

# The Evolution of Sexuality Education in Elementary Schools (2021–2025): A Bibliometric Visualization and Curriculum Implications for Natural and Social Science

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## Abstract

This research aims to map the evolution of global literature trends regarding sexuality education at the primary school level during the 2021–2025 period, as well as to formulate its curriculum design implications through an ethnopedagogical approach. The bibliometric analysis of this research selected 43 English-language journal articles from the Scopus database using the exact search string: "Sexuality Education" AND "Elementary School" OR "Primary School". Data were subsequently visualized using the VOSviewer application through a keyword co-occurrence counting method, setting a minimum inclusion threshold of 2 occurrences. The results of the Network Visualization mapping identified seven thematic clusters that remain fragmented across demographic, policy, pedagogical, and family ecosystem domains. The Overlay Visualization results revealed a trend shift from an initial focus on the fundamentals of breaking taboo boundaries, subsequently shifting towards a focus on enhancing teacher competence and evaluating program effectiveness. Meanwhile, the Density Visualization discovered a crucial research gap in the form of a deficit in locally-based ethnographic methodologies. This research proposes the integration of bodily autonomy and sexual violence prevention materials into the Science and Social Studies subject, emphasizing an ethnopedagogical approach. To address this methodological gap and offer a novel perspective, this research proposes the integration of bodily autonomy and sexual violence prevention materials into the Science and Social Studies subject, emphasizing an ethnopedagogical approach that aligns global literature with local cultural contexts.

**Keywords:** Bibliometric Analysis; Elementary School; Ethnopedagogy; Natural and Social Sciences (IPAS); Primary School; Sexuality Education

## INTRODUCTION

The right to reproductive health and child protection in global education has undergone a paradigm shift over the past decade. Efforts to protect children from various forms of violence, exploitation, and exposure to sexual misinformation are no longer viewed narrowly as a public health issue or a clinical medical domain, but have shifted into a human rights agenda. The Sustainable Development Goals (SDGs) agenda in target 4.7 explicitly outlines the importance of an education system that promotes gender equality and a culture of peace without violence. All of these indicators are implemented within the framework of Comprehensive Sexuality Education (CSE). UNESCO (2024) explains that Comprehensive Sexuality Education is curriculum-based learning concerning the cognitive, emotional, physical, and social aspects of sexuality. The objective of CSE, according to UNESCO in (Lohan & López, 2023), is to equip children and adolescents with the knowledge, skills, attitudes, and values that will empower them to realize their health, well-being, and dignity.

The Ministry of Women's Empowerment and Child Protection of the Republic of Indonesia in 2025 noted that 19.5% of the 35,131 sexual violence cases occurred in children aged 6-12 years (KemenPPPA, 2025). Sexuality education is highly important because it can improve

elementary school children's understanding regarding reproductive health, establish personal boundaries, and prevent risky behaviors. Sexual prevention can be conducted through school programs that focus on materials regarding personal boundaries, puberty, and reproductive health. Mat Pa et al. (2025) conducted research regarding the Smart Shield program which is divided into two stages, namely 1) Smart Shield 1 for students aged 7-9 years which focuses on body awareness, personal boundaries, and the introduction of types of touch; 2) Smart Shield 2 for students aged 10-12 years which contains further topics such as puberty, reproductive health, and personal safety. The results of the research indicate that the sexuality education named Smart Shield is proven to be highly effective in improving the knowledge of elementary school children in Malaysia regarding the prevention of sexual violence. Celik (2024) explains that school-based sexual prevention programs are proven effective in equipping children with self-protection knowledge and skills in various countries.

This research aims to address several questions: 1) What is the evolution of the trends and thematic network structure of global literature regarding sexuality education at the primary school level during the 2021–2025 period?; 2) What research gaps are identified in the integration between sociocultural concepts (ethnography, taboo issues) and child protection with curriculum execution in the classroom?; 3) How can these bibliometric findings be formulated into curriculum design implications, specifically for the integration of bodily autonomy education into the Science and Social Studies (IPAS) subject through an ethnopedagogical approach?

## METHODS

This research utilizes bibliometric analysis. Donthu et al. (2021) explain that bibliometrics is a set of quantitative tools used to analyze bibliographic data. This study adopts the bibliometric analysis procedure of Kusumaningrum et al. (2023) with several modifications. Figure 1 illustrates the stages of bibliometric analysis that will be utilized by the author.

