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Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools

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Abstract

This study is driven by the urgent need to transform Islamic Religious Education (PAI) in secondary schools from a traditional lecture-based model toward a more participatory and contextual approach. Cooperative learning is considered a promising strategy to enhance student engagement and foster the internalization of Islamic values through group interaction and collaboration. This research employs a bibliometric approach based on 211 documents retrieved from the Scopus database (2015–2025), analyzed using R and the Biblioshiny interface. The results reveal a growing trend in cooperative learning publications, with dominant contributions from the social sciences and strong research collaboration between countries such as the United States and Indonesia. The novelty of this study lies in its systematic mapping of conceptual structures and thematic trends of cooperative learning research within the context of Islamic education a perspective rarely explored in previous literature. This research contributes theoretically by developing a data-driven conceptual framework and practically by offering strategic insights for educators, policymakers, and researchers to design cooperative learning models grounded in Islamic values and responsive to 21st-century educational needs. Furthermore, this study identifies current dominant themes and emerging topics that have strong potential for future research development in the field of cooperative learning within Islamic Religious Education.

Keyword: *Cooperative Learning, Islamic Religious Education, Bibliometric Analysis*

Abstrak

Penelitian ini dilatarbelakangi oleh urgensi transformasi pembelajaran Pendidikan Agama Islam (PAI) di sekolah menengah dari pendekatan ceramah satu arah menuju metode yang lebih partisipatif dan kontekstual. Pembelajaran kooperatif dipandang sebagai strategi potensial untuk meningkatkan keaktifan siswa serta internalisasi nilai-nilai Islam melalui interaksi dan kerja sama kelompok. Penelitian ini menggunakan pendekatan bibliometrik terhadap 211 dokumen dari database Scopus (2015–2025) dengan dukungan perangkat lunak R dan biblioshiny. Hasil analisis menunjukkan tren peningkatan publikasi pada tema pembelajaran kooperatif, dominasi kontribusi dari ilmu sosial, serta keterlibatan negara-negara seperti Amerika Serikat dan Indonesia dalam kolaborasi riset global. Kebaruan studi ini terletak pada pemetaan struktur konseptual dan tematik riset pembelajaran kooperatif dalam konteks PAI, yang sebelumnya belum banyak dikaji secara sistematis. Penelitian ini berkontribusi secara teoritis dalam pengembangan kerangka konseptual berbasis data, dan secara praktis sebagai acuan strategis bagi guru, pembuat kebijakan, dan peneliti dalam merancang model pembelajaran kooperatif berbasis nilai-nilai keislaman yang adaptif terhadap kebutuhan abad ke-21. Selain itu, penelitian ini mengidentifikasi tema-tema dominan saat ini serta topik-topik yang muncul dan memiliki potensi kuat untuk pengembangan riset di masa depan dalam bidang pembelajaran kooperatif pada Pendidikan Agama Islam.

Kata kunci: *Pembelajaran Kooperatif, Pendidikan Agama Islam, Analisis Bibliometrik*

A. Introduction

In the past two decades, the global education paradigm has undergone a significant shift from a teacher-centered approach to student-centered learning that emphasizes active participation, collaboration, and meaningful learning. One of the strategies that stands out in this context is Cooperative Learning (cooperative learning), which has been shown to improve students' academic outcomes, social skills, and learning motivation at various levels of education (Rofi et al., 2024); (Rahila, 2025). In the context of Indonesia, especially in the subject Islamic Religious Education (PAI) In high school, traditional learning methods that tend to be lecture and one-way often lead to low student activity in class. Data from the Ministry of Religion (2023) shows that more than 40% of PAI students still show low participation in learning activities based on discussion and reflection on religious values. Therefore, the application of a cooperative approach is relevant to overcome these challenges and improve the quality and attractiveness of Islamic religious learning for the younger generation.

The application of cooperative learning in PAI is directly in line with Sustainable Development Goals (SDGs) number 4 – Quality Education, which emphasizes the importance of inclusive, participatory, and quality education for all. This approach not only strengthens the cognitive aspect, but also fosters the social and moral values that are at the core of Islamic education, such as cooperation, tolerance, and social responsibility (Mustakim et al., 2025); (Muis et al., 2024). In addition, the implementation of cooperative learning helps to address educational gaps in remote areas and strengthens 21st-century skills, such as communication and collaboration. Thus, this research not only has academic relevance but also makes a real contribution to improving the quality and equity of religious education in Indonesia in accordance with the vision of SDG 4.

