

Global Mapping of Research on Thinking Functions in Islamic Psycho-Pedagogical Problem Solving in 2022–2026 through Bibliometric Analysis and Network Visualization

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Abstract

This study aimed to map the global development of the study of thinking functions in problem-solving within the Islamic psycho-pedagogical approach using bibliometric analysis. Data were obtained from the Dimensions database with a publication period of 2022–2026 and analyzed using a quantitative-descriptive approach through network visualization with VOSviewer. The analysis was conducted on document units, authors, institutions, countries, and keywords, with the main techniques including co-authorship, co-occurrence, and co-citation. The results show a significant increase in the number of publications in the initial period, followed by a stabilization phase, indicating the development of the field towards early maturity. The thematic structure of the research is divided into three main clusters: the theoretical-Islamic dimension, the empirical-educational dimension, and the applicative-psychological dimension. Research trends indicate a shift from a conceptual approach to intervention and practical application. However, the scientific collaboration network remains relatively fragmented, with the dominance of certain countries and institutions. The conclusion of this study confirms that this field of study is multidisciplinary with great potential to develop into an interdisciplinary field, although it still requires strengthening global collaboration and conceptual integration.

Keywords: Bibliometrics, Thinking Function, Problem Solving, Islamic Psycho-pedagogy, VOSviewer

INTRODUCTION

Scientific production in modern science is characterized by its complexity, requiring the data-based analysis to evaluate the dynamics of scientific knowledge formation in a systematic and measurable manner. In this case, bibliometric analysis is the quantifying method that can be applied to evaluate scientific production with the help of such indicators as number of publications, citations, and collaboration of authors and institutions. The use of bibliometrics does not only imply the application of the method to measure scientific performance but also explorative use of bibliometrics to discover the structure and development of scientific field (Aryadoust, 2023; Bircan & Salah, 2022; L. Li et al., 2023; Yan & Zhiping, 2023). At the same time, in a wider context, the scope of analysis of scientometrics is broader as it focuses on mapping of the relationships of scientific entities, including documents, journals, authors, and institutions. The combination of bibliometrics and scientometrics enables a comprehensive analysis of the knowledge landscape, especially in multidisciplinary contexts involving complex interactions between scientific fields

(Aryadoust, 2023; Wang et al., 2022). Thus, the use of these two approaches is crucial in revealing the dynamics of contemporary research developments.

One of the main approaches in bibliometrics is science mapping, which serves to identify the conceptual, intellectual, and social structures of a research field. Science mapping integrates performance analysis with network analysis to uncover thematic clusters, research fronts, and the evolutionary paths of science over time (Arifin et al., 2026; Leal Filho et al., 2025; Y. Huang et al., 2023; Wang et al., 2023; Yan & Zhiping, 2023). Through methods such as idea co-occurrence, co-citation, and co-authorship, science mapping can represent the relationships between scientific concepts and actors in the form of systematic network visualizations. This approach has been widely used in various aspects such as sustainable development, climate change, and public policy to identify research directions and opportunities for cross-disciplinary integration (Esquivel-Marín et al., 2023; Leal Filho et al., 2025). Thus, science mapping is not only descriptive, but also strategic in directing future research agendas.

The relevance of bibliometric analysis is increasing in multidisciplinary studies, especially when addressing complex issues that cannot be addressed by a single discipline. The literature shows that knowledge mapping can identify disciplinary boundaries, collaboration patterns, and potential integration between fields to support interdisciplinary and transdisciplinary approaches (Y. Huang et al., 2023; Najmaei & Sadeghinejad, 2022; Weaich et al., 2024). In this context, the concepts of multidisciplinary, interdisciplinarity, and transdisciplinarity become important for understanding the level of knowledge integration occurring within a research field. Multidisciplinary reflects disciplinary diversity without deep integration, while interdisciplinarity emphasizes the integration of concepts and methodologies, and transdisciplinarity involves the creation of new conceptual frameworks that transcend disciplinary boundaries (Alaşehir & Acartürk, 2022; Alcázar et al., 2024; Eykens, 2022). Thus, bibliometric analysis serves as a tool to empirically measure and map this level of integration.

In the realm of Islamic education, studies on the functions of thinking and problem-solving within psycho-pedagogical approaches have shown substantial progress in recent years. Various empirical studies confirm that higher-order thinking skills (HOTS), critical thinking, and problem-solving are essential components of modern Islamic learning (Karwadi et al., 2024; Razak et al., 2022). Approaches such as Problem-Based Learning (PBL), constructivism, and student-centered learning have been shown to enhance students' thinking capacity in the context of Islamic education. Furthermore, the integration of Islamic values

into the learning process provides an additional dimension that distinguishes this approach from general pedagogical models (Nasucha et al., 2023). This demonstrates that the study of the functions of thinking in Islamic education is not merely cognitive, normative, and contextual.

Furthermore, psycho-pedagogical approaches in Islamic education have developed through various innovative models such as Hikmah Pedagogy, value-based constructivism, and neuroscience approaches to learning. Hikmah Pedagogy, for example, integrates Philosophy for Children (P4C) with Community of Inquiry (COI) to develop critical thinking skills through reflective dialogue grounded in Islamic norms (Aiyetoro et al., 2024). Constructivist theories, however, focus on the significance of social interaction and reflection as components of acquiring a profound comprehension of religious knowledge (Fadlillah et al., 2024). Such theories show that Islamic education can be very promising in terms of fostering complex thinking abilities due to the combination of cognitive and spiritual dimensions.

However, the available literature shows that there are inconsistent results and difficulties in using such psycho-pedagogical approaches to Islamic education. A number of papers mention heterogeneous influences of learning intervention on HOTS depending on the factors such as the design of curricula, teachers' competence, and institutions (Karwadi et al., 2024). Besides, there is still some lack of methodological integration and systematic empirical examination of the effectiveness of these approaches. This situation proves the need for conducting a review of the state of affairs in the sphere under discussion.

When bibliometric analysis is done from a methodological point of view through the application of a network approach through such tools as VOSviewer and the data source Dimensions, the process of research visualization has shown its effectiveness in visualizing research structure and dynamics (Abdelwahab et al., 2024; Fu et al., 2024; Goretti & Kaming, 2023). Co-authorship helps identify collaboration between researchers and institutions, while co-occurrence helps reveal relationships between research topics, and co-citation shows the intellectual foundations of the field. Visualization of the network makes the results easy to understand and interpret. Hence, the method is highly relevant to be used in mapping research on the function of thinking in Islamic education.

Nevertheless, there is a clear research gap that concerns the global mapping of research on the function of thinking in solving problems using the psycho-pedagogical approach to Islamic education. All the available studies are partial, since they concern specific localities or approaches and have not used bibliometric analysis in order to determine the structure and

dynamics of research in the field. Moreover, almost no study has used network analysis combined with visualization to discover the relationships between topics, actors, and institutions within this field.

