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English Teachers' Perceptions of Deep Learning Implementation in Project-Based Learning

Alya Agustin[1], Ise Fitrilia[2*]
{Yujaaalya@gmail.com[1], isefitrlia@gmail.com[2]}

STKIP Muhammadiyah Pagar Alam, Indonesia[12]

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Abstract. This study aimed to analyze English teachers' perceptions of implementing deep learning within Project-Based Learning at Muhammadiyah educational institutions in Pagaralam. A qualitative descriptive research design was employed involving 17 English teachers from SMA and SMK Muhammadiyah Pagaralam. Data were collected through semi-structured interviews and questionnaires and analyzed using the interactive model of data reduction, data display, and conclusion drawing. The findings indicate that most teachers have a positive perception of deep learning, understanding it as an approach that emphasizes conceptual understanding, reflection, and critical thinking. Teachers also perceive Project-Based Learning as an effective strategy to improve student engagement and contextual learning. However, the implementation of deep learning in PjBL has not been fully optimized because many students still prioritize task completion rather than meaningful understanding. Supporting factors include school facilities, collaboration among teachers, and institutional support, while inhibiting factors include limited instructional time, students' readiness, and insufficient professional development opportunities. The study concludes that although teachers demonstrate positive perceptions, effective implementation of deep learning requires stronger institutional support, continuous teacher training, and more structured pedagogical planning.

Keywords: Deep Learning, Project-Based Learning (PjBL), Teachers' Perception, English Language Teaching, Classroom

1. INTRODUCTION

English Language Teaching in the 21st century has undergone significant transformation due to technological advancement, globalization, and changes in educational paradigms. Learning is no longer solely oriented toward memorizing concepts or mastering factual information but has shifted toward developing students' critical thinking, creativity, communication, and collaboration skills [1]-[4]. These competencies are essential for preparing students to face complex social and professional challenges in the future. As a result, educators are expected to implement instructional approaches that facilitate meaningful understanding and active student participation in learning activities [5]-[7]. The Indonesian education system has also adapted to these global demands by promoting student-centered learning and competency-based instruction. Recent educational reforms emphasize that learning should not only focus on cognitive achievement but also foster problem-solving, reflective thinking, and real-world application. In line with this, the Ministry of Education encourages teachers to adopt innovative pedagogical approaches that enable students to engage deeply with learning content [3]-[10] . One approach increasingly discussed in Indonesian educational discourse is Deep Learning.

Deep learning refers to a learning approach that emphasizes understanding concepts at a meaningful level rather than surface memorization. It encourages students to connect ideas, analyze information critically, and apply knowledge in authentic contexts. According to recent educational studies in Indonesia, deep learning promotes a more holistic learning process where students are actively involved in constructing knowledge and reflecting on their learning experiences through deep learning, students are expected to develop long-term understanding that can be transferred to different situations beyond the classroom [11], [12]-[13].

In practice, deep learning requires teaching strategies that support inquiry, collaboration, and active exploration. Teachers play a crucial role in designing instructional activities that stimulate critical thinking and meaningful engagement. However, implementing deep learning is not always easy because it requires not only pedagogical competence but also adequate resources, institutional support, and students'

readiness to participate actively in learning [14]. Therefore, understanding teachers' perceptions toward deep learning becomes essential, as teachers are key actors in the implementation process.

One instructional model considered highly compatible with deep learning is Project-Based Learning. Project-Based Learning is an approach in which students learn through investigating authentic problems and producing meaningful projects. It provides opportunities for students to apply theoretical knowledge in real-world contexts, thereby fostering active learning and higher-order thinking skills [15]. In language education, particularly English teaching, PjBL can facilitate communication, creativity, and contextual language use [16]

Several studies conducted in Indonesia have shown that PjBL can improve students' engagement, collaboration, and learning motivation [17], [18]. It is also recognized as an effective strategy for promoting experiential learning, where students learn by doing and reflecting on their experiences. Through project activities, students can connect academic concepts with practical situations, making learning more relevant and meaningful [19].

