



## Mapping Problem-Based Learning Evolution in Economics Education: A Bibliometric Review

Channa Chamdiyah Atsaniyah<sup>1\*</sup>; Riza Yonisa Kurniawan<sup>2</sup>; Eka Indah Nurlaili<sup>3</sup>

<sup>1,2,3</sup>Department of Economics and Business, Universitas Negeri Surabaya, Indonesia

<sup>1\*</sup>Corresponding Email: [channachamdiyah.22027@mhs.unesa.ac.id](mailto:channachamdiyah.22027@mhs.unesa.ac.id)

### Article History:

Received: Oct 25, 2025

Revised: Jan 04, 2026

Accepted: Jan 31, 2026

Online First: Feb 23, 2026

### Keywords:

Bibliometric Analysis,  
Co-Occurrence,  
Economics Education,  
Problem-Based Learning,  
Thematical Mapping.

### Kata Kunci:

Analisis Bibliometrik,  
Kata Kunci Bersama,  
Pembelajaran Berbasis  
Masalah,  
Pendidikan Ekonomi,  
Peta Tematik.

### How to cite:

Atsaniyah, C. C., Kurniawan, R. Y., & Nurlaili, E. I. (2026). Mapping Problem-Based Learning Evolution in Economics Education: A Bibliometric Review. *Edunesia : Jurnal Ilmiah Pendidikan*, 7(2), 821-836.

This is an open-access article under the CC-BY-NC-ND license



**Abstract:** PBL is a relevant learning model to address the challenges of the 21st century. However, research on PBL mapping in the economic field has not been conducted. This research aims to fill this gap. The research data were obtained from the Scopus database and analyzed using Biblioshiny. The analysis includes annual publication trends, thematic mapping, country contributions, and keyword co-occurrence analysis. The results of the study show that publication trends have fluctuated, with a peak in 2020. The thematic mapping revealed that the research's core themes remain problem-solving, higher education, and teaching economics, with the emergence of new themes, namely technology integration, sustainability, machine learning, and effectiveness. Sierra J was recorded as the most prolific writer, while the highest publication contributions came from Indonesia, the United States, and Germany. The keywords that most often appear together include economics, human, and higher education. These findings show a shift in the research paradigm towards more context-based, digital, and sustainability-oriented economic learning and serve as the basis for future PBL research development.

**Abstrak:** PBL merupakan model pembelajaran yang relevan untuk menjawab tantangan abad ke 21. Namun, penelitian mengenai pemetaan PBL dalam bidang ekonomi belum ditemukan. Penelitian ini bertujuan untuk mengisi kesenjangan tersebut. Data penelitian diperoleh dari database Scopus dan dianalisis menggunakan Biblioshiny. Analisis mencakup tren publikasi tahunan, pemetaan tematik, kontribusi negara serta analisis co-occurrence kata kunci. Hasil penelitian menunjukkan bahwa tren publikasi mengalami fluktuasi dengan puncak pada tahun 2020. Pemetaan tematik mengungkap bahwa tema inti penelitian masih berfokus pada problem solving, higher education dan teaching economics, dengan kemunculan tema baru yaitu technology ingration, sustainability, machine learning dan effectiveness. Sierra J tercatat sebagai penulis paling produktif, sementara kontibusi publikasi tertinggi adalah Indonesia, Amerika Serikat dan Jerman. Kata kunci yang paling sering muncul bersama meliputi economics, human dan higher education. Temuan ini menunjukkan adanya pergeseran paradigma penelitian menuju pembelajaran ekonomi yang lebih kontekstual, digital dan berorientasi keberlanjutan serta menjadi dasar bagi pengembangan penelitian PBL di masa mendatang

## A. Introduction

In the 21st century, the world of education faces complex challenges amid rapid technological development (Muliana et al., 2024). Students need to be equipped with important skills, namely critical thinking, collaboration, communication, and creativity (Partono et al., 2021). These skills are not acquired innately but are built through the process of learning, practice, and experience (Abdullah & Munawwaroh, 2024). The application of innovative and contextual learning models is the key in answering these challenges (Kurniawati, 2022). This is in line with Sustainable Development Goals (SDGs) point 4, which emphasizes the importance of quality education through approaches that are relevant to the demands of the times (Gunawan, 2025).

Problem-Based Learning (PBL) is a learning model that uses real problems to help students gain knowledge (Mayasari et al., 2022; Rachmawati & Rosy, 2020). The model positions problems as a learning context that aims to develop critical thinking skills, problem-solving, and strengthen understanding of important concepts (Darwati & Purana, 2021). In its application, PBL presents real problems as a starting point for learning, which are then investigated and solved through group cooperation (Muliana et al., 2024). PBL can also develop students' ability to address problems relevant to daily life, thereby encouraging the development of high-level critical thinking skills (Simatupang & Ritonga, 2023).

The advantages of PBL include: (1) encouraging a deeper understanding of the material through the problem-solving process, (2) honing students' abilities and providing satisfaction in learning, (3) increasing learning activity, (4) developing self-control and independence, (5) encouraging continuous learning (Gusfian et al., 2025; Rahman & Ramli, 2024). From these advantages, PBL is one of the learning models that encourages students to be active, critical, and able to solve the problems they face, making it relevant to addressing the challenges of the 21st century (Fitri et al., 2020; Setiawan, 2021).

Economics education is a branch of education that focuses on learning and understanding economic concepts, both in theory and practice in daily life (Maritim et al., 2024). Economic education plays a role in developing high-quality human resources, thereby creating intelligent economic actors that contribute to economic growth and community welfare (Rohmah, 2025). The economic problems faced by society are often complex, unstructured, and multidimensional. Therefore, PBL is important to apply in economic learning because it can bridge abstract economic concepts with social realities, instilling values of entrepreneurship, sustainability, and practical economic literacy (Sakti & Luthfiyah, 2024).