From the above introduction, this study attempts to carry out a global mapping of research developments concerning the role of thinking in problem-solving from an Islamic psycho-pedagogical perspective based on bibliometrics from data from Dimensions during the years 2022 to 2026. The objective of this research is to analyze the publication pattern, thematic clusters, author collaboration, contributions by institutions and countries, and the evolution of topics through network visualization using the VOSviewer software. Therefore, the implication of this research would be both theoretical and practical in nature.

Problem Formulation

What is the global structure, trends, and dynamics of research on the function of thinking in problem-solving within the Islamic psycho-pedagogical approach based on bibliometric analysis and network visualization for the period 2022–2026?

METHOD

This study employed a quantitative-descriptive design through a bibliometric analysis approach that aims to map the structure, dynamics, and development of research related to the function of thinking in problem-solving within an Islamic psycho-pedagogical approach. The bibliometric approach was chosen because it integrates performance analysis and science mapping to produce a comprehensive picture of the scientific landscape of a field (Leal Filho et al., 2025; Wang et al., 2023; Yan & Zhiping, 2023). The data source used in this journal is the Dimensions database, chosen because it has a broad scope of publication metadata, including author information, institutional affiliation, country, keywords, and citation data relevant for network analysis (Nigam et al., 2024; Oliveira et al., 2024; Srivastava & Srivastava, 2022). Data were collected using the keywords “thinking for the process”, “problem solving”, and “Islamic psycho-pedagogy” with a publication period from 2022 to 2026, thus allowing for analysis of contemporary trends in the field.

The units of analysis in this study include several main elements, namely documents (scientific articles), authors, institutions, countries, and keywords. The selection of these units of analysis was based on the need to identify not only scientific productivity but also the structure of collaboration and conceptual relationships between research topics. The main instrument used was VOSviewer software, which is widely used in bibliometric analysis to construct and visualize scientific networks such as co-authorship, co-occurrence, and co-citation (Abdelwahab et al., 2024; Fu et al., 2024; Goretti & Kaming, 2023). In addition,

visualization features such as network visualization, overlay visualization, and density visualization were utilized to interpret relationship patterns and temporal trends in bibliographic data.

The data collection procedure involved several systematic, replicable stages. The first stage was determining a search query in the Dimensions database using a combination of predetermined keywords. The second stage was the extraction of publication metadata, including title, abstract, keywords, author names, affiliations, year of publication, and number of citations. The third stage was data preprocessing, which included data cleaning, normalization of author and institution names, and keyword standardization to avoid data duplication and fragmentation, as recommended in bibliometric studies (Gunawan et al., 2022; Srivastava & Srivastava, 2022). The fourth stage was data conversion into a VOSviewer-compatible format (CSV or RIS) for subsequent network analysis.

Data analysis techniques in this research use two main components, namely performance analysis and science mapping. Performance analysis is used to identify the development of the number of publications per year, the distribution of contributions by authors, institutions, and countries, as well as the level of scientific productivity in the field of study (Leal Filho et al., 2025; Wang et al., 2023). Meanwhile, science mapping is carried out through network analysis which includes: (1) co-authorship to identify collaboration models between authors, institutions, and countries; (2) co-occurrence to analyze relationships between keywords and identify major thematic clusters; and (3) co-citation to reveal the intellectual structure and basic literature that shape the research field (Abdelwahab et al., 2024; Fu et al., 2024; Şevik, 2023). In addition, overlay visualization analysis is used to identify temporal trends in the development of themes, while density visualization is used to see the level of density and dominance of certain topics in the network.

To ensure the validity and readability of the network, this study applied certain thresholds to the analysis, such as a minimum number of keyword occurrences or the number of author publications, so that only elements of particular significance were visualized in the network (Dias et al., 2023). Analysis was done based on the node size (frequency/productivity), edge thickness (relationship strength), and color of clusters (thematic groups/scientific communities). Therefore, this methodology helps to systematically detect relationship patterns visually.

In conclusion, it can be stated that the purpose of the methodology presented here is to obtain a repeatable and data-based analysis which can be used to study other scientific fields using bibliometrics by modifying the keywords and data sources. The use of Dimensions

database and visualization in VOSviewer provides a powerful tool for analyzing research on the role of thinking in problem-solving from the Islamic psycho-pedagogical approach.

RESULTS AND DISCUSSION

Annual Publication Development

Taking into account the statistics provided by Dimensions for the period of 2022-2026, the number of publications is characterized by high dynamics and a sharp increase during the first observation period as depicted in Figure 1. In 2022, the number of publications accounted for about 124 papers, and then it sharply grew in 2023 to around 285 publications. It demonstrates increased academic interest in the issue of the role of thinking in problem solving based on the psycho-pedagogical approach of Islam. But after growing to the maximum in 2023, the tendency of publications had slightly declined in 2024 (about 267 publications) and in 2025 (about 249 publications). The decline in the number of publications should not be considered as a decline in academic interest in the issue (Leal Filho et al., 2025; Wang et al., 2023). Meanwhile, the 2026 data shows a very low number (around 25 publications), which methodologically needs to be understood as partial data (early indexing), so it cannot be compared directly with the previous year.

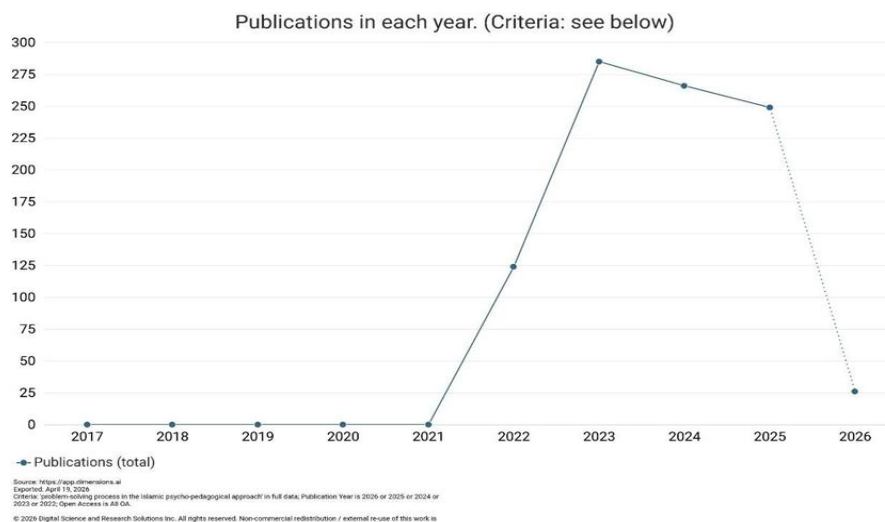


Figure 1. Annual Publication Progress from 2017-2026

As follows from the pattern demonstrated in Figure 1, 2022-2023 were years of research acceleration, which was followed by the consolidation period of 2024-2025. This tendency indicates the development of the study field toward its maturity, during which researchers pay more attention to the thematic deepening and methodological diversity of research.