The integration of deep learning and Project-Based Learning offers considerable potential in improving educational quality. Deep learning provides the conceptual foundation for meaningful understanding, while PjBL offers the practical framework through which such understanding can be developed. When implemented effectively, the combination of these approaches can encourage students not only to complete tasks but also to think critically, solve problems, and reflect on their learning [20].

However, despite the theoretical compatibility between deep learning and PjBL, their implementation in schools often faces challenges. Some studies indicate that teachers may understand the concept theoretically but experience difficulties in translating it into classroom practice [21]. Factors such as limited teaching time, insufficient training, classroom management challenges, and students' readiness often influence implementation [22]. Moreover, in some cases, project activities become focused merely on product completion rather than deep conceptual engagement [23].

In the context of Muhammadiyah schools, Project-Based Learning has been implemented as part of educational innovation aimed at enhancing student-centered learning. Muhammadiyah educational institutions are known for integrating academic excellence with character development, making them a suitable context for implementing deep learning approaches. Preliminary observations in Muhammadiyah schools in Pagaralam show that PjBL has been implemented since 2013, especially in English subjects. Teachers often assign projects such as storytelling, presentations, role-play, and video production to improve language skills and student participation.

Nevertheless, the implementation has not always resulted in optimal deep learning. Based on informal observations, many students focus more on completing assignments than understanding the underlying concepts. Teachers also face challenges in managing collaborative work, assessing project outcomes, and ensuring that all students participate equally. These issues suggest a gap between the intended objectives of deep learning and the realities of classroom implementation. Teachers' perceptions play a central role in this issue because their beliefs influence how instructional approaches are interpreted and applied. Positive perceptions can encourage innovation, while uncertainty or limited understanding may hinder implementation [24]. Teachers who understand deep learning comprehensively are more likely to design activities that facilitate conceptual understanding and reflection. Conversely, teachers who view deep learning merely as active participation may overlook its reflective and analytical dimensions [25].

Previous research in Indonesia has mostly focused on the effectiveness of Project-Based Learning in improving student achievement, motivation, and engagement [26], [27]. However, limited studies specifically examine teachers' perceptions of integrating deep learning into PjBL, particularly in English language teaching at Muhammadiyah educational institutions. This creates a research gap that needs to be addressed, considering that teachers' perspectives significantly affect classroom practice. This study seeks to fill that gap by analyzing English teachers' perceptions of implementing deep learning within Project-Based Learning at Muhammadiyah schools in Pagaralam. By focusing on teachers' understanding, experiences, supporting factors, and challenges, this study aims to provide insights into how deep learning is interpreted and practiced in the classroom. The significance of this study lies in its contribution to understanding the practical implementation of deep learning in Indonesian educational contexts. The findings are expected to enrich discussions on innovative teaching strategies, particularly in English language instruction. Furthermore, the study may provide recommendations for policymakers, schools, and teacher educators to improve professional development programs and support systems for implementing meaningful learning approaches [28],[29].

Based on the background above, this study addresses the following research question: How do English teachers perceive the implementation of deep learning within Project-Based Learning at Muhammadiyah educational institutions in Pagaralam?

The objective of this study is to explore teachers' understanding, perceptions, and experiences in implementing deep learning through PjBL and to identify supporting and inhibiting factors that influence its effectiveness. By examining these aspects, the study contributes to broader educational discussions regarding the integration of innovative learning approaches in Indonesian schools.

2. METHOD

This study employed a qualitative descriptive research design to explore English teachers' perceptions regarding the implementation of Deep Learning within Project-Based Learning. A qualitative approach was considered appropriate because the objective of the research was to understand participants' experiences, perceptions, and interpretations in their natural educational setting. Qualitative descriptive studies enable researchers to investigate social phenomena deeply and systematically by emphasizing participants' viewpoints and contextual realities. This approach is widely used in educational research because it provides rich and detailed descriptions of classroom experiences and teaching practices [30].