Several previous studies have found that applying PBL in economic education can improve critical thinking skills (Apriyani et al., 2022; Hully et al., 2025), learning outcomes (Ratnasari, 2022), and learning motivation (Antara, 2024; Permana, 2024). In addition, PBL in economic learning has been integrated with various aspects, including PBL combined with digital economy literacy through digital teaching materials (Ishak & Sujana, 2024), microsites for financial literacy (Winarni & Suciptaningsih, 2024), and collaboration with the STAD model (Andriyati & Noviani, 2023).

Various studies on PBL in economic education show that this field continues to develop, with approaches, goals, and integration with various learning innovations evolving. These developments encourage the need to analyze the trend of topics related to this matter. One of the best approaches is through bibliometric analysis to examine the distribution of literature, publication patterns, and their influence on various other factors and contexts (Muhammad et al., 2023). The benefits are broad, including facilitating researchers and intellectuals in accelerating the development of theories and practices related to research topics (Utami & Karlina, 2022).

Bibliometric research has been carried out extensively, including Hutami's research which was used to see the influence of PBL on critical thinking skills in social studies learning (Hutami et al., 2023), Ardyagarani researching PBL in the implementation of biology learning (Ardyagarani et al., 2024), Nurjanah researching PBL in Physics education (Nurjanah et al., 2024), Handoyo researching PBL and learning outcome in the word (Handoyo et al., 2024) and Alhusni researching about mapping the landscape of physics learning research (Alhusni et al., 2025).

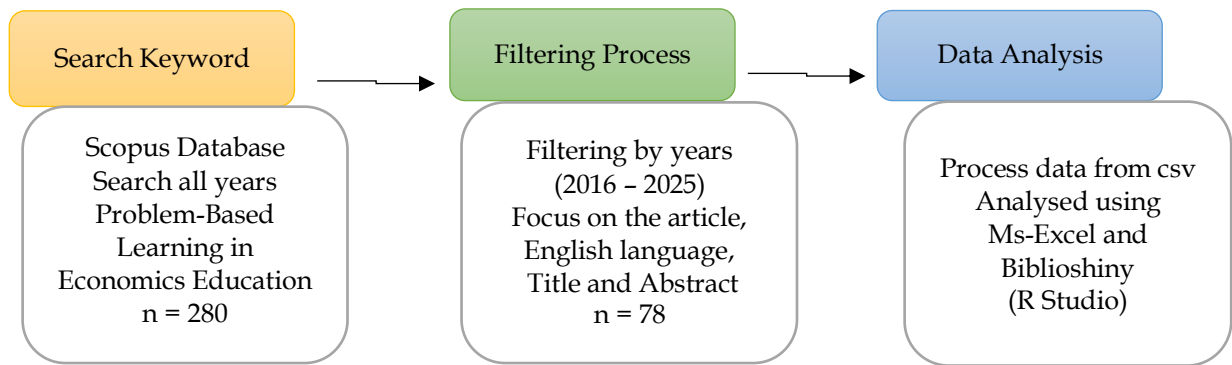
Based on a review of the existing literature, research on PBL in the context of economic education primarily focuses on the application of learning models and their influence on the learning process, including learning outcomes, critical thinking skills, and students' motivation to learn. Meanwhile, no research applying bibliometric analysis to map PBL research in economic education has been found. This shows that there is a research gap behind this study. Therefore, the purpose of this study is to fill existing gaps by conducting a comprehensive bibliometric analysis to map the evolution of PBL topics in economic education based on conceptual, intellectual, and social structures.

The novelties presented in this research include: 1) the use of PBL objects in economics education, 2) the use of data from 2016 to 2025 (July), and 3) the data from Scopus. Scopus was chosen as the primary source because it offers a wide range of publications, high-quality standards, a rigorous review process, and continuous monitoring to maintain data integrity, source accuracy, and metadata completeness (Astuti et al., 2022).

In line with the research gap identified above, namely, that no bibliometric studies have been found that map the evolution of PBL research in economics education, this research formulates the following research question are what are the main information from the development of the scientific literature related to PBL in economic education (Q1), and what are the conceptual, knowledge and social structures related to the literature on PBL in economic education (Q2). This research contributes a global research trend map of PBL in economic education, including dominant keywords and new subthemes. It lays the foundation for further research by demonstrating citation networks and collaborations. This is important because it aligns with the demands of the SDGs amid current education dynamics. In addition, this research is expected to serve as a foundation for further research in this field.

## B. Method

This study uses a bibliometric analysis method on scientific articles indexed in the Scopus database. Scopus was selected as the main source due to its wide coverage of high-quality publications, its rigorous peer-review process, and continuous data validation that ensures the integrity, accuracy, and completeness of metadata (Astuti et al., 2022). In addition, Scopus enables reproducibility of research, allows comparison with other bibliometric studies, and provides comprehensive metadata, making it particularly suitable for bibliometric analysis in the field of economic education.



**Figure 1.** Research Flow

The data collection process comprises four stages: identification, screening, feasibility, and inclusivity (Handoyo et al., 2024). At the identification stage, the researcher used the keyword "problem-based learning in economic education" on the Scopus search engine. Then screening is carried out based on the following criteria: 1) articles published in the range of 2016 to July 2025, 2) article topics discuss topics related to PBL in Economics Education, and 3) written in English. Next, the feasibility stage involves examining the title and abstract to ensure the article's content. From the selection process, 78 were selected as relevant and ready for analysis.