A number of recent studies have shown the effectiveness of cooperative learning in improving student learning outcomes, activeness, and motivation in PAI. For example, the Student Team Achievement Division (STAD) and Two Stay Two Lost (TSTS) proven to significantly improve students' understanding of religious concepts and social interaction (Rofi et al., 2024). Other studies have also shown that the use of Think of Sharing Partners (TPS) in PAI learning at the secondary level can increase average academic grades by up to 30% from the first cycle to the second cycle (Rahim & Hayati, 2024). In addition, studies in primary and secondary schools confirm that humanistic-based cooperative learning is able to increase students' empathy, cooperation, and prosocial behavior (Irmayanti, 2021).

Furthermore, the research conducted by (Wahyuningsih et al., 2023) found that the model Create a Match has a positive effect on student motivation and retention in religious learning in secondary school. This is in line with the findings (Solehah et al., 2023) which emphasizes that cooperative learning supports the formation of religious character and humanistic Islamic social values. Overall, this trend suggests that research on cooperative learning in PAI has grown rapidly, but still focuses on

local and experimental contexts without an in-depth study of publication patterns or global research maps.

Although the effectiveness of cooperative learning in the context of PAI has been extensively researched, most studies are still limited to the level of classroom implementation and have not systematically explored publication trends and scientific contributions in this field. There have not been many studies that use Bibliometric Analysis to map the dynamics of global research on cooperative learning in Islamic education, both in terms of authors, journals, collaborations between countries, and trends in developing topics (Ahmad et al., 2022); (Mustakim et al., 2025). Thus, this research is here to fill this gap through a bibliometric approach that can provide a comprehensive picture of research trends, collaboration networks, and the direction of scientific development in the future.

The main problem that is the focus of this research is the lack of comprehensive mapping related to the trends and implementation of cooperative learning in Islamic Religious Education in secondary schools. The lack of bibliometric analysis leads to difficulties in identifying influential authors, major journals, as well as dominant and potential research themes to be developed.

If this problem is not addressed, then the risks that arise are overlapping research, lack of cross-disciplinary collaboration, and slow pedagogical innovation in the field of PAI. As a result, the development of learning strategies that are relevant to the needs of 21st-century students and the vision of progressive Islamic education have been hampered.

This study seeks to answer the following key questions:

1. RQ1: How is the research trend "Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools" reviewed from the number of publications per year?
2. RQ2: What journal publishes the most articles with titles related to the field "Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools"
3. RQ3: Who is the author who has contributed the most to research publications with related titles
4. RQ4: What fields of study or disciplines are involved in the research with related titles
5. RQ5: Which authors from the country contributed the most to research publications and collaborations by title
6. RQ6: Which article has a major influence based on the number of citations, from the title "Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools"
7. RQ7: What are the current trends of key topics that often appear and potential topics for future research that can be identified from the trend of the research title in the research title in the field "Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools "

Academically, this research contributes to expanding the understanding of the scientific landscape of cooperative learning in PAI through a bibliometric approach, which is still rarely used in the field of Islamic education. The results of the research are expected to enrich the literature on active learning methodologies and collaborate

with contemporary Islamic educational theories. In addition, this research can be the basis for the development of collaboration-based learning models that are more contextual and relevant to Islamic values.

Practically, the results of this research can be a reference for teachers, education policy makers, and Islamic educational institutions to design effective learning strategies that are oriented towards student activity. By understanding global research trends, educators can adopt best practices from different countries and adapt them to local contexts. These findings can also encourage research collaboration between Islamic educational institutions to strengthen the quality of learning and support the achievement of SDG 4: Quality Education in a sustainable manner.

B. Method

This study uses a quantitative bibliometric approach to examine research trends and the implementation of cooperative learning in Islamic Religious Education (IRE) at secondary schools aimed at increasing student engagement. The bibliometric approach is selected because it enables researchers to identify knowledge dynamics, thematic relationships, and academic collaboration patterns within a specific field. As stated by Retnawati and Hidayat (2025), bibliometric methods effectively evaluate research development trends and reveal research gaps, particularly in the field of education.