The research was conducted at Muhammadiyah educational institutions in Pagaralam, specifically involving teachers from Muhammadiyah senior high school (SMA) and vocational high school (SMK). These institutions were selected because they have implemented Project-Based Learning in English instruction for several years and have shown efforts to integrate innovative learning approaches in line with current educational reforms. The schools provide a relevant context for investigating how teachers understand and apply deep learning principles in classroom practice.

Research Participants

The participants of this study were 17 English teachers from Muhammadiyah schools in Pagaralam. All participants were actively teaching English during the academic year when the research was conducted. The study used total sampling because the population of English teachers in the selected institutions was relatively small, allowing all teachers to be included as participants. Total sampling was considered appropriate to obtain comprehensive insights and avoid excluding relevant perspectives. The participants varied in teaching experience, educational background, and professional exposure to innovative instructional approaches. Some had more than ten years of teaching experience, while others were relatively new teachers. This variation allowed the study to capture diverse perceptions regarding deep learning and Project-Based Learning implementation.

Data were collected through two main instruments: semi-structured interviews and questionnaires. The use of multiple instruments aimed to increase data validity through triangulation and provide a more comprehensive understanding of teachers' perceptions. Semi-structured interviews were used as the primary instrument to gather in-depth qualitative data. The interview format allowed views while still focusing on predetermined consisted of 15 open-ended questions designed to explore teachers' understanding, experiences, challenges, and perceptions related to deep learning implementation within PjBL.

The interview questions covered four major aspects: teachers' understanding of deep learning concepts; teachers' perceptions of Project-Based Learning; classroom implementation of deep learning in project activities; and supporting and inhibiting factors in implementation.

Semi-structured interviews were selected because they provide opportunities for probing and clarification, allowing researchers to gain richer information about participants' experiences. During the interviews, teachers were encouraged to explain their opinions, provide examples from classroom practice, and describe the challenges they faced.

Each interview was conducted individually and lasted approximately 20–30 minutes. Interviews were carried out face-to-face at the schools after obtaining participants' consent. The conversations were recorded and transcribed for analysis.

To complement the interview data, a questionnaire was administered to all participants. The questionnaire consisted of 14 statements using a Likert scale format. The response options were: Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD). The questionnaire aimed to measure teachers' general perceptions quantitatively and support the findings from interviews. Using questionnaires in qualitative descriptive studies can strengthen credibility by providing measurable patterns of participants' responses. The questionnaire statements were divided into four sections: Understanding of deep learning, Perceptions of PjBL, Implementation practices, Supporting and

inhibiting factors. The questionnaire data were presented in percentages to describe the distribution of responses.

Data Collection Procedure and Data Analysis

The data collection process was conducted in several stages. First, the researcher obtained permission from the school authorities and informed the participants about the purpose of the study. Ethical considerations were prioritized to ensure voluntary participation and confidentiality. Second, the questionnaires were distributed to all 17 teachers. Participants completed the questionnaires individually based on their experiences and perceptions. After the questionnaires were collected, the researcher conducted interviews to gain deeper explanations of the questionnaire responses. This sequence allowed the researcher to identify patterns from the questionnaire first and then explore them further during interviews. Combining these methods provided a richer understanding of the phenomenon under investigation. The collected data were analyzed using the interactive model proposed by Matthew B. Miles and A. Michael Huberman, which consists of data reduction, data display, and conclusion drawing.

Data Reduction and Data Display

Data reduction involved selecting, simplifying, and organizing the interview transcripts and questionnaire results. The researcher reviewed all interview transcripts, identified relevant statements, and grouped them according to the research themes. Irrelevant or repetitive information was excluded. This stage helped focus the analysis on key themes related to teachers' understanding, implementation experiences, and challenges. The reduced data were then organized into tables and narrative descriptions. Interview responses were grouped into categories and presented in percentage form based on frequency. Questionnaire results were also displayed in tables showing the percentage of each response category. Presenting the data in tables facilitated interpretation and comparison between interview and questionnaire findings.

