



Bibliometric analysis of physical education learning in inclusive schools: trends, contributions, and research impact

Análisis bibliométrico del aprendizaje de la educación física en escuelas inclusivas: tendencias, contribuciones e impacto de la investigación

Authors

Deswita Supriyatni¹
Soni Nopembri¹
Hari Yulianto¹
Sandey Tantra Paramitha²
Muhammad Gilang Ramadhan³
Eko Pumomo^{4*}

¹Universitas Negeri Yogyakarta (Indonesia)

²Universitas Pendidikan Indonesia (Indonesia)

³Universitas Negeri Jakarta (Indonesia)

⁴Universitas Negeri Padang (Indonesia)

Corresponding author:

Eko Pumomo
ekopurnomo@fik.unp.ac.id

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Abstract

Introduction: Physical education in inclusive schools is increasingly gaining attention as a research area that is often studied by researchers in various countries. In the development of the inclusive education system, it is important to understand the main trends in this study.

Objective: This study aims to analyze trends, contributions, and research impact on physical education learning in inclusive schools (2014–2024) using Scopus data, identifying collaborations, research gaps, and future study directions.

Methodology: The study used a bibliometric analysis of physical education in inclusive schools using the Scopus database with a range of 2014–2024. Through the process of selection, reduction, and review according to the criteria, 109 documents were obtained with various related themes. Furthermore, they were analyzed by academics from various affiliations and countries active in researching this theme.

Results: The results of the study show that 2022 had the highest number of publications. The most productive authors and institutions that contributed the most documents came from Germany, although overall, the United States was the country with the largest number of articles in this field.

Conclusion: The journal that published the most articles with related themes was the *International Journal of Inclusive Education*. The limitation on the use of one database is a limitation and opens up opportunities to complete further research in the future. Therefore, this study strongly recommends further research that examines all issues related to physical education in inclusive schools as well as other critical aspects in gaining sustainable knowledge.

Keywords

Bibliometrics; physical education; inclusive school; research trends.

Resumen

Introducción: La educación física en escuelas inclusivas está ganando cada vez más atención como un área de investigación que a menudo es estudiada por investigadores en varios países. En el desarrollo del sistema de educación inclusiva, es importante comprender las principales tendencias de este estudio.

Objetivo: Este estudio tiene como objetivo analizar las tendencias, las contribuciones y el impacto de la investigación sobre el aprendizaje de la educación física en las escuelas inclusivas (2014–2024) utilizando datos de Scopus, identificando colaboraciones, brechas de investigación y futuras direcciones de estudio.

Metodología: El estudio utilizó un análisis bibliométrico de la educación física en las escuelas inclusivas utilizando la base de datos Scopus con un rango de 2014–2024. A través del proceso de selección, reducción y revisión según los criterios, se obtuvieron 109 documentos con varios temas relacionados. Además, fueron analizados por académicos de varias afiliaciones y países activos en la investigación de este tema.

Resultados: Los resultados del estudio muestran que 2022 tuvo el mayor número de publicaciones. Los autores e instituciones más productivos que aportaron más documentos fueron los de Alemania, aunque en general, Estados Unidos fue el país con mayor número de artículos en este campo.

Conclusión: La revista que publicó más artículos con temas relacionados fue la *International Journal of Inclusive Education*. La limitación en el uso de una base de datos es una limitación y abre oportunidades para completar más investigaciones en el futuro. Por lo tanto, este estudio recomienda encarecidamente que se realicen más investigaciones que examinen todos los temas relacionados con la educación física en las escuelas inclusivas, así como otros aspectos críticos para obtener conocimientos sostenibles.

Palabras clave

Bibliometría; educación física; escuela inclusiva; tendencias de investigación.

