Research Artikel

GLOBAL TREND OF SCIENCE AND RELIGION IN EDUCATIONAL RESEARCH FROM 2015 TO 2024: A SCOPING REVIEW

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Abstract

The history of the relationship between science and religion in education provides diverse dynamics; in recent years, the two have begun to be integrated constructively, including in the field of education, especially in natural sciences learning. This scoping review aims to identify the research trends in the natural sciences related to religion, including the contributions of the author's country, the topic of science learning, the area of religion, and the teaching methods used. Teaching methods are essential to present science and religion in the classroom. Documents were taken from data bases indexed by Scopus, ERIC, and WOS, with a total of 1844 from 2015 to 2024, which were then filtered into 55 documents by adapting the PRISMA method. The scoping review method is carried out by analyzing the content of each article. The analysis results show that the author's contributions to science and religion research in education are most significant in the UK, the US, and Indonesia. At the same time, this topic talks a lot about biology topics, especially evolutionary material in the area of Christianity. A method that is often used in teaching is discussion. Discussions are usually presented to share the arguments and views of students on religion and science. The presence of religion and science in learning also helps educators add value to the learning process.

Keywords: Education, science, religion, review

INTRODUCTION

Countries often face dilemmas when they need to make decisions that impact their lives and are related to science and religion (Guilfoyle et al., 2021a). As modern society becomes increasingly secularized, religion is often seen as an obstacle to science-based policymaking, while science is increasingly associated with atheism (Simpson & Rios, 2019).

In the realm of education, particularly in the 21st century, global challenges such as Disinformation, digital technology disruption, moral crisis, environmental crisis, and social transformations demand an interdisciplinary approach that reconciles science and religion. Traditionally, science and religion have been perceived as existing at opposing ends of a spectrum, with science emphasizing rational and empirical explanations while religion offers moral and spiritual guidance. However, this dichotomy may hinder the potential of education to cultivate a generation that is not only intellectually adept but also morally and ethically grounded. As a fundamental pillar of education, science plays a crucial role in elucidating natural phenomena and advancing technology. Science is morally neutral and requires a robust ethical framework to prevent misuse, as without it, science can become a neutral instrument devoid of inherent goodness or badness (Weiss, 1989).

The fields of religious and cultural sciences often set themselves apart from science (Sumarni et al., 2020). Traditionally, science is viewed as an empirical and logical discipline, while religion is associated solely with beliefs and spirituality. However, integrating these two domains can positively influence the character and insight of students. It is essential to present teachers with various approaches to understanding the relationship between evolution (science) and religion (Stahi-Hitin & Yarden, 2022a). This relationship provides valuable insight into how scientific and religious cognition can coexist (Davoodi & Lombrozo, 2022). In an educational environment marked by spiritual and cultural diversity, an interdisciplinary approach that bridges science and religion is crucial for reinforcing the foundation of our nation's character. By integrating religious values into science education, we can foster a balance between knowledge acquisition and moral development. This equilibrium is increasingly vital in today's era of disruption and social complexity.

In light of escalating global challenges, including environmental crises, climate change, and moral decay, incorporating religious values into science education is becoming increasingly important. An educational framework that merges scientific principles with religious teachings can help students grasp the connections between scientific knowledge and spiritual beliefs, particularly concerning environmental sustainability, social welfare, and sustainable development. As a result, education can cultivate a generation that is not only well-versed in scientific concepts but also possesses spiritual awareness and a moral commitment to both the environment and society. Research has shown that the values emphasized in science education, especially those related to scientific attitudes, are closely associated with attitudes of religious moderation(Umar et al., 2024).