3. FINDINGS

This study explored English teachers' perceptions of implementing deep learning within Project-Based Learning (PjBL) at Muhammadiyah educational institutions in Pagaralam. The findings were obtained through interviews and questionnaires involving 17 English teachers from SMA and SMK Muhammadiyah Pagaralam.

Table 1. Teachers' Perceptions of Deep Learning Based on Interview Results

No	Teachers' Statements	Volume (%)
1	Deep learning emphasizes conceptual understanding and real-life application.	6 (35.29%)
2	Deep learning involves thinking, analyzing, and reflecting.	5 (29.41%)
3	Deep learning is student-centered learning.	4 (23.53%)
4	Deep learning is similar to active learning.	2 (11.76%)

(Source: Research Data, 2026)

The table shows that most teachers understood deep learning as a learning approach that emphasizes conceptual understanding and the application of knowledge in real-life contexts. Teachers also associated deep learning with critical thinking, reflection, and student-centered learning.

Table 2. Questionnaire Results on Teachers' Perception of Deep Learning

No	Statement	SA	A	D	SD
1	Understanding deep learning concept	58.82%	35.29%	5.88%	0%
2	Deep learning emphasizes understanding	64.70%	29.42%	5.88%	0%
3	Deep learning develops critical thinking	70.58%	29.41%	0%	0%
4	Reflection is important in deep learning	52.94%	35.29%	11.76%	0%
5	Deep learning supports real-life application	58.82%	35.29%	5.88%	0%

(Source: Research Data, 2026)

The questionnaire results indicate that teachers had positive perceptions of deep learning. Most respondents strongly agreed that deep learning develops critical thinking and emphasizes conceptual understanding rather than memorization.

Table 3. Teachers' Perceptions of Project-Based Learning

No	Teachers' Statements	Volume (%)
1	PjBL increases student engagement and understanding	7 (41.17%)
2	PjBL promotes collaboration and idea sharing	4 (23.53%)
3	PjBL connects learning with real-life situations	4 (23.53%)
4	Some students are not ready for group work	2 (11. 76%)

(Source: Research Data, 2026)

The findings demonstrate that teachers generally perceived Project-Based Learning positively. Teachers believed that PjBL encourages active participation, collaboration, and meaningful learning experiences.

Table 4. Questionnaire Results on Teachers' Perception of Project-Based Learning

No	Statements	SA	A	D	SD
1	PjBL encourages student engagement	64.70%	29.41%	5.88%	0%
2	Row 2	58.82%	35.29%	5.88%	0%
3	Row 4	70.59%	23.53%	5.88%	0%

(Source: Research Data, 2026)

The table indicates that teachers strongly agreed that Project-Based Learning supports student engagement and higher-order thinking skills.

Table 5. Implementation of Deep Learning in PjBL Based on Interview Result

No	Teachers' Statements	Volume (%)
1	Teachers design projects such as storytelling and videos	6 (35.29)
2	Teachers act as facilitators during PjBL activities	5 (29.41%)
3	Teachers encourage discussion and critical thinking	4 (23.53%)
4	Some students focus only on completing tasks	2 (11.76%)

(Source: Research Data, 2026)

The findings reveal that teachers have attempted to implement deep learning principles through project-based activities. Teachers also performed their roles as facilitators who guide students throughout the learning process.

Table 6. Questionnaire Results on the Implementation of Deep Learning in PjBL

No	Statements	SA	A	D	SD
1	Teachers design projects that support deep learning	52.94%	35.29%	11.76%	0%
2	Learning activities are connected to real-life context	64.70%	29.41%	5.88%	0%

(Source: Research Data, 2026)

The questionnaire results indicate that teachers have attempted to integrate deep learning principles into Project-Based Learning activities.

