



Bibliometric Analysis of a Decade of Research on Project-Based Learning in English Language Teaching (2014–2024)

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ABSTRACT

This study examines the development of Project-Based Learning (PBL) research in English Language Teaching (ELT) over the past decade (2014–2024) through a bibliometric analysis. Utilizing data from the Scopus database and analytical tools such as Biblioshiny and VOSviewer, this research explores publication trends, thematic advancements, geographic contributions, and key research collaborations. The findings indicate a consistent rise in PBL-related publications, with a notable surge during the COVID-19 pandemic, emphasizing PBL's adaptability to remote and hybrid learning environments. Indonesia, China, and Malaysia are identified as leading contributors, underscoring their focus on innovative pedagogies to enhance English proficiency. Thematic analysis highlights major areas such as collaborative learning, critical thinking, and technology integration, as well as emerging themes like e-learning and digital storytelling. However, significant gaps persist, particularly regarding PBL's long-term impact on language proficiency, scalability in under-resourced regions, and the comparative effectiveness of digital tools within PBL frameworks. Addressing these challenges through inclusive cross-cultural research and targeted teacher training can enhance PBL's global applicability. This study reaffirms PBL's transformative role in fostering 21st-century skills and its sustained importance as a learner-centered pedagogy in ELT.

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1. INTRODUCTION

In the era of globalized education, the demand for pedagogical frameworks that foster 21st-century skills, such as critical thinking, collaboration, creativity, and digital literacy, has grown substantially across disciplines, particularly in English Language Teaching (ELT). The increasing complexity of communication in multicultural and multilingual contexts requires learners to go beyond grammatical competence and develop functional and socio-pragmatic language skills relevant to real-life problem-solving and interdisciplinary collaboration (Bhatia, 2022; Codó, 2017). Within this evolving landscape, Project-Based Learning (PBL) has emerged as a promising instructional model that aligns with global educational reforms and constructivist pedagogy. By immersing learners in meaningful, inquiry-driven tasks, PBL provides an authentic context for using English as a tool for communication, collaboration, and knowledge construction (Arsyad et al., 2024; Nguyen & Vu, 2024).

Grounded in constructivist and experiential learning theories, PBL shifts the focus from teacher-centered instruction to student-driven learning, promoting learner autonomy, creativity, and interdisciplinary exploration (Dunbar & Yadav, 2022; Pan et al., 2021). In ELT contexts, this approach facilitates integrated skills development, listening, speaking, reading, and writing, through authentic engagement with real-world challenges (Jendli & Albarakati, 2024; Sharma, 2024). Furthermore, PBL encourages students to collaborate in teams, conduct research, present findings, and reflect on their learning processes, thereby supporting both linguistic and cognitive development. Its alignment with 21st-century competencies has been particularly valuable in contexts where traditional, lecture-based approaches have failed to adequately prepare students for global citizenship and multilingual communication (Assalihee & Boonsuk, 2022; Semilla & Jalos, 2024).

Over the past decade, there has been a noticeable increase in scholarly interest in PBL as a method for enhancing engagement and performance in ELT. Numerous empirical studies have documented the benefits of PBL for improving learner motivation, language fluency, intercultural competence, and collaborative learning (Ingrid, 2019). Moreover, the rise of educational technologies has opened new avenues for implementing digital and virtual PBL environments, especially during and after the COVID-19 pandemic (Al Ansi & Al-Ansi, 2020; Bumblauskas & Vyas, 2021). Digital platforms, such as learning management systems (LMS), video conferencing tools, and interactive content creators, have enabled educators to adapt PBL for remote and hybrid learning, thereby extending its reach to geographically dispersed and underserved student populations (Johan et al., 2022; Rullyana et al., 2023).

Despite these advances, challenges persist in the effective integration and sustainability of PBL in ELT. Several studies have highlighted the lack of teacher training, limited institutional support, and difficulties in assessing long-term language outcomes as key obstacles to successful implementation (Kizi, 2024; Yu et al., 2024). Furthermore, the scalability of PBL in under-resourced educational settings remains problematic, particularly in rural or low-income regions where digital infrastructure and pedagogical innovation are lacking (Roshid & Haider, 2024). These limitations are compounded by the scarcity of longitudinal studies that evaluate PBL's sustained impact on learners' language proficiency and communicative competence over time. Moreover, much of the existing research is contextually fragmented, with case studies often confined to specific institutions, countries, or small cohorts, limiting the generalizability of findings across diverse ELT contexts (Howard, 2019; Yazan, 2017).

