Journal of
Problem Based Learning
in Higher Education

VOL 13 • 1

Vol 13, No. 1, 2025 – Page 335-355
doi.org/10.54337/ojs.jpblhe.v13i1.10036

Building Critical Thinking and Self-Confidence in Speaking Class for Non-Native English Speakers

Obstacles and Perspectives

Yudhie Indra Gunawan * | University of Muhammadiyah Tangerang, Indonesia
Nizam Ahsani | University of Muhammadiyah Malaysia, Malaysia
Aidil Syah Putra | University of Muhammadiyah Tangerang, Indonesia

Abstract

Developing critical thinking and self-confidence in speaking classes is essential for non-native English speakers learning English as a foreign language. This study explores the challenges and effectiveness of Problem-Based Learning (PBL) in speaking classes at Gajah Tunggal Polytechnic through qualitative analysis of student and lecturer perspectives. Findings reveal that language barriers, passive learning habits, and fear of mistakes hinder active participation. However, PBL enhances speaking proficiency, independent learning, and collaborative problem-solving skills. Despite its benefits, challenges such as limited resources and insufficient educator training impede implementation. This study emphasizes the need for institutional support, pedagogical adjustments, and targeted interventions to optimize PBL for non-Native English Speakers. The insights gained provide guidance for educators

* Corresponding author:
Yudhie Indra Gunawan, Email: yudhie.indra@umt.ac.id

Received 18 March 2025 | Accepted 6 May 2025 | Available online in Early View 3 July 2025 | Published 16 December 2025.

and policymakers seeking to improve English language instruction in similar contexts.

Keywords: Critical thinking; self-confidence; Problem-Based Learning (PBL); Non-Native English Speakers; speaking skills; English as a foreign language (EFL)

Introduction

Critical thinking and self-confidence are essential components for effective communication, particularly among non-Native English Speakers (NNES) striving to develop their speaking skills. In higher education, nurturing these abilities is crucial to help students articulate ideas clearly, participate in meaningful discussions, and adapt to diverse linguistic and cultural contexts (Ennis, 2011; Moghadam, Narafshan, & Tajadini, 2023). However, NNES students often face persistent challenges in speaking classes, such as language anxiety, limited opportunities for real-world practice, and a lack of confidence in expressing themselves (Horwitz et al., 1986; Liu & Jackson, 2008).

One promising pedagogical approach to addressing these challenges is Problem-Based Learning (PBL). PBL emphasizes student-centered instruction, requiring learners to actively engage in solving real-life problems, collaborating with peers, and reflecting critically on their learning process (Hmelo-Silver, 2004; Darmawati & Mustadi, 2023). By offering authentic speaking opportunities, PBL not only enhances linguistic proficiency but also fosters critical thinking and boosts students' confidence in using English (Guo et al., 2024; Torp & Sage, 2002).

The importance of critical thinking in language learning is well-established in several theoretical frameworks. Bloom's Taxonomy categorizes cognitive skills from basic knowledge recall to higher-order thinking such as analysis, evaluation, and creation, thus highlighting the integral role of critical thinking in effective communication (Anderson & Krathwohl, 2001; Marzano, 2001). In parallel, Vygotsky's Sociocultural Theory emphasizes the importance of social interaction and scaffolding in language development, suggesting that confidence and cognitive skills emerge through guided collaboration and meaningful communication (Vygotsky, 1978; Moghadam, Narafshan, & Tajadini, 2023). These frameworks are central to this study as they align with the goals of developing both cognitive and communicative competencies through PBL.

Despite the recognized advantages of integrating PBL into speaking classes, practical implementation remains challenging. NNES students often struggle with a lack of motivation, limited English exposure outside of the classroom, and the fear of negative evaluation by peers and instructors (Liu & Jackson, 2008; Krashen, 1982). Additionally, educators face difficulties designing PBL activities that not only engage students but also ensure substantial language development and critical thinking (Torp & Sage, 2002; Brown, 2007).

Research gap and significance

Although previous studies have demonstrated the potential of PBL to enhance language skills and cognitive development, there remains a significant research gap concerning its specific impact on NNES students' speaking classes in technical education settings, such as polytechnics. Furthermore, limited studies have critically examined the dual role of PBL in fostering both critical thinking and self-confidence simultaneously. By addressing this gap, this study provides insights into how PBL can be effectively adapted to meet the needs of engineering students who require strong communication skills for their future careers.

The significance of this research lies in its potential contributions to both theory and practice. Theoretically, it strengthens the understanding of how socio-cognitive frameworks like Bloom's Taxonomy and Vygotsky's Sociocultural Theory operate in PBL-based language classrooms. Practically, the findings can guide educators in designing more effective PBL speaking activities and inform policy makers in higher education about innovative teaching approaches that better prepare students for global communication demands. Ultimately, enhancing critical thinking and self-confidence among NNES students can lead to more competent and self-assured graduates who are ready to contribute meaningfully to society.