The results obtained in the course of bibliometric analysis show that the development of the field of study of thinking functions in problem-solving based on Islamic psycho-pedagogical approach demonstrated significant acceleration, especially in the initial observation period (2022-2023), which was followed by the stabilization phase. This

tendency can be regarded as a manifestation of the characteristics of the development of an emerging scientific field when the initial phase is characterized by a quick rise in the number of publications, which is then replaced by a consolidation phase when the research focus shifts to specific themes (Leal Filho et al., 2025; Wang et al., 2023). Thus, the increase in the number of publications not only testifies to the growing academic interest to the theme but also demonstrates that the field of thinking functions in the Islamic education has become a legitimate scientific field of global importance. This conclusion is in line with the results of research that prove that the bibliometric approach enables identifying the dynamics of development of scientific fields and its phases (Aryadoust, 2023; Yan & Zhiping, 2023).

The increased attention paid to the theme of thinking and problem-solving functions in Islamic education can be viewed in terms of the requirements of the 21st century education, which prioritizes critical, creative, reflective and problem-solving skills among the core competencies of students. The previous researches demonstrated that Islamic education is not only about transmitting religious knowledge but also involves developing HOTS of students that allow navigating the realities of social life and technological advancements better (Karwadi et al., 2024; Nasucha et al., 2023).

The results obtained also confirm the results of a number of studies indicating the increased use of psychopedagogical approaches in Islamic education. The approach involves the inclusion of elements of cognitive psychology, the theory of constructivist learning, problem-based learning, project-based learning, and the Hikmah Pedagogy approach based on the critical dialogue and the community of inquiry (Aiyetoro et al., 2024; Fadlillah et al., 2024; Razak et al., 2022). The increase in the number of works related to the topic in question shows that the scientists begin to understand the significance of combining psychological and pedagogical aspects and Islamic values as the way to improve the effectiveness of the learning process and to promote student character. Consequently, the development of publications detected through bibliometric analysis proves both quantitative and qualitative growth in the area of Islamic education.

From the scientometric point of view, the stabilization of publications after the first peak means that the scientific community is building an already established knowledge system. In this case, research does not involve the study of fundamental concepts anymore and starts to work on building a model, its implementation strategies, as well as the evaluation of the effectiveness of different approaches to learning connected with thinking and problem-solving functions. This is typical for scientific areas experiencing the process of academic institutionalization when the number of publications stays relatively high, but the growth

becomes slow due to the change of research focus to the topics considered to be more promising (Leal Filho et al., 2025; J. Huang et al., 2023).

Keyword Co-Occurrence Network Analysis (Thematic Structure)

The co-occurrence analysis of keywords was carried out to detect the major conceptual connections and thematic clusters existing within the research field. The generated network, illustrated by Figure 2, contains three major clusters concerning theoretical-Islamic, health-intervention, and empirical-educational aspects.

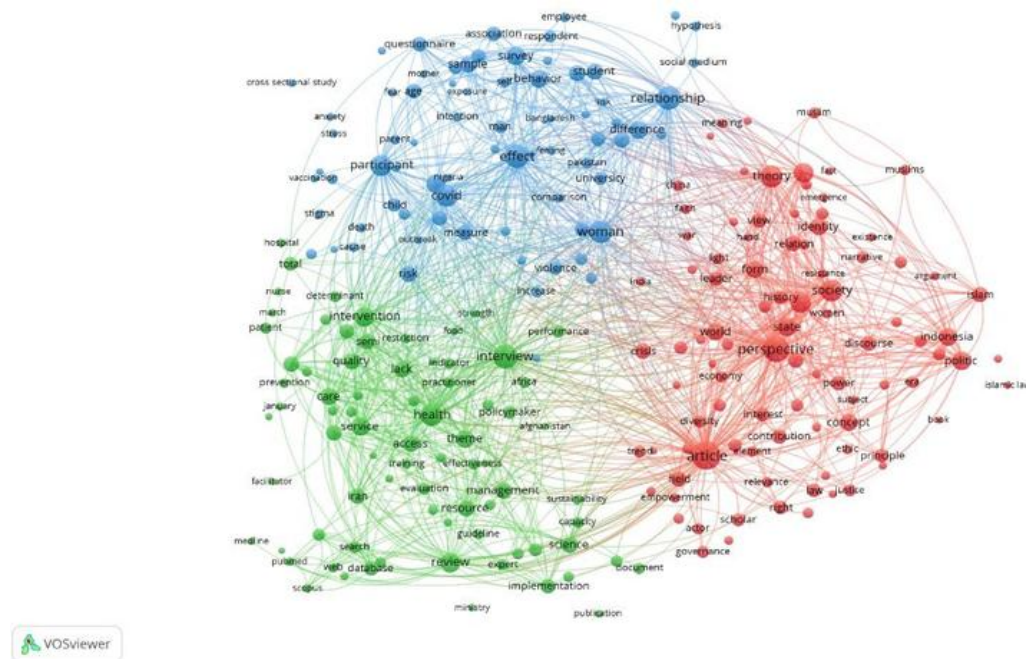


Figure 2. Co-occurrence Network Analysis Results

As is illustrated in Figure 2, there are three main clusters of the keyword co-occurrence network demonstrating the conceptual structure of the research field. The visualization results for the co-occurrence network show three main clusters representing the conceptual structure of the research field. Cluster 1 (Red – Social and Theoretical Dimensions of Islam). This cluster comprises keywords such as theory, Islam, society, identity, discourse, politics, and perspective. This cluster shows the theoretical and conceptual approach to the analysis of the function of thinking in a socio-Islamic context. The use of keywords such as identity and discourse demonstrates that this research does not deal only with cognitive dimensions of thinking but also social construction and Islamic epistemology.

Cluster 2 (Green – Health Dimensions and Psychological Interventions). This cluster contains keywords such as health, intervention, care, quality, service, and management. This cluster shows the connection between the function of thinking and its application in the context of applied psychology, especially concerning the provision of health services and

behavior-based interventions. It shows that Islamic psycho-pedagogical approaches are also applied in the area of individual well-being.

Cluster 3 (Blue – Empirical and Educational Dimensions). This cluster is mainly based on terms such as student, survey, effect, relationship, university, and sample. This cluster shows the empirical approach based on quantitative analysis of education and learning behaviors. Terms such as effect and relationship show the prevalence of statistical analysis methods used for investigating the relationships between thinking and learning variables. Thus, the three identified clusters demonstrate the multidisciplinary nature of the research field including theoretical, empirical and applied components.

Moreover, the growth pattern shows the multidisciplinary character of the analysis of the function of thinking in problem-solving through the Islamic psycho-pedagogical approach. It shows that many concepts connected to Islamic education, educational psychology, learning theory, cognitive development, and modern pedagogical studies appear simultaneously in the literature. As is shown in bibliometric literature, the appearance of many disciplines within one research network is a sign of developing knowledge base and increasing complexity of emerging studies (Bircan & Salah, 2022; Alcázar et al., 2024). In the context of this research, the integration of these various disciplines demonstrates that efforts to understand the function of thinking in Islamic education cannot be conducted through a single perspective, but rather requires an approach that simultaneously combines theological, pedagogical, psychological, and social dimensions.