The data were exported from Scopus in CSV format and analyzed in RStudio using the Bibliometrix package via the Biblioshiny web-based interface. RStudio was selected because it provides a flexible, powerful environment for bibliometric analysis, enabling systematic descriptive and network-based analyses. The Bibliometrix package was used as it offers comprehensive tools for bibliometric data processing, performance analysis, and science mapping.

Biblioshiny, as a graphical interface for Bibliometrix, was used for data visualization and interpretation, including the generation of publication trends, keyword networks, thematic maps, and citation networks. Before the main analysis, Microsoft Excel was used to perform preliminary data checks to ensure the accuracy, consistency, and completeness of the metadata obtained from Scopus.

From a technical perspective, the analysis process began by activating the Bibliometric package in RStudio using the command "library(bibliometrix)", followed by launching the Biblioshiny interface with "biblioshiny()". The exported CSV file was then uploaded into the system for further analysis. Quantitative descriptive analysis was first

applied to extract basic insights, such as publication trends, prolific sources, dominant topics, keyword relationships, and leading countries. These analyses served as the foundation for subsequent bibliometric mapping.

In this study, several bibliometric analysis tools were used to map the development of PBL research in economic education. First, a publication trend analysis is used to determine the number of publications each year, enabling the dynamics of research development and the period with the highest level of PBL-related publications in the economic field to be identified. Second, the Sankey Diagram is used to visualize the relationship between the author and the keywords used in the article, thereby illustrating the author's contribution and the research topic's focus. Third, the thematic map is applied to identify the main, developing, and underexplored themes in PBL research, based on keyword density and centrality. Fourth, co-occurrence analysis examines the frequency of keyword co-occurrence in the article under review to reveal the conceptual structure and relationships among themes in the literature. Fifth, co-citation analysis identifies citation relationships between documents or authors that are often cited together, to understand the intellectual structures and influential works in PBL research in economic education.

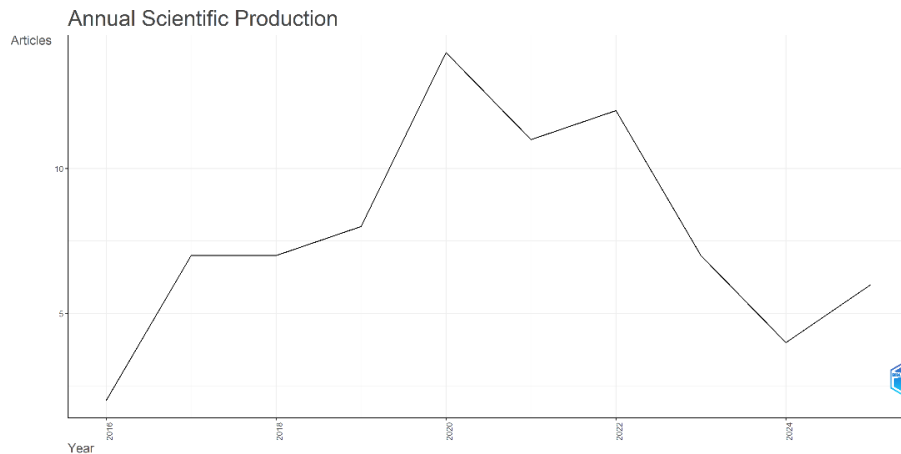
### C. Result

Once the metadata is exported to the Biblioshiny, the main information from the entire article is in Table 1. The information includes general data on the documents analyzed, as shown in the following table. Table 1 covers the period from 2016 to 2025, with a total of 58 sources, an annual growth rate of 12,98%, 78 publications analyzed, and 254 authors.

**Table 1.** Main Information

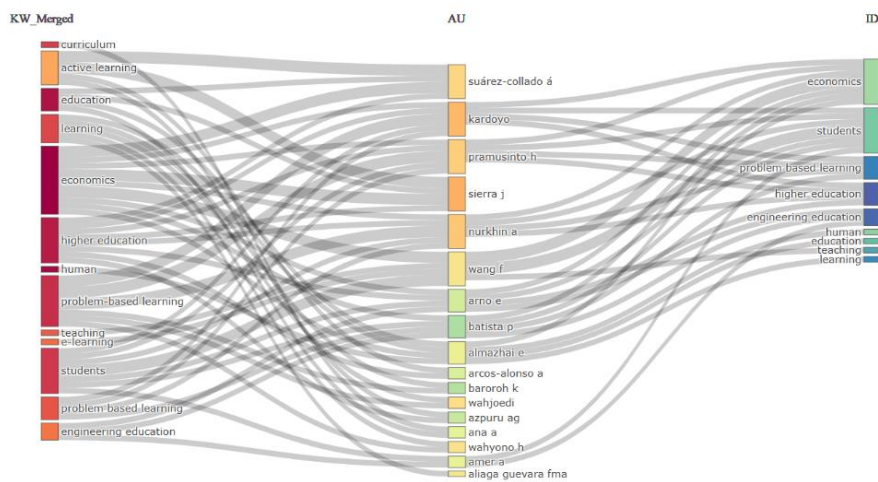
Description	Results
Timespan	2016:2025
Sources (Journals, Books, etc.)	58
Annual Growth Rate %	12.98
Authors	254
Article	78

The trends in research on PBL in economic education are shown in Figure 2. In general, the graph shows a fluctuating pattern. In the early period, the number of publications increased in 2017 and again in 2019. The peak in publications occurred in 2020, with 14 articles.



