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REVIEW

A Review on Project Based Learning in Enhancing English Writing Skills

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ABSTRACT

Writing is a complex skill requiring cognitive, linguistic, and creative capacities, particularly challenging for English as a Foreign Language (EFL) learners. This review explores the effectiveness of Project-Based Learning (PBL) in enhancing English writing skills, emphasizing its potential to address common challenges faced by learners. PBL promotes active engagement, critical thinking, collaboration, and creativity through real-world, student-centered tasks. By integrating interdisciplinary approaches and authentic materials, PBL fosters practical language use and improves linguistic competencies, including grammar, vocabulary, and organizational skills. The review synthesizes findings from studies conducted in various educational contexts, highlighting the multifaceted benefits of PBL. Research demonstrates that PBL significantly enhances students' writing skills, including their ability to structure ideas coherently and apply genre-specific conventions. It also supports the development of essential 21st-century skills, such as problem-solving, time management, and teamwork. Furthermore, PBL has been shown to increase learners' confidence and motivation, transforming writing tasks into meaningful and engaging experiences. While PBL presents notable advantages, challenges such as time constraints, resource limitations, and the need for teacher training remain. Addressing these barriers requires strategic implementation, adequate teacher preparation, and the use of clear project guidelines. Despite these challenges, the evidence supports PBL as a transformative pedagogical approach for enhancing writing skills. This review underscores the value of integrating PBL into EFL instruction to prepare learners for academic and professional communication demands while fostering linguistic proficiency and critical life skills.

Keywords: English; Writing Skills; Project Based Learning

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1. Introduction

Writing is a multifaceted process that integrates knowledge, creativity, competence, and critical or cognitive thinking^[1]. It involves the expression of the writer's intentions and requires active engagement, making it a particularly demanding skill for English learners. These learners must gather and organize their ideas internally, translating them into a second language while also addressing linguistic and grammatical conventions. Furthermore, English learners need to focus on coherence, organization, and cohesion to effectively convey their intended message to readers during the writing process. Successful writing involves cognitive effort, memory recall, and an understanding of proper conventions and punctuation. Effective communication depends on the writer's ability to use sentence structure, diction, and grammatical rules correctly, ensuring clarity and proper interpretation.

Regarding linguistic challenges, a 2020 study identified five primary difficulties faced by students in writing, with grammar or language use posing the greatest challenge at 56.67%. This was followed by challenges related to writing rules and mechanisms (43.33%), as well as content, organization, and vocabulary^[2]. Writing in English also demands adherence to its specific rules and conventions, which differ significantly from Indonesian. Learners must pay attention to aspects such as articles, diction, and orthography, while addressing challenges like tenses, pronouns, prepositions, and the construction of negative or interrogative sentences to enhance their writing skills^[3]. Additionally, organizational difficulties in text construction, which affect coherence and cohesion, are commonly reported by English learners^[4]. Organizing ideas effectively is crucial for bridging the logical flow of knowledge between the writer and the reader. However, students often struggle with structuring their thoughts due to the abundance of ideas, which leads to mistakes in organizing paragraphs and text structures^[5, 6].

Vocabulary plays a pivotal role in determining the quality of students' written work^[7]. It acts as a medium for expressing ideas in the target language, and limitations in vocabulary or its inappropriate use can hinder effective communication. Writers must possess sufficient vocabulary to avoid ambiguity or misunderstandings. Wu and Garza^[8] observed that English learners often make more errors related to interlingual influences than intralingual ones, likely due to the impact of their first language^[9]. Thus, vocabu-

lary remains a significant challenge for learners and requires focused attention in the teaching and learning process to improve writing skills. Studies suggest that structural and linguistic aspects of writing are strongly linked to reading comprehension, vocabulary knowledge, and overall English proficiency^[10]. To address these challenges, incorporating project based learning (PBL) activities into the curriculum can effectively support vocabulary development and, consequently, enhance writing abilities.

2. Project Based Learning (PBL)

PBL is recommended for language learning as it helps enhance English learners' proficiency^[11]. This approach actively engages students in tasks that foster problem-solving abilities, collaborative learning, and decision-making skills^[12]. It also involves a critical exploration of topics^[13], encouraging learners to construct and apply their knowledge while acquiring new information. By linking prior knowledge with new insights, PBL strengthens memory and promotes deeper learning through the use of authentic materials. These materials expose learners to real-world language use, facilitating meaningful and practical language input. Consequently, PBL offers students numerous opportunities to demonstrate their language competence in authentic and relevant contexts.

The implementation of PBL provides various benefits in skill development. Bailey and Barley^[14] highlight its advantages in fostering communication, creative and critical thinking, problem-solving, and collaboration, as well as nurturing a sense of responsibility among learners. These skills are especially valuable in language learning, where they contribute to a more effective and engaging educational experience. Integrating multidisciplinary project-based learning into language instruction promotes critical thinking and collaboration skills^[15]. Language learning is a complex cognitive process that involves investigation, exploration, and synthesis, ultimately enhancing comprehension, translation, and language production^[16]. Through PBL, students adopt a student-centered approach that enhances their learning independence^[17]. This approach encourages learners to take initiative, identify solutions, and meet their learning needs autonomously.

Another notable benefit of PBL is its ability to enhance creativity. It has been shown to improve students' writing abilities and foster creativity^[18]. Creativity plays a crucial role in writing, as students develop their comprehension of topics, structural knowledge, and language features in their written outputs^[19]. Through projects, students are encouraged to research and formulate their knowledge, using creativity to organize and construct their writing. Additionally, project-based learning supports collaborative skills, enhancing motivation, teamwork, communication, and creativity^[20, 21]. Collaborative learning allows students to encounter diverse perspectives, broadening their understanding while working on projects.

Given its numerous advantages, PBL is strongly advocated in higher education as an effective teaching strategy. It fosters practical skills and prepares students for real-world challenges, including improving their writing abilities^[22]. This approach engages learners in realistic practices for skill development^[23]. Writing, being a critical skill for language learners, is emphasized in academic settings through activities such as composing reports and articles. Authentic materials play a key role in this process, providing clear and relevant guidance for assignments. These materials also prepare students for professional writing tasks, such as formal emails and business communications. Teaching writing through PBL is highly beneficial as it develops content quality, introduces writing conventions, and reinforces grammar, vocabulary, and sentence structures. Overall, PBL is a comprehensive approach that enhances English learners' writing skills across linguistic, cognitive, and psychological dimensions. The model of project-based learning in writing is illustrated in Figure 1.