These findings also demonstrate that research on the function of thinking in Islamic education has the potential to move from a multidisciplinary to an interdisciplinary stage. While in the multidisciplinary stage, various disciplines still work in parallel, the development of themes such as HOTS, Islamic constructivism, religious moderation, problem-based learning, and Hikmah Pedagogy indicates a trend toward stronger conceptual integration across disciplines (Eykens, 2022; Alcázar et al., 2024). This condition is an important indicator that this field of study has the potential to develop into a more integrated knowledge framework to address the challenges of contemporary Islamic education. Therefore, the results of this bibliometric analysis not only illustrate the pattern of publication growth but also reveal the direction of ongoing intellectual evolution in research on the function of thinking and problem-solving within an Islamic psycho-pedagogical approach.

Furthermore, the thematic structure formed through the co-occurrence analysis indicates the presence of three main clusters: the theoretical-Islamic cluster, the health and intervention cluster, and the empirical-educational cluster. This pattern indicates that this field of study is

multidisciplinary with a developing level of integration. From a theoretical perspective, this condition can be categorized as an early stage towards interdisciplinarity, where various disciplines begin to interact but are not yet fully integrated conceptually (Alcázar et al., 2024; Eykens, 2022). The presence of a strong theoretical cluster indicates that the epistemological dimension of Islam remains the main foundation of this study, while the health and educational clusters demonstrate the expanded application of the concept of the function of thinking into practical contexts. The current finding is in line with the existing literature which focuses on the fact that science mapping allows uncovering the conceptual framework of the field and relationships between different themes (Leal Filho et al., 2025; Y. Huang et al., 2023).

Speaking about the Islamic education field, the prominence of the clusters linked to HOTS, critical thinking, and problem solving testifies that the research carried out in this field is strongly driven by the contemporary learning paradigms. This finding is confirmed empirically in that methods of Problem-Based Learning (PBL), active learning, and student-centered learning contribute to development of higher-order thinking skills in Islamic education (Jasmi et al., 2022; Karwadi et al., 2024; Murtadlo et al., 2025; Razak et al., 2022). Moreover, the incorporation of Islamic values in pedagogical techniques brings to the forefront the normative and spiritual dimensions of the learning, which leads to development of the learning model that not only has cognitive nature but also is ethical. In this regard, the role of thinking should be viewed not only in terms of cognitive skills but also as a reflective process incorporated with Islamic values.

Overlay Visualization Analysis (Temporal Keyword Trends)

Overlay visualization technique has been employed for the analysis of the temporal evolution of keywords in the domain of study. As shown in Figure 3, the color assigned to each node depicts the mean publication year for that particular keyword.

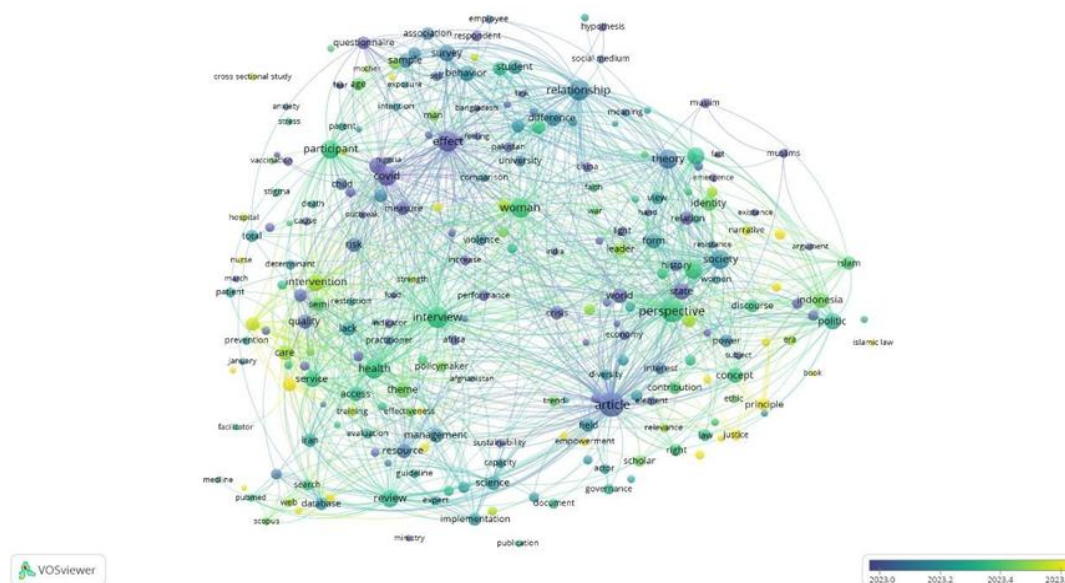


Figure 3. Overlay Visualization Analysis Results

As can be seen in Figure 3, most keywords fall into the green to yellow color region which means that these topics are relatively new and have emerged mostly during the 2023-2024 period. Keywords like perspective, theory, intervention and health were identified as relatively new topics. On the other hand, the darker (blue) keywords like article and relationship show topics which are older and form the basis of the research. This means that the topic has shifted from a purely descriptive approach to a more applied and interventionist approach.

The overlay visualization analysis indicates a change in research trends from purely descriptive approaches to applied and interventionist approaches. The identification of keywords such as intervention, health and perspective as relatively new topics implies that research is shifting to the practical application of the concept of thinking functions. This is consistent with literature which indicates that multidisciplinary areas develop from conceptualization to practical application based on the need to solve actual problems (J. Huang et al., 2023; Weaich et al., 2024). With respect to the Islamic education sector, this trend is shown by the rising number of research on the practical applications of Hikmah Pedagogy, constructivism and neuroscience based approaches to improve HOTS (Aiyetoro et al., 2024; Fadlillah et al., 2024; Sasmita & Suyadi, 2022).

Density Visualization Analysis (Topic Density)

Visualization was done through density mapping to determine those regions where there was a concentration of keyword occurrence. Figure 4 illustrates the density distribution of topics.

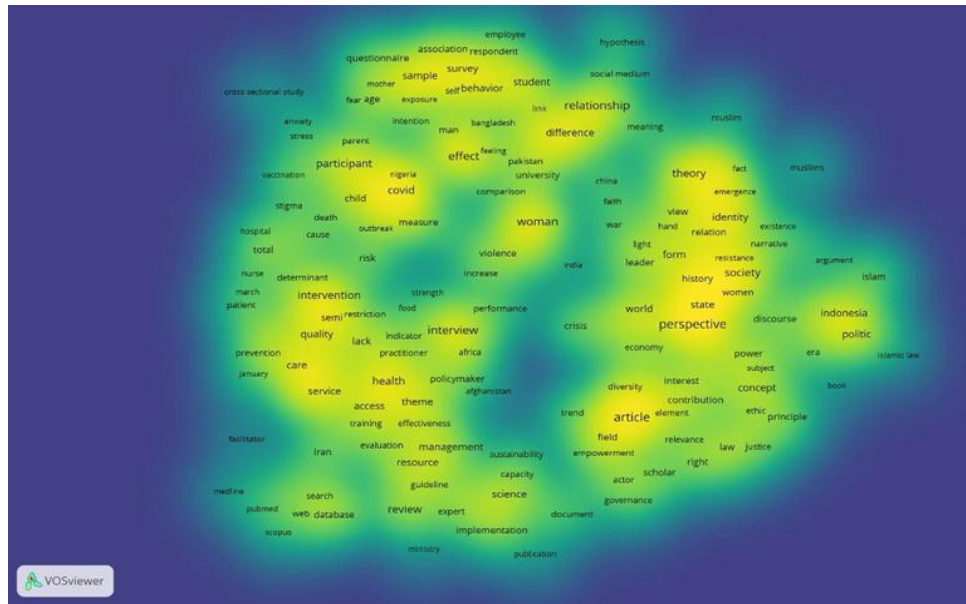


Figure 4. Results of Density Visualization Analysis (Topic Density)

As shown in Figure 4, the high density centers are related to such keywords as interview, health, perspective, theory, and article. High density suggests that these topics form the core of the research interest. It is also noteworthy that there are two central areas of high density: 1) health and intervention (health, care, service); 2) conceptual aspects of Islam (theory, perspective, society). This suggests that the research is focused on two approaches: practical/applicative one and philosophical/conceptual one.