Table 7. Supporting Factors Based on Interview Results

No	Teachers' Statements	Volume (%)
1	Facilities and learning media support PjBL implementation.	6 (35.29%)
2	School support motivates teachers to apply PjBL	4 (23.53%)
3	Collaboration among teachers supports implementation	4 (23.53%)
4	Teaching experience increasing teacher confidence	3 (17.64%)

(Source: Source name, 2019)

The findings show that facilities, institutional support, teacher collaboration, and teaching experience contributed positively to the implementation of deep learning within PjBL.

Table 8. Inhibiting Factors Based on Interview Results

No	Teachers' Statements	Volume (%)
1	Limited instructional time becomes the main challenge	7 (41.17%)
2	Students are not really ready to participate actively	4 (23.53%)
3	Assessment in PjBL is difficult	3 (17.64%)
4	Lack of training affects implementation confidence	3 (17.64%)

(Source: Research Data, 2026)

The findings indicate that limited instructional time and student readiness became the major challenges in implementing deep learning within Project-Based Learning.

Table 9. Questionnaire Results on Supporting and Ihibiting Factors

No	Statements	SA	A	D	SD
1	School support facilities PjBL implementation	47.05 %	41.17%	11.76%	0%
2	School facilities support PjBL activities	52.94%	35.29%	11.76%	0%
3	Limited time becomes an obstacle	58.82%	35.29%	5.88%	0%
4	Student readiness becomes a challenge	52.94%	35.29%	11.76%	0%

(Source: Research Data, 2026)

The questionnaire results confirm that school support and facilities help teachers implement PjBL. However, limited instructional time and student readiness remain significant obstacles.

4. DISCUSSION

The findings of this study provide important insights into how English teachers perceive the implementation of Deep Learning within Project-Based Learning at Muhammadiyah educational institutions in Pagaralam. The discussion integrates the empirical findings with previous studies and theoretical perspectives to understand the broader implications for English teaching practice.

Teachers' Understanding of Deep Learning

The findings indicate that most teachers perceive deep learning as a learning approach that emphasizes conceptual understanding, critical thinking, and the application of knowledge in real-life situations. This result suggests that teachers have moved beyond viewing learning solely as content delivery and recognize the importance of meaningful understanding.

This aligns with recent educational studies in Indonesia showing that deep learning supports active knowledge construction and reflective learning [31]. Teachers' understanding that deep learning involves critical thinking also reflects the goals of 21st-century education, where students are expected to analyze, evaluate, and apply information in authentic contexts [32]-[33].

The finding that many teachers define deep learning through conceptual understanding indicates that they recognize learning as an interpretive process rather than memorization. This supports the view that meaningful learning occurs when students can relate new information to prior knowledge and apply it to real situations [35]. Teachers in this study appeared to understand that deep learning encourages students to connect English language use with everyday communication, thereby making language learning more relevant.

However, the study also found that several teachers equated deep learning with active learning. This indicates that some participants may interpret the concept broadly without fully understanding its reflective dimension. Active learning and deep learning are related, but deep learning places stronger emphasis on analysis, reflection, and transfer of understanding [36], [37].

This finding confirms previous research showing that teachers often adopt new educational terms but interpret them according to existing classroom practices [38], [39]. In Indonesian contexts, pedagogical concepts are sometimes implemented superficially because teachers receive limited

conceptual training [40]. Consequently, teachers may conduct student-centered activities without ensuring that these activities lead to conceptual transformation.

The gap between conceptual awareness and practical understanding is an important issue. Teachers may acknowledge that deep learning involves critical thinking but still struggle to design instructional tasks that foster reflection. This situation was evident in the interviews, where some teachers described deep learning merely as "students being active."