**Figure 2.** Publication Trends

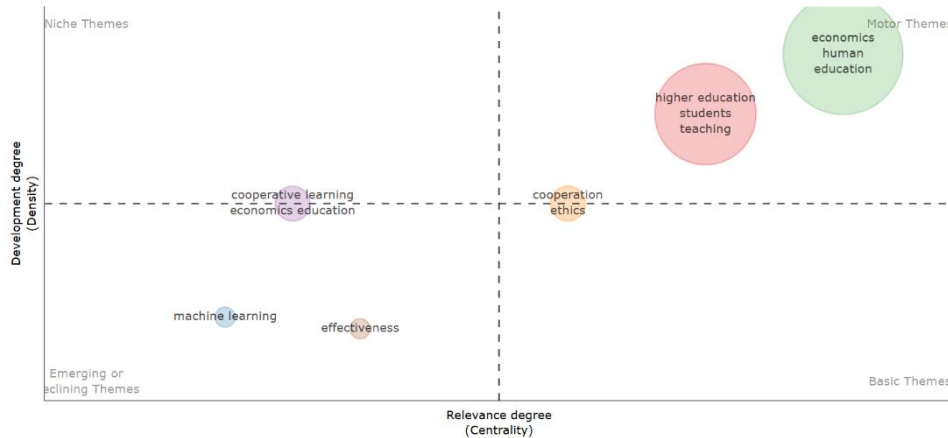
Sankey's diagram in Figure 3 below illustrates the thematic development of PBL-related keywords in economics education and the most significant authors on this topic. The keywords in Sankey's diagram are from previous publications and are thematically filtered by specific researchers. That highlights the scope of quantitative data streams related to the main topic. The content index provides a repeatable visualization of the number of connections to authors. From the graph below, the keywords economics, students, problem-based learning, and higher education are terms that have developed rapidly or existed before and are related to many aspects. Several researchers, including Suarez-Callado, Kardoyo, and Pramusinto, have published relevant articles that combine these three main keywords to discuss PBL in Economics Education.



**Figure 3.** Sankey's Diagram

Figure 4 shows the Thematic Map divided into four sectors (quadrants). In the motorcycle-themed sector, this means these themes are conceptually strong and growing rapidly. Examples include economics, higher education, and students. Next is the basic theme, which is the keyword related to fundamental themes with high relevance, such as ethics and cooperation. These themes serve as the main foundation of research and are often the starting point for discussion. There are also niche themes, which are specific topics that

develop within a limited scope, such as cooperative learning and economics education. The most interesting are the emerging themes, such as machine learning and effectiveness.



**Figure 4.** Thematical Map

Table 2 presents the top sources of publications in research on PBL in Economics education. According to the table, the International Journal of Emerging Technologies in Learning has the largest number of publications, with 7 articles. Followed by the International Journal of Management Education, with the contribution of 4 published articles and other journals. This can support a variety of reference-related studies, helping researchers find more comprehensive study materials.

**Table 2.** Top Sources

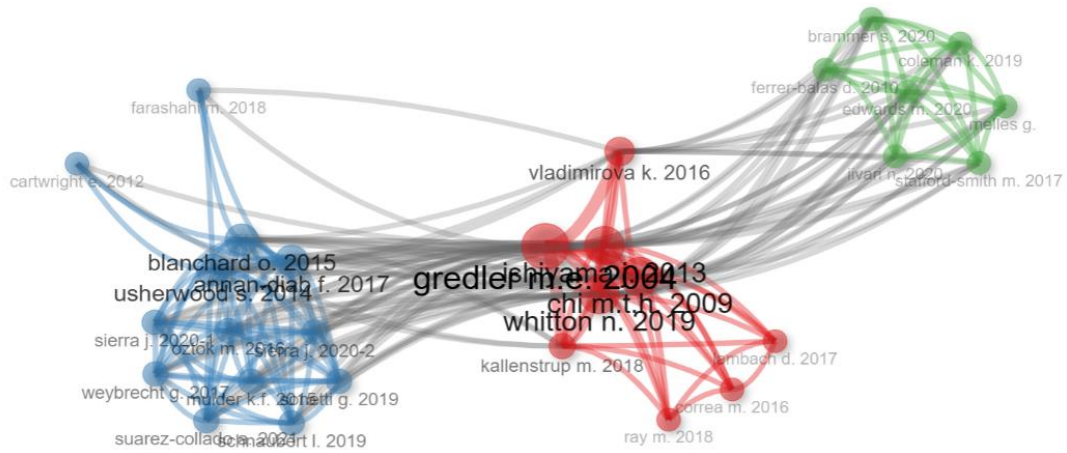
Sources	Articles
International Journal Of Emerging Technologies In Learning	7
International Journal Of Management Education	4
Academic Medicine	3
Gms Journal For Medical Education	3
IEEE Transactions On Education	2

Table 3 presents the list of the most authors who have made significant contributions to the field of PBL in economic education. Productive authors provide valuable insights for the development of the intended research. Sierra J is the most prolific writer, with 4 articles and 83 citations.