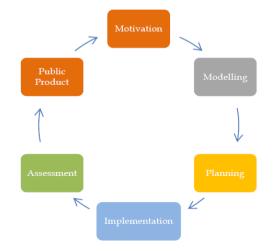


Figure 1. Project Based Learning Models.

2.1. Theoretical Framework

Kolb's experiential learning theory serves as a robust framework for understanding learning, development, and change. It emphasizes four key processes: concrete experience, abstract conceptualization, reflective observation, and active experimentation^[24]. As explained by^[25], experiential learning emphasizes "learning by doing," wherein learners acquire knowledge through firsthand experiences or attempts at novel tasks. This approach aligns closely with the principles of PBL^[25]. PBL builds on existing classroom activities, offering students extended time to choose topics, develop questions, conduct research, and produce solutions to realworld problems or inquiries^[26].

As a form of experiential learning, PBL provides students with meaningful and engaging experiences. Kolb's model effectively supports inquiry-based discovery learning, helping students retain knowledge more effectively compared to traditional text-based methods^[27]. Moreover, the integration of PBL and experiential learning offers English students' valuable opportunities to enhance their vocabulary acquisition while boosting self-confidence in speaking^[24]. The PBL approach, grounded in Kolb's model, adheres to several principles: learning is a continuous process, optimal learning occurs when students apply their own ideas and beliefs, learning involves ongoing conflict resolution, and it adopts a holistic approach that connects learners to their immediate and broader environments^[28].

2.2. Application of PBL in English Language Skills and Development

Several studies have explored the impact of PBL on various dimensions of language proficiency, including productive skills, learning strategies, personal development, and teacher effectiveness. These studies, conducted in diverse teaching contexts, have provided both quantitative and qualitative evidence of PBL's positive influence on learners' language abilities. For instance, Newprasit and Seepho^[29] examined the potential of project-based lessons to improve students' overall language proficiency by integrating them systematically into routine foreign language instruction. Their research, employing a single-group pre-test-post-test design with multiple data collection methods, revealed that students' overall English proficiency significantly improved through exposure to PBL. Aghayani and Hajmohammadi^[22] emphasized that writing is a cognitive skill critical for EFL learners, involving comprehension, application, synthesis of new knowledge, and expression of thoughts and emotions. Additionally, a study in Colombia investigated how PBL enhanced the speaking skills of ninth-grade EFL learners. Over the course of three projects, 30 students worked in small groups, discussing their lives and surroundings. The findings indicated that PBL helped students overcome anxiety about speaking English, improve their vocabulary, and foster a greater interest in learning about their school and community^[30].

3. The Effects of Project Based Learning

3.1. English Skills

The study by Puangpunsi^[31], titled *Learners' Perceptions towards Project-Based Learning in Encouraging English Skills Performance and 21st Century Skills*, explores the impact of PBL on enhancing English language skills and fostering 21st-century competencies. The research aims to evaluate how PBL activities contribute to more effective English learning and the development of essential life skills. Previous studies have highlighted the benefits of incorporating PBL into the classroom. By engaging in project-based tasks, which typically begin with identifying key questions, students can acquire both academic knowledge and practical life skills.

PBL classrooms leverage real-world topics to motivate students, encouraging them to apply interdisciplinary skills and practical knowledge in meaningful ways. The findings from this study indicate that most participants believed PBL activities improved their sense of responsibility in learning while promoting collaboration and teamwork. Additionally, students reported positive experiences and satisfaction with integrating PBL into their English classes. Overall, the study concludes that implementing PBL in classrooms helps students achieve meaningful learning outcomes while overcoming some of the challenges associated with traditional learning methods.

3.2. Writing Skills and Ability

PBL has been shown to be effective not only for enhancing speaking skills but also for improving students' writing skills and abilities. A study by Syarifah and Emiliasari^[19], titled *Project-Based Learning to Develop Students' Ability and Creativity in Writing Narrative Stories*, highlights the potential of writing to foster creativity and critical thinking among students. Writing is a crucial skill that plays a significant role in students' success in learning English. However, it is also one of the most challenging language skills for learners to master. Observations from an English education program revealed that students often struggle with writing due to factors such as limited understanding of the topic, unclear purpose for writing, and difficulty in organizing ideas effectively.

To address these challenges, the study focused on using PBL to improve students' skills in writing narrative essays. PBL offers a structured approach to help students enhance their English language abilities by engaging them in meaningful projects. The primary aim of the study was to evaluate whether PBL could support students in higher education to develop their writing skills and creativity. Additionally, the research explored students' perceptions of PBL in writing courses.

The results indicated that PBL significantly improved students' ability and creativity in writing narrative texts. This included better comprehension of the topic, enhanced knowledge of the narrative genre, and a stronger grasp of social functions, text structures, and language features. The findings suggest that PBL is an effective method for fostering students' writing competencies and encouraging originality.

4. Case Study

4.1. Thailand

The study "Enhancing English Skills through Project-Based Learning" by Kornwipa Poonpon explores the impact of PBL on the development of English language skills, particularly focusing on writing, among undergraduate students in Thailand^[11]. It integrates interdisciplinary learning, where students combine their technical field knowledge with English skills to complete practical, real-world tasks.

PBL, as defined by Moss and Van Duzer^[32], emphasizes student-centered, interdisciplinary activities that focus on creating solutions or products. In this study, 47 Information Science majors were tasked with completing a project themed "The Role of Information Science in Our Society," requiring them to employ English writing, reading, speaking, and listening skills. Students created outputs such as presentations, blogs, or performances, showcasing their abilities in a real-world context.

The study highlights that writing skills were enhanced as students developed scripts, PowerPoint slides, and summaries during project preparation. This finding aligns with Solomon's^[33] assertion that PBL bridges classroom learning with real-world application, fostering integrated skill development. Students also reported improvements in vocabulary and translation as they read, analyzed, and synthesized diverse information sources^[11].

The participants found the interdisciplinary-based projects valuable for combining language use and content knowledge. They believed the projects helped them apply classroom learning to practical tasks, reflecting Stoller's^[34] conclusion that PBL integrates language skills with processing information from multiple sources. For example, students practiced writing to present their ideas clearly and persuasively while simultaneously improving their speaking skills through presentations^[11].

