

## **The Use of Project-Based Learning to Foster Software Engineering Students' English-Speaking Competence**

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### **ABSTRACT**

This study aims to explore how Project-Based Learning (PjBL) is used in software engineering classrooms and how it can foster students' English-speaking competence. This research employed a qualitative descriptive designing involving 40 eleventh-grade students from the Software Engineering (*Rekayasa Perangkat Lunak*) program and one English teacher at a vocational high school in Garut, Indonesia. Data were collected through classroom observations involving 40 students and one teacher, followed by semi-structured interviews with six selected students and the teacher. The findings revealed that PjBL was used through systematic stages, including starting with essential question, designing a project, scheduling, monitoring, assessing outcomes, and evaluating the experiences. The analysis reveals that PjBL functioned as a discourse-construction pedagogy, fostering students' cohesion through the use of linking devices and improving coherence through logical organization of ideas during project presentations. Although some students still relied on memorization and faced vocabulary limitations and anxiety, continuous teacher scaffolding and feedback supported their gradual improvement. Thus, PjBL can foster students' English-speaking competence by systematically strengthening discourse competence. However, as this study was limited to one vocational classroom with a small sample and focused only on discourse competence, further research with larger and more diverse participants and broader speaking competence aspects is needed to examine the wider applicability and long-term impact of PjBL.

**Key words:** Project-Based Learning; Speaking Competence; Software Engineering

### **INTRODUCTION**

English plays an important role in the 21st century as an international language that is widely used in various fields of life. In English language learning, there are four main skills that need to be mastered, namely writing, listening, reading, and speaking. Among the four, speaking is the most important, as it is the main key to

communicating effectively. Ur (1991 p. 120, as cited in Allo & Priawan, 2019) asserts that “of the four skills [listening, speaking, reading, and writing], speaking seems intuitively to be the most important: people who know a language are referred to as speakers of the language, as if speaking included all other kinds of knowing.” Based on the EF English Proficiency Index report (2024), Indonesia ranks 80th out of 112 countries, which reflects the low level of English language mastery among the public, especially among students. Safira & Azzahra (2022) state the conditions in the field show that many Indonesian students, especially those attending vocational high schools, tend to have relatively low levels of English proficiency. Aligned with the fundamental vision of vocational education, which is specifically designed to equip students with the readiness to enter the workforce at an earlier stage than those in general education (Ministry of National Education, 2003).

For students majoring in Software Engineering (*Rekayasa Perangkat Lunak*), English-speaking competence is not merely an academic requirement but a professional necessity. A software engineer is required to be able to communicate complex technical concepts clearly and coherently in various professional contexts. Semerikov et al. (2020) emphasize that the ability to communicate in both one's native language and foreign languages is a core component of general professional competence for software engineers. This competency includes not only written communication but also oral skills such as delivering presentations, participating in technical discussions, negotiating project specifications, and explaining system designs to clients, managers, and development teams. These communicative demands indicate that vocational students need to develop speaking competencies that go beyond sentence-level accuracy to the production of structured and meaningful discourse.

Aligned with these professional requirements, the Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia's Merdeka Curriculum encourages competency-based and contextual learning that incorporates attitudes, knowledge, and skills relevant to real-world situations (Putro et al., 2023). In vocational contexts, English instruction is framed within English for Specific Purposes (ESP), which focuses on learners' specific disciplinary and occupational communication needs (Pakpahan, 2018). Thus, English learning for software engineering students must facilitate the development of communicative competence that supports professional engagement.

One instructional approach widely promoted to support authentic and competency-oriented learning in Project-Based Learning (PjBL) method, which aims to stimulate a deeper learning process and critical thinking skills. The Project-Based Learning focuses the teaching and learning process to a student-centered learning approach (Condliffe et al., 2017). In the context of English language learning in vocational schools, PjBL is an appropriate strategy that not only trains technical speaking skills such as pronunciation, fluency, grammar, and vocabulary, but also encourages the development of broader speaking competence (Dewi, 2017).