Co-Authorship Network Analysis (Authors)

Co-authorship analysis was conducted to examine collaboration patterns among authors. The structure of the author collaboration network is presented in Figure 5.

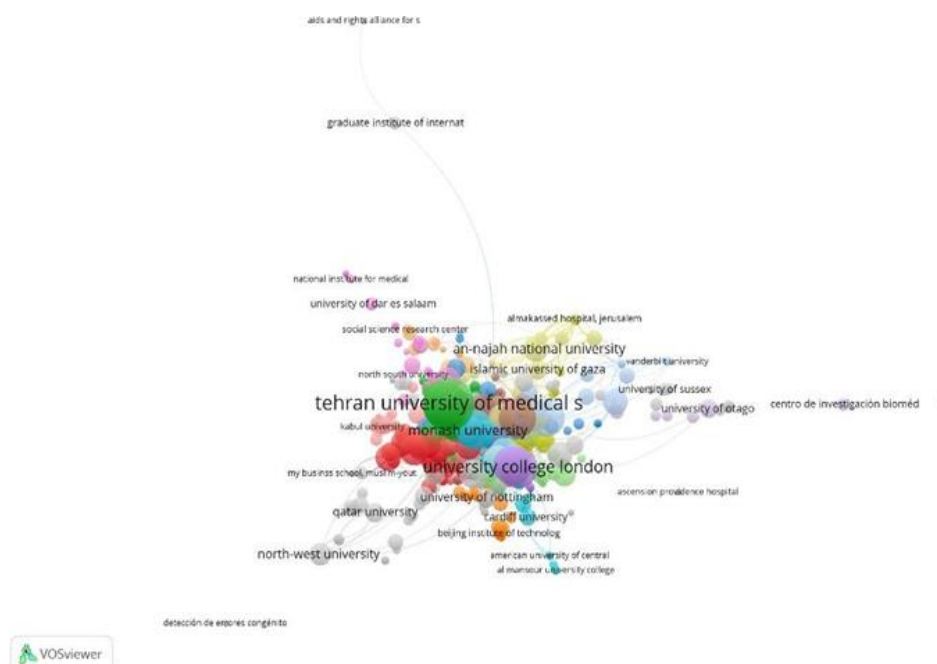


Figure 5. Co-Authorship Network Analysis Results (Authors)

As shown in Figure 5, the author co-authorship network comprises several relatively fragmented collaboration clusters. Authors such as *Takian and Amirhossein* emerge as central nodes with high connectivity, indicating their important role in the collaboration network. However, the overall network shows a limited level of collaboration, with many small, loosely connected groups. This indicates that the field is still in its infancy and does not yet have a strongly integrated global scientific community.

However, the analysis of collaboration networks shows that the level of collaboration between authors, institutions, and countries remains relatively fragmented. Although there are several key actors with high connectivity, the network largely consists of small, loosely connected groups. This situation suggests that this research field has not yet achieved optimal levels of global integration. This finding aligns with previous studies that identified that many multidisciplinary fields face challenges in building effective cross-disciplinary and cross-national collaborations (Najmaei & Sadeghinejad, 2022; Wang et al., 2022). Within the Science of Team Science (SciTS) framework, this situation suggests the need to strengthen collaboration structures and coordination mechanisms to enhance the effectiveness of cross-disciplinary research (Huang et al., 2023).

Institutional Analysis (Affiliation Network)

Institutional analysis was performed to identify the principal institutions contributing to the field and examine the structure of collaboration among them. The institutional network is presented in Figure 6.

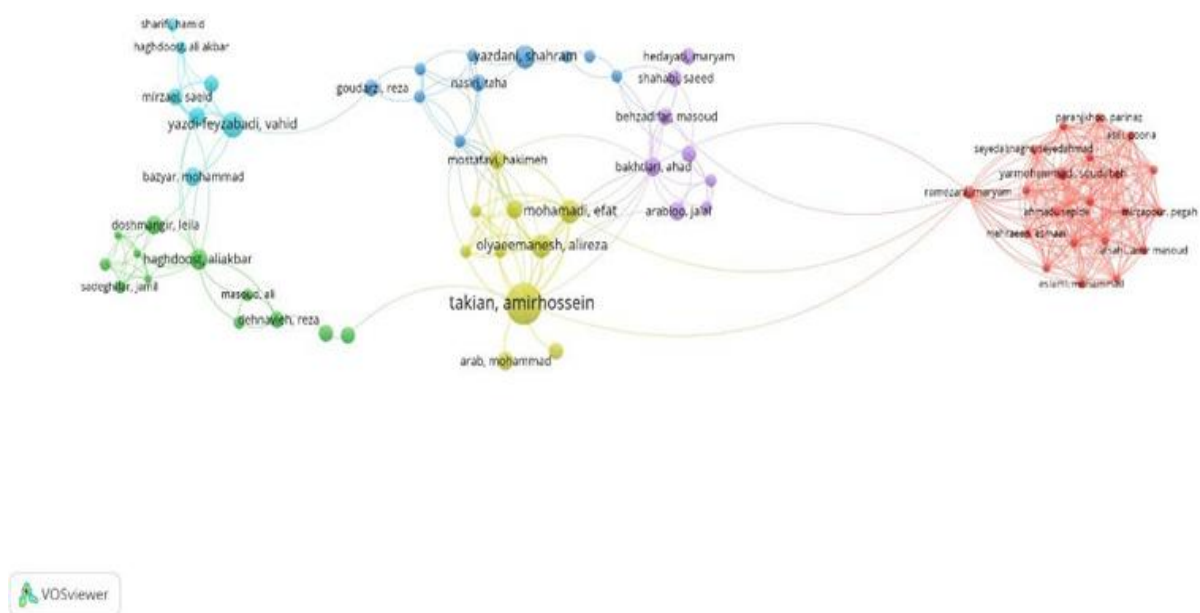


Figure 6. Institutional Analysis Results (Affiliation Network)

Figure 6 illustrates the concentration of institutional contributions around several institutions, including Tehran University of Medical Sciences, Monash University, and

University College London. These institutions serve as centers of knowledge production and scientific collaboration. The dominance of health-based institutions indicates that the psychopedagogical approach in this research was largely developed in medical and psychological contexts. However, the distribution of institutions still shows inequality, with the majority of contributions coming from certain institutions, while institutions from developing countries still have limited contributions.