Research Questions

This study seeks to answer the following research questions:

1. What are the main obstacles faced by non-Native English Speakers in developing critical thinking and self-confidence in speaking classes?
2. How does the implementation of Problem-Based Learning (PBL) influence students' speaking performance and confidence?
3. What perspectives do students and educators have regarding the effectiveness of PBL in fostering critical thinking and self-confidence?

Methodology

This study adopts a mixed-methods research design to examine the impact of Problem-Based Learning (PBL) on students' critical thinking skills and self-confidence in speaking classes. Specifically, a convergent parallel design is employed, combining quantitative and qualitative approaches to offer a more comprehensive understanding of how PBL influences students' learning experiences (Cottrell, 2017; Jonassen, 2011). By using this design, the study strengthens its credibility through triangulation, enabling the cross-validation of findings from multiple data sources.

The mixed-methods framework was chosen because it captures both measurable improvements in student competencies and rich, nuanced insights into their learning processes—elements that are essential when evaluating complex educational interventions like PBL. Moreover, it responds to a research gap where most studies in technical education tend to emphasize either linguistic performance or content knowledge, often neglecting critical thinking and self-confidence development.

To assess critical thinking and self-confidence, the study used adapted versions of the Critical Thinking Disposition Scale and the Self-Confidence in Speaking Scale. These instruments were selected due to their proven validity in educational research and their specific relevance to the competencies targeted by the intervention (Ellis, 2003; Swain & Lapkin, 1995). Adaptations were made to better align the scales with the technical and communicative contexts of engineering education, ensuring greater relevance and applicability for participants.

Research Context and Participants

The research was conducted at Gajah Tunggal Polytechnic, a technical and vocational institution specializing in engineering education. Here, students are required to wear uniforms, reflecting the institution's strong emphasis on discipline and professional preparation. English Communication is a compulsory course designed to equip future engineers with essential language skills for the workplace.

Participants were non-native English-speaking students enrolled in speaking classes across three departments: Mechanical Engineering, Industrial Engineering, and Electrical Engineering. The target population consisted of students with varying levels of English proficiency, ensuring representation of diverse skill levels and learning experiences.

A total of 80 students were selected through purposive sampling, considering criteria such as language proficiency, prior educational experiences, and exposure to PBL methodologies (De Graaff & Housen, 2009; Chappell, 2014). Each class consisted of approximately 26–27 students. This sampling method was employed to enhance the applicability of the results to similar educational contexts, ensuring that the findings reflect realistic classroom diversity.

Intervention Design

The PBL intervention was implemented over a 10-week period, integrated into regular speaking class sessions. Each instructional cycle followed standard PBL procedures. Students were presented with real-world communication problems related to engineering fields, which they had to solve collaboratively using English. Students worked in small groups (4–5 students per group) to complete tasks such as:

1. Designing and delivering engineering presentations,
2. Proposing solutions to technical problems,
3. Simulating professional conversations and meetings.

Instructional materials included authentic resources such as technical manuals and engineering case studies. Activities were supported by guided worksheets and structured peer discussions. Throughout the intervention, instructors served as facilitators rather than traditional lecturers, promoting student-centered learning environments.

Data Collection

To examine the impact of Problem-Based Learning (PBL) on students' critical thinking and self-confidence in speaking, this study adopts a mixed-methods approach, collecting both quantitative and qualitative data through a range of instruments.

For the quantitative component, data were collected through a structured questionnaire administered before and after the PBL intervention. Two validated scales were utilized: the Critical Thinking Disposition Scale (CTDS) (Sosu, 2013), which assesses students' ability to critically analyze, evaluate, and synthesize information, and the Self-Confidence in Speaking Scale (SCSS) (adapted from Ozturk & Gurbuz, 2014), which measures perceived confidence in oral communication tasks. These instruments provided reliable and objective measurements of students' cognitive and affective development, allowing for meaningful statistical comparison and analysis.

For the qualitative component, semi-structured interviews and focus group discussions (FGDs) were conducted with both students and instructors. These sessions aimed to capture in-depth insights regarding the effectiveness of PBL, the challenges faced during implementation, and observed improvements in students' speaking proficiency and self-assurance. The interviews explored students' personal experiences engaging with PBL tasks, their critical reflection processes, and their emotional and intellectual growth. Instructors contributed perspectives on classroom dynamics, instructional strategies, and students' observable progress throughout the intervention. Together, these qualitative methods enriched the statistical findings by providing nuanced, narrative-driven evidence.