In recent years, there are several previous studies related on project-based learning that can foster students' speaking competence. The study conducted by Bakar et al. (2019) revealed a significant improvement in learners' overall oral communicative competence, supported by positive student perceptions toward the learning approach. Similarly, the study conducted by Becerra-Posada et al. (2022) showed that PjBL encourages students to develop communicative competence by using various compensation strategies such as approximation and appealing for help, supported by teacher scaffolding that strengthens students' confidence in presenting their projects. In the Indonesian context, the study by Dewi (2017) indicated a significant increase in students' speaking, as well as noticeable improvements in fluency, pronunciation, grammar, and vocabulary.

Although various studies have proven that PjBL is effective in improving speaking development, most of these studies still focus on micro aspects of speaking, such as pronunciation, grammar, and fluency. Studies that review speaking competence more comprehensively, covering linguistic, sociolinguistic, discourse, and strategic competence, are still relatively limited, especially in terms of discourse competence. Discourse competence refers to the learner's ability to organize ideas coherently, maintain thematic development, and connect utterances using cohesive devices (Canale & Swain, 1980). In the vocational context, particularly in the Software Engineering program, discourse competence is very important because students are required to deliver structured explanations, maintain logical sequence, and present integrated technical information.

Furthermore, previous research has rarely looked at how PjBL is implemented especially in Software Engineering classrooms in Indonesian vocational schools, nor has it explored how such implementation fosters discourse-level speaking development in ESP contexts. Thus, more research is needed to determine not only whether PjBL increases speaking ability, but also how it is used in practice and how it promotes Software Engineering students' English-speaking competence, particularly at the discourse level. Based on these concerns, this study is directed by the research questions: (1) How is Project-Based Learning used in Software Engineering classrooms? and (2) How does the use of Project-Based Learning foster Software Engineering students' English-speaking competence? By addressing these topics, this study aims to provide a more focused examination of discourse competence development in vocational ESP settings, as well as empirical insights for English teachers creating communicative and industry-relevant learning activities.

## LITERATURE REVIEW

### Previous Related Studies

Several previous studies have examined the use of Project Based Learning (PjBL) as an instructional approach to improve learners' oral communication and speaking skills in English. Bakar et al. (2019) conducted a study to evaluate the effectiveness of Project-Based Learning in improving oral communication skills of diploma students in Malaysia. The study showed a significant improvement in the students' oral communication competence and a positive perception toward the method, suggesting that PjBL effectively supports students with low English proficiency. However, this study mainly measures general communicative competence and does not provide an in-depth analysis of how students construct long and structured oral discourse during project presentations.

Similarly, Becerra-Posada et al. (2022) aimed to evaluate how PjBL could improve the communication skills and confidence of eighth grade students in a public school in Córdoba, Colombia. Through a qualitative approach, the findings showed that the use of PjBL promotes students' communicative competence by encouraging the use of compensation strategies and interact in a real and meaningful way, alongside teacher scaffolding that strengthens self-confidence during project presentation. Although the study emphasized meaningful interaction and strategic competence development, the analysis was primarily concerned with confidence-building and strategy implementation rather than coherence, cohesiveness, or logical sequencing in students' spoken production. As a result, the discourse aspect of communicative competence was not clearly addressed.

In Indonesian context, Dewi (2017) used project-based learning in teaching speaking for vocational high school students. Using quantitative method, the results showed that there was a significant improvement in students' speaking competence, where the average pre-test score of 69 increased to 80 in the post-test. In addition, the students gave good responses to the PjBL that its interesting, collaborative, and real-life communication needs. Nevertheless, the evaluation of speaking competence is still based on criteria that focus on fluency, pronunciation, grammar, and vocabulary. The study has not provided an in-depth qualitative analysis of aspects of speaking competence, particularly in terms of speaking competence.

