

The English teachers' perceptions of discovery learning and project-based learning at senior high school in Lombok West Nusa Tenggara

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Abstract - This study explores the perceptions of English teachers in Lombok, West Nusa Tenggara, Indonesia, regarding Discovery Learning (DL) and Project-Based Learning (PjBL) in senior high school settings. The research employed a descriptive qualitative approach, involving questionnaire sheet, interviews, and document analysis to gather data from two English teachers at SMKN 1 Kuripan and three English teachers at MAN 1 Lombok Timur who use or have used the DL and PjBL models. The findings indicated that teachers' perceptions on both teaching models are highlighting their effectiveness in engaging students actively, fostering critical thinking and problem-solving skills, and promoting student-centred learning environments. In addition to their effectiveness, the implementation of these models also have challenges there are often faced by the teachers, including addressing varying levels of student prior knowledge, managing time constraints, and resourcing limitations. Despite these challenges, the teachers have adopted the way to overcome them, such as adapting their approach to accommodate students' diverse needs, seeking professional development opportunities, and employing collaborative strategies. The study concludes that understanding teachers' perceptions and addressing the challenges associated with implementing innovative teaching models is crucial for optimizing student learning outcomes in English language instruction.

Keywords: teachers' perception; discovery learning; project-based learning; teaching model

1. Introduction

In the 21st century, education is more important than ever before. The world is becoming more connected and globalized. As a result, students must be prepared to participate in a worldwide competition. One of the needs for students to participate is a good understanding of English language. English is an international language. Many people around the world use this language to communicate with one another. Besides that, there are many objects and tools that use English as an operational language, especially teacher.

The success in the teaching and learning process in the classroom depends on the teachers. Teachers must provide significant support to their students because the relationship between teacher and student is a key factor in helping them learn and achieve their learning goals (Sahuddin, 2022). However, According to Amrullah (2020), the problems in learning and teaching are often closely related to teachers and students.

Problem-Based Learning (PBL) has been widely discussed in various studies as a method that promotes critical thinking, problem-solving skills, and active learning. Fajrin (2006) emphasizes the importance of PBL in higher education systems, highlighting its role in enhancing student engagement and learning outcomes. Fitri (2016) discusses the application of PBL in competency-based curricula, demonstrating its effectiveness in medical education, while Mayasari et al (2022) explore how PBL can increase student activity in learning processes.

Similarly, Safithri et al (2021) analyse the impact of PBL on problem-solving abilities and self-efficacy, contrasting it with Project-Based Learning (PjBL) approaches. Ardianti et al (2022) provide a

foundational understanding of PBL, offering insights into its implementation in education. Additionally, Setiawan (2021) looks at how PBL can be adapted for the 21st-century learner, while Harapit (2018) delves into its effects on problem-solving skills and student motivation.

Darwati and Purana (2021) focus on PBL as a model for developing critical thinking, and Fanani et al (2024) examine its application in differentiated learning environments to improve critical thinking in mathematics education. Moreover, Darmadi et al (2024) provide an analysis of PBL's implementation in schools, and Silma et al (2024; cf. Sholeh, 2023) offer a comprehensive review of PBL's goals and methodologies in educational contexts. Together, these studies provide a thorough exploration of PBL's potential across various disciplines and educational levels.

Bell (2010) discusses the benefits of project-based learning in fostering critical thinking and real-world skills. Bruner's (1961) foundational theory on discovery learning by Jerome Bruner, explaining its principles and applications. Thomas (2000) provides a comprehensive overview of research findings related to project-based learning methods. Harris and Katz (2001) explore teachers' perspectives on implementing project-based learning in early education.

Chin & Chia (2004) highlight how problem- and discovery-based learning encourage active engagement in constructing knowledge. Erdogan and Bozdoğan (2022) investigate how inquiry-based methods, related to discovery learning, influence language teaching practices. Hmelo-Silver (2004) examines the outcomes of problem-based learning, which shares similarities with discovery and project-based approaches. Markham (2011) discusses the implementation of project-based learning in classrooms and its perceived benefits by educators.