Given the rapid expansion of research in this area, there is a growing need for a comprehensive, systematic synthesis of global trends in PBL within ELT. While narrative reviews and meta-analyses provide valuable insights, they often lack the breadth and

objectivity required to map the intellectual structure and developmental trajectory of the field (Öztürk et al., 2024). In contrast, bibliometric analysis offers a data-driven, replicable approach to evaluating the performance, impact, and evolution of research domains through quantitative measures such as citation analysis, co-authorship networks, keyword co-occurrence, and thematic clustering (Aria & Cuccurullo, 2017). Through visual analytics tools like VOSviewer and Biblioshiny, researchers can identify influential authors, institutions, and countries, uncover thematic hotspots, and explore collaborative patterns shaping the PBL research landscape (Johan et al., 2025; Rullyana & Triandari, 2024).

Despite its utility, bibliometric analysis remains underutilized in the field of ELT, particularly in relation to PBL. Most existing bibliometric studies in education focus on broader pedagogical themes or emerging technologies, overlooking the specificities of task-based and project-based methodologies in second language acquisition contexts (Hao & Razak, 2024; Zhang et al., 2022). To date, there is limited bibliometric research that systematically examines how PBL has been applied, adapted, and evaluated in ELT over the past decade, especially across different cultural and policy environments. This gap hampers scholars and practitioners from gaining a holistic understanding of how PBL is shaping language education globally and where future efforts should be directed.

This study addresses these gaps by conducting a comprehensive bibliometric analysis of PBL research in ELT using the Scopus database, covering publications from 2014 to 2024. This decade captures critical moments in global education, including the integration of digital technologies, the pedagogical shifts caused by the COVID-19 pandemic, and the increased emphasis on student-centered learning. The study aims to explore the following research questions: (1) What are the predominant themes, trends, and methodological patterns in PBL research in ELT over the past ten years? (2) Which countries, institutions, and authors have made significant contributions to this field? (3) What gaps and future research directions can be identified to guide scholars, educators, and policymakers?

2. METHODOLOGY

2.1. Research Design

This study employed a bibliometric analysis to investigate research trends in Project-Based Learning (PBL) within English Language Teaching (ELT) over the past decade (2014-2024). Bibliometric analysis was chosen for its ability to systematically quantify and visualize research patterns, enabling the identification of key contributors, thematic developments, and gaps in the existing literature. The Scopus database was selected as the primary data source due to its extensive collection of peer-reviewed publications, ensuring the reliability, diversity, and comprehensiveness of the dataset.

2.2. Data Collection

The data collection process was conducted systematically to ensure accuracy, relevance, and quality. A search query was developed using carefully selected keywords, including "Project-Based Learning," "PBL," "English Language Teaching," "EFL," "ESL," "TEFL," and "TESOL." Boolean operators such as AND, OR, and NOT were used to combine and refine search terms to increase precision and eliminate irrelevant results. Filters were applied to limit the selection to publications in English, and to include only journal articles, conference proceedings, book chapters, and reviews, all within the timeframe of 2014 to 2024. The initial search yielded a total of 172 publications. To ensure dataset quality, a multi-step cleaning and validation procedure was applied. First, duplicate entries were removed to prevent

redundancy caused by indexing overlaps or keyword intersections. Then, a manual screening of titles, abstracts, and keywords was conducted to confirm the relevance of each publication to the intersection of PBL and ELT. Irrelevant documents were excluded based on thematic misalignment. The metadata for each entry, including author names, institutional affiliations, publication years, and source titles, was then standardized to maintain consistency throughout the analysis. Finally, a random subset of the cleaned dataset was cross-checked to ensure that no essential or highly cited studies were inadvertently excluded. This rigorous process resulted in a refined dataset suitable for bibliometric analysis.

2.3. Data Analysis

The analysis of the bibliometric data was carried out using two specialized tools: Biblioshiny and VOSviewer, both of which offer complementary features in the areas of performance analysis, science mapping, and data visualization. Biblioshiny, an R-based application built on the Bibliometrix package, was employed to extract a variety of bibliometric indicators. It facilitated the identification of authorship patterns, including the most prolific authors and collaboration networks. In addition, it enabled the assessment of publication metrics, such as citation counts, document types, and temporal publication trends. Biblioshiny was also used to analyze keyword frequency and thematic trends, allowing for the identification of dominant topics and emerging areas of interest in the PBL–ELT research landscape. Furthermore, the tool provided insight into the geographical distribution of publications, helping to highlight the contributions of specific countries and the nature of international research collaborations. Its user-friendly interface and interactive dashboard allowed for dynamic filtering and refinement of visual outputs, enhancing the interpretability and clarity of the results.