The integration of religious science and secular science can enhance all scientific endeavors, while also deepening religious understanding for the betterment of humanity (Qolbiyah et al., 2023). Conversely, religion offers moral guidance that helps maintain a balance in the application of scientific knowledge. For instance, religious teachings regarding human responsibility towards nature align with scientific perspectives on environmental sustainability. In an educational context, blending science with religion can help students recognize that science and faith need not be in opposition, but can instead complement one another as we confront the

challenges of the modern world. Religion plays a role in the development of science, and science has a role in the continuity of life (Suciati et al., 2022).NOMA Stephen J. Gould, generally among academic theologians (and some atheists), argues that religion and science are not mutually exclusive (Slade, 2020).

Natural Science education is crucial for equipping students with a solid understanding of the natural world and scientific principles, and it develops analytical thinking, experimentation, and logical decision making (Lamanauskas, 2025; Lega, 2021). However, the integration of morals, values, ethics, and character education into science curriculum is crucial to address the disconnection between technical knowledge and deeper significance in science education (Munn et al., 2018). This separation can result in pragmatic and materialistic attitudes, as well as a diminished holistic awareness of the environment among students. Conversely, religion significantly influences one's ethics, morals, and overall worldview. Several religious traditions, including Islam, Christianity, Hinduism, and others, emphasize the importance of maintaining a harmonious relationship between humans and nature, as well as the responsibility to care for the environment as a divine mandate. Integrating scientific education with religious values is anticipated to foster a more meaningful learning experience that not only imparts scientific knowledge but also nurtures a strong sense of spiritual and moral awareness.

The objective of science education is to foster an understanding of the natural world, encompassing biological processes, physics, chemistry, and environmental phenomena (Lega, 2021). In contrast, religion, which encompasses a diverse range of beliefs, offers moral values that can provide an ethical framework for the study and application of science. For instance, the notion of human responsibility as stewards of the Earth can enhance the comprehension of ecology,

sustainability, and natural resource management. Research indicates that integrating religious perspectives into science education can improve students' attitudes towards the subject, cultivate an appreciation and respect for nature as part of God's creation, and motivate them to act as responsible "caliphs" or leaders on Earth. An example of this integration is an ecotheology-based learning approach, which fosters environmental awareness through a spiritual lens, emphasizing not only scientific understanding but also the moral obligation to protect the environment. There remains much to learn about the interplay between teaching and learning in relation to the broader issues surrounding religion and science (Pearce et al., 2021a).

This research aims to investigate the trend of integrating religious perspectives into Natural Science education and identify the methods employed to harmonize science and religion within the learning process. The findings will involve an analysis of relevant articles with a focus on the following areas:

1. How did authors from different countries contribute to the publications of the science and religious articles from 2015 to 2024? The globalization of science promotes collaboration between countries. Understanding each country's contributions is essential for mapping the dissemination of ideas and recognizing the global relevance of science and religion topics.
2. How did the science topic of the published articles of papers in science and religious research from 2015 to 2024? This scoping enhances understanding of trends and themes in science, particularly regarding curriculum development, research directions, and academic policies that foster integration between science and religion.
3. How did the religious area of the published articles of papers in science and religious

research from 2015 to 2024? This overview examines how various religions connect science and spiritual values.

4. What teaching methods of science and religion integration can be observed in articles published between 2015 and 2024? This analysis identifies educational trends that integrate scientific and religious elements within a single science learning framework.