Overall, these studies confirm that PjBL is effective in improving students' speaking performance and communicative confidence. However, most previous studies tend to emphasize speaking components at the micro level or general communicative competence, without explicitly focusing on discourse competence as the main focus of analysis. In addition, there is still limited research examining the implementation of PjBL in Software Engineering classes in vocational schools, where students are required to deliver structured, logical, and technically coherent explanations as part of their professional preparation. Therefore, there is still a need to explore how Project-Based Learning can encourage the development of speaking competence at

the discourse level in the context of vocational ESP, especially for Software Engineering students whose future professional roles require systematic and coherent oral communication skills.

### **Project-Based Learning**

Project-Based Learning (PjBL) is a student-centered learning based on three main principles of constructivism, namely learning through context, active participation, and achieving goals through social interaction, sharing knowledge and understanding (Cocco, 2006, as cited in Kokotsaki, 2016). In other words, students construct their knowledge through direct participation in real-world learning experiences that are meaningful to them. Similarly, Condliffe et al. (2017) also state project-based learning method places students at the center of the learning process through authentic experiences that are meaningful and relevant to real-world situations. PjBL emerged from the innovative education movement, based on experiences to facilitate “deeper learning” by directly addressing real-world problems and challenges.

Project-Based Learning is a systematic teaching method consisting of six main stages that educators must master, as developed by The Lucas George Foundation (2005, as cited in Sari & Zulfah, 2017), such as essential questions, design a project, create a schedule, monitoring, assess the outcomes, and evaluate the experiences. First, start with the essential question, teachers begin by asking questions that encourage students to conduct meaningful investigations. Design a Project involves active collaboration between teachers and students in working out the details of the project used. Create a Schedule is the result of an agreement between teachers and students in determining the timing of activities. Monitoring is the main responsibility of teachers as facilitators and mentors for students. Assess the Outcomes is designed to assess the extent to which students have achieved the predetermined learning objectives. Finally, Evaluate the Experience. At this stage, teachers and students critically analyse all activities and results that have been achieved, both individually and in groups.

In contrast to Problem Based Learning (PBL), which focuses on the problem-solving process, PjBL requires students to create real products as a result of learning (Kokotsaki et al., 2016). According to Al-Kamzari and Alias (2025), PjBL is a structured learning method in which students are actively and collaboratively involved in in-depth research on complex topics or problems, which ultimately encourages students to produce a final product. Similarly, Condliffe et al. (2017), highlight PjBL requires students to conduct comprehensive research, collaborate with peers, and produce work that is worthy of presentation to an audience. Thus, students are involved in choosing topics that interest them, either individually or in groups. This direct involvement makes learning more meaningful and memorable in the long term.

## Speaking Competence

Speaking competence as a person's ability to speak meaningfully and appropriately, understand the cultural and sociolinguistic norms of the people involved in the interaction, and compose well-prepared messages, both in terms of how they are conveyed and how they are received by the listener (Sabnani & Renandya, 2019). Developing speaking competence means preparing students to engage successfully in authentic, purpose-driven communication with clear ideas, confidence, appropriateness, and strategic use of speech beyond the classroom. According to Canale and Swain (1980:47, as cited in Gabuardi, 2021), communicative competence consists of four main elements, namely linguistic competence, sociolinguistic competence, discourse, and strategy.

First, linguistic competence (grammatical) relates to skills in using grammar, sentence structure, and vocabulary of a language appropriately. It allows speakers to select relevant words and organize them into correct and meaningful sentences. Second, sociolinguistic competence involves understanding of how to use and respond to language correctly according to the social context, the theme of the conversation, and the relationship between speakers. This includes expressing politeness, power, or familiarity in social interactions. Third, discourse competence is related to the skill of understanding the broader context and constructing cohesion and coherent language units. They help speakers to understand and assemble interrelated sentences, paragraphs and texts to form conversations, speeches or writings that have an overarching meaning. Last, strategic competence relates to skills in recognizing and correcting breakdowns in communication, overcoming limitations in language knowledge, and finding other ways to convey messages. With these skills, one can adjust communication strategies when misunderstandings occur or when one does not know the right structures to use.