Senior high schools in Lombok, West Nusa Tenggara, Indonesia, are facing a shifting educational landscape, marked by a growing emphasis on innovative teaching models. Two such models that have received attention from researchers are Discovery Learning (DL) and Project-Based Learning (PjBL). Discovery learning is a learning model where the teacher does not present all the materials to students, but only presents the problem formulation that has been prepared previously, while Project Based Learning is a learning model that focuses students on complex problems that are needed to carry out investigations and understand lessons through investigation.

Based on the discussions above, the researchers interested in analysing the teachers' perceptions of Discovery Learning and Project-Based Learning models in teaching English. The findings of this study were reported in the article entitled "The English Teachers' Perceptions of Discovery Learning and Project-Based Learning at Senior High School in Lombok West Nusa Tenggara".

2. Method

The research methodology integrates elements from both studies, aiming to provide a comprehensive understanding of teachers' perceptions and practices in English language instruction. Employing a descriptive qualitative approach following Creswell's guidelines (2014), the study seeks to elucidate social phenomena pertaining to the implementation of two distinct teaching models: Discovery Learning and Project-Based Learning.

Drawing from Yin's (2003) concept of case study, the research focuses on a specific group of English teachers at SMKN 1 Kuripan and MAN 1 Lombok Timur. At SMKN 1 Kuripan, the study involved two English teachers who use or have used the Discovery Learning model, while at MAN 1 Lombok Timur, three teachers applying Project-Based Learning are included in the investigation.

Data collection is multifaceted, encompassing questionnaire sheets, interviews, and document analysis. Questionnaire sheets are conducted to gather quantitative data, utilizing closed-ended questions with a Likert Scale to gauge respondents' agreement levels. Interviews, conducted in a semi-structured or in-depth format, provide qualitative insights into teachers' perceptions, experiences, and instructional strategies. The documents that analysed in these researches are teachers' lesson plan, materials and students' worksheets and assessments to triangulate and corroborate findings from other data sources.

The analysis process, inspired by Miles and Huberman (1984; cf. Wajdi, 2018), involves three concurrent flows of action: Data Reduction, Data Display, and Drawing Conclusion/Verification.

- (1) Data Reduction. To make the data clear and easy to understand, the researchers only focused on research questions to reduce the data and separated unrelated data.
- (2) Data Display. The data of this article presented in table and word descriptions.
- (3) Drawing Conclusion/Verification. The researchers used data from questionnaire, interview, and document analysis to make the strong conclusions.

3. Findings and Discussions

Table 1 Discovery Learning questionnaire sheet result

Statements	Frequency and Percentage				
	SD	D	N	A	SA
1. The discovery learning model is an effective way to teach English	-	-	-	100%	-
2. The discovery learning model is an effective teaching model for English language skills development.	-	-	50%	50%	-
3. The discovery learning model helps students develop critical thinking and problem-solving skills in English.	-	-	-	50%	50%
4. My students are engaged when I am using the discovery learning model in teaching English.	-	-	-	100%	-
5. The discovery learning model motivates students to learn English more effectively.	-	-	50%	-	50%
6. With the discovery learning model, I give my students the opportunity to combine their prior knowledge with new knowledge.	-	-	50%	-	50%
7. I feel difficult to address different levels of prior knowledge among students to ensure fair learning outcomes.	-	-	100%	-	-
8. The discovery learning model provides opportunities for students to collaborate and develop teamwork.	-	-	50%	-	50%
9. The discovery learning model encourages students to share and discuss their independent findings.	-	-	-	50%	50%
10. The discovery learning model aligns with the educational goals and standards for English language instruction.	-	-	50%	50%	-
11. Implementing the discovery learning model requires a significant amount of planning and preparation.	-	-	-	50%	50%
12. I have access to adequate resources, materials, and tools to implement the discovery learning model.	-	-	50%	-	50%
13. I assess and provide feedback to students when they explore language concepts independently through discovery learning.	-	-	-	100%	-
14. I follow all the syntaxes of the discovery learning model (Stimulation, Problem Statement, Data Collection, Data Processing, Verification, and Generalization) in my English classes.	-	-	50%	50%	-
15. I have enough time to implement the principles of the discovery learning model (Problem Solving, Learner Management, Integrating and Connecting, Information Analysis and Interpretation, Failure and Feedback) in my English classes.	-	-	100%	-	-
16. Overall, I am in favor of integrating the discovery learning model into the English curriculum.	-	-	50%	50%	-
17. Implementing the discovery learning model can be challenging in my English classes.	-	-	100%	-	-
18. I can overcome the challenges in implementing the discovery learning model in my English classes.	-	-	50%	50%	-
19. I feel confident in using the discovery learning model in my English classes.	-	-	-	100%	-
20. Overall, I am satisfied with my experience using the discovery learning model in my English classes.	-	-	50%	50%	-