Introduction

Inclusive education is an education system that provides opportunities for all children who have the potential for intelligence and special talents to participate in education or learning in an educational environment together with children in general (Iryayo et al., 2018; Spandagou, 2021; Utama, 2021). This approach emphasizes diversity, acceptance, and social justice as core values in the management of inclusive education (Grove et al., 2019; Wijaya et al., 2019). Surveys show that the integration of scientific practices in inclusive education can improve the accessibility of learning for students with special needs in real learning environments. And most importantly, it can embrace the diversity that exists in the learning space (Grove et al., 2019). This is emphasized by Muñoz-Campos et al., (2020) highlighting the importance of inclusive education with the cultural and social context of learners. Danielsson et al., (2023) expressing identity in inclusive education also emphasizes the importance of a values-based approach in increasing student engagement in learning. Physical education teachers' self-efficacy appears to be important for successfully including students with special needs in the general classroom (Muñoz-hinrichsen, 2025). For the success of an inclusive education program, it must have the characteristics of teachers who understand classroom management. To achieve effective teaching, it is essential for teachers to acquire competencies in classroom management (Javier & Girela, 2025).

This concept aims to create a learning environment that supports diversity and eliminates all forms of discrimination in education (Anggraeni et al., 2022; Tarnoto, 2016). Inclusive education emphasizes the acceptance, participation, and progress of all students, including those with special educational needs, within the mainstream school environment (R. H. Abdillah, 2019; Anggraeni et al., 2024). This concept aims to create a learning environment that supports diversity and eliminates all forms of discrimination in education (Fitriani et al., 2021). Today, the Government continues to strengthen inclusive education through the Ministry of Education, Culture, Research and Technology through regulation Number 48 of 2023 concerning the obligation of formal schools to accommodate and facilitate the needs of students with disabilities. This mandate is stated in article 5 where local governments and educational units managed by the community are urged to facilitate appropriate education for people with disabilities (Herawati, 2016). Quality education must be available to all (Spandagou, 2021). Equitable and inclusive school education practices are essential for every student (Alnuaimi et al., 2024; Kaushik, 2024),

Based on Article 5 of Law No. 20 of 2003 concerning the National Education System it states that "Every citizen has the same right to receive education, and citizens who have physical, emotional, intellectual, mental and/or social disabilities have the right to receive special education". The importance of access to education for all students without exception, this is that physical education in inclusive schools plays an important role in providing equal opportunities for all students, including those with special needs (Robiyansah et al., 2020; Sharma et al., 2019; Sirem & Çatal, 2023). As inclusive education systems develop in various countries, it is important to study how physical education is implemented in inclusive school environments and how students, both with and without disabilities, experience it (Chhetri et al., 2023; Dwintari & Murdiono, 2023; L. Li & Ruppap, 2021; Paramitha et al., 2024). Promoting physical activity among adolescents requires innovative methodologies to make educational interventions more engaging and effective (Jermaina et al., 2023; Mitas et al., 2025).

Physical education has an important role in building physical health, motor skills, and character of students (Multazam et al., 2024; Rahmawati et al., 2024). In the context of inclusive schools, Physical Education becomes a strategic means to create a fair and equal learning environment for all students, including students with special educational needs (Setiawan et al., 2018). Through Physical Education, students can participate in activities that promote social interaction, collaboration, and acceptance of diversity (Haegele & Sutherland, 2015). In such an environment, Physical Education plays an important role as a learning tool that enables students with different abilities to participate together in physical activities, which encourages mutual understanding and empathy (Vickerman & Maher, 2018). In addition, Physical Education helps strengthen students' social skills by teaching values such as cooperation, fair play, and mutual respect (Goodwin & Watkinson, 2000; Purnomo et al., 2024)

However, the implementation of Physical Education in inclusive schools often faces challenges, such as a lack of teacher training, limited resources, and physical barriers that can reduce the effectiveness of learning (Block & Obrusnikova, 2007), Therefore, it is important to understand the experiences and



meanings of Physical Education learning in inclusive schools to identify trends, contributions, and impacts of research in this field. Bibliometric analysis provides a powerful approach to analyzing the development and impact of research in the field of Physical Education learning in inclusive schools. With this method, researchers can evaluate publication trends, author contributions, and key issues discussed, as well as identify research gaps that can be directed to further studies (Aria & Cuccurullo, 2017; Latino & Tafuri, 2023).