Within the broader framework of oral communication skills, discourse competence is one of the most important dimensions, especially in professional and specialized environments. In software engineering, students need to be able to present projects, participate in discussions, articulate technical concepts, and explain problems and solutions systematically. Semerikov et al. (2020) emphasize that software engineers must have the ability to demonstrate, participate in professional discussions, communicate technical concepts, and explain solutions in a structured manner. These activities directly require strong discourse competence, as complex technical information must be organized logically and clearly in order to be understood by clients, managers, and development teams. Without the ability to organize thoughts coherently and systematically, even technically correct sentences can sound fragmented and fail to convey their full meaning. Therefore, although oral communication skills consist of various interrelated components, this study focuses on discourse competence to explore how project-based learning foster the English-speaking competence of software engineering students.

## **Project-Based Learning and Speaking Competence**

Speaking competence is an important component in English learning, especially for vocational high school students who are preparing to enter the global workforce. The use of Project-Based Learning methods can significantly improve students' speaking competence. By engaging in real-world project activities such as discussion with team, product presentations and business simulations, students have the opportunity to practice communicating in actual professional situations, which in turn improves their language skills and confidence (Dewi, 2017; Zega, 2025). Project-based learning has been proven effective in overcoming mental barriers such as anxiety and lack of confidence when speaking. With collaborating in groups, students feel more comfortable and motivated because they are in a cooperative environment that emphasizes shared success rather than individual assessment (Suwarni & Natsir, 2025). The combination of cognitive factors (organization and delivery of information), social factors (cooperation among students), and affective factors (increased motivation) is what makes project-based learning an efficient method for improving students' speaking competence. In addition, the strength of project-based learning also lies in the development of 21st-century skills, which include problem solving, critical thinking, decision making, teamwork, and communication (Bakar et al., 2019). This encourages meaningful interaction and can improve speaking competence.

## **METHOD**

### **Design and Sample**

This research used a qualitative approach with qualitative descriptive. The qualitative descriptive was chosen because it provides an opportunity for researchers to describe clearly and deeply the phenomena experienced by participants in natural situations. This design is appropriate in the field of education with the aim of exploring the real experiences of teachers and students as well as teaching and learning activities in the classroom without changing the existing conditions. According to Creswell (2023), "Qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (p.5).

The study was conducted in a vocational high school in Garut, West Java, involving 40 eleventh-grade students enrolled in the Software Engineering (*Rekayasa Perangkat Lunak*) program and one English teacher who implemented PjBL in the classroom. All 40 students and one teacher were observed during classroom activities. After that, six students were purposively selected for semi-structured interviews to provide in-depth perspectives on their experience with PjBL and its influence on their speaking competence. The process of selecting participants was carried out using purposive sampling method. Participants were selected based on their English achievement scores. From the class, students representing different performance levels were chosen, consisting of high, middle, and low achieving

learners. In total, two high achievers, two middle achievers, and low achievers were included to ensure variation in proficiency levels. The English teacher was also interviewed to provide pedagogical insight into the planning, implementation, and perceived impact of PjBL to foster students' English-speaking competence. In this study, the software engineering students and English teachers were chosen because they directly experienced PjBL activities and could provide an in-depth comprehension of how this approach fosters students' English-speaking competence.

### **Instrument and Procedure**

The qualitative data in this study were collected through classroom observation and semi-structured interviews. These methods were chosen to obtain a comprehensive and contextual understanding of how the use of project-based learning is and how it can foster students' English-speaking competence, as well as to understand the perspective of both students and teachers. In accordance with the opinion of Miles, Huberman, and Saldaña (2019, p. 262), using several instruments allowed for data triangulation, providing an opportunity for researchers to gain an understanding and trustworthiness of the phenomenon being analyzed.

Classroom observations were conducted in December 2025 across two sessions in software engineering classes to observe how project-based learning was used during English lessons and how it can foster students' English-speaking competence, focusing on teacher instruction, student participation, group collaboration, and communication practices. The researcher utilized structured observation sheets or field notes to document classroom dynamics and related behaviors during the lesson, ensuring that the data collected reflected the actual teaching and learning process. In addition to observations, semi-structured interviews with open-ended questions were conducted in February 2026 with selected students and the English teacher to obtain deeper insight into their perspective on PjBL that can foster students' English-speaking competence. Each interview session lasted approximately 10-20 minutes and was audio recorded with the consent of the participants to ensure that their responses were accurately recorded and could be transcribed verbatim for detailed analysis. Prior to data collection, informed consent was obtained from all participants, and they were assured that their participation was voluntary and that the information provided would be used solely for research purposes.