**Table 3.** Top Authors

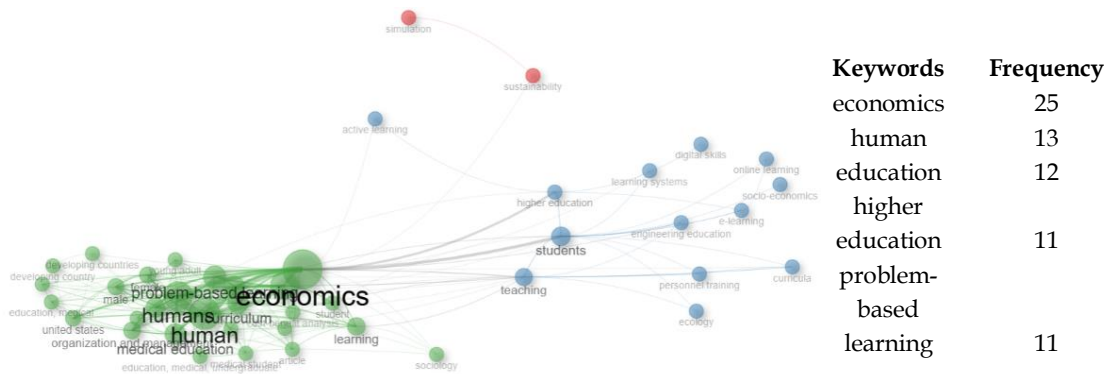
Author	H-Index	G-Index	M-Index	TC	NP	PY_Start
SIERRA J	4	4	0.667	83	4	2020
KARDOYO	2	2	0.333	81	2	2020
MUNAWAROH	2	2	0.25	18	2	2018
NURKHIN A	2	2	0.333	81	2	2020
PRAMUSINTO H	2	2	0.333	81	2	2020

Figure 5 below illustrates that co-citation is a visualization of relationships between publications based on how often a document is cited together with other documents. The blue cluster, the most central, focuses on collaborative approaches and active learning. The second strongest cluster in red shows the main foundation in the PBL field.



**Figure 5.** Co-Citation

Figure 6 shows the co-occurrence of research topics related to PBL in economic education from 2016 to 2025. Most frequent keywords are economics (25), human (13), education (12), and higher education and problem-based learning (11).



**Figure 6.** Co-Occurrence

Figure 7 shows the top countries' publications. Blue with varying brightness depicts the intensity of each country's publications. Countries with dark blue colors show high productivity, while light blue shows lower productivity. Indonesia has the highest level of scientific output on this map, followed by the United States and several European countries, including the United Kingdom, Germany, and Spain. Other countries involved in this publication include Australia, Canada, Brazil, India, Japan, and China. In general, this map shows that research on PBL in economic education has developed across various regions of the world, reflecting the field's growing interest and contributions.



Figure 7. Top Countries

Table 4 presents three articles with the highest citation rates in the study of PBL in economics education, including information about the authors, total citations, findings, and recommendations for future research.

Table 4. Top Article and Research Recommendations

No	Authors	TC	Findings	Research Recommendations
1.	Sierra (Sierra, 2020)	83	Simulation is considered effective in developing a range of learning outcomes, including conceptual knowledge, critical thinking, problem-solving, interpersonal, and affective skills. Role-play simulations strengthen emotional engagement and understanding of economic learning.	Simulation is applied more broadly in cross-disciplinary learning, particularly in economics and sustainable development, through a design that is contextual and relevant to the SDGs, to provide space for role interaction and reflection.
2.	Kardoyo (Kardoyo et al., 2020)	81	PBL significantly improves the ability to think creatively. This increase is due to a problem-solving process that maintains uncertainty and encourages creative thinking to analyze, interpret, evaluate, and reach effective conclusions.	Optimize the implementation of PBL by combining it with other learning methods, using relevant and challenging cases, and conducting continuous learning evaluation and reflection to increase learning effectiveness
3	Munawaroh (Munawaroh, 2018)	18	PBL not only enhances critical thinking but also fosters problem-solving and creativity, especially in economics. In addition, PBL improves communication and metacognitive skills.	Further research should examine the role of new technologies, such as virtual reality (VR) and collaborative tools, in enhancing PBL in economic education. It can focus more on how technology can be effectively integrated to improve engagement and learning outcomes.

## D. Discussion

The results of the bibliometric analysis show that research on PBL in economic education has a fluctuating trend, increasing during the period 2016 – 2025. These findings directly address RQ1 regarding the development of the field's scientific literature. The peak in publications in 2020 reflects the urgent need for learning innovation amid the COVID-19 pandemic, when educational institutions were required to adopt pedagogical approaches that could maintain student engagement, develop critical thinking and problem-solving skills, and support online and hybrid learning. The dominance of the PBL theme in this period can be explained by the constructivist theoretical foundation, which emphasizes active learning and authentic problem-solving, making it relevant in situations of educational disruption. These findings are in line with the [Sierra \(2020\)](#) study, which confirms that PBL-based simulations are effective in strengthening conceptual understanding and problem-solving skills in the context of economic learning ([Sierra, 2020](#)).

The decline in publications in the 2023 – 2024 period does not necessarily indicate a decline in the relevance of PBL, but rather reflects saturation of themes and a shift in research focus towards technology-based learning models, such as artificial intelligence-assisted learning and data-driven learning. The return to increased publication in 2025 shows that PBL remains a relevant learning approach, especially when integrated with learning on sustainability and digitalization. This is in line with the findings of [Duarte et al \(2020\)](#), who emphasized that interdisciplinary PBL combined with real projects can foster students' social, economic, and environmental awareness ([Duarte et al., 2020](#)).

From this perspective, the article [Kardoyo et al \(2020\)](#) shows its role in shaping the intellectual structure of PBL research in economic education. The research on improving students' analytical skills, creativity, and active participation affirms PBL's position as a learning strategy that supports the development of high-level thinking skills. In addition, integration by [Vodă et al \(2022\)](#) underscores the theme of technology integration, showing that economics students exhibit higher levels of digital literacy and problem-solving skills when PBL is combined with technology mastery. Compared to previous PBL studies that emphasized the effectiveness of classroom learning, these findings suggest a theoretical shift towards developing digital competencies and readiness to face global market dynamics ([Vodă et al., 2022](#)).