This reflects the argument that pedagogical understanding develops gradually and requires continuous professional development [41]. Without systematic training, teachers may implement innovative approaches in fragmented ways. The positive questionnaire responses indicate that teachers generally support deep learning principles. High agreement on statements related to critical thinking and conceptual understanding suggests that teachers value these goals. Similar findings were reported in Indonesian secondary education studies where teachers recognized the importance of reflective learning for preparing students to face complex social and academic challenges [42]. Overall, the findings suggest that English teachers possess a positive conceptual orientation toward deep learning, although the depth of understanding varies. This variation influences how effectively the approach is implemented in classroom practice.

Teachers‘ Perceptions of Project-Based Learning

Teachers in this study demonstrated highly positive perceptions toward Project-Based Learning. Most participants believed that PjBL increases student engagement, improves collaboration, and connects learning with real-life experiences. These findings are consistent with previous studies indicating that PjBL supports active learning by involving students in meaningful tasks [43], [44]. Through project activities, students participate in authentic communication and develop both academic and social skills. Teachers reported that PjBL increases classroom engagement because students are involved directly in creating products. In English teaching, projects such as presentations, storytelling, and video production allowed students to practice language in communicative contexts. This supports the argument that PjBL facilitates contextualized language use. Students learn not only grammar or vocabulary but also communication strategies, creativity, and problem-solving.

Teachers also emphasized collaboration. Group work encouraged students to discuss ideas, negotiate tasks, and solve problems collectively. These experiences align with socio-constructivist theory, which views learning as a social process shaped by interaction. Collaboration in PjBL can help students develop communication skills and responsibility. It also supports peer learning, where students construct knowledge together.The positive perception of PjBL as a contextual learning strategy is significant. Teachers observed that projects allow students to connect lessons with everyday situations. For example, students creating videos or interviews used English in practical settings, making learning more meaningful.This finding supports previous Indonesian studies that describe PjBL as an effective strategy for contextual education.

However, some teachers mentioned that students were not always ready for group work. Unequal participation, dependency on peers, and lack of initiative were common concerns.

This reflects challenges identified in earlier studies, where collaborative learning effectiveness depends on classroom management and student readiness. Students who are accustomed to teacher-centered instruction may struggle to adapt to project-based approaches.

Teachers' positive attitudes toward PjBL suggest that they see the model as beneficial for English teaching. Nevertheless, effective implementation requires structured planning, monitoring, and support systems.

Implementation of Deep Learning in Project-Based Learning

The findings reveal that teachers attempted to implement deep learning principles through project-based activities. They designed tasks such as storytelling, video production, role-play, and presentations. These project formats indicate that teachers are integrating authentic communication opportunities into English instruction. Authentic tasks are considered essential for deep learning because they encourage students to use knowledge meaningfully [16].

Teachers also described their role as facilitators. Rather than acting solely as information providers, they guided students through project stages, monitored progress, and encouraged discussion.This shift aligns with modern pedagogical theory, which emphasizes teacher facilitation rather than direct instruction [20]. In deep learning contexts, teachers support inquiry, reflection, and self-directed learning.
However, the study found that implementation was not always optimal. Some students focused mainly on completing projects rather than understanding concepts.This suggests that project completion does not

automatically guarantee deep learning. Students may engage in activities without reflecting on the underlying concepts.

This finding is consistent with previous research showing that project-based tasks can become procedural rather than conceptual when reflection is limited [22]. If teachers prioritize product completion over inquiry, students may concentrate only on finishing assignments. The challenge highlights the importance of reflection in deep learning. Reflection allows students to connect experiences with conceptual understanding [23].Teachers need to design projects that include questioning, analysis, and evaluation. For example, after completing a project, students can discuss what they learned, how they solved problems, and how the knowledge applies to real life. The questionnaire results show that teachers believe they design projects that support deep learning. Nevertheless, classroom implementation may vary depending on teacher competence and student readiness.This confirms that positive beliefs alone are insufficient. Effective implementation requires pedagogical strategies that ensure students engage deeply with content.