To complement this analysis, VOSviewer, a Java-based application developed by researchers at Leiden University, was utilized to generate visual maps of bibliometric networks. VOSviewer specializes in the construction of co-authorship, citation, and keyword co-occurrence maps that reveal the structural and relational dynamics of the research field. Co-authorship mapping was used to visualize collaborative relationships among authors and institutions, enabling the identification of central figures and research clusters. Citation analysis provided insights into the intellectual foundations of the field by highlighting influential works and their interconnections. Keyword co-occurrence analysis was conducted to explore conceptual linkages among frequently used terms and to uncover dominant themes and research fronts. VOSviewer's high-resolution graphical outputs, including cluster, density, and overlay visualizations, offered intuitive insights into the interconnectedness of research themes, contributors, and institutions.

To enhance the reliability and validity of the findings, several methodological strategies were employed. The search queries were replicated to ensure consistency in the retrieval of publications. While Scopus was the primary database used in this study, sample comparisons were made with other databases such as Web of Science to confirm the comprehensiveness and coverage of the dataset. Furthermore, the analytical processes and visualizations were refined iteratively, allowing for ongoing verification and improvement of the accuracy and clarity of the results. The entire bibliometric workflow employed in this study is summarized in Figure 1, which outlines the key stages of data collection, cleaning, analysis, and visualization.



Figure 1. Stages in Carrying Out Bibliometric Analysis

3. RESULT AND DISCUSSION

3.1. Result

Figure 2 illustrates the annual growth of research publications on Project-Based Learning (PBL) in English Language Teaching (ELT) from 2014 to 2024. The results reveal a consistent upward trend, reflecting the increasing recognition of PBL as an effective pedagogical approach. During the initial period (2014-2016), fewer than 10 publications were recorded annually, indicating limited attention to PBL within ELT research. However, from 2017 onwards, publication rates grew steadily, signalling a rising interest in PBL as a method to foster active learning, collaboration, and critical thinking in language education.

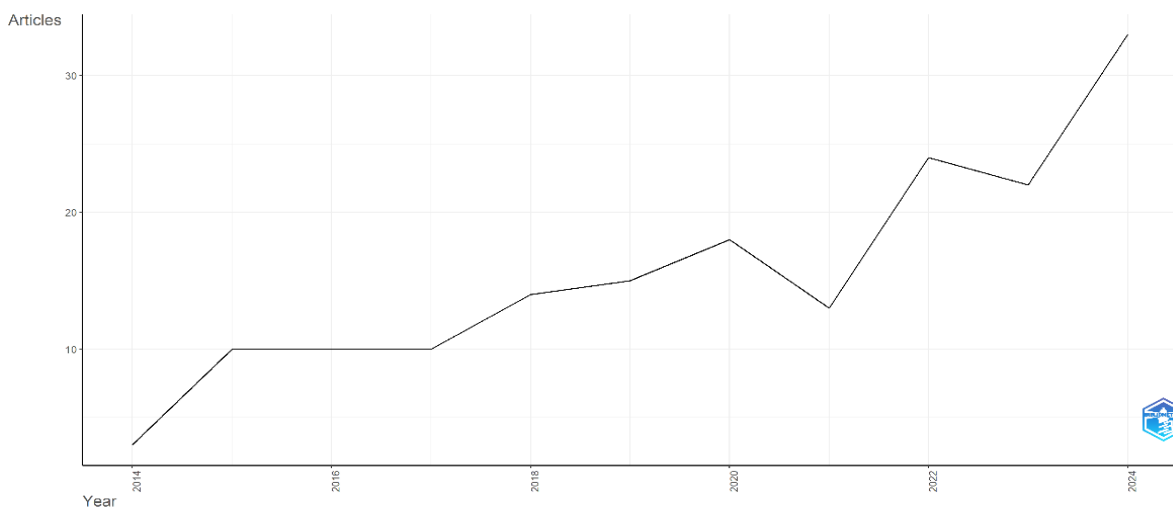


Figure 2. Annual Publication Trends (2014-2024) (Using Biblioshiny)

A significant increase is observed during the COVID-19 pandemic (2020-2023), with the number of publications exceeding 22 articles in 2023. This surge highlights the adaptability of PBL to address the challenges of remote and hybrid learning environments. The continued growth in 2024 underscores PBL’s sustained relevance, particularly in integrating digital tools to enhance learner-centered education.

Figure 3 presents the geographic distribution of research contributions to PBL in ELT over the past decade. Indonesia emerges as the most productive country, accounting for the highest number of publications. This reflects Indonesia's commitment to advancing English proficiency through innovative pedagogical strategies, such as PBL, which aligns with its national educational priorities. China and Malaysia follow closely, emphasizing the integration of technology into PBL frameworks as part of their efforts to modernize education and internationalize English teaching practices. Other notable contributors include the United States and Japan, which have made significant strides in comparative and collaborative research. These findings highlight the central role of these countries in advancing PBL research globally.