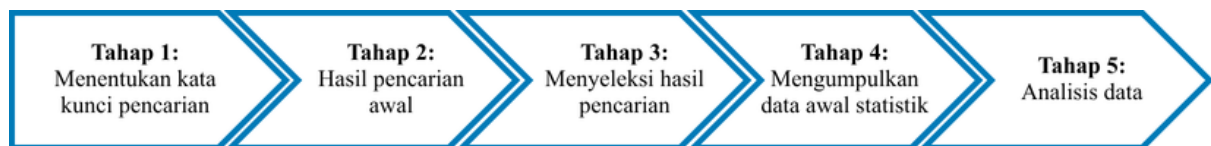


Figure 1. Stages of Bibliometric Analysis

### Stage 1: Determining search keywords

This research begins with the retrieval of research data from the Scopus database on June 1, 2026. The Scopus database was selected because it is the largest indexing database in the world. The primary keywords used in the literature search process were "Sexuality Education" AND "Elementary School" OR "Primary School". These keywords were selected so that the bibliometric results focus on sexuality education research in elementary schools.

### Stage 2: Initial search results

In the second stage, the search results using the keywords "Sexuality Education" AND "Elementary School" OR "Primary School" in the Scopus database yielded several documents. This search resulted in a total of 146 documents comprising various years, subject areas, and document types.

### Stage 3: Selecting search results

The author applied limitations to narrow the search to make it more specific. First, applying a year range limitation from 2021 to 2025, resulting in 65 articles being found. Second, applying a limitation on the subject areas, namely "Social Sciences" and "Art and Humanities". This filter was applied to isolate pure sexuality education studies from socio-cultural and pedagogical perspectives. The applied filter provided a limitation from 65 articles to 55 articles.

Third, selecting articles as the document type, resulting in 47 articles being found. Fourth, selecting articles written in English, resulting in 43 articles being found. Figure 2 provides an explanation regarding the data collection process that will be used in this research:

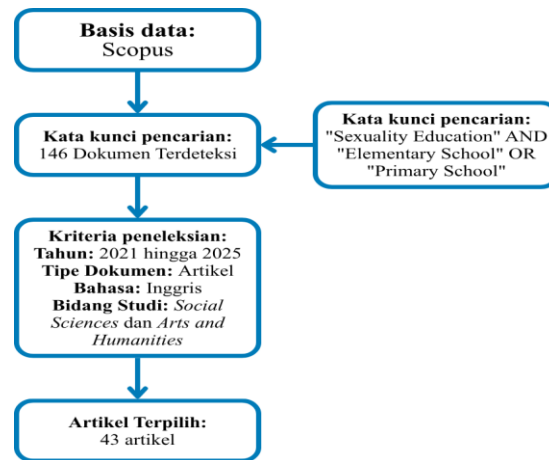


Figure 2. Data Collection Process

#### Stage 4: Collecting initial statistical data

Documents that have met the requirements to be used as research data sources will be downloaded in the Research Information System (RIS) format. This file contains bibliometric and bibliographic information that will later be used in the VOSViewer application.

#### Stage 5: Data analysis

The analysis was conducted through scientific data mapping and performance analysis. The co-occurrence data analysis based on keywords was assigned an occurrence threshold of 2. This analysis was conducted using the VOSViewer application version 1.6.20 with the fractional counting method to create a network map containing a visual representation of the relationships between keywords, a density map containing a visual representation of keyword frequencies within the research scope, and an overlay map containing a chronological map based on publication year trends.

### RESULT AND DISCUSSION

The results of the bibliometric analysis using the VOSViewer application are presented in the form of figures and maps. Figure 3 represents the trend in the number of publications regarding Sexuality Education in Elementary Schools within the timeframe of 2021 to 2025, published in Scopus-indexed journals.