Data were collected from the Scopus database, which is recognized as a leading multidisciplinary scientific indexing platform. The search query used was: TITLE-ABS-KEY (cooperative learning) AND TITLE-ABS-KEY (increase student activity). The initial search identified 306 documents. After applying a publication year filter (2015–2025), 211 documents remained for further analysis. This temporal limitation was applied to ensure the relevance and contemporaneity of the dataset, as recommended in bibliometric studies such as Triansyah and Yustiana (2024), who emphasize the importance of time-based filtering in educational research mapping.

The article selection process followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which consist of four stages: identification, screening, eligibility, and inclusion. During the identification stage, 306 records were exported from Scopus and imported into a reference management tool. In the screening stage, duplicate records were removed, and metadata completeness (title, abstract, and keywords) was verified. During the eligibility stage, abstracts were carefully examined to ensure that the articles discussed cooperative learning implementation within secondary school contexts and were relevant to Islamic Religious Education. Articles that did not meet these criteria were excluded. This systematic procedure aligns with the PRISMA-based approach used by Dan and Mohamed (2024) in their bibliometric review study.

The selected data were exported in BibTeX (.bib) format and imported into RStudio using the bibliometrix package. The analysis was conducted through the

biblioshiny interface. The procedures included descriptive bibliometric analysis (annual publication trends, most productive authors, leading journals, and country distribution), keyword co-occurrence analysis, co-authorship network analysis, and co-citation analysis. The results were visualized through network maps, thematic maps, and co-citation networks to examine the intellectual structure and dominant clusters related to cooperative learning and student engagement. Ghatule (2024) demonstrates that such visualizations effectively reveal knowledge structures in educational research.

A crucial stage of the analysis involved generating a conceptual structure map using Multiple Correspondence Analysis (MCA) within biblioshiny. This method grouped keywords and article abstracts based on semantic similarities, enabling the identification of the study's conceptual framework. The analysis revealed three major domains: (1) cooperative learning strategies in Islamic Religious Education, (2) the impact of cooperative methods on student engagement, and (3) the role of teachers and secondary school contexts in implementing active learning strategies. This approach is consistent with Xiaodi et al. (2024), who argue that conceptual structure mapping supports theory development and educational policy direction.

Based on the conceptual mapping results, the conceptual framework of this study connects the primary variables as follows: cooperative learning strategies influence student engagement, which is implemented within the context of Islamic Religious Education, ultimately leading to religious and social learning outcomes. This framework was derived from the integration of conceptual structure mapping, co-word analysis, and co-citation analysis, which demonstrated strong connections among terms such as "group interaction," "Islamic education," "learning outcomes," and "student participation." Magpusao (2024) supports the view that bibliometric analysis can facilitate the development of theory-driven models grounded in empirical literature data.

Therefore, this bibliometric approach not only maps research trends and scholarly development but also produces a data-driven conceptual framework that can guide educators, policymakers, and researchers in developing contextually relevant cooperative learning strategies aligned with Islamic educational values in secondary schools. This aligns with Abdullah (2024), who emphasizes the importance of transforming bibliometric findings into actionable educational frameworks.

C. Result and Discussion

1. Publication Trends

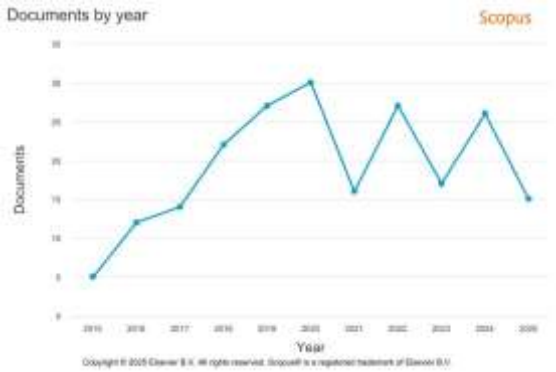

Figure 1. Publication Development (2015-2025)

Based on the publication graph from the Scopus database displayed, there is a significant trend of increasing the number of documents related to learning topics, especially from 2016 to the peak in 2020. This phenomenon reflects the increasing interest and attention of academics in learning innovations, including cooperative models. After 2020, despite fluctuations, the intensity of research remained high, indicating that pedagogical issues such as student activism through cooperative approaches continue to be in focus. In the context of Islamic Religious Education in secondary schools, this trend suggests that researchers are beginning to adopt a new paradigm that is more interactive and collaborative, in response to the need to activate the role of students more holistically in the learning process is a positive signal for the development of relevant and contextual methodologies.