However, challenges emerged, including time constraints and inadequate preparation for English presentations. Students suggested additional support for presentation skills, consistent with Simpson's^[35] findings that structured preparation is crucial for PBL's success in EFL contexts. Despite these challenges, most students valued the interdisciplinary project, echoing Srikrai's^[36] observation that PBL fosters motivation and confidence in language use.

The study affirms PBL's effectiveness in enhancing writing skills and recommends its incorporation into EFL instruction to provide students with meaningful, practical learning experiences. It resonates with Brunetti, Petrell, and Sawada's^[37] argument that PBL motivates learners by linking academic skills to real-world applications, enhancing both competence and confidence. Teachers are encouraged to integrate preparatory activities, such as English presentation practice, to optimize learning outcomes.

In summary, Poonpon^[11]'s study underscores the transformative potential of PBL in developing English writing and other language skills. By promoting skill integration, practical application, and learner confidence, PBL serves as an innovative approach to EFL education, particularly in contexts with limited exposure to English.

4.2. Malaysia

The article "Project-Based Learning and Its Effect on Students' English Skills" by Sapan et al.^[38] investigates the impact of PBL on enhancing English skills, specifically writing, among university students in Malaysia. The study integrates a real-world context into language learning, aligning with John Dewey's theory of experiential education, which emphasizes practical, student-centered learning.

PBL fosters a dynamic learning environment where students collaborate on projects that require the application of English in realistic scenarios. In this study, 77 students at Universiti Malaysia Sabah Labuan International Campus worked on workplace-oriented projects, such as creating resumes, meeting agendas, and business proposals. These activities improved students' writing skills by exposing them to formal document preparation, workplace vocabulary, and grammar usage. Students received feedback from instructors, which further enhanced their understanding of sentence structure and appropriate word choice.

Research corroborates that PBL's focus on task authenticity helps students develop essential skills. For example, Luh Tiwika Praba et al.^[39] found that PBL significantly improved students' writing in terms of content, grammar, and vocabulary. Similarly, the students in this study noted that working on realistic projects increased their ability to write with clarity and precision.

Students perceived PBL positively, reporting increased confidence in using English and motivation to improve their language abilities. The realistic tasks gave them a glimpse into workplace demands, encouraging attention to detail and accuracy. The collaborative nature of PBL also helped students refine their writing by discussing ideas and editing work collectively. This aligns with earlier findings that teamwork in PBL enhances learning outcomes^[40].

The findings emphasize the potential of PBL as a transformative tool for teaching English writing. By integrating authentic, career-related tasks into the curriculum, educators can better prepare students for the linguistic demands of the professional world. Furthermore, the collaborative and reflective aspects of PBL not only improve writing skills but also foster critical thinking and problem-solving abilities.

In summary, PBL proves to be an effective strategy for enhancing English writing skills, providing students with practical experience and confidence in language use. As traditional methods fall short in equipping students for global competition, PBL offers a viable alternative for fostering linguistic and professional competence.

Another study conducted in Malaysia was the article "*The Implementation of Project-Based Learning (PjBL) in Writing Skills: An Analysis of Learning Approach*" by Nur Nabila Azman et al. explores the efficacy of Project-Based Learning (PjBL) as a pedagogical strategy to improve English writing skills among ESL (English as a Second Language) learners. By leveraging constructivist principles, PjBL offers a holistic approach to learning, integrating realworld applications and fostering collaboration, autonomy, and creativity in writing tasks^[41].

PjBL is grounded in constructivist theory, which emphasizes active knowledge construction through hands-on experiences rather than passive information absorption. In writing education, PjBL engages learners in meaningful projects, requiring them to develop drafts, edit collaboratively, and present well-structured written products. This method promotes both cognitive and social constructivism:

- Cognitive Constructivism: Learners build knowledge by interpreting and synthesizing experiences, which enhances critical thinking and problem-solving in writing.
- Social Constructivism: Collaboration with peers during group projects fosters active communication, mutual learning, and collective knowledge creation^[42, 43].

PjBL enhances grammar, vocabulary, organization, and coherence. Students participating in PjBL activities showed significant improvements in constructing wellorganized paragraphs and incorporating diverse vocabulary^[44]. Writing assignments modeled after real-world scenarios helped learners apply theoretical knowledge practically, deepening their comprehension and retention of writing strategies^[31].

The interactive and dynamic nature of PjBL increases student motivation and engagement, particularly in writingintensive courses. Students become more invested in their learning outcomes as they see the direct relevance of writing skills to real-world tasks^[45]. Collaborative writing projects further boost confidence and self-efficacy, allowing learners to navigate complex writing tasks with peer support^[39]. PjBL promotes the integration of writing with reading, speaking, and listening skills. Group discussions, peer editing, and presentation of projects help students refine their writing

while improving other linguistic competencies^[46].

Despite its benefits, implementing PjBL in writing courses presents challenges:

- **Time Management:** Teachers often face difficulties in allocating sufficient time for planning, executing, and assessing PjBL activities effectively^[47].
- **Student Adaptation:** ESL learners with lower English proficiency may struggle to adapt to PjBL, especially when required to collaborate with more advanced peers^[44].
- Teacher Readiness: Successful PjBL implementation requires teachers to act as facilitators, necessitating specialized training and preparation^[48].

PjBL is a transformative approach to teaching English writing skills. By fostering autonomy, collaboration, and real-world application, it equips ESL learners with the tools to excel in academic and professional communication. While challenges exist, proper training for educators and strategic implementation can maximize PjBL's effectiveness in writing education. This approach aligns well with 21st-century educational demands, making it a vital tool for language instruction in diverse learning environments.

4.3. KSA (Saudi Arabia)

The article "Enhancing English Language Students' Productive Skills through Project-Based Learning: A Mixed Method Research" by Aldobekhi and Abahussain^[49] examines the effects of PBL on English writing skills among firstyear students at Majmaah University, Saudi Arabia. The study employs a mixed-method approach to explore the impact of PBL on linguistic proficiency, creativity, and collaborative skills, focusing on writing and speaking as core productive skills.