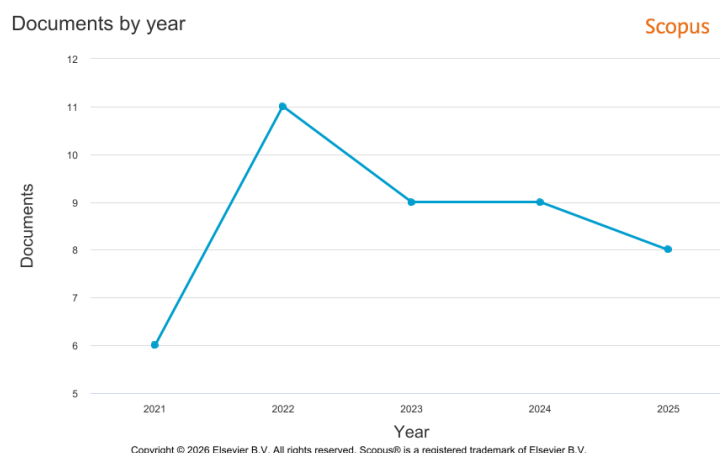


Figure 3. Research trends from 2021 to 2025

Studies in 2021 related to Sexuality Education in Elementary Schools were conducted by Likupe et al. (2021); Erden, O. (2021); Weil et al. (2021); Szelewa, D. (2021); Accardo & Mangini (2021); Botfield et al. (2021). Figure 3 shows that the number of studies in 2022 experienced an increase, amounting to 11 studies. The year 2023 experienced a decrease to 9 studies, then the year 2024 experienced stagnation with a total of 9 studies. A decrease occurred again in 2025 with a total of 8 studies.

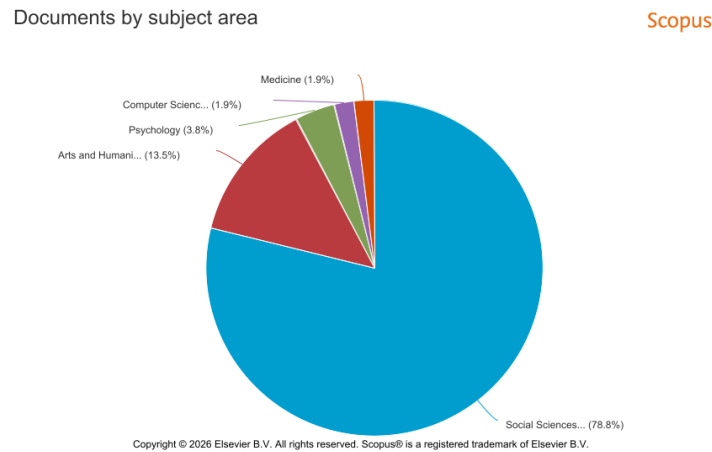


**Figure 4.** Distribution of research by Subject Area

Figure 4 explains how research regarding Sexuality Education in Elementary Schools is distributed based on subject area. The results from the figure explain that approximately 78.8% of sexuality education research in elementary schools is in the context of Social Sciences. The Arts and Humanities field is in the second position with a percentage of 13.5%, subsequently the third position is the Psychology field at 3.8%. The final position of the fields of study of this research, namely Computer Science and Medicine, has the same percentage of 1.9%.