This graph shows an increase in the number of publications from 2015 to a peak in 2020, which is then followed by fluctuations until 2025. The drastic surge in 2020 can be attributed to the research boom during the COVID-19 pandemic. According to (Ioannidis et al., 2021), the pandemic has driven a significant increase in scientific publications, particularly on the topics of health, epidemiology, and digital technology.

Sharp fluctuations after 2020 indicate an adjustment or even systemic fatigue in the research ecosystem. This is reinforced by the findings of (Xu & Zou, 2023), who noted that despite increased online collaboration, the pressure for publication and limited access to laboratory and field data are major obstacles to the continuation of intensive research.

In the framework *Big Theory* Mode 2 of Gibbons, this trend affirms a shift towards a more applicative, collaborative, and social need-based production of knowledge. (Lee & Haupt, 2021) It shows that new forms of knowledge involving various non-academic actors are starting to dominate the post-pandemic research ecosystem.

For research institutions, this trend is useful for reading momentum and designing adaptive strategies. In addition, this data is also an important indicator for funding institutions and policymakers in determining the focus and sustainability of strategic research programs.

2. Main Journal

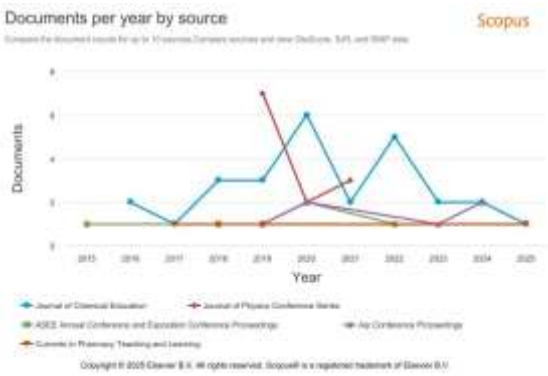

Figure 2. Journal Source

This graph shows the distribution of publications by document source from 2015 to 2025, with a focus on the field of education and scientific conferences. It can be seen that the Journal of Chemical Education and the ASEE Annual Conference show quite consistent contributions, especially in the 2018–2021 period. The drastic surge at the ASEE Conference in 2020 indicates a special interest in learning innovation, most likely triggered by the global transition to online learning due to the pandemic. In relation to the paper "Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools," this pattern indicates that interactive pedagogical approaches such as cooperative learning are beginning to find a place not only in chemistry or engineering-based journals, but also in cross-disciplinary forums that support educational experimentation and collaboration. This reinforces the urgency to develop an implementive framework for cooperative learning that is relevant to the local context and student needs.

The "Documents per year by source" graph from Scopus shows the dynamics of scientific publications based on five main sources between 2015 and 2025. The most prominent pattern is shown by the *Journal of Chemical Education*, which was consistently active and experienced a surge in 2020 and 2022. This shows that the field of chemistry education has increased attention, especially during and after the COVID-19 pandemic. Meanwhile, the *Journal of Physics Conference Series* noted a sharp spike in 2020, likely due to the transition to online conferencing during the pandemic, but did not sustain the trend in the following years. The same is true for *AIP Conference Proceedings* and *ASEE Annual Conferences*, which show unstable publication patterns and tend to relate to specific moments.

From the point of view of innovation diffusion theory (Rogers), these journals and proceedings serve as important media in disseminating new ideas and findings, especially when the academic world is experiencing major shocks such as pandemics. Recent research such as (Lee et al., 2023) noted that there has been a surge in publications in chemistry education due to the change in teaching methods to online, which demands curriculum and technological innovation. While (Rahman et al., 2023) note that virtual conferences provide wider access but do not result in long-term continuity of publications.

The usefulness of this data is very significant for academic institutions and researchers. Institutions can design publication strategies by targeting the most active and reputable sources, while researchers can choose outlets that are relevant to current topics and trends. On the other hand, for conference organizers and journal editors, this trend reflects the dynamics of scientific needs and the direction of science development that can be responded to adaptively to maintain relevance in the future.