### **Data Analysis**

Data analysis in this study was conducted using thematic analysis, which is based on the six-phase framework proposed by Braun and Clarke (2006) as cited in Dawadi (2020, pp. 64–67). Thematic analysis was chosen because this method provides a systematic approach to identifying, organizing, and interpreting patterns of meaning or themes in qualitative data sets, which is particularly suitable for exploring students' perceptions in depth. The analysis began with a familiarization

stage, during which the researcher transcribed the interview data verbatim and repeatedly read the observation notes to gain a comprehensive understanding of the content. Relevant segments of data were then systematically tagged and given descriptive codes at the coding stage, which were manually analyzed to identify meaningful features related to students' perceptions of PjBL and their speaking ability. These codes were then organized into potential themes, by combining similar codes to represent broader patterns of meaning. At the review stage, the themes were refined to ensure coherence and adequate support from the data. Each theme was then clearly defined and named to reflect its essence, accompanied by a brief explanation of its scope and focus. Finally, the results of the study were presented in a detailed narrative supported by direct quotes from participants and confirmed with classroom observation notes.

To ensure the trustworthiness of the research data, several strategies were implemented. First, data triangulation was carried out by comparing classroom observations with findings from student and teacher interviews to ensure consistency between data sources. Second, member checking was carried out by returning interview transcripts to teachers to verify the accuracy of responses and the appropriateness of the researcher's interpretations. Third, peer debriefing was carried out through discussions with the research supervisor to review the coding process and analytical decisions, thereby minimizing subjective bias. Finally, an audit trail was maintained by systematically documenting observation notes, interview recordings, transcripts, and coding procedures to ensure methodological transparency and accuracy.

## **RESULT AND DISCUSSION**

### **The use of Project-Based Learning in Software Engineering Classroom**

Based on the observation, Project-Based Learning (PjBL) in the Software Engineering classroom functioned not merely as an activity-based approach, but as a structured pedagogical process that facilitated the construction of oral discourse. The teacher implemented all core stages of PjBL, aligning with the framework proposed by the Lucas George Foundation (2005, as cited in Sari & Zulfah, 2017), including starting with an essential question, designing the project, scheduling, monitoring progress, assessing outcomes, and evaluating the experience. This structured sequence systematically created opportunities for students to produce extended spoken discourse rather than isolated sentences.

The teacher emphasized that learning centered on students' active information processing and culminated in presentation:

*“Project-based learning places emphasis on students' active involvement in finding and processing information, followed by a presentation at the end of the activity.”*

The lesson began with essential questions related to the topic, which stimulated engagement. However, participation was uneven, as only a few students responded orally in English. During the project design and scheduling stages, students worked collaboratively on vocationally relevant topics, which increased contextual engagement. This contextualization is particularly important in vocational

education, English instruction is framed within English for Specific Purposes (ESP), which focuses on learners' specific disciplinary and occupational communication needs (Pakpahan, 2018).

During monitoring, the teacher circulated among groups and provided scaffolding when students encountered linguistic difficulties. Although no formal written rubrics were used to systematically document progress, oral feedback supported students' preparation for performance. The assessment stage required students to perform role plays, simulating professional communication scenarios in real-life situations. This stage created authentic communicative demands, requiring students to sustain dialogue, manage turn-taking, and maintain topic relevance. Nevertheless, several students still demonstrated hesitation and limited lexical range, which affected fluency and clarity. In the evaluation stage, the teacher explicitly highlighted the importance of linking words to improve cohesion and logical organization to strengthen coherence. However, student participation during reflection remained limited, making the evaluation process predominantly teacher-centered.