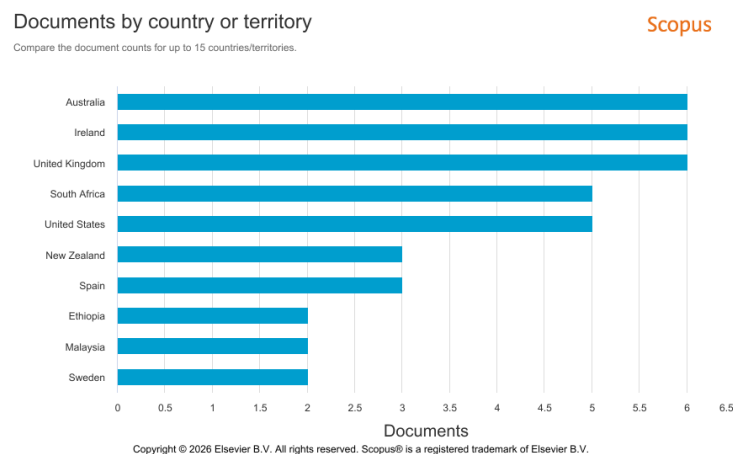
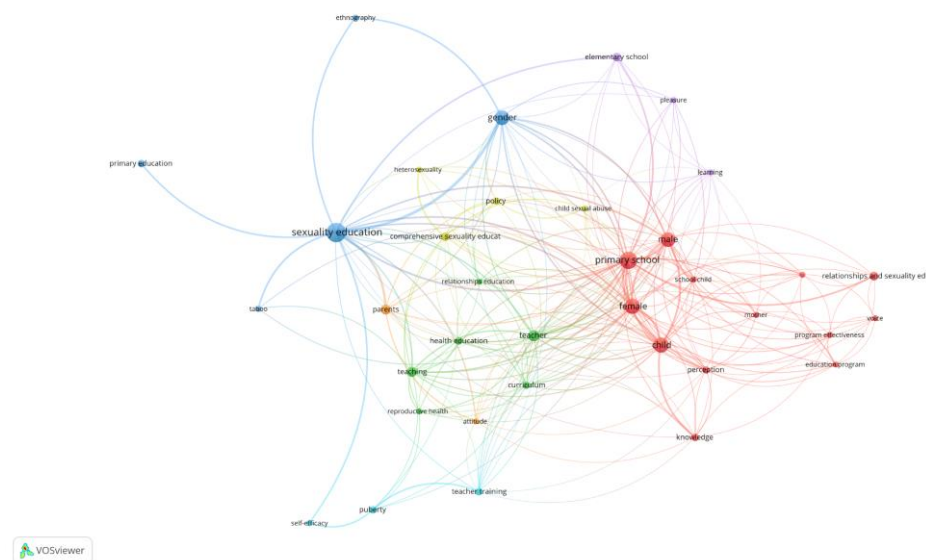


**Figure 5.** Distribution of research based on country

The distribution of research publications regarding sexuality education in elementary schools based on Figure 5 is dominated by the countries of Australia, Ireland, and the United Kingdom with 6 studies each. South Africa and the United States have journals amounting to 5 studies. The countries of New Zealand and Spain each have research amounting to 3 documents. In addition, Ethiopia, Malaysia, and Sweden have a research total of 2 documents; this indicates that research on sexuality education in elementary schools is also developed in these three countries.

**Table 1.** Keyword Co-occurrence Network Cluster Details

| Cluster    | Keywords                           | Occurrences | Total Link Strength |
|------------|------------------------------------|-------------|---------------------|
| Red        | Primary school                     | 16          | 16.00               |
|            | Female                             | 12          | 12.00               |
|            | Male                               | 11          | 11.00               |
|            | Child                              | 12          | 12.00               |
|            | School child                       | 2           | 2.00                |
|            | Perception                         | 3           | 3.00                |
|            | Mother                             | 2           | 2.00                |
|            | Knowledge                          | 3           | 3.00                |
|            | Relationships and sexual education | 4           | 2.00                |
|            | Voice                              | 2           | 1.00                |
|            | Program effectiveness              | 2           | 2.00                |
|            | Education program                  | 2           | 2.00                |
| Dark Blue  | Sexuality education                | 19          | 18.00               |
|            | Gender                             | 11          | 11.00               |
|            | Taboo                              | 2           | 2.00                |
|            | Primary education                  | 3           | 1.00                |
|            | Ethnography                        | 2           | 2.00                |
| Yellow     | Comprehensive sexuality education  | 4           | 4.00                |
|            | Policy                             | 3           | 3.00                |
|            | Heterosexuality                    | 2           | 2.00                |
|            | Child sexual abuse                 | 2           | 2.00                |
| Green      | Teacher                            | 7           | 7.00                |
|            | Curriculum                         | 3           | 3.00                |
|            | Health education                   | 3           | 2.00                |
|            | Teaching                           | 5           | 5.00                |
|            | Reproductive health                | 2           | 2.00                |
|            | Relationships education            | 2           | 2.00                |
| Light Blue | Self-efficacy                      | 2           | 2.00                |
|            | Puberty                            | 3           | 3.00                |
|            | Teacher training                   | 3           | 3.00                |
| Purple     | Elementary school                  | 4           | 4.00                |
|            | Pleasure                           | 2           | 2.00                |
|            | Learning                           | 2           | 2.00                |
| Orange     | Parents                            | 5           | 5.00                |
|            | Attitude                           | 2           | 2.00                |

**Figure 6.** Network Visualization map based on Keywords' Co-Occurrence

The Network Visualization map in VOSViewer functions as an instrument for mapping the intellectual structure of a scientific discipline by displaying the relations between terms or

keywords. Figure 6 shows the keyword Co-Occurrence network divided into seven clusters based on color, namely red, dark blue, green, light blue, yellow, purple, and orange. Table 1 contains the results of the keyword co-occurrence analysis generated by VOSviewer.