This study addresses a key research gap by offering empirical data on PBL's impact on non-native English-speaking engineering students, an area often overlooked in current literature (Hmelo-Silver, 2004; Hung, 2011). It thus contributes practical insights into the integration of PBL within technical higher education settings, where communication skills are increasingly vital for career readiness.

Data Analysis

To ensure a comprehensive interpretation of the collected data, both quantitative and qualitative analyses were carried out.

For the quantitative analysis, descriptive statistics were first computed to profile students' initial and final scores. Subsequently, a paired t-test was used to determine whether there were statistically significant improvements in students' critical thinking and speaking self-confidence following the PBL intervention. Furthermore, regression analysis was conducted to explore the relationship between PBL participation and improvements in learning outcomes, helping to identify specific factors that contributed to students' development. These statistical procedures provided robust evidence regarding the effectiveness of PBL in enhancing both cognitive and affective competencies.

For the qualitative analysis, data from interviews and FGDs were analyzed thematically following Braun and Clarke's (2021) six-phase framework. This approach involved familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing a final interpretative report. Emerging themes included enhanced problem-solving skills, increased willingness to speak in public, initial resistance to active learning methods, and strategies that helped build student confidence over time. These qualitative findings were then cross-referenced

with quantitative results, ensuring triangulation and enriching the validity of the study's conclusions.

By integrating both sets of data, the study offers a multidimensional understanding of how PBL influences language acquisition and critical thinking development. These findings have significant implications for curriculum designers, instructors, and policymakers who aim to create more dynamic and student-centered learning environments in higher education.

Importantly, the study highlights the potential for PBL to bridge the gap between technical knowledge and soft skills development — a need increasingly emphasized in global industry and academic standards (World Economic Forum, 2020). By contributing evidence from a non-Western, polytechnic context, this research also enhances theoretical models of PBL application across diverse educational settings.

Results

Obstacles in Developing Critical Thinking and Self-Confidence

The study revealed three primary obstacles that hinder students' development of critical thinking and self-confidence in PBL-based speaking classes. These challenges are interpreted through established theories, including communicative competence (Richards & Rodgers, 2014), motivational frameworks (Dörnyei, 2005), and active learning models (Deslauriers et al., 2020).

a. Language Barriers

Language proficiency emerged as a significant impediment to students' active participation, particularly regarding the use of technical vocabulary and complex sentence structures. This finding aligns with Richards and Rodgers' (2014) theory of communicative competence, which emphasizes the role of linguistic ability in effective communication.

Supporting Evidence:

1. Survey Results:
   a) 68% (n = 54/80) agreed or strongly agreed that limited vocabulary and unfamiliar expressions hindered participation.
   b) Among Mechanical Engineering students, this rate was slightly higher at 72%.

2. Student Testimonies:

a) MAS (Mechanical Engineering Student, Year 3) remarked, "Sometimes, I understand the concept in my native language, but I struggle to explain it in English, especially using the correct technical words."
b) TRP (Electrical Engineering Student, Year 3) added, "When the topic is about circuits or machinery, I get stuck finding the English words."

3. Lecturer Observations:
   a) Students at CEFR A2–B1 levels used basic expressions or remained silent more often during group discussions.
   b) In contrast, classes with B2 proficiency or higher saw a 35% increase in student interactions, based on engagement logs.

These findings mirror Li & Pei's (2024) results, emphasizing that linguistic competence directly influences self-confidence and engagement in English-medium instruction (EMI) contexts.

b. Passive Learning Culture

Transitioning from a passive learning background posed another major obstacle. Consistent with Kember's (2000) concept of passive learning cultures, students initially struggled to adapt to the active, discussion-driven PBL environment.

Supporting Evidence:

1. Survey Results:
   a) 55% (n = 44) found it significantly difficult to adjust to PBL during the first half of the semester.
   b) Industrial Engineering students, traditionally exposed to lecture-based instruction, reported a 10% higher adjustment difficulty than their Electrical Engineering peers.

2. Student Testimonies:
   a) ADF (Industrial Engineering Student, Year 3) reflected, "In my previous classes, we just listened and took notes. It feels strange now that I have to talk and ask questions."
   b) MA (Mechanical Engineering Student, Year 3) noted, "I was used to being silent and writing everything down. Speaking in front of others was very new to me."

3. Lecturer Feedback:
   a) Students with prior exposure to interactive methods adapted in 3–4 weeks, whereas others took 6–8 weeks.

b) Faster adapters engaged in 20% more group discussions based on classroom observations.