PBL encourages active engagement with real-world tasks, promoting deeper understanding and practical application of language. The research revealed a significant improvement in students' writing performance, with average scores increasing from 4.0 to 4.7 after implementing PBL. Writing tasks included formal letters, essays, and reports, which required attention to grammar, punctuation, sentence structure, and vocabulary. Students demonstrated better paraphrasing, citation, and cohesive structuring of ideas as they progressed through the program. These findings align with previous studies such as those by Praba et al.^[39], who noted the role of PBL in enhancing writing accuracy and fluency, and Alotaibi (2020), who found that explicit PBL approaches improved persuasive writing among Saudi EFL learners. Furthermore, Syarifah and Emiliasari^[19] reported increased creativity and narrative writing ability in students exposed to PBL.

PBL's learner-centered approach motivated students by allowing them to choose topics of personal interest. This autonomy led to higher engagement and enthusiasm, fostering skills such as time management, research, critical thinking, and problem-solving. Semi-structured interviews indicated that students gained confidence in expressing their ideas through writing, supported by reduced errors and enhanced clarity in their assignments.

The study also highlights the importance of collaborative learning in PBL, where students worked in groups to draft, revise, and finalize their projects. Peer reviews and discussions were integral to improving their outputs, a dynamic that aligns with the findings of Aghayani and Hajmohammadi^[22], who emphasized the value of collaboration in writing skill development. Observations revealed that participants enriched their vocabulary and grammar usage through iterative feedback and practical application.

The research identifies challenges such as students' initial unfamiliarity with project-based tasks and difficulties in sourcing reliable information. Addressing these issues required instructor guidance and the integration of tools like Grammarly to support writing improvement. These challenges underline the need for comprehensive training for both teachers and students in PBL methodologies. The study advocates incorporating PBL into EFL curricula to enhance writing skills, build learner autonomy, and promote practical language use. It calls for adequate time, resources, and teacher training to ensure successful implementation.

Aldobekhi and Abahussain's research reinforces the effectiveness of PBL in improving English writing skills. By fostering autonomy, creativity, and collaboration, PBL prepares students for academic and professional challenges, aligning with 21st-century educational paradigms. The study's findings echo broader research highlighting PBL's transformative potential in EFL contexts, such as those by Van Loi^[50], who emphasized its role in enhancing learner autonomy.

4.4. Turkey

The article "*Project-Based Learning in English Language Teaching at a Rural School: A Case Study from Turkey*" by Elif Kemaloglu-Er and Muazzez Tugce Sahin investigates the application of PBL in English Language Teaching (ELT) at a rural school in Turkey. The study highlights PBL's potential to improve English writing skills alongside other linguistic and non-linguistic competencies. Data were collected through questionnaires, interviews, and student outputs, revealing the multifaceted benefits and challenges of PBL in rural settings.

PBL incorporates real-world, learner-centered approaches to teaching, encouraging active engagement and collaboration. The study found that PBL enhanced various aspects of English writing, including:

1. Grammar and Sentence Complexity

Over the course of nine projects, students demonstrated improved grammatical accuracy and sentence complexity. Early outputs contained simple sentences with grammatical errors, but later projects showcased compound structures and greater precision. This progression reflects the iterative nature of PBL, where students refine their language use through feedback and practice.

2. Vocabulary Expansion

Exposure to project themes such as wild animals and environmental protection led students to expand their vocabulary. They incorporated new terms into their writing, improving lexical variety and context-specific language use.

3. Writing Organization and Coherence

Projects required students to create written and oral presentations with structured introductions, development, and conclusions. The consistent use of linking words and logical flow improved coherence in their work.

4. Integration of Skills

PBL encouraged the integration of writing with speaking and research skills. Students produced visual and textual content for presentations, reinforcing their ability to articulate ideas clearly and effectively.

The study emphasized how PBL boosted student motivation and engagement in writing tasks. By connecting projects to real-world topics and the students' experiences, PBL increased their interest and made English learning more meaningful. Regular presentations and interactions, including an eTwinning project with Italian peers, helped students overcome initial hesitation and stage fright, fostering greater confidence in their English abilities.

Despite its benefits, implementing PBL posed several challenges. Students and teachers found the preparation and execution of frequent projects demanding. Balancing the workload with other academic responsibilities required careful time management. While the school had technological resources, students lacked access to computers at home, necessitating additional support from the teacher during school hours.

PBL proved to be a transformative approach for ELT in rural settings, enhancing students' English writing skills and fostering critical life skills such as time management, creativity, and autonomous learning. The study recommends training teachers to integrate PBL effectively, ensuring access to adequate technological resources and adapting projects to balance academic demands with the benefits of experiential learning. By situating writing tasks within meaningful, collaborative contexts, PBL equips students with the linguistic and practical competencies required for academic and professional success.

4.5. Vietnam

The article "Applying Project-Based Learning to Improve English Speaking Skills of Remote Learners at Tertiary Education" by Nguyen et al. explores how Project-Based Learning (PBL) improves English language skills, including writing. The study examines the effectiveness of PBL in enhancing learner autonomy, linguistic competence, and engagement through structured, real-world projects, particularly for remote learners using online platforms.

PBL enhances grammar and vocabulary by encouraging students to draft, revise, and finalize written outputs. Learners self-correct their grammatical errors and improve lexical diversity through peer feedback and iterative writing. These activities are crucial for improving sentence structure and coherence in academic and professional writing.

Tasks such as preparing scripts for recorded video discussions and drafting responses to critical questions help learners contextualize their writing. This aligns with Thomas's^[51] findings that PBL improves both practical and theoretical knowledge application.

Students practicing writing in PBL projects simultaneously improve their speaking, listening, and reading skills. Writing tasks are interwoven with speaking activities, such as preparing and presenting video clips, reinforcing their command over syntax, vocabulary, and thematic coherence.

By involving students in project selection and execution, PBL fosters greater motivation. The self-organized learning environments (SOLEs) created during PBL encourage learners to explore diverse resources, manage time, and take ownership of their progress. Brainstorming and refining ideas during projects improve critical thinking. Learners were reported to engage deeply with the material, crafting well-reasoned written arguments and responses.

PBL requires careful design and monitoring. Some students struggled with time management, while others faced challenges in adapting to self-directed learning. Additionally, online platforms posed technical difficulties like unstable internet connectivity, which sometimes hindered collaboration. The study highlights the importance of teacher facilitation in scaffolding tasks and providing timely feedback. Designing projects with clear guidelines and integrating peer review mechanisms can mitigate challenges and enhance outcomes.