METHOD

This review research involved content analysis of documents. It was conducted using a qualitative approach through a scoping review. This review is considered appropriate for identifying types of evidence in fields related to science and religion in education. This is because it maps the evidence in a paper about conducting preliminary research in a broad topic area (Mongeon & Paul-Hus, 2016; Munn et al., 2018). The current study employs a scoping review approach to gather both quantitative and qualitative data, addressing the issues mentioned above (Han & Røkenes, 2020). The research selection process consists of stages adopted from the PRISMA method: data extraction and data analysis, which are illustrated in detail in Figure 1:
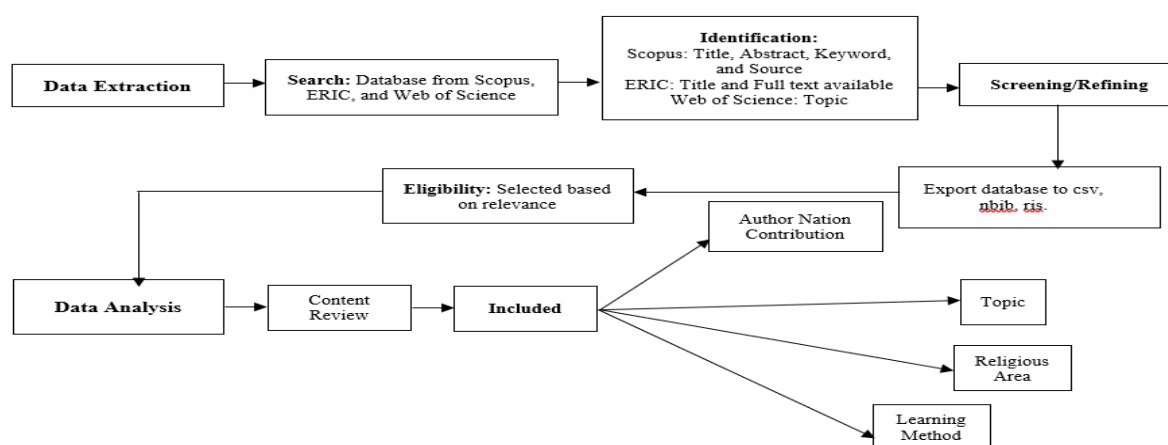

Figure 1. Research Flow Diagram Adapted from PRISMA Method

The three sources were refined to yield more specific document results. In the Scopus database, the search began by entering "Science and Religion" in the Title, Abstract, and Keywords sections, while also incorporating "education" into the search criteria. Subsequently, filters were applied to restrict the results to the period from 2015 to 2024, limiting the document types to articles and conference papers in English, and ensuring they were open-access. For the ERIC database, the search was conducted similarly using the terms "science and religion," with the results narrowed to full-text documents available on ERIC within the last decade (2015-2024). In the Web of Science, the search was performed using "science and religion" along with "education" as topic keywords, followed by filters for the years 2015-2024, open access availability, English language, and document types limited to articles and proceedings papers. Web of Science broadly covers the natural sciences and engineering, whereas Scopus provides relatively more comprehensive coverage of the social sciences (Mongeon & Paul-Hus, 2016). Since religion is categorized as a social science, it falls within Scopus's focus. The ERIC database, on the other hand, emphasizes education at all levels with a global perspective (Gusenbauer & Haddaway, 2020). The selection of article sources is also based on the work of Imaduddin & Eilks (2024). The selection of publication years from 2015 to 2024 in order to see research trends in the last decade. Following the searches in each database, a review of the content was conducted to select the most relevant documents. A

summary of the queries and the number of documents obtained is presented in Table 2.

Table 1. Topics and Scope of Science

Type of Data Base	Search Query	Number of Hits	Number of Content Review
Scopus	(TITLE-ABS-KEY (science AND religious) AND SRCTITLE (education)) AND PUBYEAR > 2015 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "cp")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (OA , "all"))	113	34
ERIC	title:"Science" AND "Religious" Full text available on ERIC, Since 2015 (last 10 years)	84	8
Web of Science	science AND religious AND education (Topic) and 2024 or 2023 or 2022 or 2021 or 2020 or 2019 or 2018 or 2017 or 2016 or 2015 (Publication Years) and Open Access and English (Languages) and Proceeding Paper or Article (Document Types)	1647	13

Total Number of Content Review: 55

Data Search Methods for Addressing Each Research Question

To effectively answer each research question in this study, a systematic identification method is required. One approach to simplify the identification process is to abstract each article. Furthermore, research questions can be answered using a method guided by the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) checklist (Tricco et al., 2018), which ensures methodological rigor, transparency, and consistency throughout the review process. Additionally, the research questions can be addressed through the following methods:

1. For the first research question, which pertains to the contribution of different countries, this study initially examines the research affiliates of the authors in each article. Often, an article features multiple authors associated with various institutions, allowing for the identification of their respective countries. Each country's contribution is assessed based on the authors' order in the article. The method for calculating the contribution of each author's country follows a specific formula:(Chang et al., 2010)

$$Score = \frac{(1.5^{n-i})}{\sum_{i-1}^{n} 1.5^{n-i}}.$$

To ensure that the scoring for each author's country in a single article varies, a specific scoring system is applied based on the number of authors. For instance, an article with one author will have a score of 1. For two authors, the first author's country will receive a score of 0.6, while the second author's country will receive a score of 0.4. In the case of three authors, the distribution will be 0.47 for the first author's country, 0.32 for the second, and 0.21 for the third. It is important to note that each article will always maintain a total value of 1. This scoring methodology will remain in effect until the number of authors in a single journal reaches ten within these literature studies.

2. To answer questions related to the topic of science that is integrated with religion, it will be divided into the scope of Biology, Chemistry, Physics, General Science, and Interdisciplinary Science in the Table 2:

Table 2. Topics and Scope of Science

Topic	Coverage
Biology	Evolution, biotechnology ethics, biological principles in Health, ecology and the environment
Chemistry	Origins of the universe, life chemistry, environmental chemistry, chemical engineering and nanotechnology, food and beverage chemistry
Physics	The origins of the universe and cosmology, the laws of nature, **the relativity of time and space, light, and energy.**
General Science	This topic is more general or in other words, the article does not mention the specifics of the material discussed but only conveys it in class or science material
Interdisciplinary Science	This topic covers the integration of science with other disciplines such as STEM

3. To answer the third question related to the area of religion that discusses science and religion in this educational article by identifying religion and referring to the most religions in the world based on *The Future of World Religious* 2010-2050 in the Table 3: (Hackett et al., 2015).

Table 3. Most Religious Areas in the World

Ranking of Population	Religious Area
1	Islam
2	Christian
3	Hindu
4	Jewish
5	Folk Religious
6.	Other Religious
7.	Buddha

4. This study aims to identify the teaching methods employed in integrating science and religion within the educational context by emphasizing the implementation of research. Specifically, it will examine how learning is conducted, making it easier to categorize the applied methods. To address the fourth research question concerning the most-cited articles globally, this study will provide an overview of each article indexed in the Scopus database. Scopus offers citation metrics for every published article, and the study will compile a list of those with the highest citation counts.

RESULTS AND DISCUSSION

Research that bridges the gap between religion and science in education has seen notable advancements over the past few decades. This trend can be examined through four key aspects: the country of origin of the research, the particular religion under focus, the topics addressed in the research, and the teaching methods employed. A table detailing the list of documents analyzed in this study is provided in table 4:

Table 4. List of Reviewed Documents

No. Document	Source	Author, Year
1-34	Scopus	(Aini et al., 2024; Alkaher et al., 2020; Ardi et al., 2024; Barnes et al., 2017, 2020; Billingsley et al., 2016; Black, 2017; Brás et al., 2018; Chan & Erduran, 2023; Edwards et al., 2022; Elizabeth Barnes et al., 2021; Elkalmi et al., 2021; Erduran, 2020; Erduran et al., 2019, 2022; Ferguson et al., 2024; Francis et al., 2019; Guilfoyle et al., 2023; Kidwell, 2024; Mansour, 2024; Manwaring et al., 2018; McLaren, 2020; Mujtaba & Reiss, 2022; Park et al., 2022; Scaramanga & Reiss, 2023; Stahi-Hitin & Yarden, 2022c, 2022b; Stones et al., 2020; Sumarni, Faizah, Subali, Wiyanto, et al., 2020; Szopiak & Kloser, 2024; Tolman et al., 2020; M. Umar & Sukarno, 2022; Wilson, 2018; Woodford, 2020)
35-42	ERIC	(Demelash, 2021; Eminoğlu et al., 2020; Fahmi Lathif et al., 2024; Morgan, 2021; Rahardjanto et al., 2024; Saddam Hameed & Salih Salih, 2016; Torkar & Šorgo, 2020; Torres et al., 2021)
43-55	Web od Science	(Barnes et al., 2020; Billingsley et al., 2020, 2021; Davison, 2022; Fancourt & Guilfoyle, 2022; Guilfoyle et al., 2021b; Jan et al., 2023; Leicht et al., 2022; Masigol et al., 2022; Pearce et al., 2021b; Rohmatulloh et al., 2023; Tiaynen-Qadir et al., 2021; Woolley et al., 2024; Zarman, 2016)