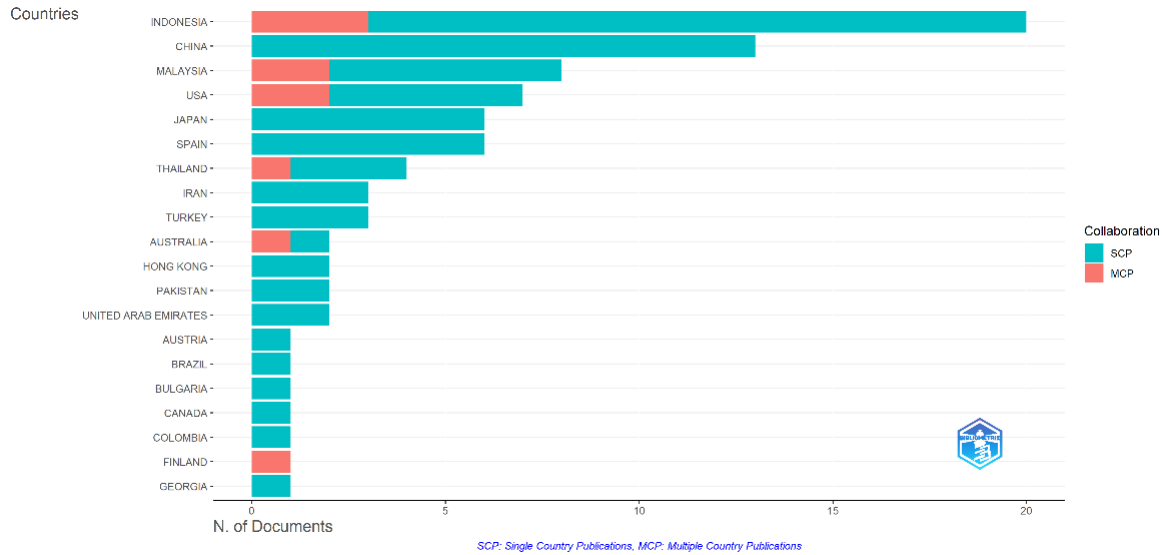


Figure 3. Most Productive Country (Source: Author, Using Biblioshiny)

The country collaboration map (Figure 4) visually depicts global partnerships in PBL research. Indonesia, China, and Malaysia appear as key hubs of collaboration, frequently partnering with other countries to advance innovative pedagogical approaches. The darker shades on the map indicate higher levels of research contribution and collaboration, reflecting the strong focus of these countries on improving language education through PBL.

Regions such as Africa and South America are underrepresented in the collaboration map, suggesting an opportunity to expand cross-regional partnerships. Strengthening research efforts in these regions could enhance the inclusivity and scalability of PBL, ensuring its broader applicability across diverse cultural and socio-economic contexts.