These findings support Condliffe et al. (2017), who argue that PjBL provides authentic and meaningful learning experiences. More specifically, this study extends previous findings by demonstrating that PjBL not only enhances speaking confidence but also functions as a discourse-building mechanism. The vocational context further reinforces this function. In professional software engineering practice, the ability to explain systems, present projects, justify decisions, and collaborate with teams requires structured and coherent oral discourse. Therefore, the integration of PjBL in this context addresses both academic speaking competence and workplace communication demands. Overall, PjBL in this study operated as a discourse construction pedagogy. It guided students from producing fragmented utterances toward more cohesive and coherent spoken discourse while simultaneously preparing them for communicative expectations in software engineering settings.

### **Fostering Discourse Competence through PjBL**

In terms of general improvement in speaking competence, the most significant progress was observed in discourse competence. PjBL can encourage the development of students' discourse competence, especially in terms of cohesion and coherence, as proposed by Canale and Swain (1980). Discourse competence refers to the ability to connect discourse logically and organize thoughts into meaningful spoken discourse.

#### **Cohesion**

The observations show that students begin to use cohesive devices such as conjunctions (and, then, because, so), pronouns, and lexical repetition to connect sentences. In project and presentation activities, students need to maintain the flow

of dialogue to ensure understanding. These findings are in line with Canale and Swain's (1980) theory, which states that part of discourse competence that concerns the use of linguistic linking devices (such as conjunctions, references, transitions) to connect sentences and create a coherent idea. Students stated:

*“We were given a topic to discuss, such as technology, laptops, and computers. From there, we began constructing the conversation, translated it first to ensure understanding, and connected the sentences using appropriate linking devices.”*

This statement shows that students can directly connect various ideas in real-life situations. The use of conjunctions reflects the cohesive element of discourse competence (Canale & Swain, 1980).

However, observations also reveal that students often pause, produce disjointed sentences, and rely on rote memorization. Limited vocabulary and anxiety are major challenges. In response to these difficulties, the teacher continuously guided students and provided corrective feedback and scaffolding during group discussions and rehearsals to help them connect ideas more effectively and use appropriate linking devices. Therefore, although PjBL has a positive effect on developing students' cohesive abilities, further practice and scaffolding still needed so that students can express themselves spontaneously and fluently.

### **Coherence**

More significant development was seen in the aspect of coherence. Coherence refers to the logical organization of ideas and thematic unity in spoken discourse (Canale & Swain, 1980). Through the planning and practice stages of the project, students learned to organize their presentations systematically. Students explained how they organize their ideas before speaking:

*“I organize my sentences by first finding references. Then I choose the ones I like best, combine the most different parts, and put them together. I arrange them starting from the basics and then move on to the more complex ones.”*

This statement also supports by the teacher who noted,

*“Some students are already coherent. Their understanding is already good, both in terms of the structure of their writing and the way the sentences are phrased; everything can already be understood well.”*

These statements indicate that students intentionally structured their ideas by selecting relevant references, combining key points, and arranging them from basic to more complex information. The scripting and rehearsal stages functioned as a form of discourse planning, enabling students to organize their thoughts systematically before delivering them orally. As a result, their spoken performance demonstrated clearer logical sequencing and stronger coherence in presenting ideas.

Although some groups still omitted introductions or conclusions, overall, their presentations showed clearer thinking and stronger thematic consistency. Unlike studies emphasizing increased confidence, this study shows that project-based learning also strengthens the structural organization of oral discourse. In the software engineering program, thematic coherence is further enhanced through related topics such as software and hardware, resulting in final discourse that is not only structurally clear but also contextual and meaningful. This is in line with the Ministry of Education, Culture, Research, and Technology's curriculum, which states that learning must be competency-based and contextual learning that incorporates attitudes, knowledge, and skills relevant to real-world situations (Putro et al., 2023).