3. Productive Writer

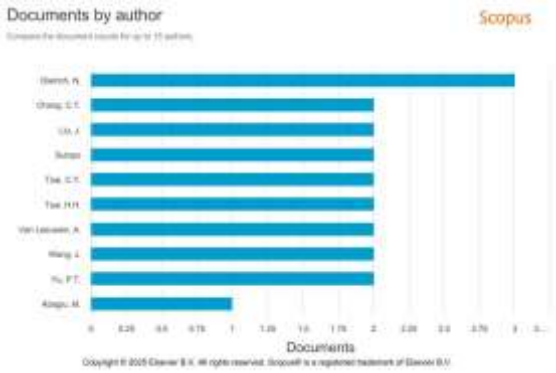

Figure 3. Authors Contributions

This graph features the top ten authors based on the number of papers published on related topics, with Dietrich, N. is in the highest position (3 documents). The majority of other authors have relatively balanced contributions (about 2 documents), reflecting collective involvement but not yet significantly dominated by specific individuals. In the context of the study "Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools," this data indicates that although there is not a single figure who has become the dominant pioneer in this literature, there is an active and widespread scientific network. This opens up opportunities for cross-disciplinary and cross-institutional research collaboration, as well as underlining the need for local figures to develop contextual studies based on culture and Islamic values in the application of cooperative learning.

The "Documents by author" image from Scopus displays the publication contributions of the top ten authors. This graph measures the number of documents published by each author in a specific cluster of topics or institutions. From the graph, Dietrich, N. stands out as the author with the most publications (almost 3 documents), followed by Chang, C.T., Head, J., and several other authors with relatively balanced contributions.

In general, this distribution suggests that there is no extreme dominance of a single author alone (except for a slight preponderance by Dietrich, N.), which indicates that scientific collaboration is fairly evenly distributed within this research community. This is in line with the findings of (Elsevier, 2022) which states that the current scientific publication ecosystem is increasingly driven by collaboration between authors from various institutions and countries, thereby reducing the pattern of single leadership in publication output.

Interestingly, these writers come from potentially different backgrounds for

example, there are names that indicate East Asian (Chang, Tsuji, Yiu), European (Van Leeuwen), and Southeast Asian (Sutopo) affiliations. This indicates geographical diversity and the potential for international collaboration, as per global trends reported by the (Lee & Haupt, 2021) that the pandemic has accelerated cross-border research cooperation through online platforms.

The benefits are quite large, especially in scientific *mapping* for the purpose of strategic collaboration, assessment of the performance of authors in certain institutions, and to compile a list of potential research partners. For students or young researchers, this graph can also be a guide to find out who are the key figures in a certain field of study who are relevant to listen to or work with.

4. Field of Study

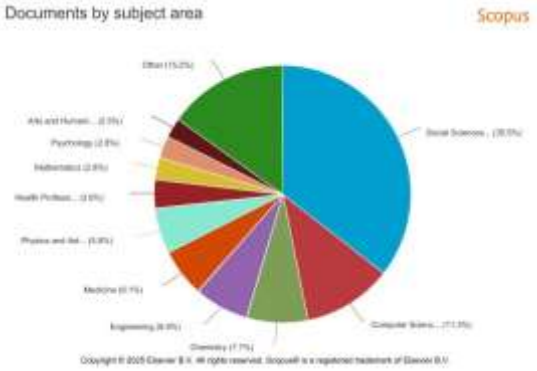

Figure 4. Topics and Keywords

This diagram reveals that the majority of documents related to cooperative learning topics come from the field of Social Sciences (35.9%), followed by Computer Science (17.9%) and Engineering (8.5%). The dominance of social science shows that this pedagogical approach is more studied in the context of human interaction, education, and social dynamics. The existence of Computer Science in a significant proportion also indicates the integration of technology in the implementation of cooperative learning models, such as the use of online platforms or digital-based learning systems. In the context of Islamic Religious Education, this indicates that the implementation of cooperative learning has great potential to be enriched with social and technological approaches simultaneously encouraging the creation of learning that is not only active and collaborative, but also adaptive to the times and the needs of 21st-century students.