This supports Deslauriers et al.'s (2020) assertion that the shift to PBL initially provokes discomfort before fostering deeper engagement and critical thinking.

c. Lack of Confidence

Fear of negative evaluation, a central concept in foreign language anxiety theory (Horwitz et al., 1986), emerged as the third major obstacle. Many students hesitated to speak, particularly when complex ideas needed to be expressed, fearing judgment or errors.

Supporting Evidence:

1. Survey Results:
   a) 72% (n = 58) felt anxious about speaking due to fear of mistakes.
   b) Female students reported slightly higher anxiety (75%) compared to male students (69%).

2. Student Testimonies:
   a) GAP (Electrical Engineering Student, Year 3) stated, "I hesitate because I'm afraid of saying it incorrectly. I don't want others to laugh or think I don't know the topic."
   b) YI (Mechanical Engineering Student, Year 3) explained, "I understand the material, but when speaking, I worry my English sounds wrong."

3. Lecturer Observations:
   a) Speaking confidence increased by about 30% by the 8th week, based on participation logs.
   b) Low-stakes speaking practices helped reduce anxiety symptoms for 45% of students.

These findings highlight the crucial role of affective factors in language development, as emphasized by Dörnyei (2005), reinforcing the need for continuous, supportive speaking opportunities.

Implementation of PBL at Gajah Tunggal Polytechnic

At Gajah Tunggal Polytechnic, PBL was strategically implemented to simulate real-world professional scenarios, supporting both language acquisition and technical skill development. This approach reflects Situated Learning Theory (Lave & Wenger, 1991) and Vygotsky's (1978) Zone of Proximal Development (ZPD), emphasizing authentic, scaffolded learning experiences.

Institutional Context

Founded through a Corporate Social Responsibility (CSR) initiative by PT. Gajah Tunggal, the Polytechnic aims to produce globally competitive engineering graduates. English communication courses are mandatory for first- and second-year students, focusing on:

1. Participating in team meetings
2. Writing technical reports and professional emails
3. Delivering project presentations

PBL Activity	Description	Target Skills	Example Topic
Group Discussions	Collaborative exploration of problems	Critical thinking, articulation	"Improving production efficiency"
Case Studies	Analysis of real-world technical issues	Problem-solving, technical vocabulary	"Failure analysis in manufacturing"
Simulations	Role-playing technical meetings	Confidence, professional communication	"Presenting new machinery to a client"
Project Presentations	Public presentation of solutions	Public speaking, report writing	"Designing energy-efficient systems"

Table 1. PBL Activities and Framework.

Implementation Data:

1. All English courses (4 sections, n = 80 students) adopted PBL starting Week 3.
2. Each student completed two case studies, four group discussions, one simulation, and one final presentation over 16 weeks.
3. Activities focused 40% on speaking, 30% on writing, 20% on reading, and 10% on listening.

Observed Outcomes:

PBL led to measurable improvements:

1. Critical Thinking:
   a) 68% improved in problem identification, solution evaluation, and recommendation skills.

b) Mean critical thinking scores rose by 15% (from 62 to 71.3).

2. Problem-Solving Skills:
   a) 70% successfully integrated technical knowledge and English communication in case studies.
   b) 75% felt more confident proposing solutions after two major projects.

3. Self-Confidence:
   a) 30% average increase in perceived speaking confidence.
   b) 82% reported greater comfort participating in technical discussions.
   c) Simulation activities were rated as the most confidence-boosting.

Alignment with Broader Goals

The PBL approach directly supports Gajah Tunggal Polytechnic's mission to enhance employability. By bridging technical expertise and English proficiency, students are better prepared for competitive, internationalized work environments. This finding underlines the real-world impact of the study and its contribution to corporate education strategies.

Perspectives of Students and Lecturers on PBL

Despite facing notable challenges, both students and lecturers recognized the transformative potential of PBL, reinforcing the principles of constructivist learning theories (Savery, 2006; Guo et al., 2024).

a. Increased Engagement

PBL fostered deeper engagement compared to traditional instruction.

Supporting Evidence:

1. 78% of students agreed that PBL made learning more interactive and stimulating.
2. AFS (Industrial Engineering Student Year 3) : "In traditional classes, I just listen passively, but in PBL, I have to express my thoughts and solve problems. It makes me think harder."
3. Lecturers observed a clear increase in student proactivity over the semester.

This transition from surface to deep learning reflects Savery's (2006) findings on active learning benefits.

b. Development of Collaborative Skills

Collaboration was a key benefit, aligned with Guo et al.'s (2024) social interdependence theory.

Supporting Evidence:

1. 84% of students felt that working in groups improved their speaking confidence.
2. RP (Mechanical Engineering Student, Year 3): "Working in a team made me more comfortable because my friends would support me."
3. Lecturer observations confirmed that group settings scaffolded participation, especially for lower-proficiency students.