To address the research question, "How did authors from different countries contribute to the publication of science and religious articles from 2015 to 2024?", we categorized article data according to the authors' countries of origin during the specified period. We determined the contributions of each country by tracing the authors' affiliations for each article and calculating the percentage of each country's contribution to the total publications. This approach enables a systematic and quantifiable mapping of authors' contributions across various countries, providing a clear overview of academic participation in science and religious studies. A summary of the calculated contributions by country of origin can be found in Table 5 and 6.

Table 5. Author's Country Contributions Based on Each Source of Journals

SCOPUS			ERIC			WOS		
Country	Score	Percentage (%)	Country	Score	Percentage (%)	Country	Score	Percentage (%)
UK	14	41.18	Indonesia	2	25	UK	6.72	48.00
U.S.	10.6	31.18	Turkiye	1	12.5	Indonesia	2	14.29
Indonesia	3	8.82	Iraq	1	12.5	U.S.	1.17	8.36
Israel	3	8.82	Indonesia	1	12.5	Norway	1	7.14
Qatar	1	2.94	Slovenia	1	12.5	China	0.82	5.86
Portugal	0.60	1.76	Portugal	1	12.5	Iran	0.68	4.86
Libya	0.57	1.68	U.S.	1	12.5	Finland	0.58	4.14
France	0.40	1.18	Total	8	100	Canada	0.42	3.00
China	0.40	1.18				Russia	0.32	2.29
Malaysia	0.34	1.00				Netherlands	0.11	0.79
Iraq	0.07	0.21				Portugal	0.18	1.29
Hungary	0.02	0.06				Total	14	100
Total	34	100						

Table 6. Author's Country Contributions from Three Sources of Journals

Country	Score	Percentage (%)
UK	20.7	36.40
U.S.	12.8	22.40
Indonesia	7.00	12.30
Israel	3.00	5.30
Portugal	1.60	2.80

Countries characterized by high cultural and religious diversity, such as the United States, the United Kingdom, Indonesia, and India, serve as significant centers for research at the intersection of religion and science in education. In Western nations, research often focuses on the relationship between Christianity and science, particularly within formal educational settings. Conversely, in Muslim-majority countries like Indonesia and Malaysia, there is a greater emphasis on the integration of Islamic teachings with modern scientific curricula. This trend underscores the profound impact of social and cultural contexts on shaping research directions.