PBL emerges as a transformative teaching methodology, significantly impacting English writing skills by fostering autonomy, linguistic proficiency, and real-world application. The research demonstrates that when students are actively engaged in meaningful projects, they not only improve their writing but also develop critical thinking and collaborative skills essential for academic and professional success.

4.6. Morocco

The article "*The Impact of Mobile-Assisted Project-Based Learning on Developing EFL Students' Speaking Skills*" by Hassane Benlaghrissi and L. Meriem Ouahidi provides valuable insights into integrating PBL with mobile-assisted language learning (MALL) in English teaching. Although the study primarily focuses on speaking, its findings on PBL's pedagogical strategies also highlight their applicability to writing skill development in English as a Foreign Language (EFL) context^[52].

PBL fosters engagement with real-life tasks, encouraging students to produce meaningful and contextually appropriate written content. Learners in PBL frameworks develop writing competencies by drafting reports, essays, and other textual artifacts, as they tackle challenges that mirror realworld scenarios. Studies reviewed in the article emphasize that PBL nurtures creativity, critical thinking, and effective communication in writing tasks^[53, 54].

The iterative nature of PBL supports improvements in specific aspects of writing. Repeated exposure to authentic materials and collaborative revision processes enhance vocabulary use and grammatical accuracy. Tasks like designing brochures or posters push learners to apply and expand their linguistic range. Structured project outputs improve students' ability to organize ideas logically and connect them through cohesive devices, a key competency in writing.

Incorporating mobile technology (MALL) into PBL tasks amplifies its impact on writing. Applications such as Word processors, online collaboration tools, and multimedia content creation platforms provide learners with instant feedback and support drafting, editing, and presenting polished outputs^[55, 56]. This approach aligns with 21st-century educational paradigms that emphasize digital literacy.

PBL empowers students to take charge of their learning by selecting project topics and managing timelines. This autonomy boosts motivation and instils a sense of responsibility, which translates into higher-quality written outputs^[57, 58]. Group-based projects encourage peer feedback, enabling students to refine their drafts collaboratively. Such social interactions not only enhance writing proficiency but also foster critical soft skills like teamwork and adaptability^[59].

Despite its benefits, PBL requires careful planning and execution. Challenges include balancing academic workloads, ensuring equitable group contributions, and providing adequate teacher support for scaffolding complex writing tasks. Effective PBL requires instructors to shift from traditional roles to facilitators who guide learners in navigating projects. Training in digital tools and project management can enhance teachers' ability to support writing-focused PBL initiatives.

4.7. China

The article "Implementing Project-Based Language Teaching to Develop EFL High School Students' Key Competences" by Xiaohui Sun and Peiqi Zhu examines the use of Project-Based Learning (PBL) in English as a Foreign Language (EFL) classroom in China, particularly its effect on enhancing English writing skills. Using a mixed-method approach, the study highlights how PBL can effectively improve linguistic and cognitive skills while fostering key competencies^[60].

PBL integrates real-world tasks into the learning process, bridging classroom instruction with practical applications. In this study, students created brochures and presentations about their hometown, Qingdao, which required them to produce coherent and meaningful written content. These tasks provided opportunities to enhance grammar, vocabulary, and sentence complexity while fostering a sense of purpose and connection to their work. By engaging in such activities, students were able to apply language rules and skills to authentic situations, making their learning more impactful and relevant.

The study further revealed that PBL improved various writing subskills and higher-order competences. For instance, students demonstrated enhanced abilities in describing and interpreting ideas, synthesizing information, and applying prior knowledge to new contexts. Writing tasks required students to reason and argue using evidence, while collaborative brainstorming fostered creativity and innovative expressions. These competencies are critical for effective written communication and were strengthened through the iterative and reflective nature of PBL.

PBL also facilitates the integration of multiple language skills, including speaking and reading, into writing tasks. By participating in group discussions and iterative feedback processes, students refined their written outputs while simultaneously improving their overall linguistic proficiency. The collaborative aspect of PBL was particularly beneficial, as students exchanged ideas and received constructive feedback from peers and instructors, allowing them to enhance both linguistic accuracy and interpersonal skills.

Motivation and engagement played a significant role in the success of PBL. Students gained confidence through their active involvement in choosing project topics and contributing to group efforts. This autonomy and the real-world relevance of tasks, such as creating brochures, encouraged sustained interest and enthusiasm. Collaboration further enhanced engagement, as students worked together to refine their work, drawing on collective creativity and shared knowledge.

However, the study also identified challenges in implementing PBL, including the high demands on teachers to design and manage projects effectively and variations in student participation and access to resources. To address these challenges, the authors recommend teacher training to ensure educators are equipped to facilitate PBL effectively. Clear project guidelines and alignment with student interests were also emphasized to maintain focus and motivation throughout the learning process.

4.8. Indonesia

The article "*Exploring the Efficacy of Project-Based Learning in English Language Teaching*" by Stenlly Sedubun and Nurhayati investigates the application of PBL in English language teaching (ELT), with a focus on its impact on writing skills^[61]. The study employs a systematic literature review to synthesize research findings from 2010 to 2023, examining PBL's benefits, challenges, and implications in language education.

PBL fosters an active and collaborative learning environment where students engage in meaningful projects requiring the use of English writing skills. The study highlights several key benefits:

1. Enhancement of Communicative Competence

- 2. Through PBL, students are encouraged to use English authentically, which integrates writing with speaking, reading, and listening skills. Tasks such as creating reports, multimedia presentations, and essays help students develop grammar, vocabulary, and organization in writing^[62, 63]. The meta-analysis by^[61] found that PBL significantly improves writing fluency and coherence by situating learning in real-world contexts.
- 3. Development of Critical Thinking and Problem-Solving Skills
- 4. PBL tasks involve investigating complex problems, synthesizing information, and generating creative outputs, which improves critical thinking and cognitive engagement in writing. For instance, students must evaluate data and present arguments coherently, enhancing their ability to produce structured and persuasive written texts^[64, 65].

5. Motivation and Engagement in Writing Tasks

6. By aligning projects with students' interests and realworld applications, PBL increases motivation and persistence. Writing tasks become less abstract and more engaging, resulting in higher quality and more sustained efforts in writing^[61, 66].