Cluster 1 (red) forms a highly dense network on the right side of the visualization. The central node in this cluster is "primary school", which is surrounded by the target demographics, namely "child", "school child", "female", and "male". The presence of the "knowledge" and "perception" nodes tightly linked with "education program" and "program effectiveness" signifies that current literature strongly emphasizes pedagogical accountability. The most interesting aspect of this cluster is the presence of the "mother" node amidst "child" and "knowledge".

Clusters 2 and 5 (dark blue & yellow) discuss fundamental discourses, policies, and cultural ecology. The "sexuality education" node has a strong relationship with the "taboo" and "ethnography" nodes, thus cluster 2 (dark blue) maps the fundamental discourse regarding how the sexuality education discourse collides as well as negotiates with the cultural ecology in society. The existence of the "taboo" and "ethnography" nodes highlights that discussions regarding reproduction often contradict norms in eastern countries. Meanwhile, the yellow cluster is inhabited by the "policy", "comprehensive sexuality education", and "heterosexuality" nodes, representing regulatory pillars, forms of official curricula, and the boundaries of normativity.

Clusters 3 and 4 (green & light blue) discuss pedagogics, educators, and the transition of puberty. The "curriculum" node stands as an anchor connecting "teacher", "teaching", and "health education". This relationship explicitly asserts that sexuality education is not an isolated independent subject, but rather an interdisciplinary content that is most ideally incorporated into the umbrella of health education. Within this Green cluster, a crucial node is found, namely "child sexual abuse" (located between "curriculum" and "primary school"). Its position integrating with the curriculum and teaching cluster reflects an ontological shift of this discipline. Sexuality education is now legitimately recognized as a trauma prevention curriculum. Learners are trained to have an assertive attitude in protecting their bodily integrity.

Cluster 6 (Purple) discusses sensory-emotional learning, self-guarding, and the deconstruction of sensitivity. This cluster presents the convergence of three highly specific nodes, namely "elementary school", "learning", and "pleasure". The presence of the "pleasure" node alongside "elementary school" and "learning" triggers a highly dynamic theoretical debate in curriculum development. In international curriculum standard documents (such as UNESCO's technical guidelines), the human body is acknowledged to possess functional capabilities that encompass not only reproduction and elimination, but also sensory capacities to receive and provide comfort (pleasure). However, when this curriculum is implemented in the classroom at the elementary school level, especially in eastern societies, the pleasure node must be reconstructed and filtered extremely carefully to avoid slipping into forms of sexual stimulation that are inappropriate for a child's developmental age.

Cluster 7 (Orange) discusses parental partnership. Based on the network visualization, the "parents" and "attitude" nodes display an extraordinary spatial phenomenon; they function as a massive connecting hub that binds various other clusters. This visual condition generates a highly strong academic inference, namely that the family institution operates as a scope for character formation and is required as a bridge to success. Sexuality education can never be exclusively isolated within school walls.