These outcomes suggest that peer collaboration can effectively mitigate language anxiety and enhance academic performance.

c. Challenges in Implementation
Despite positive outcomes, systemic challenges were reported.

Supporting Evidence:

1. **Lecturer Training**: Many lecturers lacked formal PBL training, relying instead on self-learning or informal support networks.
2. **Resource Limitations**: Limited access to English-language case studies and outdated technology hindered dynamic implementation.
3. **Administrative Constraints**: Large class sizes and rigid curricula constrained deeper inquiry-based learning.

Significance, Research Gap, and Practical Implications
This study addresses a notable research gap by examining the integration of PBL in English communication instruction within a technical, non-native English speakers context — a setting that remains underexplored in current literature (Savery, 2006; Li & Pei, 2024). The findings are significant for academia, policymakers, and educators, offering evidence of PBL's effectiveness while also highlighting the infrastructural and pedagogical challenges that must be addressed.

Practically, the results suggest that institutions seeking to internationalize their curricula must pair PBL implementation with systemic support measures. These include professional development programs for lecturers, investment in updated educational resources, and the design of flexible, student-centered curricula.

Discussion, conclusion and recommendations

The implementation of Problem-Based Learning (PBL) at Gajah Tunggal Polytechnic has demonstrated significant potential in enhancing critical thinking and self-confidence among non-native English speakers. PBL's student-centered approach, which focuses on real-world problem-solving activities, fosters independent learning and active participation—skills essential for both academic and professional success. This pedagogical strategy encourages students to take a more active role in shaping their educational journey, which contrasts with traditional rote learning methods.

Despite these promising outcomes, challenges persist in ensuring that all students benefit equally from PBL. A major barrier is the insufficient support structures, particularly for non-native English speakers who may find the language demands of PBL overwhelming. While PBL is an effective educational strategy, its success depends largely on the institution's capacity to provide necessary resources and adjustments. Felder and Brent (2016) stress that faculty training, resource availability, and curriculum modifications are essential to address the needs of diverse learners. Without these supports, the benefits of PBL may not be fully realized, particularly for students who face challenges in language proficiency or cultural adaptation.

At Gajah Tunggal Polytechnic, the application of PBL in English communication courses underscores the necessity of addressing these concerns. The lack of extensive faculty training in PBL methodology and language support, coupled with limited educational resources, can limit the potential of this approach. To overcome these challenges, higher education institutions should focus on understanding and addressing the linguistic and cultural diversity within their student populations. Freire (1970) advocates for an education system that acknowledges students' lived experiences, calling for teaching strategies that are both culturally relevant and linguistically accessible. Therefore, providing additional language support, professional development for educators, and curriculum adjustments tailored to the needs of English learners is critical.

To maximize the effectiveness of PBL, institutions should invest in comprehensive professional development programs for educators. These programs should equip instructors not only with PBL-specific teaching strategies but also with the tools to support students' language development. Moreover, providing resources such as textbooks, digital tools, and interactive materials will enrich the learning experience. Adapting the curriculum to students' linguistic abilities and academic needs is essential to ensure that PBL activities are engaging and accessible for all learners. Without these

modifications, students may struggle to fully engage with the content, potentially undermining the intended educational outcomes.

In addition to curriculum adjustments, fostering an inclusive learning environment is crucial. Institutions should implement strategies that actively engage diverse learners, such as mentorship programs, peer-assisted learning, and ongoing formative assessments. These initiatives create a supportive learning environment, allowing students to receive timely feedback and interventions when needed. Schmidt et al. (2011) emphasize the importance of continuous feedback and adaptive teaching methods, which can bridge the gap between students' current competencies and the learning objectives of PBL. By implementing these strategies, institutions can create a more inclusive and effective learning environment for English language learners. A combination of professional development, resource allocation, and curriculum adaptation will not only enhance the outcomes of PBL but also empower students to develop critical thinking, problem-solving skills, and self-confidence.

Conclusion and Recommendations

In conclusion, the implementation of Problem-Based Learning (PBL) at Gajah Tunggal Polytechnic has proven beneficial in enhancing critical thinking and self-confidence among non-native English speakers. However, to fully realize the potential of PBL, challenges such as limited language support and insufficient educator training must be addressed.

The following actions are recommended to optimize the effectiveness of PBL:

1. **Invest in Professional Development for Educators**: Educators should be equipped with strategies specific to PBL and language support techniques.
2. **Provide Additional Language Resources**: Institutions should supply textbooks, digital tools, and interactive materials to support diverse learners in their language development.
3. **Adapt the Curriculum**: Tailoring the curriculum to meet the linguistic and academic needs of students ensures that PBL activities remain accessible and engaging.
4. **Foster an Inclusive Learning Environment**: Implement mentorship programs, peer-assisted learning, and formative assessments to offer ongoing support and feedback.