Despite its benefits, implementing PBL in ELT presents several challenges, particularly concerning writing instruction:

- Time Constraints: Designing and completing PBL projects within the confines of academic schedules can limit opportunities for iterative feedback and revisions, which are crucial for improving writing skills^[67].
- Assessment Issues: Assessing written outputs in PBL contexts is complex, requiring rubrics that accommodate both linguistic accuracy and creative problem-solving^[68].
- **Teacher Readiness:** Instructors need training to design effective PBL activities and provide appropriate support for developing writing skills^[63].

To optimize the impact of PBL on writing skills, the study suggests:

- 1. **Comprehensive Teacher Training:** Educators should receive training in designing and assessing PBL projects with a focus on enhancing writing skills.
- 2. Innovative Assessment Strategies: Developing rubrics that combine formative and summative assessments can ensure continuous feedback and meaningful evaluation of writing^[68].
- Strategic Curriculum Integration: PBL should be embedded in curricula with clear objectives, ensuring alignment with writing skill development and other linguistic goals^[61].

5. Conclusions

This review highlights the significant role of PBL in enhancing English writing skills among learners, particularly in EFL contexts. PBL fosters critical thinking, creativity, and collaboration by engaging students in meaningful, realworld tasks. It addresses common challenges in writing, such as grammatical accuracy, vocabulary development, and idea organization, while promoting learner autonomy and motivation. The integration of authentic materials and interdisciplinary approaches further strengthens the practical application of language skills, preparing students for academic and professional communication.

Despite its numerous advantages, the successful implementation of PBL requires careful planning, teacher training, and adequate resources to overcome challenges like time constraints and assessment complexities. As a student-centered and innovative approach, PBL not only enhances linguistic competence but also cultivates essential life skills. Incorporating PBL into EFL curricula holds transformative potential, equipping learners with the tools needed for effective writing and broader success in language learning.

Author Contributions

C.C. conceived the idea of the study, designed the research framework, and wrote the manuscript. N.A.A.R. was responsible for guidance on the framework of the study and providing revision suggestions. G.Y.S. contributed to the design of the study and guidance on the revision of the study. N.A.A.R. reviewed the manuscript for intellectual content, and coordinated the final revisions. All authors read and approved the final manuscript.

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Conflicts of Interest

The authors declare no conflict of interest.

References

- Kroll, J., 2018. The Creative Writing Doctoral Thesis: Insights from Genetic Criticism. New Writing. 15(2), 148–169. DOI: https://doi.org/10.1080/ 14790726.2017.1339357
- [2] Utami, N.C., Apsari, Y., 2020. Students' Difficulties in Writing Recount Text through Project Based Learning. Professional Journal of English Education. 3(5), 620–623. DOI: https://doi.org/10.22460/project.v3i5. p620-623
- [3] Mohammed, G.M.S., 2021. Mother Tongue Influence on English Writing: A Study with EFL Learners at the University of Bisha. Asian ESP Journal. 17(3.2), 198–210. DOI: https://doi.org/10.13140/RG .2.2.26517.24801
- [4] Alzahrani, F.Y., Alghamdi, E.M., Qutob, M.M.S., 2020. An Insight into Female EFL Learners' Difficulties and Needs in Writing: The Case of Secondary High Schools in Saudi Arabia. Arab World English Journal. TESOL-20, 343–359. DOI: https://doi.org/10.24093/awej/mec 2.25
- [5] Rahmatunisa, W., 2014. Problems Faced by Indonesian EFL Learners in Writing Argumentative Essay. English Review: Journal of English Education. 3(1), 41–49.
- [6] Derakhshan, A., Shirejini, R.K., 2020. An Investigation of the Iranian EFL Learners' Perceptions towards the Most Common Writing Problems. SAGE Open. 10(2), 9523. DOI: https://doi.org/10.1177/ 2158244020919523
- [7] Kiliç, M., 2019. Vocabulary Knowledge as a Predictor of Performance in Writing and Speaking: A Case of Turkish EFL Learners. PASAA: Journal of Language Teaching and Learning in Thailand. 57, 133–164.
- [8] Wu, H.P., Garza, E.V., 2014. Types and Attributes of English Writing Errors in the EFL Context—A Study of Error Analysis. Journal of Language Teaching and Research. 5(6), 1256–1262. DOI: https://doi.org/10. 4304/jltr.5.6.1256-1262
- [9] Octaviani, R.P., Jannah, L.M., Sebrina, M., et al., 2024. The Impacts of First Language on Students' English Pronunciation. International Journal of Indonesian Education and Teaching. 8(1), 164–173. DOI: https://doi.org/10.24071/ijiet.v8i1.6758
- [10] Moon, Y., Choi, J., Kang, Y., 2019. Does Reading and Vocabulary Knowledge of Advanced Korean EFL Learners Facilitate Their Writing Performance? Journal of Asia TEFL. 16(1), 149–162. DOI: https://doi.or g/10.18823/asiatefl.2019.16.1.10.149
- [11] Poonpon, K., 2018. Enhancing English Skills through Project-Based Learning. The English Teacher. XL (1), 1–10.
- [12] Mujiono, M., Weganofa, R., Herawati, S., 2023. Project-Based Learning Intervention and Its Effect on Promoting English Language Proficiency Based

on Moderator Variables: Meta-Analysis. International Journal of Instruction. 16(4), 465–484.