This research is important in providing a clearer picture of how physical education can be an effective tool in supporting inclusivity in schools, as well as how research can continue to develop to improve learning experiences for all students (Bahri et al., 2022; Calderón-Almendros et al., 2024). By understanding the trends and contributions in the literature, researchers can identify areas that require further research (Hidayati & Warmansyah, 2021; Sujarwo et al., 2024), and provide recommendations that can be applied to educational policies and teaching practices in inclusive schools. In addition, this study is expected to help physical education practitioners and other educators understand the challenges and opportunities in integrating physical education into the curriculum of inclusive schools. Thus, this study can make a significant contribution in enriching knowledge about the role of physical education in creating an inclusive learning environment and supporting diversity in schools. Existing literature shows that although physical education has the potential to improve students' physical, social, and emotional skills, the challenges faced in its implementation in inclusive schools are often related to limited facilities, human resources, and a lack of understanding of the needs of students with disabilities.

Through a review of physical education in inclusive schools and focusing on the distribution of authors, institutions involved, the most documents per year, and themes frequently discussed in research. The purpose of this study is to answer the following research questions to provide a comprehensive picture of physical education in inclusive schools:

1. What are the research trends in physical education in inclusive schools from 2014 to 2024?
2. Who are the most productive authors and institutions in physical education research in inclusive schools?
3. What are the main themes in the literature on physical education in inclusive schools?
4. What is the geographical distribution of physical education research in inclusive schools?
5. What are the challenges and opportunities in implementing physical education in inclusive schools?

The study is recommended for academics, educators, practitioners, and policymakers in the field of inclusive education. Through a review of current trends and future research directions, this study aims to provide useful information for further research development and identify gaps in existing research. These findings will help researchers, institutions, and educators understand the main trends, significant research contributions, and geographical distribution of research, as well as the challenges and opportunities for physical education in inclusive environments. Interventions are not only important for adolescent well-being, but also have the potential to create lasting positive effects on public health, communities, and the environment (Jermaina et al., 2022; Mitas et al., 2025; Paramitha et al., 2022). Thus, this study can be a reference for popular themes, important research contributions, and future research opportunities.

Method

This researcher uses bibliometric analysis as a quantitative to examine bibliographic data and is used in many fields (Qiu et al., 2021; Su et al., 2021). Bibliometric analysis is a quantitative method that is a study of bibliographic analysis of scientific activities, which is based on the assumption that a researcher is conducting his research and must communicate the results to colleagues (Aksnes et al., 2015; Sato dos Santos et al., 2025; Tupan et al., 2018; Wijayanti, 2024). There are three components of bibliometrics, namely: (a) bibliometrics as the main domain of bibliometric research and traditionally used as a research methodology; (b) bibliometrics for scientific disciplines (scientific information), considering that researchers work scientifically oriented, their interests influence their field of specialization and allow for a joint borderland with quantitative research in information retrieval; (c) bibliometrics for science



policy and management, which is a domain of research evaluation on various research topics (Donthu et al., 2021; Khan et al., 2022; Ziegler et al., 2009; Zupic & Čater, 2015).

Bibliometric studies were also conducted using Viosviewer software and Microsoft Word chart software (Tupan et al., 2018). The central concept in a scientific work is seen in the keywords that represent the variables studied in a scientific work, then the keywords used in this study (TITLE-ABS-KEY ("Physical Education" OR "Inclusive Education" OR "Diversity in Education") AND TITLE-ABS-KEY ("Inclusive Schooling") AND PUBYEAR > 2014 AND PUBYEAR < 2024 There are 109 search results documents in the Scopus database related to the keywords of this study. Keyword or co-word analysis is based on co-accuracy analysis to analyze the content, patterns, and trends of a collection of documents by measuring the strength of its terms (van Eck & Waltman, 2010; Ziegler et al., 2009). The word analysis technique determines how many keywords from research articles appear in the articles being analyzed. The author selects these important terms in research documents that are in the Scopus database based on the level of suitability and timeline of the research based on the title of the article and abstract. The more often a keyword appears in a group of documents, the more closely related the documents are (Di Vaio, Hassan, Chhabra, et al., 2022; Moral-Muñoz et al., 2020).

