital role of planning as a strategic basis for the success of the PjBL method in PAI subjects, an aspect that has been understudied compared to the aspect of implementation or learning outcomes. Therefore, this research can enrich the literature on project-based PAI learning design by formulating a practical planning model that can be used as a reference for teachers and schools to create more effective learning in honing students' critical thinking skills. These results can also be the basis for developing training programs for teachers, creating teaching materials, and formulating policies that aim to improve the quality of PAI education that focuses on PjBL. This study also identifies practical planning challenges, including: teachers must adapt the complexity of the project to the students' initial abilities, choose religious issue materials that are relevant to students' lives and can then be applied to digital poster projects, and must be able to coordinate assessments so that processes and products can be represented.

Further research is recommended to evaluate the success of the planning model developed using a quantitative approach or mixed methods at various levels of education and different school contexts. In addition, the research can develop a more

comprehensive critical thinking skills evaluation instrument, integrate digital technology in PjBL planning, and explore the relationship between the quality of teacher planning, learning implementation, and student learning outcomes so that a

project-based PAI learning model that is increasingly adaptive, sustainable, and relevant to future educational developments.

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In preparation for writing this manuscript, the author uses ChatGPT and Google Gemini to help prepare ideas in the introduction, abstract, and conclusion. In addition, we also use it to find citations to support the results of our research. We also use it to help paraphrase sentences and translate sentences. We use this AI tool solely as a tool in the preparation of the manuscript, not as a research result or discovery. We are fully responsible for the content of the published articles, in accordance with the AI policy and the Halaqa Journal.

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Table 1 /Components of PAI Teacher Planning in PjBL Learning

No.	Planning Component.	Research Findings.
1	Preparation of Teaching Modules.	Contains CPs, TPs, project themes, fundamental questions, project activities, and assessments.
2	Analysis of Student Characteristics.	Identify the student's initial abilities, learning needs, and the context of the problem.
3	Formulation of Learning Objectives.	Oriented towards material mastery and the development of critical thinking skills.
4	Project Design.	Determine contextual projects, work stages, monitoring, and evaluation.
5	Preparation of Assessment Rubric.	Assess processes, products, cooperation, reflection, and critical thinking skills.

Table 2 / Results of Analysis of Student Characteristics in PjBL Planning

Aspects Analyzed	**Purpose of Analysis**	**Implications in Planning**
Initial capabilities	Knowing the student's critical thinking level	Determining the complexity of the project
Interest in learning	Customize the theme of the project	Increase student motivation
Social conditions	Determining the context of the issue	Make projects more relevant
Collaboration capabilities	Creating a working group	Support project collaboration

Table 3 / The Relationship of the Stages of PjBL with Critical Thinking Indicators

Stages of PjBL	**Student Activities**	**Critical Thinking Indicators**
Fundamental questions	Identify issues	Problem analysis
Project planning	Determining a solution strategy	Decision-making
Project investigation	Collecting and processing information	Evaluation of information
Presentation of results	Delivering arguments	Logical reasoning
Reflection and evaluation	Assessing processes and outcomes	Critical reflection