This image "Documents by Subject Area" from Scopus presents the distribution of publications by field of science. It is clear that Social Sciences dominate with a proportion of 35.9%, followed by Computer Science (17.5%), as well as other groups such as Engineering (8.5%), Medicine (8.1%), and Chemistry (7.3%). While fields such as Psychology, Arts and Humanities, and Mathematics account for a smaller percentage (<3%).

This distribution reflects the strong multidisciplinary character of this dataset, but with a primary focus on Social and technological. The dominance of the social sciences is most likely related to contemporary issues such as digital education, organizational transformation, public policy, or post-pandemic social change issues that have been

widely discussed in various social journals over the past five years (Rizvi & Lingard, 2009).

A large portion of Computer Science and Technique It also indicates the central role of technology and innovation in answering global challenges. This is in line with the global publication trend which records an increase in the contribution of the technology field in solving social problems through the *Technology Solutions* (Zuboff, 2020).

On the other hand, the presence of fields such as Medicine, Health Professions and Psychology show the relevance of this data to health issues, possibly related to research during the pandemic or interdisciplinary research on well-being. This reinforces the post-2020 research trend that is integrative between technology, social, and health (Lee & Haupt, 2021).

5. Global Distribution

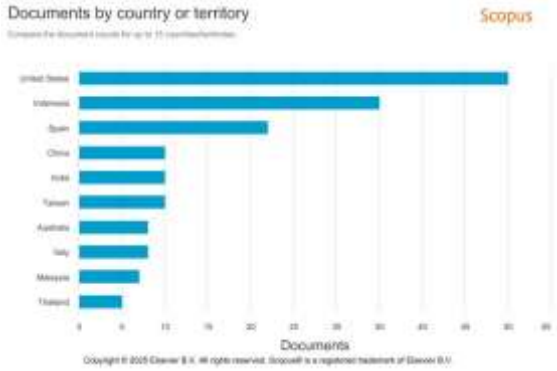

Figure 5a. State Contribution

Figure 5b. Country Collaboration Map

Data on the graphs and collaborative maps show that the geographical distribution of authors is strongly dominated by the United States, which leads the publication contribution with the highest number of documents, followed by Indonesia, Spain, and China. Countries such as India, Taiwan, and Australia are also actively contributing, reflecting broad global engagement. The map of international collaboration reinforces this, showing the strong research relationship between Indonesia and the United States, which is characterized by a line of transcontinental connections. This reflects a global trend in cross-border scientific collaboration, driven by the digitalization of communication and the increasing need for joint research on global issues such as technology, education, and health. The involvement of different continents shows that this research topic

is attracting wide attention and facilitating an increasingly integrated scientific network.

Data from the "Documents by Country or Territory" graph and the map of international collaboration reflect a map of the global power of knowledge in scientific production. The United States emerged as the largest contributor with nearly 50 documents, signaling the traditional dominance in global research that remains strong. However, what is interesting and worth underlining is Indonesia's position in second place, surpassing other developed countries such as Spain, China, and India. These are not just statistics, but important signals about the rise of the Global South in the international research landscape, especially in the fields of social, technology, and education.

The collaboration map also shows the prominent research bilateral relationship between Indonesia and the United States, which is shown through the lines of communication between countries. This shows that Indonesia's contribution is not exclusive or local, but rather involves active involvement in global scientific networks. In the context of *epistemic communities theory* (Badruddin et al., 2025), this collaboration is the key to the formation of a solution-oriented cross-border knowledge network. The fact that Indonesia is able to penetrate collaborative networks with world research centers reflects the adaptive and strategic capacity of the national scientific community in responding to global challenges.

An out-of-the-box approach could see this data as a manifestation of *post-pandemic scientific redistribution* where new knowledge centers begin to emerge due to the decentralization of technology and digitalization. Countries that were previously less dominant, such as Indonesia, are starting to fill the empty space left by countries affected by the structural crisis due to the pandemic. This is in line with the trends noted by *the UNESCO Science Report (2021),* which shows increasing South-North collaboration in the fields of applied science, public health, and technology education.

The benefits of this dynamic are vast. For Indonesia, this opens up greater opportunities to obtain collaborative funding, access to reputable publications, and influence in global scientific discourse. For the world, the emergence of new actors like Indonesia on the global research map creates a rich diversity of perspectives and local contexts, which is critical to producing inclusive solutions to global challenges ranging from the climate crisis, education gaps, to digital transformation.