Next, in the research results, the researcher looked at the topic that represented the concept to be researched (Budiman et al., 2023; Su et al., 2021). For keywords that are not standardized or not relevant to this study, researchers use the thesaurus available in the Vosviewer item tools to help standardize existing research concepts or terminology (Di Vaio, Hassan, & Alavoine, 2022; Domínguez-Téllez et al., 2020; Tranfield et al., 2003; van Eck et al., 2010). Next, the bibliometric analysis looks at the impact and citation factors, collaboration patterns, dissemination tactics, and reports on the production of scientific papers (Aksnes et al., 2015; Fraga-Pena & Bobo-Arce, 2025). Then the data exposure consisted of publication sources, publication impact factors, keywords used, research networks, and researcher productivity to obtain this picture. Furthermore, data collection uses the Scopus database to collect articles on publication development trends. The selection of Scopus is one of the best scientific document databases in the world, Scopus is considered to accommodate more research results and scientific works of academics, practitioners, and researchers with good reputations in the fields of education and social (A. Abdillah, Buchari, et al., 2023; A. Abdillah, Widianingsih, et al., 2023; Matang et al., 2023).

The analysis of this research data through these keywords and filters (TITLE-ABS-KEY ("Physical Education" OR "Inclusive Education" OR "Diversity in Education") AND TITLE-ABS-KEY ("Inclusive Schooling") AND PUBYEAR > 2014 AND PUBYEAR < 2024 in the Scopus database. All data search results are stored in CSV files (Excel), which are then processed and checked using the VOSviewer program version 1.6.17. which is intended to examine trends, scales and clusters of scientific publications on physical education research in inclusive schools. Furthermore, VOSviewer as a tool to display and analyze trends in systematic literature reviews maps (van Eck & Waltman, 2010). This program can display and describe a unique bibliometric visual map of data through the identification and analysis of research types that can be visualized in Vosviewer, as shown in Figure 1 below:

Figure 1. Data Selection Process



Source: processed by researchers

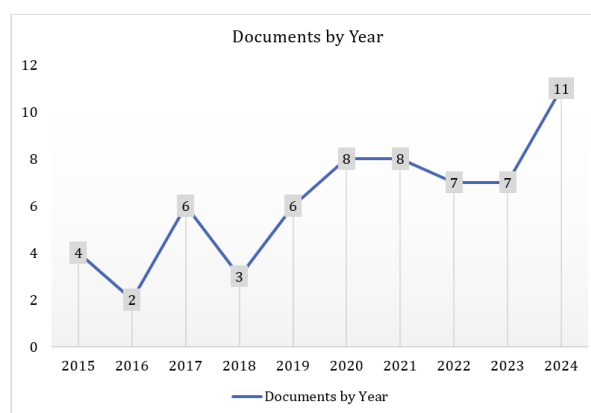


Results

In this initial stage, researchers enter keywords and filter according to predetermined criteria. Furthermore, 109 documents were found that were accessed from the scopus.com database in January 2025 with the keyword "Physical Education" OR "Inclusive Education" OR "Diversity in Education" then limited to the years between 2015-2024, then mapped and analyzed according to research trends from the results of publication searches in the Scopus database. Each data or study displayed is then identified and analyzed through the results of the analysis search from the scopus.com database. Furthermore, the data is visualized based on: (1) Documents by year; (2) Documents by author; (3) Documents by country/region (4) Documents by affiliation; and (5) documents by field of study.

Analysis of Experiences and Meanings of Physical Education Learning in Inclusive Schools, based on the results of identification through the Scopus database from the last 10 years, namely from 2014 to 2024, the trend of publication data research per year can be seen in Figure 2.