Supporting Factors

Several supporting factors were identified in the study: school facilities, institutional support, collaboration, and teaching experience. Facilities such as projectors, internet access, and media resources supported implementation. These findings align with studies indicating that educational innovation depends partly on resource availability [45]. Adequate facilities enable teachers to conduct project activities efficiently and expand learning opportunities.Institutional support was also important. Teachers stated that school leadership encouraged innovation and provided opportunities for implementing project-based activities.

Supportive school culture is essential for sustaining pedagogical change. When school leaders value innovation, teachers feel more motivated to experiment with new approaches.Collaboration among teachers emerged as another significant factor. Teachers shared ideas, discussed classroom challenges, and developed projects together.

Professional collaboration improves instructional quality because it allows teachers to learn from one another. This is particularly important for implementing approaches such as deep learning, which require pedagogical adaptation.Teaching experience also contributed to confidence. Experienced teachers were more flexible in adjusting projects to student needs.This supports the view that professional experience influences teachers' instructional decision-making.

Inhibiting Factors

The study identified several barriers: limited instructional time, student readiness, assessment difficulties, and lack of training.Limited time was the most frequently mentioned challenge. Teachers explained that project-based activities require extended planning, supervision, and evaluation. This finding supports previous Indonesian studies that identified time constraints as a major challenge in student-centered instruction [46]. English lessons often have limited class hours, making it difficult to complete projects while covering curriculum targets. Student readiness was another challenge. Some students lacked confidence, initiative, or responsibility.This suggests that successful implementation depends not only on teacher competence but also on student learning habits. Students who are accustomed to passive learning may need time to adapt to project-based environments.Assessment was also problematic. Teachers found it difficult to evaluate both learning processes and final products.Authentic assessment requires more complex rubrics and observation strategies.Finally, lack of training reduced teacher confidence. Some participants reported limited exposure to deep learning frameworks.Professional development is critical because innovative approaches require conceptual understanding and practical guidance [17].

Overall Discussion

Overall, the findings show that teachers have positive perceptions of both deep learning and Project-Based Learning. They recognize the potential of these approaches to improve engagement, critical thinking, and meaningful learning. However, positive perceptions do not automatically translate into effective implementation. The gap between understanding and practice remains evident.This finding supports the argument that educational innovation requires not only favorable attitudes but also institutional support, training, and reflective practice. The study highlights that deep learning in PjBL is most effective when teachers intentionally design projects that foster conceptual understanding, reflection, and authentic problem-solving.

Without reflective components, project activities risk becoming product-oriented tasks rather than meaningful learning experiences. Therefore, schools need to strengthen teacher professional development, provide adequate resources, and encourage collaborative pedagogical reflection.Such support can help bridge the gap between teachers' positive perceptions and actual classroom implementation.

5. CONCLUSION

This study reveals that English teachers at Muhammadiyah educational institutions in Pagaralam generally hold positive perceptions toward the implementation of deep learning within the Project-Based Learning (PjBL) approach. They recognize that this approach plays a significant role in enhancing students' critical thinking skills, encouraging collaboration, and promoting more meaningful and engaging learning experiences.

Nevertheless, the application of deep learning through PjBL has not been fully optimized. Several challenges still hinder its effective implementation, such as limited instructional time, varying levels of student readiness, and insufficient access to professional training for teachers. Although educators have made efforts to incorporate deep learning principles into their teaching practices, these attempts are not yet consistently effective in ensuring that students achieve a deeper conceptual understanding, as many still focus primarily on completing assigned projects rather than engaging in reflective and analytical learning processes.

Therefore, it is strongly recommended that schools take strategic steps to support teachers in this area. These include providing continuous and structured professional development programs, improving learning facilities and resources, and establishing supportive educational policies. By addressing these aspects, schools can enhance the quality and effectiveness of deep learning implementation within the Project-Based Learning framework, ultimately leading to more meaningful and impactful learning outcomes for students.

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