Table 2 Project-Based Learning questionnaire sheet result

Statements	Frequency and Percentage				
	SD	D	N	A	SA
1. PjBL is an effective way to teach English language skills.	-	-	33.33%	66.66%	-
2. PjBL is an effective teaching model for English language skills development.	-	-	-	100%	-
3. I believe that PjBL enhances student engagement in the English classroom	-	-	-	100%	-

4.	PjBL allows for better application of real-world English language skills.	-	-	-	66.66%	33.33%
5.	The integration of PjBL in the English curriculum is feasible.	-	-	33.33%	66.66%	-
6.	PjBL provides opportunities for students to collaborate and develop teamwork.	-	-	-	66.66%	33.33%
7.	I am confident in my ability to implement PjBL effectively in my English classroom.	-	-	33.33%	33.33%	33.33%
8.	PjBL positively impacts student motivation to learn English.	-	-	33.33%	66.66%	-
9.	I have access to the necessary resources and support to implement PjBL.	-	-	66.66%	33.33%	-
10.	PjBL aligns with the educational goals and standards for English language instruction.	-	-	-	33.33%	66.66%
11.	Overall, I am in favor of integrating PjBL into the English curriculum.	-	-	-	66.66%	33.33%
12.	PjBL helps students develop critical thinking and problem-solving skills.	-	-	-	33.33%	66.66%
13.	PjBL motivates students to learn English more effectively.	-	-	33.33%	33.33%	33.33%
14.	Implementing PjBL requires a significant amount of planning and preparation.	-	-	-	33.33%	66.66%
15.	Implementing PjBL needs quite long planning and preparation.	-	-	-	66.66%	33.33%
16.	Implementing PjBL can be challenging in English teaching.	-	-	-	66.66%	33.33%
17.	Assessing student learning in PjBL project can be challenging.	-	-	-	100%	-
18.	I can overcome the challenges in applying PjBL in English teaching.	-	-	33.33%	66.66%	-
19.	I feel confident in my ability to effectively facilitate PjBL projects.	-	-	66.66%	33.33%	-
20.	Overall, I am satisfied with my experience using PjBL in my English classes.	-	-	-	100%	-

Notes: SD: Strongly Disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly Agree

3.1 Teachers' Perceptions on the Discovery Learning Model and Project-Based Learning

In the first study, which explored the Discovery Learning model, teachers perceived it as an effective method to engage students actively and foster critical thinking and problem-solving skills. This finding resonates with the theoretical framework presented by scholars such as Westwood (2008), Dorier and Garcia (2013), and Pappas (2014). Teachers highlighted the active involvement of students during teaching and learning activities facilitated by the Discovery Learning model. They emphasized the model's ability to encourage inquiry, collaboration, and critical thinking among students, as evidenced by their questionnaire responses, interview statements, and document analysis.

Moreover, teachers in the first study identified Discovery Learning as a valuable approach for promoting student-centred learning environments, where students take ownership of their learning process through exploration and inquiry. The model was perceived as fostering a deeper understanding of content and enhancing students' ability to apply knowledge in real-world contexts.

Similarly, in the second study, which focused on the Project-Based Learning (PJBL) model, teachers expressed favourable perceptions towards its effectiveness in teaching English. They believed that PJBL enhanced students' language skills, confidence, critical thinking, problem-solving abilities, and teamwork. These findings align with the principles of PJBL outlined by Faturrahman as cited in Safrina (2019), emphasizing its role in developing fundamental skills and knowledge while promoting problem-solving, teamwork, and self-management. Interview data revealed teachers' observations of increased student responsibility, creativity, and self-confidence through engagement with project work.