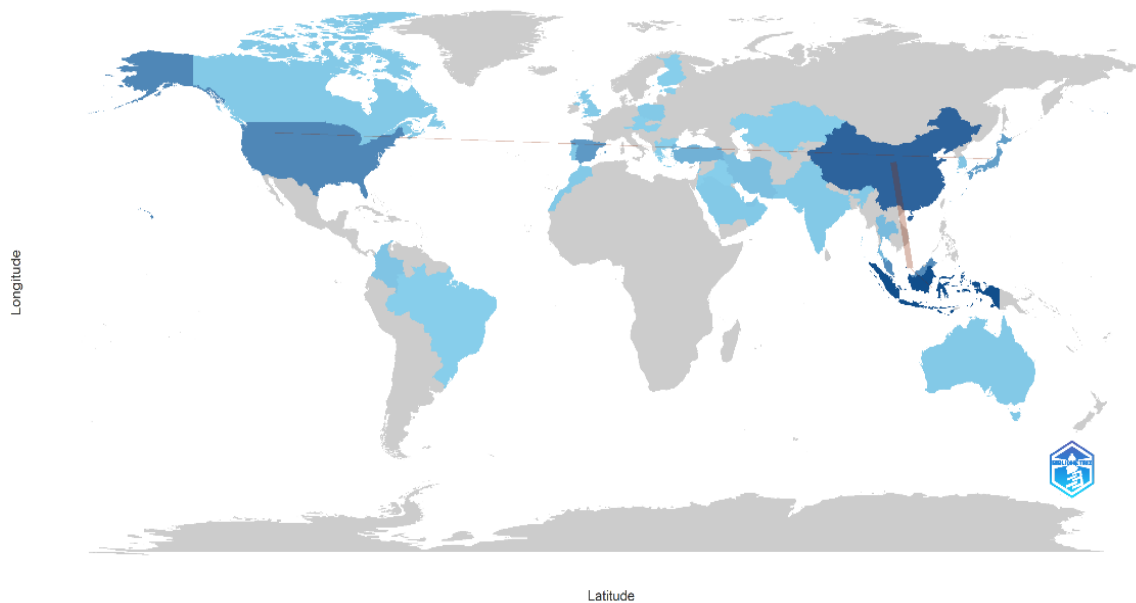


Figure 4. Country Collaboration Map

Figure 5 highlights the most productive institutions contributing to PBL research in ELT. Universitas Negeri Semarang leads with seven publications, reflecting its significant role in advancing research on learner-centered pedagogies in Indonesia. Other prominent institutions include Universitas Negeri Malang, Universiti Kebangsaan Malaysia, Universiti Malaya, and Petrozavodsk State University, each producing six publications.

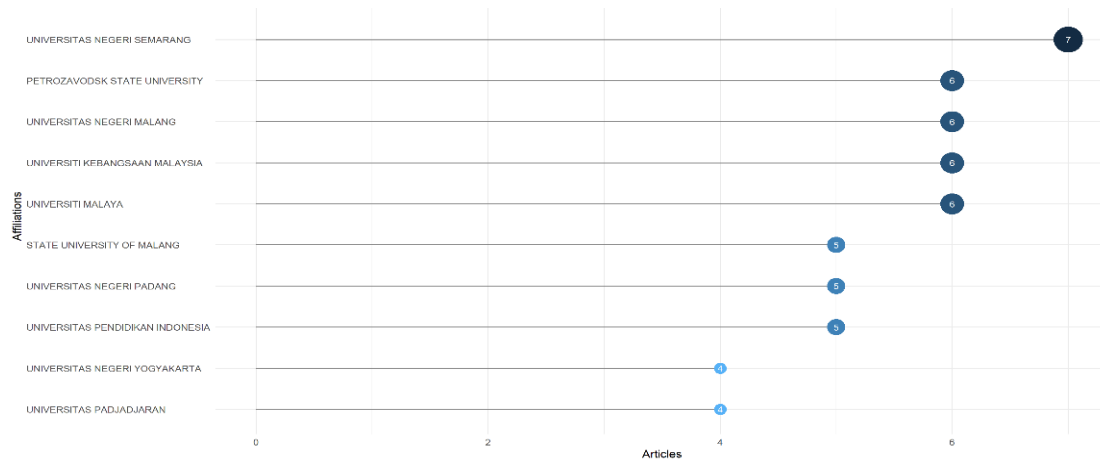


Figure 5. Most Productive Institution

These institutions serve as regional hubs for PBL research, emphasizing its adaptability across diverse cultural and technological contexts. Collectively, they underscore the importance of institutional collaboration in fostering innovation and scaling PBL research worldwide.

3.4. Most Popular Author

Figure 6 identifies Christoph A. Hafner as the most productive author in PBL research, with four publications. Other notable contributors include Lindsay Miller, Thao Quoc Tran, and Sue Wang, each with three publications. These authors have significantly shaped the discourse on PBL, particularly in fostering critical thinking, collaboration, and digital integration in ELT.

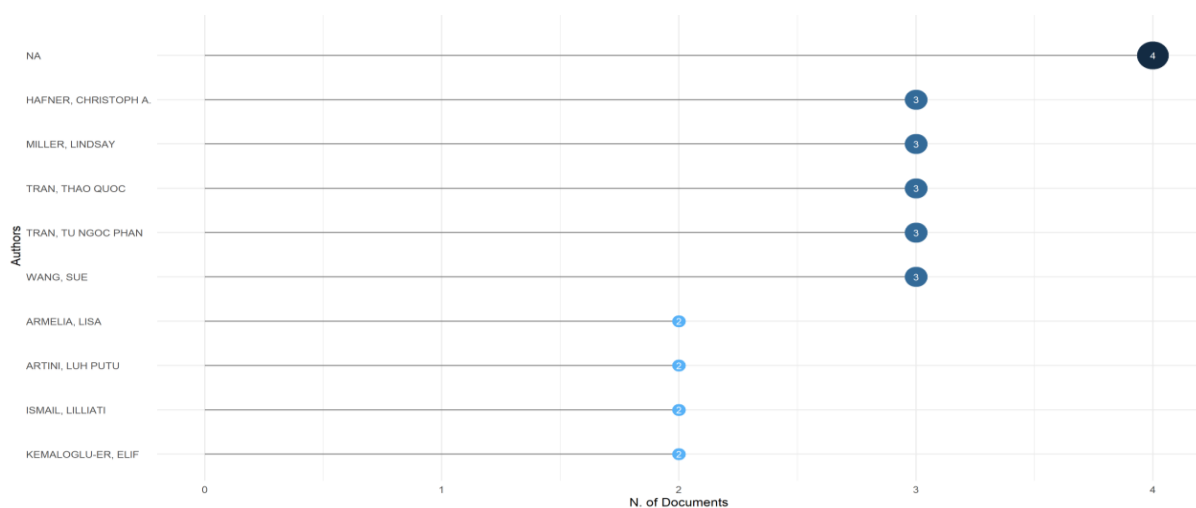


Figure 6. Most Productive Author

The diversity of contributing authors highlights the collaborative and interdisciplinary nature of PBL research. Their work has influenced both theoretical and practical advancements in the field, establishing foundational frameworks for future studies.