Country Network Analysis (Global Collaboration)

The institutional concentration identified in Figure 6 is also reflected in the geographical distribution of research collaboration. Figure 7 presents the co-authorship network at the country level.

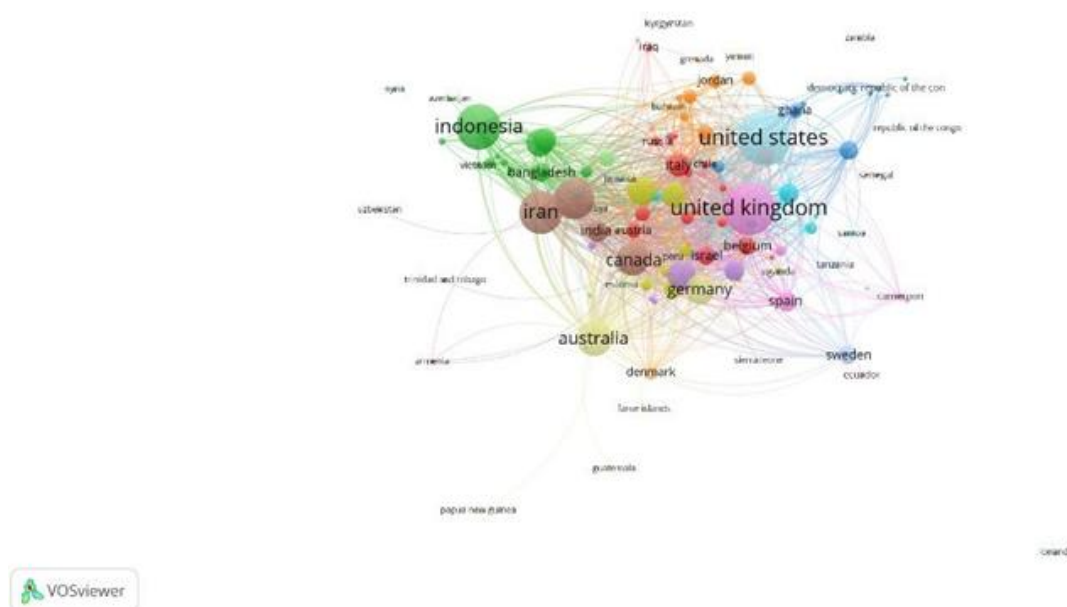


Figure 7. Results of the Country Network Analysis (Global Collaboration)

As presented in Figure 7, the United States, the United Kingdom, Iran, Indonesia, and Australia demonstrate the highest levels of contribution and connectivity within the country collaboration network. The United States and the United Kingdom serve as hubs for global collaboration with extensive networks, while Iran and Indonesia demonstrate significant contributions in the context of Islamic studies. This indicates that research in this field is global in nature, with centers of gravity in Western and Muslim countries. But the international network does contain inequalities where some countries have only limited connectivity suggesting potential avenues for more international collaboration.

The dominance of specific organizations and specific countries within the bibliometric network implies inequalities in the distribution of scientific production. Various countries like the US, UK and Australia enjoy a dominant position within the global collaborative network,

while other countries that have an Islamic education environment like Indonesia and Iran are just beginning to contribute but are not well connected within the international network yet. This represents a great potential to collaborate internationally, especially for Western and Muslim countries. These findings are consistent with literature emphasizing the importance of cross-national collaboration in improving the quality and impact of scientific research (Leal Filho et al., 2025; Weaich et al., 2024). The main findings from the publication, thematic, and collaboration analyses are summarized in Table 1.

Table 1. Summary of Bibliometric Analysis Results

Analysis Aspect	Key Findings
Publications	Significant spike 2022–2023, stabilization 2024–2025
Keywords	3 main clusters: theory, health, education
Tren	Shift towards interventions and applications
Density	Focus on health, theory, perspective
Authorship	Collaboration remains fragmented
Institutions	Dominant medical and global institutions
Countries	US, UK, Iran, and Indonesia dominant

Interpretative Diagram

The relationships among the principal thematic dimensions identified through the bibliometric analysis are synthesized in Figure 8.

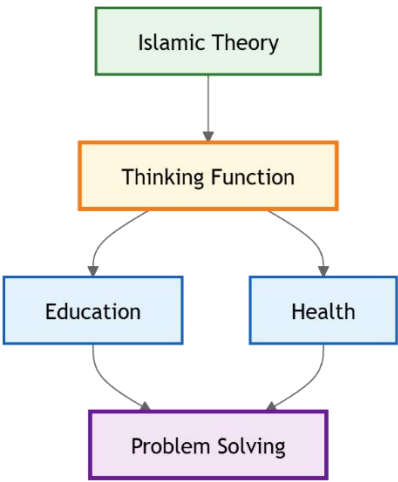


Figure 8. Islamic Thinking Function Framework

As illustrated in Figure 8, thinking functions occupy a central position connecting three major research domains: education, health, and Islamic theory.

Synthesis of Findings

Overall, the bibliometric findings indicate that research on thinking functions in problem-solving within an Islamic psycho-pedagogical approach is multidisciplinary and has developed rapidly since 2022. However, collaboration among authors, institutions, and

countries remains fragmented. The field is predominantly characterized by empirical and applied approaches and demonstrates considerable potential for broader global integration. These findings provide an important basis for the discussion phase in identifying scientific contributions, research gaps, and future development directions.

The methodology of bibliometric analysis in the case of using Dimensions and VOSviewer databases was proven to be productive in uncovering the comprehensive structure and dynamics of research. In the process of performance analysis and knowledge mapping, it is possible to reveal trends, themes, thematic clusters, and collaboration (Nigam et al., 2024; Oliveira et al., 2024; Srivastava & Srivastava, 2022). However, as shown in the existing literature, there are limitations of such a methodology as well because of the possible presence of biases in the database due to database coverage, differences in citation practices, etc. (J. Li et al., 2025; Yan & Zhiping, 2023).

Responding to the research question, it is possible to say that global research structure of the functions of thinking in problem-solving in the framework of Islamic psychopedagogical approach is characterized by three dimensions, namely theoretical-Islamic dimension, empirical-educational one, and applied-psychological. As far as research trends are concerned, there is a tendency towards the use of interventions and applications. As for collaboration dynamics, they are still fragmented, thus, it can be said that this sphere is developing toward interdisciplinary integration.

Theoretical contribution of this research is the broadening of knowledge about the structure of knowledge in Islamic education and functions of thinking and problem-solving in particular. Methodological contribution of this research is the possibility of the use of bibliometric analysis as a tool in the framework of such a complicated scientific field. Practical contribution of the research lies in the influence of its findings on the development of educational policies and research strategy.

But the study has many limitations including one pertaining to the weakness of the data source since Dimensions were the only sources considered. Additionally, the limitation lies in the relatively limited time span considered during the study. Also, the quantitative bibliometric analysis could not comprehensively reveal the nature and quality of research work done in the concept. Hence, more research is needed which could combine bibliometric and qualitative methods to understand the concept better.