The results of the thematic mapping further clarify the answer to RQ2 regarding the conceptual and intellectual structure of PBL research in economics education. Core themes such as problem-solving, higher education, and teaching economics still dominate, reflecting PBL's role in developing students' analytical skills. Meanwhile, the emergence of new themes such as sustainability, technology integration, curriculum design, and active learning indicates a paradigm shift towards more contextual, adaptive, and future-oriented economic learning. The emergence of themes such as sustainability can be attributed to the increasing prominence of the SDGs in economic education.

In terms of theoretical contributions, this bibliometric research provides a comprehensive understanding of the evolution of PBL in economic education, from a simple classroom-based learning model to a multidimensional pedagogical approach that

integrates sustainability, digital literacy, and cross-disciplinary collaboration. Thus, this study not only summarizes publication trends but also synthesizes the conceptual, intellectual, and social structures that shape the direction of PBL research development. In practical terms, these findings imply that economic educators need to design curricula that integrate PBL with cross-disciplinary approaches, the use of digital technologies, and sustainability-based projects. For further research, it is recommended that a more in-depth study be conducted on the effectiveness of digital PBL, the development of a hybrid model combining PBL and data-driven learning, and cross-border comparative studies to enrich best practices in economic education.

## **E. Implication**

The results of this study have several important implications, including theoretical, practical, and future research implications, all of which are directly related to the findings of thematic mapping and the global trends in PBL research in economic education. The theoretical implications affirm PBL as an effective pedagogical approach for developing 21st-century skills, as evidenced by the dominance of core themes, including problem-solving and higher education, and the emergence of new themes, such as technology integration and sustainability. This shows a shift from conventional learning models to a more holistic, constructivist learning framework. The shift expands the theoretical foundation of PBL from a classroom-based learning strategy to a multidimensional approach that integrates digital competencies in economic education.

In terms of practical implications, the results of this study provide an important reference for educators, curriculum developers, and policy makers. The emergence of the theme of technology integration, including the use of artificial intelligence and machine learning, indicates that the implementation of PBL in economic education should be strategically designed to leverage digital technology. Educators are expected to design PBL activities grounded in real economic problems and supported by digital platforms. At the same time, curriculum developers can use these findings to align learning outcomes with global competency demands and sustainability-oriented learning goals. At the policy level, the global patterns of collaboration identified in the bibliometric analysis underscore the importance of institutional support and cross-border cooperation to strengthen the implementation of innovative PLB as needed.

Meanwhile, regarding the implications for further research, the thematic mapping results indicate several potential research directions. Future research should explore more deeply the effectiveness of digital and hybrid PBL models, especially those that integrate machine learning, artificial intelligence, data-driven learning, and sustainability-based projects. In addition, cross-border comparative studies are also needed to understand the differences in educational contexts in the application of PBL to economic education. The direction of this research is expected to enrich the development of the best practices and support the achievement of the SDGs, especially the goal of quality education.

## E. Limitation and Suggestion for Further Research

This research has several limitations, namely, the analysis includes only documents indexed in the Scopus database, thereby excluding publications from other sources such as the Web of Science or Google Scholar. Second, the bibliometric approach is quantitative, so it does not analyze in depth the content or quality of each article's methodology, and keyword mapping is highly dependent on available metadata, so important information beyond explicit keywords cannot be detected.

In line with that, further research can expand data sources by integrating databases such as Web of Science, Dimensions, and Google Scholar to enrich bibliometric analysis results. Further research is also expected to examine in greater detail the integration of PBL with new technologies, including artificial intelligence, big data, and digital learning platforms, to improve the effectiveness of economic learning. In addition, longitudinal studies can be conducted to analyze the shift in research focus after 2025, enabling the capture of a sustainable paradigm shift and theme.

## F. Conclusion

The results of this study directly address the research objectives and questions posed. Regarding RQ1, the bibliometric analysis shows that research on PBL in economic education has experienced fluctuating growth but has increased over the past decade, with an annual growth rate of 12,98%. This shows that there is academic interest in PBL in economics education, and the results indicate that Sierra J is the most prolific writer in this field.

Furthermore, to answer RQ2, the analysis of the conceptual structure and knowledge indicates that PBL in economic education remains the main focus of the research, with dominant themes including education, students, higher education, and teaching. The results of the thematic mapping also reveal the emergence of strong themes, such as cooperative learning, machine learning, and effectiveness, reflecting a new direction in research towards integrating digital technology and collaborative learning. These findings indicate that future PBL research will increasingly focus on the use of innovative technologies and digital collaboration tools to enhance student engagement, learning outcomes, and 21st-century skill development.

## References

- Abdullah, A., & Munawwaroh, F. (2024). Problem Based Learning untuk Meningkatkan Keterampilan Berpikir Kritis Siswa. *Jurnal Educatio*, 10(1), 155–162. <https://doi.org/10.31949/educatio.v10i1.6313>
- Alhusni, H. Z., Prahani, B. K., Sunarti, T., & Utami, A. U. (2025). Mapping the Landscape of Physics Education Research on Local Wisdom: A Bibliometric Study. *JOLABIS*, 1(1). <https://doi.org/10.63230/jolabis.1.1.44>
- Andriyati, R., & Noviani, L. (2023). Kolaborasi Model Problem Based Learning (PBL) dan Model Student Teams Achievement Divisions (STAD) dalam Pembelajaran

Ekonomi. *Jurnal Pendidikan Ekonomi (JUPE)*, 11(2), 92–102. <https://doi.org/10.26740/jupe.v11n2.p92-102>

Antara, K. M. D. (2024). Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Motivasi Belajar Peserta Didik pada Mata Pelajaran IPAS Kelas IV SD. *Jurnal Ilmiah Wahana Pendidikan*, 10(19), 755–761.