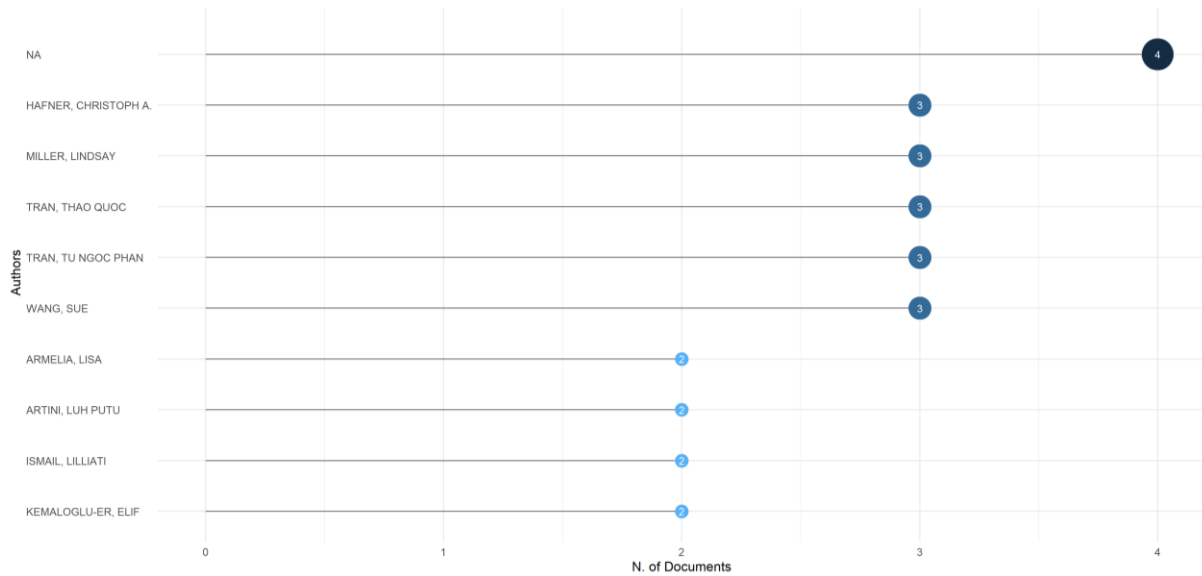


Figure 6. Most Productive Author

Figure 7, generated using VOSviewer, illustrates the co-authorship network among PBL researchers. The map reveals distinct clusters of closely linked authors, with prominent nodes such as Suryati Junjung, Praherdhiono Henry, and Hoesny Mariana Ulfah in the green cluster. Similarly, the red cluster features key authors like Hidayah Dewi and Khansa Maharani. These clusters demonstrate the dynamic nature of collaboration in PBL research, with central figures acting as connectors across different research groups. Such interconnectedness is crucial for advancing innovation and fostering interdisciplinary insights.

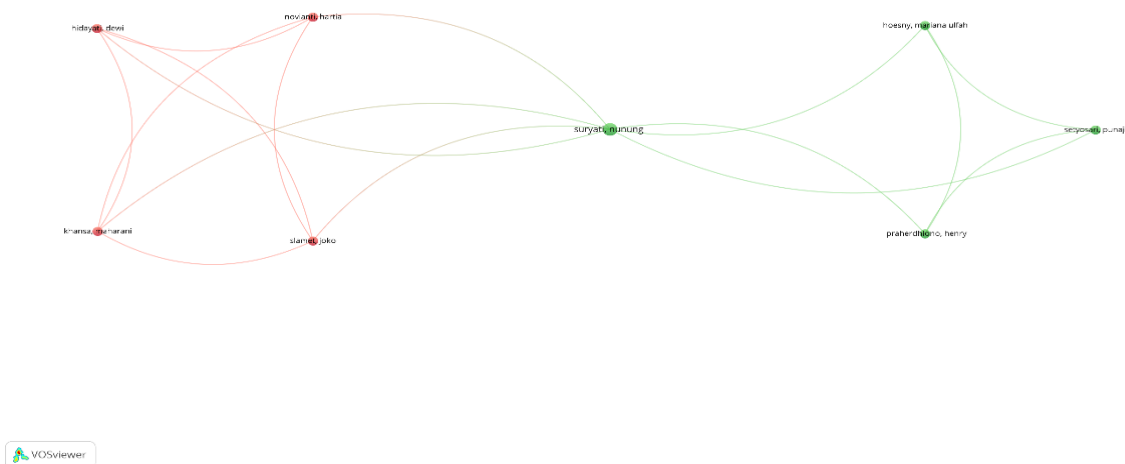


Figure 7. Co-authorship Network Mapping (VOSviewer)