Additionally, teachers in the second study highlighted the role of PJBL in promoting interdisciplinary learning and preparing students for real-world challenges. They perceived PJBL as a means to bridge the gap between theoretical knowledge and practical application, thereby enhancing students' readiness for future academic and professional endeavours.

3.2 The Challenges Faced by the Teachers When Applying Discovery Learning and Project-Based Learning

Both studies identified common challenges encountered by teachers in implementing their respective teaching models.

In the first study, teachers faced challenges related to addressing varying levels of students' prior knowledge, balancing time constraints, and consistently following all the syntaxes of the Discovery Learning model. These challenges hindered the seamless implementation of the model, as highlighted in questionnaire responses and interview statements. Teachers grappled with adapting the model to accommodate diverse student needs, managing time effectively, and adhering to the prescribed sequence of activities.

Moreover, teachers in the first study encountered challenges related to resource constraints and classroom dynamics, which impacted their ability to implement Discovery Learning effectively. Limited access to materials, class size, and student behaviour were cited as factors that influenced the implementation of the model and required creative problem-solving strategies.

Similarly, in the second study focusing on the PJBL model, teachers encountered challenges regarding time management, student motivation, and vocabulary development. Teachers noted the time-intensive nature of project-based activities, difficulty in motivating students with varying levels of English proficiency, and struggles with students' limited vocabulary during project work. These challenges were identified through questionnaire responses and interview data, reflecting the complexities of implementing PJBL in an English language learning context.

Furthermore, the teachers in the second study highlighted the importance of scaffolding and differentiation to address the diverse needs of students in a PJBL setting. They emphasized the need for personalized support and targeted interventions to ensure all students could actively participate and succeed in project-based learning activities.

3.3 The Way Teachers Overcome the Challenges When Applying Discovery Learning and Project-Based Learning

Teachers employed various strategies to overcome the challenges associated with implementing their respective teaching models.

In the first study, teachers adapted their approach to accommodate students' diverse needs and optimize instructional materials. They simplified lesson plans, modified project tasks, and utilized alternative teaching methods to enhance student engagement and comprehension. These strategies enabled teachers to navigate the challenges of addressing prior knowledge disparities and time constraints effectively.

Moreover, teachers in the first study emphasized the importance of professional development and collaboration in overcoming implementation challenges. They sought support from colleagues, attended workshops, and engaged in ongoing reflection and refinement of their instructional practices.

Similarly, in the second study, teachers devised strategies to address time management issues, motivate students, and improve vocabulary acquisition. They streamlined project requirements, fostered a supportive learning environment, and implemented targeted vocabulary-building activities to support student learning. Through collaborative efforts and innovative teaching practices, teachers successfully mitigated the challenges posed by implementing PJBL in English language instruction.

Furthermore, teachers in the second study highlighted the importance of student-centred approaches and formative assessment in overcoming implementation challenges. They emphasized the need for ongoing feedback, reflection, and adjustment to ensure the success of project-based learning initiatives.

Overall, the findings from both studies underscore the importance of recognizing and addressing the challenges inherent in implementing innovative teaching models. By understanding teachers' perceptions, identifying common challenges, and implementing effective strategies, educators can optimize the implementation of teaching models such as Discovery Learning and Project-Based Learning to enhance student learning outcomes in English language instruction.

4. Conclusion

Both studies indicate that teachers hold effective views of the Discovery Learning and Project-Based Learning (PJBL) models.

In the Discovery Learning study, teachers perceived it as an efficient way to involve students actively, promote critical thinking, and establish learning environments that cater to the needs of students. Similarly, in the PJBL study, teachers believed that PJBL improved language skills, critical thinking abilities, and prepared students for real-life challenges.

Despite the benefits of these models, teachers still face some challenges while implementing them. These challenges include dealing with varying levels of student prior knowledge, limited time, and resources. Teachers have adopted different approaches, sought professional growth opportunities, and employed collaborative strategies to overcome these obstacles.

To make the most of these models, it is essential for educators to acknowledge and tackle these challenges through continuous support, innovative teaching methods, and student-centred approaches. By adopting these measures, they can enhance the English language learning outcomes of students through Discovery Learning and PJBL.

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