In summary, this paper shows how research on the role of thinking in problem solving in the Islamic psychopedagogy approach has great prospects to become an interdisciplinary research area in the future through global collaboration and improved methodology.

CONCLUSION

The current study intended to visualize the global development of scientific literature related to thinking functions in problem-solving within an Islamic psycho-pedagogical framework via bibliometric analysis of publications indexed in Dimensions from 2022 to 2026. According to the results, there is a noticeable growth of scientific literature output in the initial years of the observation period followed by the stabilization phase, indicating the field's development towards the stage of early scholarly maturity. The thematic structure illustrates the combination of three key dimensions – Islamic theoretical, educational empirical, and psychological applied. Network analysis demonstrates the transition from theoretical discussions to practical applications concerning the creation of interventions for developing higher-order thinking and problem-solving skills in Islamic educational settings.

At the same time, scientific collaboration proves to be rather dispersed among authors, institutions, and countries as the research production tends to be concentrated among several key contributors. The study highlights the opportunities for increasing international collaboration and broadening the global research network. From the perspective of theory, the study explains the intellectual structure and evolution of scientific literature on thinking functions in Islamic education, while from the perspective of methodology, it demonstrates the efficiency of bibliometric and visualization approaches to tracking the trends in scientific research. Still, the limitations of the study consist of the use of a single database and the relatively short time frame of analysis. Future research will benefit from the combination of multiple databases, extended observation period, and the use of both bibliometric and qualitative methods.

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Authors thank ChatGPT to be used In this research, the role of artificial intelligence (AI) is applied in a very limited capacity as an auxiliary tool for the processing and preparation of scientific articles, more specifically as an auxiliary tool to help create the structure of the article, improve the style of academic language, and organize thoughts based on the data analyzed. The role of artificial intelligence does not take away the responsibilities of the researcher, namely the work of conceiving, analyzing, interpreting the results, and concluding.

All bibliometric data utilized in this research was obtained directly from the Dimensions database and analyzed using VOSviewer software in accordance with replicable scientific procedures. AI was not used in data collection, primary data processing, or in determining the results of the analysis. Thus, the validity, reliability, and scientific integrity of the research are maintained in accordance with ethical standards for scientific publication.

The author declares that the use of AI in this research was conducted transparently, proportionally, and in accordance with the principles of academic ethics, and did not violate the provisions on plagiarism or scientific integrity. All scientific substances, including argumentation, analysis, and conclusions, is the result of the author's thoughts and the full responsibility of the author.

REFERENCES

- Abdelwahab, S. I., Taha, M. M. E., Jerah, A. A., Farasani, A., Abdullah, S. M., Aljahdali, I. A., Ibrahim, R., Oraibi, O., Oraibi, B., Alfaihi, H. A., Alzahrani, A. H., & Babiker, Y. (2024). Artificial Intelligence and Microbiome Research: Evolution of Hotspots, Research Trends, and Thematic-Based Narrative Review. *Cellular and Molecular Biology*, 70(10), 182–192. <https://doi.org/10.14715/cmb/2024.70.10.24>
- Aiyetoro, A. I., Ali, A. O., & Petra, N.-A. (2024). A Review of the Impact and Challenges of Hikmah Pedagogy in Teaching and Learning Environment. *Jurnal Penelitian Dan Pengkajian Ilmu Pendidikan E-Saintika*, 8(1), 122–137. <https://doi.org/10.36312/esaintika.v8i1.1657>
- Alaşehir, O., & Acartürk, C. (2022). Interdisciplinarity in cognitive science: A document similarity analysis. *Cognitive Science*, 46(12), e13222. <https://doi.org/10.1111/cogs.13222>
- Alcázar, F. M., Ruiz-Martínez, M., & Sánchez-Gardey, G. (2024). Research Across Disciplines: Influence of Human Resource Management Practices. *Management Decision*, 62(13), 26–45. <https://doi.org/10.1108/md-03-2023-0397>
- Arifin, A. Z., Azis, A., Rofiqi, R., Al-Mohannadi, A., & Nasrullah, A. M. A. (2026). A Fiqh Analysis of Parental Responsibility in Protecting Children from Online Game Addiction and Negative Content. *Al Irsyad: Jurnal Studi Islam*, 5(1), 45–56. <https://doi.org/10.54150/alirsyad.v5i1.850>
- Aryadoust, V. (2023). Bibliometrics and Scientometrics in Applied Linguistics: Epilogue to the Special Issue. *Studies in Second Language Learning and Teaching*, 13(4), 925–933. <https://doi.org/10.14746/ssllt.40221>
- Bircan, T., & Salah, A. A. A. (2022). A Bibliometric Analysis of the Use of Artificial Intelligence Technologies for Social Sciences. *Mathematics*, 10(23), 4398. <https://doi.org/10.3390/math10234398>
- Dias, F. d. O., Bonfim, H. d. S., Matos, G. B. da C., & Bombardelli, J. (2023). Análise Bibliométrica Da Produção Científica Sobre Créditos De Carbono (2012-2021). *Revista De Gestão Social E Ambiental*, 17(1), e03101. <https://doi.org/10.24857/rgsa.v17n1-026>
- Esquivel-Marín, N. H., Villegas, L. M. S., Barrera-Perales, O. T., Rodríguez, J. A. L., & González, J. M. S. (2023). Multifunctional Agriculture in the Framework of the Sustainable Development Goals (SDGs): Bibliometric Review. *Acta Universitatis Sapientiae Agriculture and Environment*, 15(1), 36–51. <https://doi.org/10.2478/ausae-2023-0004>