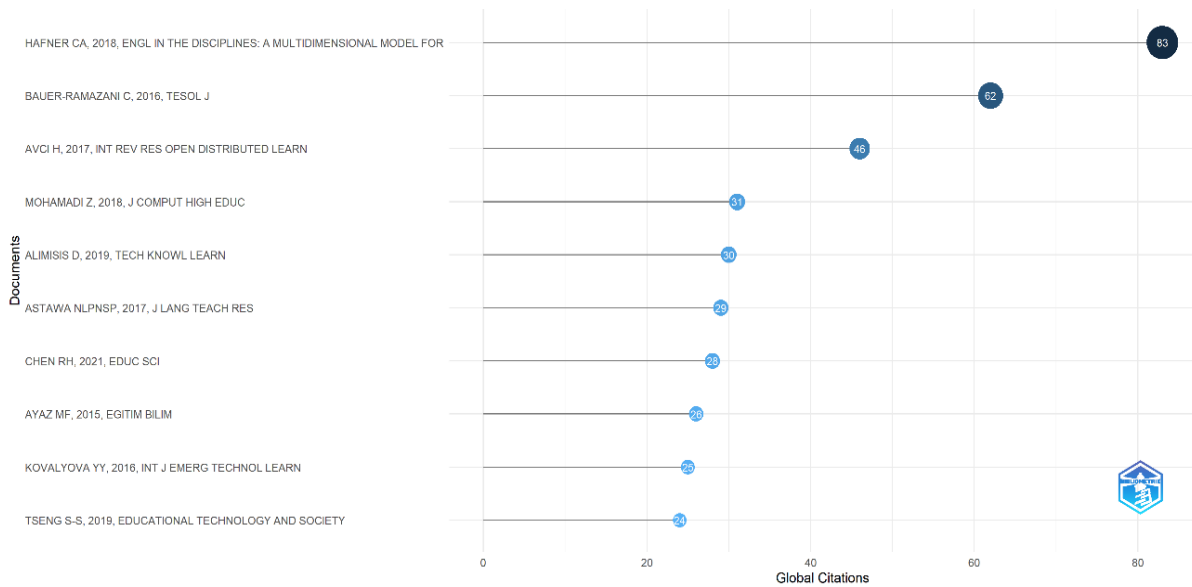


Figure 9. Author With Most Citation

In bibliometric analysis, identifying the most cited authors is crucial for understanding the impact and influence of their contributions within specific research domain. The author citation analysis (Figure 9) reveals the most influential contributors to PBL research in ELT based on citation counts, offering insights into the intellectual impact of their work. Christoph A. Hafner emerges as the most cited author, with 83 citations, followed by Bauer-Ramazani (62 citations) and Avci (46 citations). These authors have made significant contributions to advancing the understanding of PBL’s theoretical and practical applications.

Tabel 1. Table of the Ten Most Cited Articles

Title	Journal Name	Authors	TC
English in the disciplines: A multidimensional model for ESP course design	English in the Disciplines: A Multidimensional Model for ESP Course Design	(Hafner & Miller, 2018)	83
Flipped Learning in TESOL: Definitions, Approaches, and Implementation	TESOL Journal	(Bauer-Ramazani et al., 2016)	62
A case study on mobile-blended collaborative learning in an english as a foreign language (EFL) context	International Review of Research in Open and Distributed Learning	(Avci & Adiguzel 2017)	46
Comparative effect of project-based learning and electronic project-based learning on the development and sustained development of english idiom knowledge	Journal of Computing in Higher Education	(Mohamadi, 2018)	31
Teacher Training in Educational Robotics: The ROBOESL Project	Technology, Knowledge and	(Alimisis 2019)	30

Title	Journal Name	Authors	TC
Paradigm	Learning		
Project-based learning activities and efl students' productive skills in english	Journal of Language Teaching and Research	(Putri, 2019)	29
Fostering students' workplace communicative competence and collaborative mindset through an inquiry-based learning design	Education Sciences	(Chen, 2021)	28
The effect of the project-based learning approach on the academic achievements of the students in science classes in Turkey: A meta-analysis study	Egitim ve Bilim	(Ayaz & Söylemez, 2015)	26
Project based learning in teaching communication skills in English as a foreign language to engineering students	International Journal of Emerging Technologies in Learning	(Kovalyova et al., 2016)	25
Project-based learning through the eyes of teachers and students in adult ESL classrooms	Canadian Modern Language Review	(Petersen & Nassaji, 2016)	24