Apriyani, P., Kristiani, K., & Noviani, L. (2022). Pengaruh Model Problem Based Learning Berbantuan Media Animaker terhadap Berpikir Kritis Siswa. *Journal on Education*, 5(1), 1169–1178. <https://doi.org/10.31004/joe.v5i1.736>

Ardyagarani, D., Anjani, G. A. D. K., Safitri, M. I., & Winarsih. (2024). Analisis Bibliometrik tentang Perkembangan Penelitian Problem-based Learning pada Implementasi Pembelajaran Biologi. *Prosiding Seminar Nasional Biologi IP2B VIII 2024*, 115–123.

Astuti, M., Arifin, Z., Nurtanto, M., Mutohhari, F., & Warju, W. (2022). The Maturity Levels of the Digital Technology Competence in Vocational Education. *International Journal of Evaluation and Research in Education (IJERE)*, 11(2), 596–603. <https://doi.org/10.11591/ijere.v11i2.22258>

Darwati, I. M., & Purana, I. M. (2021). Problem Based Learning (PBL): Suatu Model Pembelajaran untuk Mengembangkan Cara Berpikir Kritis Peserta Didik. *Widya Accarya*, 12(1), 61–69. <https://doi.org/10.46650/wa.12.1.1056.61-69>

Duarte, A. J., Malheiro, B., Arnó, E., Perat, I., Silva, M. F., Fuentes-Durá, P., Guedes, P., & Ferreira, P. (2020). Engineering Education for Sustainable Development: The European Project Semester Approach. *IEEE Transactions on Education*, 63(2), 108–117. <https://doi.org/10.1109/TE.2019.2926944>

Fitri, M., Yuanita, P., & Maimunah, M. (2020). Pengembangan Perangkat Pembelajaran Matematika Terintegrasi Keterampilan Abad 21 melalui PBL. *Jurnal Gantang*, 5(1), 77–85. <https://doi.org/10.31629/jg.v5i1.1609>

Gunawan, W. B. (2025). Revisiting the Sustainable Development Goal 4 "Quality Education": Insights, Prospects, and Recommendations. *SAKAGURU*, 2(1). <https://doi.org/10.70211/sakaguru.v2i1.202>

Gusfian, M., Sahsiani, M., Islami, N. I., Madani, N., Hidayah, N., Latifah, N., Istiningsih, S., & Putri, H. R. (2025). Strategi Pembelajaran Pemberdayaan Kemampuan Berpikir di SDN 26 Mataram. *Jurnal Ilmiah Widya Pustaka Pendidikan*, 13(Special Issue). <https://jiwpp.unram.ac.id/index.php/widya/article/view/334>

Handoyo, A. F., Sobandi, A., & Bimo, W. A. (2024). Trend and Research Focus on Problem-Based Learning and Learning Outcome in the World: A Bibliometric Analysis. *Inovasi Kurikulum*, 21(2), 1289–1302. <https://doi.org/10.17509/jik.v21i2.69328>





Hully, H., Ihsan, I., & Arta, T. (2025). Pembelajaran Berbasis Masalah dalam Meningkatkan Kemampuan Berpikir Kritis Siswa pada Pelajaran Ekonomi. *Economica Insight*, 1(2), 44–51. <https://doi.org/10.71094/ecoin.v1i2.94>









- Hutami, T. S., Nugroho, P. A., & Anis, F. (2023). Analisis Bibliometrik: Tren Penelitian Pengaruh Model Problem Based Learning terhadap Kemampuan Berpikir Kritis pada Pembelajaran IPS. *Jurnal Pendidikan Ilmu Pengetahuan Sosial Indonesia (Jurnal PIPSI)*, 8(3), 279–292. <https://doi.org/10.26737/jpipsi.v8i3.4858>
- Ishak, M., & Sujana, I. N. (2024). Penerapan Model Problem Based Learning pada Mata Pelajaran Ekonomi. *Jurnal Pendidikan Ekonomi Undiksha*, 16(1), 35–43. <https://doi.org/10.23887/jjpe.v16i1.50486>
- Kardoyo, Nurkhin, A., Muhsin, & Pramusinto, H. (2020). Problem-Based Learning Strategy: Its Impact on Students' Critical and Creative Thinking Skills. *European Journal of Educational Research*, 9(3), 1141–1150. <https://doi.org/10.12973/EU-JER.9.3.1141>
- Kurniawati, E. (2022). Pembelajaran Berkarakteristik Inovatif Abad 21 pada Materi Kemandirian Karir Peserta Didik dengan Metode Pembelajaran Berbasis Masalah. *Cakrawala: Jurnal Pendidikan*, (1), 113–118. <https://doi.org/10.24905/cakrawala.vi0.173>
- Maritim, E., Damayanti, M., Susilowati, D., & Budiarmo, A. (2024). Upaya Peningkatan Literasi Ekonomi bagi Siswa SD dalam Menyongsong Era Society 5.0. *Dharmas Education Journal (DE\_Journal)*, 5(1), 236–247. <https://doi.org/10.56667/dejournal.v5i1.1067>
- Mayasari, A., Arifudin, O., & Juliawati, E. (2022). Implementasi Model Pembelajaran Problem Based Learning (PBL). *Jurnal Tahsinia*, 3(2), 167–175. <https://doi.org/10.57171/jt.v3i2.335>
- Muhammad, I., Himmawan, D. F., Mardiyah, S., & Dasari, D. (2023). Analisis Bibliometrik: Fokus Penelitian Critical Thinking dalam Pembelajaran Matematika (2017–2022). *JPMI (Jurnal Pembelajaran Matematika Inovatif)*, 6(1), 19–32. <https://doi.org/10.22460/jpmi.v6i1.14759>
- Muliana, Fonna, M., & Nufus, H. (2024). Pengaruh Penerapan Problem Based Learning terhadap Keterampilan Abad 21. *Ar-Riyadhiyyat: Journal of Mathematics Education*, 5(1), 22–30. <https://doi.org/10.47766/ariyadhiyyat.v5i1.2900>
- Munawaroh. (2018). The Effect of Problem-Based Learning Method on Students' Critical Thinking Skills. *Journal of Entrepreneurship Education*, 21(1), 1–10.
- Nurjanah, S., Sultan, J., Aisyah, S., Puspita, D., & Ulyasari, N. (2024). Bibliometric Analysis of Problem Based Learning in Physics Education: A Scopus Based Study (1996–2023). *Berkala Ilmiah Pendidikan Fisika*, 12(2), 310–326.
- Partono, P., Wardhani, H. N., Setyowati, N. I., Tsalitsa, A., & Putri, S. N. (2021). Strategi Meningkatkan Kompetensi 4C (Critical Thinking, Creativity, Communication, & Collaborative). *Jurnal Penelitian Ilmu Pendidikan*, 14(1), 41–52.
- Permana, I. B. M. Y. (2024). Penerapan Model Pembelajaran Problem Based Learning Berbantuan Edpuzzle. *Jurnal Pendidikan Ekonomi, Prospek* 3, 346–352.