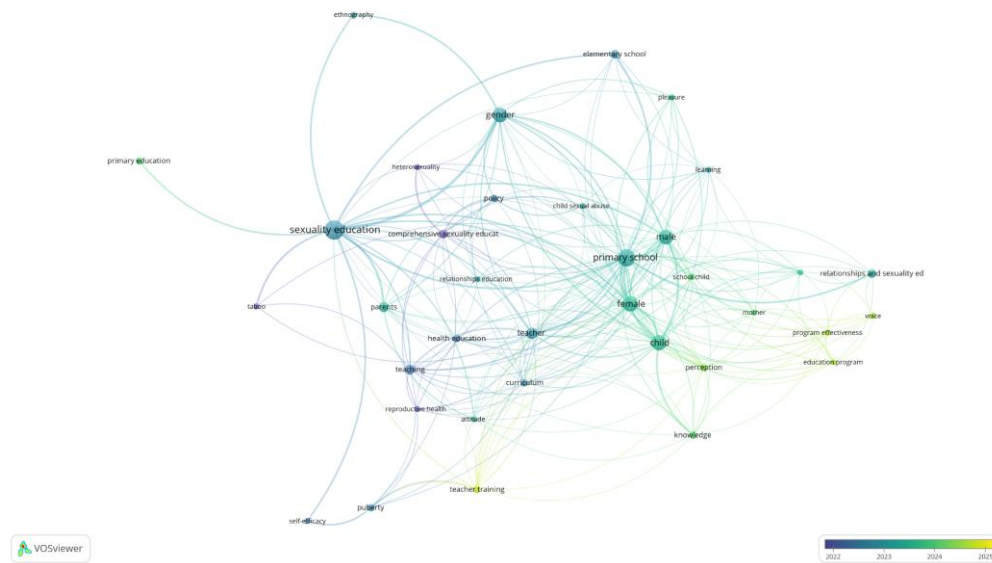


**Figure 7.** Overlay Visualization map based on Keywords' Co-Occurrence

Overlay Visualization incorporates a time dimension into the bibliometric network. VOSviewer colors each node based on the average publication year of the articles containing the term. The color spectrum moves from dark purple or dark blue (representing earlier research, around 2022 or earlier), transitions to green (the middle period, around 2023), and culminates in bright yellow, which indicates the most recent research areas (the 2024–2025 period).

In the initial phase characterized by the dark purple color (2022 and earlier), the research focus still revolved around the justification of why this education is important in responding to sexual violence and attempted to break through the fortress of societal taboos as well as convince parents. Entering the middle phase in 2023, ideological debates subsided and transitioned to the operationalization stage. The curriculum began to be formally institutionalized in elementary school institutions. Research focused on the gender differentiation of learners and the formation of basic attitudes towards reproductive health. At the peak of academic novelty in the bright yellow color (2024–2025), the focus shifted towards enhancing executor competence, policy standardization, management of the critical puberty phase, and empirically testing program effectiveness.

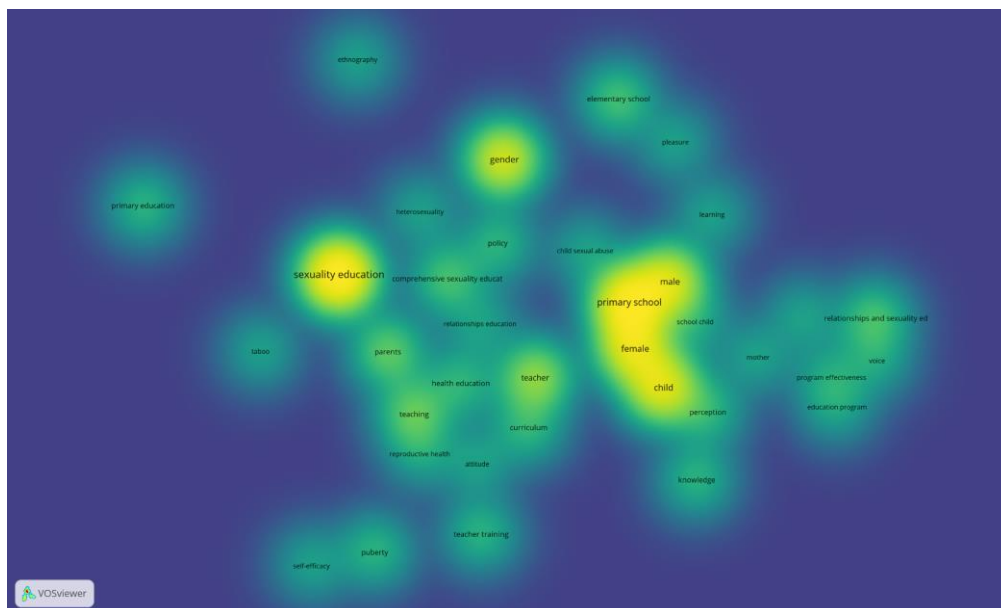


**Figure 8.** Density Visualization map based on Keywords' Co-Occurrence

Density Visualization converts the co-occurrence network into a heatmap. Areas with highly bright and dense yellow and green color intensities (hotspots) represent conceptual regions that have been massively researched. Conversely, areas with faded, dark, or isolated colors on the outer edges (cold spots) reflect research gaps or potential regions that have not been widely explored empirically.