3.1 Discussion

This study provides valuable insights into the evolution of Project-Based Learning (PBL) research within English Language Teaching (ELT) over the past decade. The steady growth in publications highlights the increasing recognition of PBL as a transformative teaching methodology, particularly in its alignment with modern educational goals such as fostering collaboration, critical thinking, and learner autonomy. The significant surge in publications after 2020 underscores PBL's adaptability during the COVID-19 pandemic, when educators relied heavily on technology to sustain effective teaching practices. This rapid adoption demonstrates how global crises can accelerate the integration of innovative pedagogies, positioning PBL as a crucial framework for addressing contemporary educational challenges (Bakar, 2021; Portuguese Castro & Gomez Zermeno, 2020). Additionally, the thematic developments reveal a balance between traditional principles, such as language proficiency and teamwork, and emerging areas like digital tools and virtual classrooms, reflecting PBL's continuous evolution to meet the dynamic needs of learners.

Geographic contributions highlight a dominance by countries such as Indonesia, China, and Malaysia, which have focused on improving English proficiency through innovative pedagogical strategies. These countries excel in single-country publications (SCPs), likely addressing localized challenges within their educational systems. Conversely, nations like the United States and Australia are prominent in multi-country publications (MCPs), emphasizing international collaboration and comparative research. This dual approach allows local studies to tackle specific issues while global partnerships drive broader pedagogical advancements. However, the underrepresentation of regions such as Africa and South America suggests persistent barriers, including limited resources and research infrastructure. To address these gaps, targeted initiatives are essential to expand PBL's reach and inclusivity, ensuring its relevance across diverse socio-economic and cultural contexts (Daskou & Tzokas, 2020; Leggett & Harrington, 2021).

The thematic analysis through keyword co-occurrence mapping further illustrates the interconnectedness of core research areas, including collaborative learning, critical thinking, and technology integration. Emerging themes such as e-learning and digital storytelling highlight the increasing role of technology in enhancing PBL frameworks, particularly during remote learning scenarios. These findings resonate with earlier studies, such as [Hafner \(2018\)](#), which underscores PBL's capacity to foster disciplinary-specific language skills, and [Bauer-Ramazani \(2016\)](#), which emphasizes the integration of digital tools into PBL environments. However, this study also identifies gaps in the thematic clusters, such as the limited focus on teacher training and the application of PBL in rural or under-resourced contexts, underscoring the need for further research to enhance its accessibility and effectiveness.

The implications of these findings are significant for researchers, educators, and policymakers. The growing reliance on digital tools in PBL highlights the urgent need for professional development programs that equip educators with the necessary skills to integrate technology effectively. Additionally, the emphasis on collaboration and critical thinking underscores the importance of curriculum designs that seamlessly embed PBL principles into mainstream education. Policymakers must also address disparities in research contributions by fostering partnerships with underrepresented regions and supporting initiatives in low-resource settings. Finally, the sustained interest in PBL and its adaptability to technological advancements reaffirm its relevance as a 21st-century pedagogy, with the potential to bridge educational gaps and cultivate global competencies in ELT.

4. CONCLUSION

This bibliometric analysis of PBL research in ELT over the past decade reveals significant growth, particularly post-2020, driven by the integration of technology during the COVID-19 pandemic. The findings highlight PBL's central themes of collaborative learning, critical thinking, and language proficiency, alongside emerging trends such as e-learning and virtual classrooms. Geographically, Indonesia, China, and Malaysia lead in research contributions, reflecting their emphasis on innovative pedagogies, while international collaborations involving countries like the United States and Australia play a key role in advancing global pedagogical discourse. This dual approach demonstrates the importance of addressing localized challenges through single-country publications and fostering global innovation through multi-country publications.

Despite these advancements, critical gaps persist in the field of PBL research. Notably, limited attention has been given to its long-term impact on language retention and higher-order skills, as well as its scalability in under-resourced and rural contexts. The underrepresentation of regions such as Africa and South America further underscores the need for inclusive and equitable research efforts.

Future research should prioritize addressing these gaps through large-scale, cross-cultural studies that examine PBL's adaptability and inclusivity across different educational contexts. Strengthening teacher training programs, ensuring resource availability, and aligning curricula with PBL principles will be critical to its broader adoption. By fostering international collaborations and supporting underrepresented regions, researchers can unlock PBL's full potential as a transformative pedagogy, advancing English language education and equipping learners with the critical skills required for the 21st century.

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