Previous studies have generally concluded that PjBL can improve students' confidence, engagement, and fluency. This study confirms these findings, showing that students demonstrated higher engagement and confidence during project presentations. However, this study goes further, showing that these improvements extend beyond affective expression and fluency to include discourse competence. Unlike previous studies that emphasized motivation and engagement, this study provides empirical evidence showing progress in students' use of cohesive devices and systematic organization of their presentation structures. However, this study also revealed that discourse competence development does not occur automatically or uniformly. Some students still produce fragmented sentences, rely on memorization, and therefore their cohesion and coherence are not yet fully stable. Thus, project-based learning can foster discourse competence gradually and contextually, however, requiring repeated practice and targeted feedback to achieve sustainable development of cohesion and coherence.

## **CONCLUSION**

This study shows that Project-Based Learning (PjBL) in a Software Engineering classroom operated as a structured pedagogical process that facilitated extended oral discourse production. Through systematic stages, including essential questioning, project planning, scheduling, monitoring, assessment, and evaluation, students were required to construct sustained spoken texts rather than produce isolated sentences. Project activities such as role-playing and project presentations are placed in a relevant professional context, encouraging students to articulate technical concepts in a more structured and meaningful way. Therefore, PjBL is not only an activity-based teaching method but also a discourse construction teaching approach that meets professional communication needs.

The most significant development was observed in discourse competence, particularly in cohesion and coherence. Students increasingly used conjunctions, references, and lexical repetition to connect ideas, while also showing improvement in organizing presentations logically and maintaining thematic unity when explaining technical topics. The scripting and rehearsal stages functioned as

discourse-planning mechanisms that strengthened idea sequencing prior to oral delivery. However, this development was not uniform, as some students still relied on memorized scripts and produced hesitant or disconnected speech. Therefore, ESP and vocational English teachers play an important role in maintaining the sustainability of students' discourse competence development through continuous support, constructive feedback, and explicit scaffolding. Appreciating students' efforts is also important for building confidence and reducing anxiety, so that students can gradually transition from rote memorization to more spontaneous, coherent, and systematic oral communication in line with the demands of communication in the workplace. Thus, the findings confirm that Project-Based Learning can foster students' English-speaking competence, especially at the level of discourse competence.

Despite its contributions, this study is limited by its single-site qualitative design conducted in one vocational school, which restricts the generalizability of the findings. Furthermore, the analysis focused specifically on discourse competence and did not comprehensively examine other dimensions of speaking competence, such as linguistic, sociolinguistic, or strategic competence. Future research may involve multiple institutions and explore broader aspects of speaking competence to provide a more holistic understanding of how Project-Based Learning supports speaking development in vocational ESP contexts.

## REFERENCES

- Al-Kamzari, F., & Alias, N. (2025). A systematic literature review of project-based learning in secondary school physics: Theoretical foundations, design principles, and implementation strategies. *Humanities & Social Sciences Communications*, *12*(1), 1–18. <https://doi.org/10.1057/s41599-025-04579-4>
- Allo, M. D. G., & Priawan, A. (2019). Students' Self-Confidence in Speaking Skill. *Jurnal Studi Guru Dan Pembelajaran*, *2*(1), 11–14. <https://doi.org/10.30605/jsgp.2.1.2019.1263>
- Bakar, N. I. A., Noordin, N., & Razali, A. B. (2019). Improving oral communicative competence in English using project-based learning activities. *English Language Teaching*, *12*(4), 73–84. <https://doi.org/10.5539/elt.v12n4p73>
- Becerra-Posada, T., García-Montes, P., Sagre-Barbosa, A., Carcamo-Espitia, M. I., & Herazo-Rivera, J. D. (2022). Project-based learning: The promotion of communicative competence and self-confidence at a state high school in Colombia. *HOW*, *29*(2), 13–31. <https://doi.org/10.19183/how.29.2.560>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics*, *1*(1), 1–47. <https://doi.org/10.1093/applin/I.1.1>