Visually, the hotspots emit extreme density at the "sexuality education", "primary school", "child", "female", "male", and "gender" nodes. The dominance of density at the "teacher" and "curriculum" nodes, which emit a bright yellow-green glow beneath them, also indicates the stability of this research area. Cold Spots or faded colors on the Density Visualization map constitute scientific regions that still lack interest.

One of the findings in Figure 8 is the Deficit in Locally-Based Ethnographic Methodologies. Although the "taboo" and "ethnography" nodes are highly isolated on the outer perimeter with very faded colors. This condition dismantles the geographical and sociological bias where global literature is dominated by Western value systems with a liberal characteristic. There is a theoretical gap regarding the design of sociocultural instruments that are sensitive to decency norms. Consequently, when teachers execute the curriculum in the classroom, they lack a local ethnographic research foundation to mitigate the issue of social rejection from the students' immediate environment.

The implication for curriculum design is through the Conceptualization of Natural and Social Sciences (IPAS) and Character in the Merdeka Curriculum. The Merdeka Curriculum demands high flexibility, where the IPAS subject combines the pillars of science (biology-anatomy) and social studies (moral interaction). Anggraena et al. (2022) explain that the Natural Sciences and Social Sciences subjects are integrated into one as Natural and Social Sciences because both of these subjects constitute the development of inquiry skills. To establish a clearer science education framework, this integration must explicitly address specific IPAS competencies, such as understanding fundamental human biological systems and developing self-protection skills. Age-appropriate concepts for elementary students should focus on basic anatomy, recognizing personal boundaries, and child protection principles. The primary learning objectives are designed to enhance health literacy, ensuring students can scientifically identify their body parts and confidently communicate their bodily autonomy. The content of bodily autonomy is incorporated into IPAS through the introduction of the names of body parts using official scientific names without taboo to train scientific literacy while simultaneously freeing children from the use of street slang that is vulnerable to misuse. Furthermore, the assessment indicators for this pedagogical design should objectively measure students' ability to accurately label reproductive anatomy, critically differentiate between safe and unsafe physical contact, and demonstrate assertive refusal skills in potential abuse scenarios. The research results of Leowalu & Hendriks (2021) found that parents assess topics related to the prevention of child sexual abuse, Sexually Transmitted Infections (STIs), and sexual coercion as highly important materials, reinforcing the urgency of this structured scientific framework.

The Operationalization of the Ethnopedagogical Approach in Instructional Design emphasizes the importance of reconstructing local wisdom as adaptable teaching materials in facing the onslaught of modernity. The integration of bodily autonomy in IPAS is operationalized ethnopedagogically. The introduction of bodily autonomy such as training the skill to distinguish between comfortable and uncomfortable touches, as well as protecting private areas is grounded in decency norms, such as the habituation of modesty, the manners of changing clothes in closed rooms, as well as the independence of sleeping separately in the domestic sphere since the age of discernment (tamyiz).

## CONCLUSION

Based on a bibliometric analysis of 43 global literature documents regarding sexuality education at the elementary school level, this research concludes that the academic scientific focus has undergone an evolution. Publication trends have transformed from the realm of

ideological debates related to social taboo barriers towards the realm of the technical design of teaching operationalization and educator training. Visual network mapping demonstrates that the literature is divided into seven specific clusters. This indicates that although extensively researched, studies representing sociocultural values, the realm of child protection policy, and pedagogical aspects in the classroom still frequently operate within their respective domains. Furthermore, the literature density mapping successfully revealed the existence of a profound research gap in the form of a deficit in local ethnographic approaches.

The bibliometric mapping suggests a pattern where current global sexuality education literature instruments may predominantly reflect Western contexts, indicating a potential lack of a research foundation to negotiate harmoniously with the normative order of Eastern societies. To address this research gap, this research formulates an applicable curriculum implication by incorporating violence prevention and bodily autonomy education into the content of Natural and Social Sciences (IPAS) within the framework of the Merdeka Curriculum. The operationalization of this integration is conducted through the reconstruction of local wisdom, such as the habituation of modesty, the ethics of changing clothes in closed rooms, and the discipline of sleeping separately in the family domain from an early age. However, it is important to acknowledge the limitations of this study. A bibliometric analysis can only suggest thematic patterns and potential gaps; it cannot by itself definitively prove a Western bias nor establish the actual effectiveness of the proposed curriculum design. Therefore, future research is strongly recommended to conduct empirical validation of this ethnopedagogical approach directly within Indonesian elementary IPAS classrooms to evaluate its practical effectiveness and cultural reception.