To explore the research question, "What science topics have been addressed in published articles on science and religious research from 2015 to 2024?", we categorized the articles based on the scientific themes discussed within this timeframe. This process involved a thorough manual review of the article contents, followed by calculating the frequency of occurrence for each topic. We employed straightforward quantitative methods to derive the proportional distribution of each scientific field. The findings from this analysis are visually represented in Figure 2.
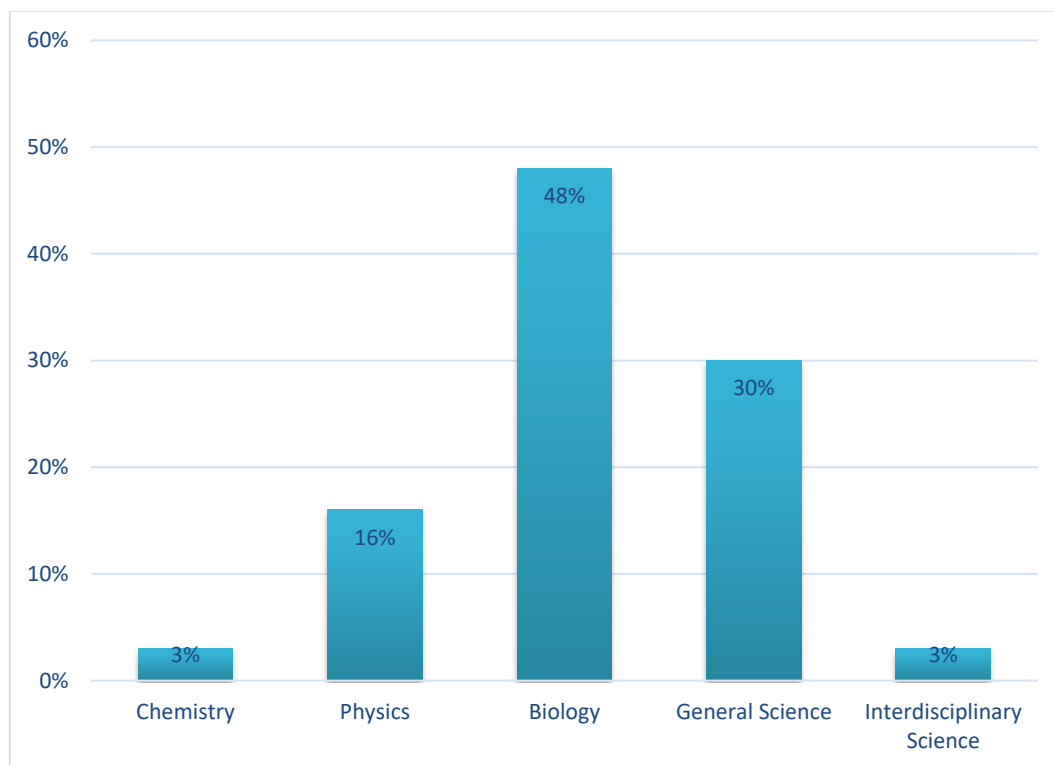
Figure 2. Diagram of Science Topics Aligned with Religious Understanding

Topics frequently explored in religious and scientific research include the interplay between religious beliefs and the acceptance of scientific concepts such as evolution and cosmology. Environmental and ecotheological issues are also prominent, particularly as global sustainability awareness continues to grow. Numerous studies emphasize the benefits of an integrative approach in shaping students' character, enhancing cultural identity, and improving comprehension of scientific topics related to everyday life.