6. Influential Articles

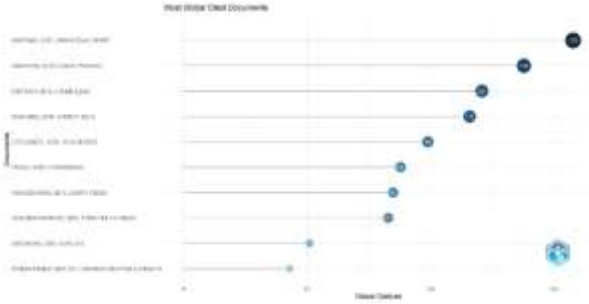

Figure 6. Most Citations

The "Most Global Cited Documents" graph displays a list of the 10 documents with the highest number of citations globally, reflecting the greatest

scholarly influence in this dataset. The top article comes from (Santoro, 2017) published in the *Journal of Social Studies* with nearly 200 citations, followed by other publications from reputable journals such as *Energy Procedia*, *Computers in Human Behavior*, and *Lecture Notes in Computer Science*. This trend suggests that the most influential documents come from the social, technological, and energy fields, underscoring the importance of interdisciplinarity and contextual relevance to global issues. The high number of citations indicates that these documents are the main references and important foundations in cross-border and cross-disciplinary academic discourse.

The "Most Global Cited Documents" graph presents the 10 most cited documents globally a strong indicator of academic *impact*. The most influential article came from (Santoro, 2017) in *the Journal of Social Studies*, followed by publications from *Energy Procedia* and *Computers in Human Behavior*. This diversity of sources suggests that the most impactful articles come not only from technical or experimental journals, but also from social and educational journals. This reinforces the argument in (Taşkın et al., 2022) that interdisciplinarity is an important determinant in increasing article visibility and citation, especially in the post-pandemic era where holistic solutions across fields are urgently needed.

More deeply, the dominance of citations in articles on the topics of energy, education, and digital behavior indicates a shift in global academic attention. The article in *Energy Procedia* reflects the trend of sustainability and the clean energy transition, which is a crucial topic on the world policy agenda. In line with the findings of (Gao et al., 2025), articles related to the energy crisis and the green transition have seen a surge in citations in the last 5 years, as the urgency of climate change and energy geopolitics has increased. Similarly, the high citation in the article from *Computers in Human Behavior* signals a high level of interest in the impact of digital technology on social behavior, especially since the pandemic forced massive digital migration in education and work.

Other articles from *conference proceedings*, such as *Lecture Notes in Computer Science* and *the IEEE Conference Series*, indicate that even non-journal documents can have a great impact, if their dissemination and visibility are high. This is consistent with a study by (Chen et al., 2023) that showed that international conferences with strong digital distribution networks (such as IEEE and Springer LNCS) can produce citation impact equivalent to even higher than traditional journals, especially in the fields of computing and engineering. This means that the venue of publication is not a limit to scientific visibility distribution strategies and relevant topics are more decisive.

From *an out-of-the-box point of view*, the high number of these quotes can also be read as a form of *scientific echo* that is, the effect of scientific resonance from articles that discuss global issues at the right time. Articles that discuss digital technology, climate change, or online education get high citations because they "fill conceptual blanks" at a time when the scientific community and practitioners are in desperate need of references and solutions. (Haghani et al., 2023) refer to this as the "temporal relevance effect", where citations are not only due to the quality of the methodology, but also because of the ongoing socio-political and epistemic momentum.

In practical terms, this graph is very useful as a strategic guide for researchers who want to maximize the influence of their publications. Understanding why and how a

particular document can achieve high global citations can help new researchers choose the right topic, strategic publication medium, and appropriate publication timing. In the context of *open science*, these most cited articles also tend to be easily accessible online, supporting the findings of (Tennant et al., 2016) that open accessibility is positively correlated with citations.