These recommendations aim to create a more inclusive and supportive learning environment that will enhance the effectiveness of PBL and empower students to thrive in both their academic and professional pursuits. Furthermore, institutions must continually assess the real-world impact and theoretical contributions of such studies to better inform policy and practice in education.

References

Anderson, L. W., & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. Longman.

Arends, R. I. (2014). *Learning to Teach*. McGraw-Hill.

Barrows, H. S. (1986). A taxonomy of problem-based learning methods. *Medical Education*, 20(6), 481–486. https://doi.org/10.1111/j.1365-2923.1986.tb01386.x

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. SAGE Publications.

Brown, H. D. (2007). *Principles of Language Learning and Teaching*. Pearson Education.

Celce-Murcia, M. (Ed.). (2001). *Teaching English as a Second or Foreign Language*. Heinle & Heinle.

Chappell, P. (2014). *Group work in the English language curriculum: Sociocultural and ecological perspectives on second language classroom learning*. Palgrave Macmillan.

Cottrell, S. (2017). *Critical Thinking Skills: Effective Analysis, Argument and Reflection*. Macmillan International Higher Education.

Darmawati, D., & Mustadi, A. (2023). The effect of problem based learning on the critical thinking skills of elementary school students. *Jurnal Prima Edukasia, 11*(2), 142-151. https://doi.org/10.21831/jpe.v11i2.55620

De Graaff, R., & Housen, A. (2009). Investigating the effects and effectiveness of L2 instruction. In M. H. Long & C. J. Doughty (eds.), *The Handbook of Language Teaching*, 726–755. Blackwell Publishing Ltd. https://doi.org/10.1002/9781444315783.ch38

Deslauriers, L., McCarty, L. S., Miller, K., Callaghan, K., & Kestin, G. (2020). Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom. *Proceedings of the National Academy of* Sciences, *116*(39), 19251–19257. https://doi.org/10.1073/pnas.1821936116

Dewey, J. (1933). *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. D.C. Heath.

Dörnyei, Z. (2005). *The Psychology of the Language Learner: Individual Differences in Second Language Acquisition*. Lawrence Erlbaum Associates.

Ellis, R. (2003). *Task-Based Language Learning and Teaching*. Oxford University Press.

Ennis, R. H. (2011). *The nature of critical thinking: An outline of critical thinking dispositions and abilities*. University of Illinois. https://education.illinois.edu/docs/default-source/faculty-documents/robert-ennis/thenatureofcriticalthinking_51711_000.pdf

Facione, P. A. (1990). *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction*. American Philosophical Association.

Felder, R. M., & Brent, R. (2016). *Teaching and Learning STEM: A Practical Guide*. Jossey-Bass.

Freire, P. (1970). *Pedagogy of the Oppressed*. Bloomsbury Publishing.

Guo, Q., Jamil, H., Ismail, L., Luo, S., & Sun, Z. (2024). Effects of problem-based learning on EFL learning: A systematic review. *PLOS ONE, 19*(12), e0307819. https://doi.org/10.1371/journal.pone.0307819

Harmer, J. (2007). *The Practice of English Language Teaching*. Pearson Longman.

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review, 16*(3), 235–266. https://doi.org/10.1023/B:EDPR.0000034022.16470.f3

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. https://doi.org/10.1111/j.1540-4781.1986.tb05256.x

Hung, W. (2011). Theory to reality: A few issues in implementing problem-based learning. *Educational Technology Research and Development, 59*(4), 529–552. https://doi.org/10.1007/s11423-011-9198-1

Jonassen, D. H. (2011). *Learning to Solve Problems: A Handbook for Designing Problem-Solving Learning Environments*. Routledge. https://doi.org/10.4324/9780203847527

Kember, D. (2000). Misconceptions about the learning approaches, motivation and study practices of Asian students. *Higher Education*, 40, 99–121. https://doi.org/10.1023/A:1004036826490

Krashen, S. D. (1982). *Principles and Practice in Second Language Acquisition*. Pergamon Press.