To investigate the research question, "What are the religious areas emphasized in the published articles on science and religious research from 2015 to 2024?", we categorized the articles released during this timeframe based on the specific religious themes addressed in each study. This categorization involved a thorough manual review of the article contents, followed by a quantitative analysis to determine the frequency of occurrences for each religious theme. This approach enabled us to identify the most prominent religious areas. A visual summary of the distribution of these religious themes is presented in Figure 3.
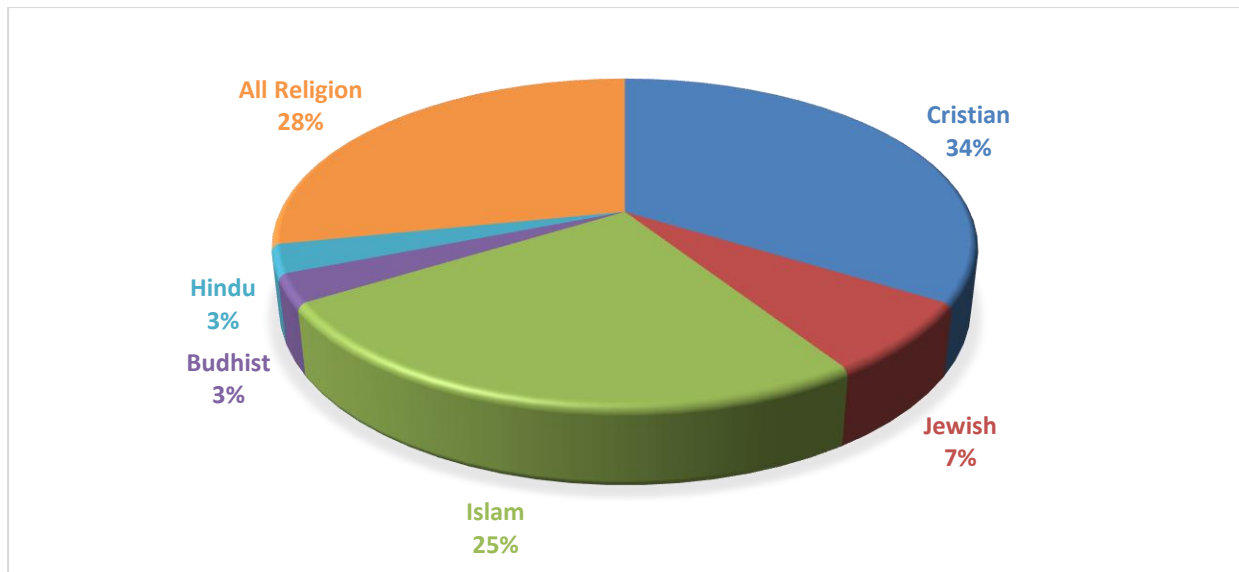
*Corresponding author

Figure 3. Diagram of Religious Areas in Science and Religion Learning.

Christianity and Islam are the predominant religions studied in the context of science education. However, research on Hinduism and Buddhism has significantly increased, particularly in South and Southeast Asia. This focus often aims to connect religious teachings with scientific concepts such as creation, evolution, and environmental sustainability. This trend reflects a global movement toward promoting holistic education that integrates spiritual and rational values.

To answer the research question "What teaching methods of science and religion integration can be observed in articles published between 2015 and 2024?", we identified and categorized the learning methods used or recommended in articles on science and religion integration between 2015 and 2024. This process involved manually reviewing the articles' contents to extract information related to the methods using simple quantitative calculations to obtain an overview of the distribution of method use. This analysis thus revealed the most frequently occurring learning methods. A summary of the results of the grouping of these learning methods is presented in Table 7.

Table 7. Teaching methods for understanding science and religion

Method	Freq
Discussion	16
Lecture	7
Questions and Answer	5
Experiment	2
Drill	2
Demonstration	0
Others	23
Total	55

Various teaching methods are employed to integrate religion and science within educational contexts. Among these, the discussion method stands out as the most widely used approach, wherein educators encourage students to express their viewpoints regarding the harmony between science and religion. This method can inspire educators, motivating students to explore the relationship between these two fields. The trend of

researching the intersection of religion and science in education reflects global efforts to develop culturally and spiritually relevant curricula, while simultaneously promoting scientific literacy. With diverse approaches and emphases across different countries, this research holds significant potential for fostering a more inclusive, adaptive, and sustainable educational model. The integration of religion and science not only helps narrow the gaps between differing perspectives and nurtures a generation equipped with critical thinking skills and an appreciation for diversity. Numerous studies indicate that integrating science and religion into science education can enhance student engagement. Learners often find themselves more personally connected to the material, which imbues their learning with greater significance. Additionally, this approach can help address cognitive conflicts that may arise between religious beliefs and scientific understanding.

CONCLUSION

In conclusion, the analysis of global trends in science and religion research in education reveals several key findings. In particular, the countries that have contributed the most to this body of literature include the UK, the US, and Indonesia. Biology is the most frequently discussed topic, particularly the theory of evolution and cosmology. In contrast, the most frequently involved religious field in scientific discourse is Christianity, particularly in Western countries. Furthermore, the discussion method remains the preferred approach to addressing both subjects in the classroom.

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