- [13] Grant, M., 2002. Getting a Grip on Project-Based Learning: Theory, Cases, and Recommendations. Meridian: A Middle School Computer Technologies Journal. 5(1), 1–17.
- Bailey, D.E., Barley, S.R., 2020. Beyond Design and Use: How Scholars should Study Intelligent Technologies. Information and Organization. 30(2), 100286. DOI: https://doi.org/10.1016/j.infoandorg .2019.100286
- [15] Trisdiono, H., Siswandari, S., Suryani, N., et al., 2019. Multidisciplinary Integrated Project-Based Learning to Improve Critical Thinking Skills and Collaboration. International Journal of Learning, Teaching and Educational Research. 18(1), 16–30. DOI: https://doi.org/ 10.26803/ijlter.18.1.2
- [16] Astuti, D., Syukri, S., Nurfaidah, S., et al., 2021. EFL Students' Perceptions of the Benefits of Project-Based Learning in Translation Class. International Journal of Transdisciplinary Knowledge. 2(1), 12–26. DOI: https://doi.org/10.31332/ijtk.v2i1.14
- [17] Al-Busaidi, S., Al-Seyabi, F., 2021. Project-Based Learning as a Tool for Student-Teachers' Professional Development: A study in an Omani EFL Teacher Education Program. International Journal of Learning, Teaching and Educational Research. 20(4), 116–136. DOI: https://doi.org/10.26803/ijlter.20.4.7
- [18] Nurcahya, N., Sugesti, I., 2020. Enhancing Students' Writing Ability and Creativity through Project Based Learning on Greeting Card. English Teaching Journal. 11(1), 25–33. DOI: https://doi.org/10.26877/eternal. v11i1.6063
- [19] Syarifah, E.F., Emiliasari, R.N., 2019. Project-Based Learning to Develop Students' Ability and Creativity in Writing Narrative Story. Indonesian EFL Journal. 5(1), 85-94. DOI: https://doi.org/10.25134/ieflj.v5i1.1627
- [20] Andriyani, S., Anam, S., 2022. Exploring the Relationship between Project-Based Learning and Collaborative Skills: EFL Learners' Voices. Al-Lisan. 7(1), 51–63. DOI: https://doi.org/10.30603/al.v7i1.2413
- [21] Lubis, N., Lubis, A., Ashadi, R.I., 2018. Integrating Teaching Models to Enhance EFL Students' Interpersonal Communication Skill and Creativity. International Journal of Education and Literacy Studies. 6(4), 129. DOI: https://doi.org/10.7575/aiac.ijels.v.6n.4p .129
- [22] Aghayani, B., Hajmohammadi, E., 2019. Project-Based Learning: Promoting EFL Learners Writing Skills. LLT Journal: A Journal on Language and Language Teaching. 22(1), 78-85. DOI: https://doi.org/10.24071/llt
- [23] Sathappan, R., Gurusamy, P., 2021. The Benefits of Project-Based Language Learning: A Case Study in a Malaysian Secondary School. Journal of Social Science Research. 17, 1–9. DOI: https://doi.org/10.24297/

jssr.v17i.8970

- [24] Somjai, S., Soontornwipast, K., 2020. The Integration of Implicit and Explicit Vocabulary Instruction, Project-Based Learning, Multimedia, and Experiential Learning to Improve Thai EFL Senior High School Students' Vocabulary Ability. Arab World English Journal (AWEJ) Special Issue on CALL (6). 171–190. DOI: https://dx.doi.org/10.24093/awej/call6.12
- [25] Smith, A., 2016. Experiential Learning. In: Wilkinson, A., Johnstone S. (eds.). Encyclopedia of Human Resource Management. Edward Elgar Publishing Limited: Cheltenham, UK.
- [26] Alotaibi, M.G., 2020. The Effect of Project-Based Learning Model on Persuasive Writing Skills of Saudi EFL Secondary School Students. English Language Teaching, 13(7), 19–26. DOI: https://doi.org/10.5539/ elt.v13n7p19
- [27] Handrianto, C., Rahman, M.A., 2019. Project Based Learning: A Review of Literature on Its Outcomes and Implementation Issues. LET: Linguistics, Literature and English Teaching Journal. 8(2), 110–129. DOI: https://doi.org/10.18592/let.v8i2.2394
- [28] Bohon, L.L., McKelvey, S., Rhodes, J. A., et al., 2017. Training for Content Teachers of English Language Learners: Using Experiential Learning to Improve Instruction. Teacher Development. 21(5), 609–634. DOI: https://doi.org/10.1080/13664530.2016.1277256
- [29] Newprasit, N., Seepho, S., 2015. The Effects of a Project-Based Learning Approach on the Improvement of English Language Skills. Journal of Applied Language Studies and Communication, 1, 16–51.
- [30] Vaca Torres, A.M., Gómez Rodríguez, L.F., 2017. Increasing EFL Learners Oral Production at a Public School through Project-Based Learning. Profile Issues in Teachers Professional Development. 19(2), 57–71. DOI: https://doi.org/10.15446/profile.v19n2.59889
- [31] Puangpunsi, N., 2021. Learners' Perception towards Project-Based Learning in Encouraging English Skills Performance and 21st Century Skills. Thai TESOL Journal. 34(1), 1–24.
- [32] Moss, D., Van Duzer, C., 1998. Project-Based Learning for Adult English Learners. Available from: ht tp://www.ericdigest.org/1999-4/project.htm (cited 20 September 2010).
- [33] Solomon, G., 2003. Project-Based Learning: A primer. Technology & Learning. 23, 20–27.
- [34] Stoller, L.S., 1997. Project Work: A Means to Promote Language Content. The Forum. 35(4), 2–18.
- [35] Simpson, J., 2011. Integrating Project-Based Learning in an English Language Tourism Classroom in a Thai University Institution [Doctoral Thesis]. Canberra, AUS: Australian Catholic University.
- [36] Srikrai, P., 2008. Project-Based Learning in an EFL Classroom. Journal of Humanities and Social Sciences, Khon Kean University. 25, 85–111.