## REFERENCE

- Anggraena, Y., Felicia, N., Eprijum, D., Pratiwi, I., Utama, B., Alhapip, L., & Wideaswati, D. (2022). *Kajian akademik kurikulum untuk pemulihan pembelajaran*. Pusat Kurikulum dan Pembelajaran, Badan Standar, Kurikulum, dan Asesmen Pendidikan, Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Accardo, S., & Mangini, R. (2021). Initiatives in primary school for the inclusion of a gender perspective. *ELT Journal*, 75(2), 162-171. <https://doi.org/10.1093/elt/ccaa082>
- Botfield, J. R., Ratu, S., Turagabeci, E., Chivers, J., McDonald, L., Wilson, E. G., & Cheng, Y. (2021). Sexuality education for primary school students with disability in Fiji. *Health Education Journal*, 80(7), 785-798. <https://doi.org/10.1177/00178969211011227>
- Celik, P. (2024). The effectiveness of school-based child sexual abuse prevention programmes among primary school-aged children: A systematic review. *International Journal of Educational Research Open*, 7, 100348. <https://doi.org/10.1016/j.ijedro.2024.100348>
- Donthu, N., Kumar, S., Pandey, N., & Gupta, P. (2021). Forty years of the International Journal of Information Management: A bibliometric analysis. *International Journal of Information Management*, 57, 102307. <https://doi.org/10.1016/j.ijinfomgt.2020.102307>
- Erden, O. (2021). Elementary school science teachers' responses to problem scenarios related to teaching sexuality-related topics. *Sex Education*, 21(2), 176-189. <https://doi.org/10.1080/14681811.2020.1749045>
- KemenPPPA. (2025). Sistem Informasi Online Perlindungan Perempuan dan Anak (SIMFONI PPA): Ringkasan Kasus. SIMFONI-PPA. [kemenpppa.go.id](https://kemenpppa.go.id)
- Kusumaningrum, M. E., Kuswanto, H., Suyanto, S., Purwasih, D., & Prabawati, R. (2023). A Bibliometric Review of Research on Education for Sustainable Development, 2019-2023. *International Electronic Journal of Elementary Education*, 16(1), 75-88. <https://doi.org/10.26822/iejee.2023.315>
- Leowalu, S., & Hendriks, J. (2021). Perspectives of Indonesian parents towards school-based sexuality education. *Asia Pacific Journal of Education*, 1-14. <https://doi.org/10.1080/02188791.2021.1944842>
- Likupe, G., Chintsanya, J., Magadi, M., Munthali, A., & Makwemba, M. (2021). Barriers to sexual and reproductive education among in-school adolescents in Zomba and Mangochi districts, Malawi. *Sex Education*, 21(4), 450-462. <https://doi.org/10.1080/14681811.2020.1821181>

- Lohan, M., & López, A. (2023). *Comprehensive sexuality education: An overview of the international systematic review evidence*. UNESCO & UNFPA.
- Mat Pa, M. N., Norhayati, M. N., Sulaiman, Z., Nik Hussain, N. H., Othman, A., & Aziz, A. (2025). Effectiveness of the SmartShield for knowledge on sexual abuse prevention among primary school children in Malaysia: A quasi-experimental study. *PLOS One*, 20(10), e0334401. <https://doi.org/10.1371/journal.pone.0334401>
- Szelewa, D. (2021). Populism, religion and Catholic civil society in Poland: The case of primary education. *Social Policy and Society*, 20(2), 310-325.
- UNESCO. (2024). Transforming education towards SDG 4: Report of a global survey on country actions to transform education. UNESCO
- Weil, M., Apala Flaherty, A., & Gubrium, A. (2021). Developing and Approving a LETS! Teach, Affirm, Learn, Know (LETS! TALK) Curriculum for Grades K-2 in a Public-School System. *American Journal of Sexuality Education*, 16(3), 325-350. <https://doi.org/10.1080/15546128.2021.1918306>