- Condliffe, B., Quint, J., Visher, M. G., Bangser, M. R., Drohojowska, S., Saco, L., & Nelson, E. (2017). *Project-based learning: A literature review* (Working Paper). MDRC. [https://www.mdrc.org/sites/default/files/Project-Based\\_Learning-LitRev\\_Final.pdf](https://www.mdrc.org/sites/default/files/Project-Based_Learning-LitRev_Final.pdf)
- Creswell, J. W., & Creswell, J. D. (2023). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th ed.). Sage Publications.
- Dewi, L. P. A. N. (2017). Improving speaking competency of the students at SMK N 4 Bangli using project-based learning. *Journal of Education Action Research*, 1(1), 30-48. <https://ejournal.undiksha.ac.id/index.php/JEAR/article/view/10122>
- EF Education First. (2024). *EF English Proficiency Index 2024: A ranking of 116 countries and regions by English skills*. EF Education First. <https://www.ef.com/epi>
- Fallas Gabuardi, V. M. (2021). Project-based learning: Boosting 21st century skills. *Estudios*, (43), 340–419. <https://doi.org/10.15517/re.v0i43.49335>
- Handoyo Puji Widodo. (2016). Teaching English for Specific Purposes (ESP): English for Vocational Purposes (EVP). *English Language Teaching Today: Linking Theory and Practice* (Vol. 5, pp. 277-291). Springer International Publishing. [https://doi.org/10.1007/978-3-319-38834-2\\_19](https://doi.org/10.1007/978-3-319-38834-2_19)
- Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia. (2022). Peraturan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia Nomor 16 Tahun 2022 tentang Standar Proses Pendidikan Dasar dan Menengah. Jakarta: Kemendikbudristek.
- Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: A review of the literature. *Improving Schools*, 19(3), 267–277. <https://doi.org/10.1177/1365480216659733>
- Ministry of Education and Culture. (2022). Panduan Implementasi Kurikulum Merdeka (Guidelines for Implementing the Merdeka Curriculum). Jakarta: Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi (Kemendikbudristek).
- Ministry of National Education. (2003). Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. Pemerintah Republik Indonesia.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2019). *Qualitative Data Analysis: A Methods Sourcebook* (4th ed.). Sage Publications.
- Pakpahan, R. O. A. (2018). Improving speaking skill of tourism vocational high school students through project-based learning. *RETAIN: Journal of Research in English Language Teaching*, 6(2), 44-51.
- Putro, T. B., Marisa, C., Fitriyanti, E., & Utami, S. (2023). Keterampilan guru bimbingan dan konseling dalam implementasi metode project-based learning pada Kurikulum Merdeka. *Terapeutik: Jurnal Bimbingan dan Konseling*, 3(2), 103–114. <https://doi.org/10.30998/ocim.v3i2.1062>
- Safira, L., & Azzahra, N. F. (2022). Meningkatkan kesiapan kerja lulusan SMK melalui perbaikan kurikulum bahasa Inggris (Makalah Kebijakan No. 53). Center for Indonesian Policy Studies (CIPS).

- Sari, A. Y., & Zulfah, U. (2017). Implementasi pembelajaran project-based learning untuk anak usia dini. *Motoric*, 1(1), 10–10.
- Sabnani, R. L., & Renandya, W. A. (2019). A comprehensive approach to developing L2 speaking competence. *Indonesian Journal of Applied Linguistics*, 9(1), 36–44. <https://doi.org/10.17509/ijal.v9i1.14696>
- Semerikov, S., Striuk, A., Striuk, L., Striuk, M., & Shalatska, H. (2020). Sustainability in software engineering education: A case of general professional competencies. *E3S Web of Conferences*, 166, 10036. <https://doi.org/10.1051/e3sconf/202016610036>
- Suwarni, A., & Natsir, N. (2025). The effectiveness of project-based collaborative learning in improving English speaking skills of high school students. *Indonesian Journal of Language Education*, 10(3), 123-134.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- We, S. M. (2020). Enhancing Students Speaking Skills Through Project-Based Learning. *Jurnal Lingua Idea*, 11(2), 113-126. <https://doi.org/10.20884/1.jli.2020.11.2.2931>
- Zega, Y. S. (2025). Effective strategies for enhancing English speaking competence among learners in English education study programs. *Journal of Education, Social & Communication Studies*, 2(2), 88–100. <https://doi.org/10.71028/jescs.v2i2.27>