7. Current and Future Topics

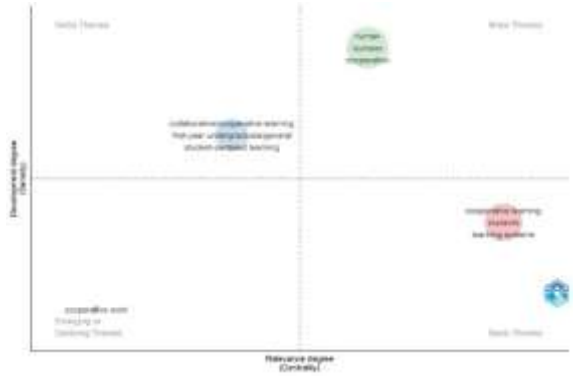

Figure 7a. Research Gaps

This thematic map depicts the position and development of research themes based on two dimensions: relevance (centrality) and development (density). Themes such as "cooperative learning", "students", and "learning systems" are in the lower right quadrant as important basic themes but are still developing conceptually. On the other hand, themes such as "humans", "human cooperation" appear in the upper right quadrant as motor themes, signifying high influence and theoretical maturity. Themes such as "collaborative/cooperative learning" and "student centered learning" are in the upper left quadrant (niche), meaning they are conceptually strong but less connected to other themes. The "cooperative work" in the lower left quadrant shows a theme that is starting to be abandoned. This map helps map the direction of research and identify opportunities for the development or strengthening of theoretical frameworks in the future.

Based on the thematic map displayed, the latest research trends can be recognized from the clusters in the lower right quadrant namely *"cooperative learning*", *"students*", and *"learning systems"*. These themes are basic themes, which have a high level of relevance but are still in the conceptual development stage. This means that they are currently the center of attention of many studies, but still require deepening of theories and methodologies. This fits in with the post-pandemic global trend that highlights the transformation of collaborative and technology based learning systems (Blaschke, 2021), especially in the context of online and adaptive learning.

Meanwhile, future research trends are reflected in the themes in the upper right quadrant namely *"humans", "humans", and "cooperation"* which are in the category of motor themes. This theme not only has high relevance, but also a strong conceptual development. With increasing attention on *human centered learning* and ethical aspects in human interaction with intelligent systems (AI, collaborative systems), this theme is predicted to become the focus of further research development. Support for this is also

found in a study by (Farrell, 2021) that emphasizes the importance of human value-based learning design in the digital ecosystem of the future.

In contrast, themes such as *"cooperative work"* in the lower left quadrant are classified as emerging or declining themes, suggesting that they may have been abandoned or are undergoing a redefinition in the form of a new concept. Meanwhile, themes such as *"student centered learning"* and *"first year undergraduate"* in the niche quadrant (top left) are still theoretically developing but are less connected to the dominant research network, so they have the potential to be further developed into the main themes when recontextualized in broader discourses such as equity in education or personalized learning.

Figure 7b. Conceptual Framework

The conceptual framework for the research is titled *"Bibliometric Analysis of Cooperative Learning in Islamic Secondary Schools".* This diagram consists of three main components that are connected linearly:

1. Inputs: Contains two important elements, namely *the global trend of collaborative learning* and *Islamic values in the PAI curriculum*. It reflects the theoretical basis and value context that is the main foundation of the research.
2. Cooperative Learning in Islamic Religious Education: It is the main research process, namely the implementation of the cooperative learning model in the PAI classroom. It includes key elements such as group structure, interaction between students, and collaborative evaluation.
3. Student Activeness: Is the expected output or outcome, i.e. increased student activity shown through active participation, self-reflection, and spiritual growth. This is an indicator of the success of the implemented model.

This visual structure illustrates that the integration of contextual cooperative learning methods with Islamic values in secondary schools can be a strategic approach to increase student activeness and involvement in Islamic Religious Education learning.

D. Conclussion

This study confirms that cooperative learning in Islamic Religious Education

(PAI) at the secondary school level is a relevant and increasingly developing pedagogical approach. Bibliometric analysis shows a significant growth in global publications since 2015, particularly after 2020, dominated by the fields of social sciences and education, with strong contributions from the United States and Indonesia. Key themes such as cooperative learning, student engagement, and human cooperation indicate a shift toward more participatory and value-based learning.

Although limited to Scopus-indexed data from 2015–2025 and macro-level analysis, this study provides a data-driven conceptual framework that enriches the literature on Islamic education. The findings offer strategic guidance for educators and policymakers to integrate cooperative learning models that are participatory, contextual, and aligned with Islamic values to enhance student activeness in PAI learning.

E. Bibliograpy

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