- [37] Brunetti, A.J., Petrell, R.J., Sawada, B., 2003. Team Project-Based Learning Enhances Awareness of Sustainability at the University of British Columbia, Canada. International Journal of Sustainability in Higher Education. 4(1), 210–217.
- [38] Sapan, N., Siti Katijah, S., Zulhaimi, N., et al., 2019. Project-Based Learning and Its Effect on Students' English Skills. International Journal of Education and Pedagogy. 1(2), 74–86.
- [39] Luh, T.P., Luh, P.A., Dewa, P.R., 2018. Project-Based Learning and Writing Skill in EFL: Are They Related? SHS Web of Conferences. 42, 00059. DOI: https://doi.org/10.1051/shsconf/20184200059
- [40] Azura, O., Nur Farizah, T., Ida, S.B., 2012. Project-Based Learning: English Carnival in Universiti Kuala Lumpur-Malaysia France Institute. The English Teacher, 41(1), 27–41.
- [41] Azman, N.N., Abdul Rahman, N.A., Goh, Y.S., 2024. The Implementation of Project-Based Learning (PjBL) in Writing Skills: An Analysis of Learning Approach. MJSSH: Malaysian Journal of Social Sciences and Humanities. 8(2), 93–102. DOI: https://doi.org/10.33306/ mjssh/278
- [42] Nurul, F., Zaidatun, Noor, D., Zakiah., 2017. Project-Based Learning from Constructivism Point of View. Advanced Science Letters. 23(8), 7904–7906.
- [43] Saleem, A., Kausar, H., Deeba, F., 2021. Social Constructivism: A New Paradigm in Teaching and Learning Environment. Perennial Journal of History. 2(2), 403–421.
- [44] Wardani, D.S., Fauzi, M.R., Zafira, R., et al., 2020. Creating Props: Improving Writing Skills of Teaching Materials of Elementary Teacher Education Students through Project-Based Learning Model. Elementary School Forum (Mimbar Sekolah Dasar). 7(2), 216–234.
- [45] Deveci, T., 2018. Student Perceptions on Collaborative Writing in a Project-Based Course. Universal Journal of Educational Research. 6(4), 721–732.
- [46] Lu, Q., 2021. A New Project-Based Learning in English Writing. International Journal of Emerging Technologies in Learning. 15(5).
- [47] Nurkhamidah, N., 2023. Investigating the Lecturers' Challenges in Implementing Project-Based Learning in Writing Class. SUSTAINABLE Jurnal Kajian Mutu Pendidikan. 6(1), 1–10.
- [48] Kemaloglu-Er, E., Sahin, M.T., 2022. Project-Based Learning in English Language Teaching at a Rural School: A Case Study from Turkey. Novitas-ROYAL (Research on Youth and Language). 16(1), 34–55.
- [49] Aldobekhi, S.A., Abahussain, M.O., 2024. Enhancing English Language Students' Productive Skills through Project-Based Learning: A Mixed-Method Research. International Journal of Learning, Teaching and Educational Research. 23(1), 231–257. DOI: https://doi.or g/10.26803/ijlter.23.1.12

- [50] Van Loi, N., 2017. Promoting Learner Autonomy: Lesson from Using Project Work as a Supplement in English Skills Courses. Can Tho University Journal of Science. 7, 118–125. DOI: https://doi.org/10.22144/ct u.jen.2017.057
- [51] Thomas, J.W., 2000. A Review of Research on Project-Based Learning. Available from: https://www.asec.purdue.edu/lct/HBCU/documents/A ReviewofResearchofProject-BasedLearning.pdf (cited 10 October 2021).
- [52] Benlaghrissi, H., Ouahidi, L.M., 2024. The Impact of Mobile-Assisted Project-Based Learning on Developing EFL Students' Speaking Skills. Smart Learning Environments. 11(18). DOI: https://doi.org/10.1186/ s40561-024-00303-y
- [53] Fitriati, R., Mafruudloh, N., 2020. The Effect of Project-Based Learning to the Students' Speaking Ability. Celtic: A Journal of Culture, English Language Teaching, Literature, & Linguistics. 7(1), 57–64. DOI: https://doi.org/10.22219/celtic.v7i1.12203
- [54] Suryani, L., Argawati, N.O., 2023. Teaching Speaking through Project-Based Learning with ICT. Indonesian EFL Journal. 9(1), 35–42. DOI: https://doi.org/10. 25134/ieflj.v9i1.7134
- [55] Beckett, G.H., Slater, T., 2018. Technology-Integrated Project-Based Language Learning. The Encyclopedia of Applied Linguistics. 1–8. DOI: https://doi.org/10. 1002/9781405198431.wbeal1487
- [56] Haleem, A., Javaid, M., Qadri, M.A., et al., 2022. Understanding the Role of Digital Technologies in Education: A Review. Sustainable Operations and Computers. 3, 275–285.
- [57] Rostom, M., 2019. Fostering Students' Autonomy: Project-Based Learning as an Instructional Strategy. IJAEDU- International E-Journal of Advances in Education. 5(14), 194–199. DOI: https://doi.org/10.18768/ ijaedu.593503
- [58] Muhammad, M., 2020. Promoting Students' Learning Motivation through Project-Based Learning Using Muvizu in 21st Century Education. Cypriot Journal of Educational Sciences. 15(5), 899–908. DOI: https://doi.org/10.18844/CJES.V1515.5120
- [59] Sultana, M., Musavi, T.M., 2022. Enhancing Students' Academic Listening Using Project Based Learning Method. Periodicals of Social Sciences. 2(2), 235–248.
- [60] Sun, X., Zhu, P., 2023. Implementing Project-Based Language Teaching to Develop EFL High School Students' Key Competences. Sustainability. 15(1658), 1–20. DOI: https://doi.org/10.3390/su15021658
- [61] Sedubun, S., Nurhayati., 2024. Exploring the Efficacy of Project-Based Learning in English Language Teaching: A Literature Review. EDUKASIA: Jurnal Pendidikan dan Pembelajaran. 5(1), 1089–1092. DOI: https://doi.org/10.46576/edukasia.v5i1.2789
- [62] Li, L., 2017. The Effectiveness of Project-Based Learn-

ing in Foreign Language Education: A Meta-Analysis. Educational Psychology Review. 29(3), 685–716.

- [63] Smith, R., Brown, H.D., 2020. Applying Principles of Project-Based Learning to English Language Teaching. TESOL Quarterly. 54(2), 344–367.
- [64] Thomas, J.W., Mergendoller, J.R., 1999. Project-Based Learning: A Handbook for Middle and High School Teachers. Buck Institute for Education.
- [65] Wang, F., Hannafin, M.J., 2017. Design-Based Research and Technology-Enhanced Learning Environments. Educational Technology Research and Development. 65(2), 271–284.
- [66] Chang, C., 2015. Integrating Project-Based Learning into ESL/EFL Curriculum. English Teaching Forum. 53(4), 18–27.
- [67] Walker, A., Leary, H., 2009. A Problem Based Learning Meta Analysis: Differences across Problem Types, Implementation Types, Disciplines, and Assessment Levels. Interdisciplinary Journal of Problem-Based Learning. 3(1), 6.
- [68] Wang, Y., Qi, H., 2022. Exploring the Challenges of Project-Based Learning Implementation in English as a Foreign Language Context: Teachers' Perspectives. Teaching English with Technology. 22(3), 35–50.