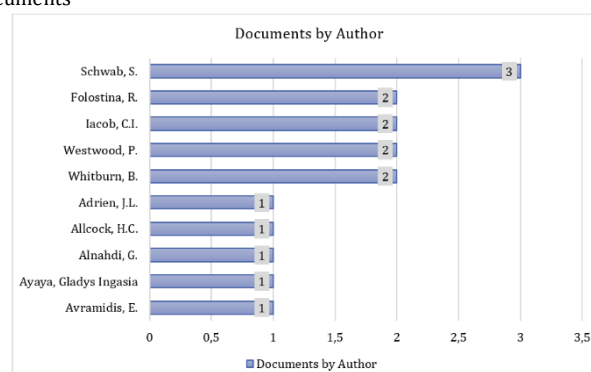
Figure 2. Documents By Years



Source: Processed via Scopus, 2025

Based on Figure 2. The increasing number of publications on physical education in inclusive schools shows the increasing attention and recognition of the importance of research related to this research issue in various countries. Based on this, there is a significant increase in the quantity of research from 2014 to 2024. Starting in 2015 there were 4 documents, 2016 there were 2 documents, 2017 there were 6 documents, 2018 there were 3 documents, 2019 there were 6 documents, 2020 there were 8 documents, 2021 there were 8 documents, 2022 there were 50 documents, 2023 there were 7 documents and an increase in 2024 there were 11 documents. With the increasing number of publications on the theme of Physical Education in Inclusive Schools from 2014 to 2024, this shows that there is increasing attention to these issues. Next is the analysis from the side of the authors who contributed the most to the Scopus journal with the theme of physical education in inclusive schools. Next, you can see the visualization in Figure 3 below.

Figure 3. Documents by Author Documents



Source: Processed via Scopus, 2025

Figure 3. Documents By Author shows Physical education in inclusive schools plays an important role in creating an equal and inclusive educational environment, providing opportunities for all learners to develop holistically. Based on the data, there are 10 authors with the largest number of documents discussing physical education in inclusive schools. The author with the highest contribution is Schwab, S., who has published 3 related documents, making him a leader in research in this field. In addition, six other authors, namely Folostina, R., Iacob, CI, Westwood, P., Whitburn, B., Adrien, JL, each contributed 2 significant documents in exploring the practice and meaning of physical education in inclusive schools. Other authors, such as Allcock, HC, Alnahdi, G., Aragon, AB, and Avramidis, E., also contributed even though only with 1 document. These studies reflect global attention to the importance of physical education in supporting inclusion in schools, not only to improve physical skills, but also to facilitate students' social skills and create a friendly learning environment for all learners. This contribution provides an important foundation for understanding trends, impacts, and opportunities for developing physical education in inclusive schools.

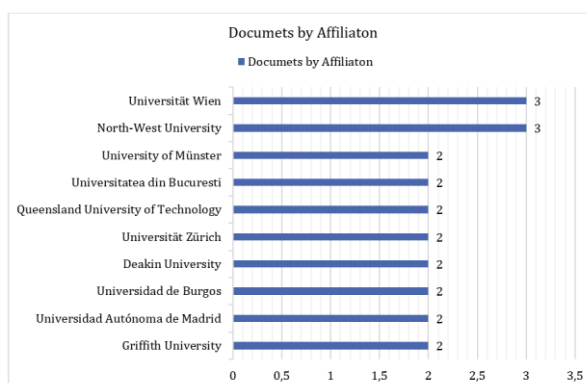
Table 1. Author Details

Author	Citations	Documents	h-index	Affiliation/ Country
Avramidis, Elias	2,769	41	19	University of Thessaly, Volos, Greece
Ayaya, Gladys Ingasia.	20	5	2	Stithians College, Johannesburg, South Africa
Alnahdi, Ghaleb H.	603	47	14	Prince Sattam Bin Abdulaziz University, Al Kharj, Saudi Arabia
Allcock, Heather C.	171	5	5	Providence College, Providence, United States
Adrien, Jean Louis	2,167	121	22	Université de Paris, Boulogne-Billancourt, France
Whitburn, Ben	271	35	11	Faculty of Social Sciences, Southampton, United Kingdom
Westwood, Peter S	232	25	8	Independent Education Consultant, Macau, Macao
Iacob, Claudia Iuliana	89	19	4	Universitatea din Bucuresti, Bucharest
Folostinaă, Ruxandra	26	13	4	Universitatea din Bucuresti, Bucharest
Schwab, Susanne	2,045	129	25	Universität Wien, Vienna, Austria

Source: Scopus.com

Next, the researcher analyzed articles related to the affiliation of the authors who contributed the most to Physical Education in inclusive schools, which can be seen in Figure 4 below.