Kuhn, D. (1999). A developmental model of critical thinking. *Educational Researcher*, 28(2), 16–25. https://doi.org/10.3102/0013189X028002016

Li, M., & Pei, L. (2024). Exploring challenges in academic language-related skills of EFL learners in Chinese EMI settings. *Acta Psychologica, 247*, Article 104309. https://doi.org/10.1016/j.actpsy.2024.104309

Liu, M., & Jackson, J. (2008). An exploration of Chinese EFL learners' unwillingness to communicate and foreign language anxiety. *The Modern Language Journal*, *92*(1), 71–86. https://doi.org/10.1111/j.1540-4781.2008.00687.x

Marzano, R.J. (2001) *Designing a New Taxonomy of Educational Objectives*. Thousand Oaks, CA: Corwin Press

Moghadam, Z.B., Narafshan, M.H. & Tajadini, M. (2023). The effect of implementing a critical thinking intervention program on English language learners' critical thinking, reading comprehension, and classroom climate. *Asian. J. Second. Foreign. Lang. Educ., 8*, 15. https://doi.org/10.1186/s40862-023-00188-3

Nunan, D. (2004). *Task-Based Language Teaching*. Cambridge University Press. https://doi.org/10.1017/CBO9780511667336

Ozturk, G., & Gurbuz, N. (2014). Speaking anxiety among Turkish EFL learners: The case at a state university. *Journal of Language and Linguistic Studies, 10*(1), 1-17. https://www.jlls.org/index.php/jlls/article/view/178/165

Paul, R., & Elder, L. (2014). *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life*. Pearson.

Richards, J. C., & Rodgers, T. S. (2014). *Approaches and Methods in Language Teaching*. Cambridge University Press.

Savery, J. R. (2006). Overview of problem-based learning: Definitions and distinctions. *The Interdisciplinary Journal of Problem-Based Learning, 1*(1), 9–20. https://doi.org/10.7771/1541-5015.1002

Schmidt, H. G., Rotgans, J. I., & Yew, E. H. J. (2011). The process of problem-based learning: What works and why. *Medical Education*, 45(8), 792–806. https://doi.org/10.1111/j.1365-2923.2011.04035.x

Scrivener, J. (2011). *Learning Teaching: The Essential Guide to English Language Teaching*. Macmillan Education.

Sosu, E. M. (2013). The development and psychometric validation of a Critical Thinking Disposition Scale. *Thinking Skills and Creativity, 9*, 107–119. https://doi.org/10.1016/j.tsc.2012.09.002

Swain, M., & Lapkin, S. (1995). Problems in output and the cognitive processes they generate: A step towards second language learning. *Applied Linguistics, 16*(3), 371–391. https://doi.org/10.1093/applin/16.3.371

Torp, L., & Sage, S. (2002). *Problems as possibilities: Problem-based learning for K–16 education* (2nd ed.). Association for Supervision and Curriculum Development (ASCD)

Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.

Widdowson, H. G. (1990). *Aspects of Language Teaching*. Oxford University Press.

World Economic Forum. (2020). *The Future of Jobs Report 2020*. World Economic Forum. https://www.weforum.org/reports/the-future-of-jobs-report-2020

Appendix

Appendix A: Survey Instruments

A.1 Critical Thinking Disposition Scale (CTDS)

Participants were asked to rate their agreement with the following statements on a **5-point Likert scale** (1 = Strongly Disagree, 5 = Strongly Agree):

1. I enjoy solving complex problems.
2. I actively seek different perspectives on an issue.
3. I question assumptions rather than accept them at face value.
4. I feel comfortable analyzing different viewpoints before making a decision.
5. I apply logical reasoning when evaluating arguments.

A.2 Self-Confidence in Speaking Scale (SCSS)

Participants were asked to rate their confidence levels using a **5-point Likert scale** (1 = Not Confident at All, 5 = Very Confident):

1. I feel confident speaking English in group discussions.
2. I can express my opinions clearly in English.
3. I am comfortable asking questions in English during class.
4. I am not afraid of making mistakes when speaking English.
5. I can handle spontaneous conversations in English.

Appendix B: Interview Questions

B.1 Student Interview Questions

1. How has PBL influenced your ability to think critically?
2. What challenges have you encountered while participating in PBL discussions?
3. In what ways has PBL helped (or hindered) your confidence in speaking?
4. How do you feel about working in groups during PBL activities?
5. What improvements would you suggest for better implementation of PBL?

B.2 Lecturer Interview Questions

1. What are your perceptions of students' engagement in PBL sessions?
2. What challenges do you face when implementing PBL in speaking courses?

3. Have you noticed any improvements in students' critical thinking or confidence levels?
4. What resources or support do you believe are necessary for effective PBL implementation?
5. How do you assess the impact of PBL on students' learning outcomes?

Appendix C: Focus Group Discussion (FGD) Guidelines

1. **Introduction:** Explain the purpose of the discussion and set ground rules.
2. **Icebreaker:** Ask participants about their general experience with PBL.
3. **Key Discussion Topics:**
    a. How PBL has influenced critical thinking development.
    b. Challenges in adapting to PBL methods.
    c. The role of teamwork in building speaking confidence.
    d. Recommendations for improving PBL implementation.
4. **Conclusion:** Summarize key points and allow participants to share final thoughts.