- Eykens, J. (2022). Assessing interdisciplinary research in the social sciences: Are we on the right track? In T. C. E. Engels & E. Kulczycki (Eds.), *Handbook on research assessment in the social sciences* (pp. 119–134). Edward Elgar Publishing. <https://doi.org/10.4337/9781800372559.00014>
- Fadlillah, N., Abdullah, Moh., & Kusaeri, K. (2024). Exploring the Potential of Constructivist Pedagogical Approach in Strengthening Religious Moderation a Systematic Literature Review. *Scaffolding Jurnal Pendidikan Islam Dan Multikulturalisme*, 6(1), 109–128. <https://doi.org/10.37680/scaffolding.v6i1.4306>
- Fu, L., Aximu, R., Zhao, G., Chen, Y., Sun, Z., Xue, H., Wang, S., Zhang, N., Zhang, Z., Lei, M., Zhai, Y., Xu, J., Sun, J., Ma, J., & Liu, F. (2024). Mapping the Landscape: A Bibliometric Analysis of Resting-State fMRI Research on Schizophrenia Over the Past 25 Years. *Schizophrenia*, 10(1). <https://doi.org/10.1038/s41537-024-00456-2>
- Goretti, H. A., & Kaming, P. F. (2023). A review and bibliometric analysis of utilizing building information modeling (BIM) on effective operation and maintenance (O&M). *E3S Web of Conferences*, 429, 01002. <https://doi.org/10.1051/e3sconf/202342901002>
- Gunawan, B., Ratmono, B. M., Abdullah, A. G., Sadida, N., & Kaprisma, H. (2022). Research Mapping in the Use of Technology for Fake News Detection: Bibliometric Analysis From 2011 to 2021. *Indonesian Journal of Science and Technology*, 7(3), 471–496. <https://doi.org/10.17509/ijost.v7i3.51449>
- Huang, J., Irfan, M., Fatima, S. S., & Shahid, R. M. (2023). The Role of Lean Six Sigma in Driving Sustainable Manufacturing Practices: An Analysis of the Relationship Between Lean Six Sigma Principles, Data-Driven Decision Making, and Environmental Performance. *Frontiers in Environmental Science*, 11. <https://doi.org/10.3389/fenvs.2023.1184488>
- Huang, Y., Liu, X., Li, R., & Zhang, L. (2023). The science of team science (SciTS): An emerging and evolving field of interdisciplinary collaboration. *Profesional de la Información*, 32(2), e320204. <https://doi.org/10.3145/epi.2023.mar.04>
- Jasmi, K. A., Sahran, R. B., & Nazim, M. A. A. M. (2022). A Student-Centered Teaching and Learning Approach Among Excellent Teachers of Islamic Education. *Syamil Jurnal Pendidikan Agama Islam (Journal of Islamic Education)*, 10(2), 113–126. <https://doi.org/10.21093/sy.v10i2.6156>
- Karwadi, K., Zakaria, A. R., & Syafii, A. (2024). A Review of the Effects of Active Learning on High Order Thinking Skills: A Meta-Analysis Within Islamic Education. *Journal of Education and Learning (Edulearn)*, 18(1), 97–106. <https://doi.org/10.11591/edulearn.v18i1.20895>
- Leal Filho, W., Eustachio, J. H. P. P., Ávila, L. V., Dinis, M. A. P., Hernandez-Diaz, P. M., Batista, K., Borsari, B., & Abubakar, I. R. (2025). Enhancing the contribution of higher education institutions to sustainable development research: A focus on post-2015 SDGs. *Sustainable Development*, 33(2), 1745–1757. <https://doi.org/10.1002/sd.3184>
- Li, J., Dai, Y., & Li, J. (2025). Revisiting 30 Years of Advances in Firefighter Protective Clothing: A Quantitative Assessment and Bibliometric Analysis. *Textile Research*

Journal, 95(9–10), 1184–1198. <https://doi.org/10.1177/00405175241286859>

- Li, L., Wan, N., He, Y., Zhang, Y., He, X., & Lu, L. (2023). A Global Bibliometric and Visualized Analysis of the Status and Trends of Bone Metastasis in Breast Cancer Research From 2002 to 2021. *Journal of Bone Oncology*, 42, 100500. <https://doi.org/10.1016/j.jbo.2023.100500>
- Murtadlo, S., Arifin, A. Z., & Situmeang, M. S. (2025). The Influence of Islamic Value-Based Character Education on the Formation of Students' Morals. *Thawalib: Jurnal Kependidikan Islam*, 6(2), 337–348. <https://doi.org/10.54150/thawalib.v6i2.595>
- Najmaei, A., & Sadeghinejad, Z. (2022). Green and Sustainable Business Models: Historical Roots, Growth Trajectory, Conceptual Architecture and an Agenda for Future Research—A Bibliometric Review of Green and Sustainable Business Models. *Scientometrics*, 128(2), 957–999. <https://doi.org/10.1007/s11192-022-04577-2>
- Nasucha, M. R., Khozin, K., & Thoifah, I. (2023). Synergizing Islamic Religious Education and Scientific Learning in the 21st Century: A Systematic Review of Literature. *Jurnal Pendidikan Agama Islam (Journal of Islamic Education Studies)*, 11(1), 109–130. <https://doi.org/10.15642/jpai.2023.11.1.109-130>
- Nigam, A., Khan, F. S., Rizvi, A. F., Mazhar, S. S., & Rehman, A. (2024). Consumer-focused financial innovation and marketing strategies: A three decades multidimensional study using systematic literature review (SLR) and bibliometric analysis. *TEM Journal*, 13(4), 3383–3396. <https://doi.org/10.18421/TEM134-72>
- Oliveira, A. B. d., Costa, C. L. de O., Gomes, J. S., & Marques, F. L. (2024). Internationalization of Companies: A Systematic Literature Review Supported by Bibliometric Analysis. *Revista De Gestão Social E Ambiental*, 18(7), e8360. <https://doi.org/10.24857/rgsa.v18n7-172>
- Razak, A. A., Ramdan, M. R., Mahjom, N., Zabit, M. N. M., Muhammad, F., Hussin, M. Y. M., & Abdullah, N. L. (2022). Improving Critical Thinking Skills in Teaching Through Problem-Based Learning for Students: a Scoping Review. *International Journal of Learning Teaching and Educational Research*, 21(2), 342–362. <https://doi.org/10.26803/ijlter.21.2.19>
- Sasmita, R., & Suyadi, S. (2022). Pengembangan Media Pendidikan Agama Islam Berbasis Neurosains Dalam Meningkatkan Higher Order Thinking Skill (HOTS). *Potensia Jurnal Kependidikan Islam*, 8(1), 29. <https://doi.org/10.24014/potensia.v8i1.16027>
- Şevik, A. E. (2023). Bibliometric and Visual Analysis of the Literature on Electroconvulsive Therapy in Psychiatry Between 2000-2023. *Journal of Contemporary Medicine*, 13(4), 639–647. <https://doi.org/10.16899/jcm.1317855>
- Srivastava, R., & Srivastava, S. (2022). Bibliometric Analysis of Indian Journal of Palliative Care From 1995 to 2022 Using the VOSviewer and Bibliometrix Software. *Indian Journal of Palliative Care*, 28, 338–353. https://doi.org/10.25259/ijpc_30_2022
- Wang, H., Xie, J., Luo, S., Ta, D. T., Wang, Q., Zhang, J., Su, D., & Furuya, K. (2023). Exploring the Interplay Between Landscape Planning and Human Well-Being: A

Scientometric Review. *Land*, 12(7), 1321. <https://doi.org/10.3390/land12071321>

Wang, X., Song, Y., & Su, Y. (2022). Less Fragmented but Highly Centralized: A Bibliometric Analysis of Research in Computational Social Science. *Social Science Computer Review*, 41(3), 946–966. <https://doi.org/10.1177/08944393211058112>

Weaich, M., Simbanegavi, P., Ndlovu, P., Root, D. H., Bedi, T. K., Parafiniuk, A., Latos, B. A., Adewunmi, Y., Dias, M. F., & Schmitz, G. (2024). *Achieving sustainable transdisciplinary research in construction project management: A bibliometric approach* [Preprint]. EngRxiv. <https://doi.org/10.31224/3550>

Yan, L., & Zhiping, W. (2023). Mapping the Literature on Academic Publishing: A Bibliometric Analysis on WOS. *Sage Open*, 13(1). <https://doi.org/10.1177/21582440231158562>