- Rachmawati, N. Y., & Rosy, B. (2020). Pengaruh Model Pembelajaran Problem Based Learning (PBL) terhadap Kemampuan Berpikir Kritis dan Pemecahan Masalah pada Mata Pelajaran Administrasi Umum Kelas X OTKP di SMK Negeri 10 Surabaya. *Jurnal Pendidikan Administrasi Perkantoran (JPAP)*, 9(2), 246–259.
- Rahman, S. A., & Ramli, M. (2024). Model Pembelajaran: Problem Based Learning & Project Based Learning. *INFINITUM: Journal of Education and Social Humaniora*, 1(1), 62–81.
- Ratnasari, D. (2022). Pengaruh Pembelajaran Problem Based Learning Berbasis Mind Mapping. *Satya Widya*, 38(2), 153–161. <https://doi.org/10.24246/j.sw.2022.v38.i2.p153-161>
- Rohmah, J. (2025). Peran Pembangunan Ekonomi dalam Membentuk Sumber Daya Manusia yang Unggul di Indonesia. *JINU (Jurnal Inovasi Nusantara)*, 2(3), 70–87.
- Sakti, N. C., & Luthfiah, A. (2024). Implementasi Pembelajaran Berdiferensiasi dengan Metode PBL. *Jurnal Ilmiah Profesi Pendidikan*, 9(2), 694–698. <https://doi.org/10.29303/jipp.v9i2.1935>
- Setiawan, A. (2021). Problem Based Learning Model for the 21st Century Generation. *SHEs: Conference Series*, 4(6), 290–296.
- Sierra, J. (2020). The Potential of Simulations for Developing Multiple Learning Outcomes: The Student Perspective. *The International Journal of Management Education*, 18(1), 100361. <https://doi.org/10.1016/j.ijme.2019.100361>
- Simatupang, W. P. S., & Ritonga, F. U. (2023). Penerapan Model Problem Based Learning dalam Pembelajaran Matematika. *Mitra Abdimas*, 3(1), 9–12. <https://doi.org/10.57251/mabdimas.v3i1.1024>
- Utami, S. B., & Karlina, N. (2022). Analisis Bibliometrik Menggunakan VOSviewer. *Jurnal Pustaka Budaya*, 9(1), 1–8. <https://doi.org/10.31849/pb.v9i1.8599>
- Vodă, A. I., Cautisanu, C., Grădinaru, C., Tănăsescu, C., & de Moraes, G. H. S. M. (2022). Exploring Digital Literacy Skills in Social Sciences and Humanities Students. *Sustainability*, 14(5), 2483. <https://doi.org/10.3390/su14052483>
- Winarni, F. A. S., & Suciptaningsih, O. A. (2024). Penerapan Microsite Berbasis PBL untuk Meningkatkan Literasi Keuangan Siswa Kelas V. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 9(2). <https://doi.org/10.23969/jp.v9i2.14002>

### Author's Biography



**Channa Chamdiyah Atsaniyah.**     She was born in Lamongan, 1 May 2004. Student at Universitas Negeri Surabaya. Study S1 Economics Education, currently in his 7<sup>th</sup> year semester.  
Email: [channachamdiyah.22027@mhs.unesa.ac.id](mailto:channachamdiyah.22027@mhs.unesa.ac.id)

	<p><b>Riza Yonisa Kurniawan.</b>    He was born in Malang on 31 January 1981. Lecturer in the Bachelor of Economics Education program, Universitas Negeri Surabaya. Email: <a href="mailto:rizakurniawan@unesa.ac.id">rizakurniawan@unesa.ac.id</a></p>
	<p><b>Eka Indah Nurlaili.</b>    She was born in Gresik on 16 March 1993. Lecturer in the Bachelor of Economics Education program, Universitas Negeri Surabaya. Email: <a href="mailto:ekanurlaili@unesa.ac.id">ekanurlaili@unesa.ac.id</a></p>