Appendix D: Statistical Analysis Results

D.1 Paired t-test Results (Pre- and Post-PBL Implementation)

Variable	Mean (Pre)	Mean (Post)	t-value	p-value (Sig.)
Critical Thinking Score	3.2	4.1	6.21	<0.001
Self-Confidence Score	2.9	4.0	5.87	<0.001
Interpretation: The significant p-values (<0.05) indicate that **PBL had a positive impact** on both critical thinking and self-confidence.				

D.2 Regression Analysis: PBL's Influence on Student Outcomes

Predictor	Beta Coefficient	t-value	p-value
PBL Implementation	0.74	7.89	<0.001
Interpretation: A strong positive relationship was found between PBL implementation and students' **critical thinking and self-confidence** in speaking.			

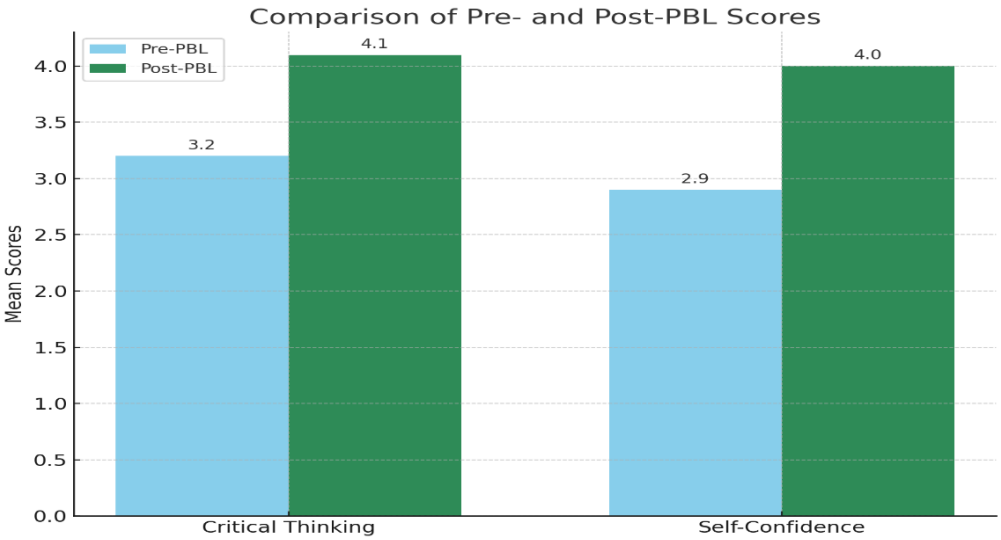

Figure 1.1. Comparison Result in Critical Thinking and Self-Confidence.

Appendix E: Student Responses from Interviews

1. *"At first, I was scared to speak, but after doing PBL activities, I feel more comfortable sharing my thoughts."* AS, Industrial Engineering Student with Mr. M. Iqbal Firdaus
2. *"I struggled with the English terminology, but discussing in groups helped me understand and remember better."* D, Mechanical Engineering Student with Mr. Yudhie Indra G
3. *"PBL made me think more critically about problems rather than just memorizing information." AA, Electrical Engineering Student with Mr. Bruce Riseley*
4. *"I like working in teams because it gives me the confidence to speak, knowing my friends are supporting me."RDP*, Mechanical Engineering Student with Mr. Yudhie Indra G

Appendix F: Student Testimonies

1. *"Sometimes, I understand the concept in my native language, but I struggle to explain it in English."* FS, *Electrical Engineering Student.*
2. *"In my previous classes, we just listened and took notes. I had to learn how to express my ideas here."* ES, Mechanical Engineering Student.
3. *"I hesitate because I'm afraid of making mistakes in front of my classmates."* MRRA, Industrial Engineering Student.
4. *"Working in a team made me more comfortable to speak and share my opinions."* AR, Mechanical Engineering Student.

Appendix G: Lecturer Comments

1. *"Students with stronger English backgrounds adjusted quickly to PBL discussions, while others needed more scaffolding."* (M. Iqbal Firdaus, M. Hum)
2. *"Limited resources and large class sizes made it difficult to apply PBL optimally."* (Bruce Riseley, M.Ed)
3. *"Gradually, students became more confident after several group projects and presentations."* (Yudhie Indra Gunawan, M.Pd)

Picture 1.1. Gajah Tunggal Polytechnic Students in Mechanical Engineering.

Picture 1.2. Gajah Tunggal Polytechnic Students in Industrial Engineering.