Figure 4. Documents by Affiliations



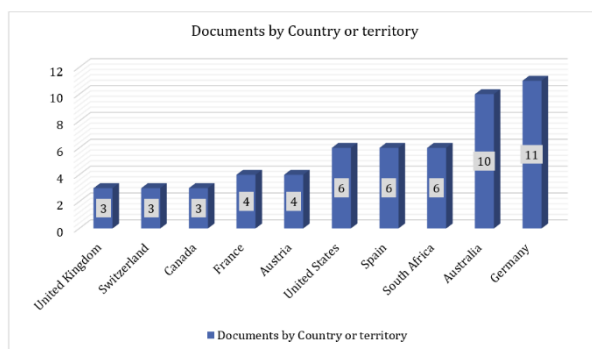
Source: Processed via Scopus, 2025

Based on Figure 4. Documents by Affiliation, can be analyzed that several universities have contributed to research on the theme of physical education in inclusive schools. Universität Wien and North-West University each occupy the top positions by contributing the largest number of documents, namely 3 documents. Both institutions show significant attention to the development and implementation of physical education in inclusive school environments. University of Münster, Universitatea din Bucuresti, Queensland University of Technology, and Universität Zürich each contributed 2 documents. The contributions from these universities demonstrate a global focus on exploring inclusive approaches in physical education, both from a theoretical and practical perspective. In addition, Deakin University, Universidad de Burgos, Universidad Autónoma de Madrid, and Griffith University each contributed 1 document. These contributions reflect ongoing efforts from various regions of the world to improve the qual-

ity of physical education in inclusive schools, both through curriculum innovation and learning approaches that support students with various backgrounds and needs. Overall, the involvement of these institutions highlights the importance of global collaboration in exploring and promoting best practices to support inclusive and equitable physical education for all learners. Furthermore, to map documents in various countries can be seen in Figure 5 below.

Based on the data in the “Documents by Country or Territory” graph, the contribution of research related to physical education in inclusive schools varies across countries. Germany ranks highest with the largest number of documents, namely 11 documents. This shows the high attention and research activity in the country to develop inclusive physical education. Australia ranks second with 10 documents, confirming its commitment to an inclusive and adaptive approach to physical education, following the educational framework that supports diversity. The United States, Spain, and South Africa each contributed 6 documents.

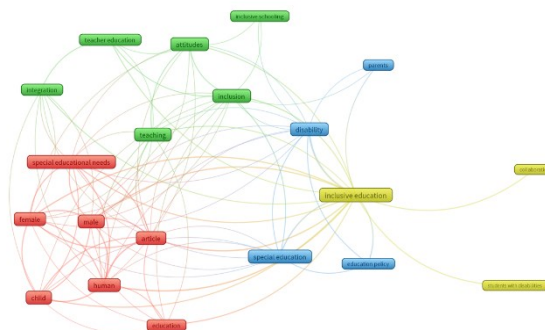
Figure 5. Documents by Country or Territory



Source: Processed via Scopus, 2025

This number shows the significant role of these countries in producing relevant research to support an inclusive approach to physical education. Austria and France each contributed 4 documents, while the United Kingdom, Switzerland, and Canada each contributed 3 documents. Although the contributions from these countries are relatively smaller, this still reflects global efforts to strengthen physical education in inclusive schools through quality research. Overall, these data show that countries in Europe, North America, Africa, and Australia are actively contributing to inclusive physical education research. This confirms that this issue is an important global concern to support equity and inclusion in physical education in various regions. Next, to see the co-occurrence network in this study, it can be seen in Figure 6 below.

Figure 6. Co-occurrence networks



Source: Processed via Vosviewer, 2025

The results of the co-occurrence analysis using VOSviewer show the relationships between keywords related to the research theme, which most likely focuses on inclusive education. The map consists of several colored clusters that depict groups of keywords that frequently appear together. The yellow

cluster, for example, highlights themes such as "teacher education", "attitudes", "teaching", and "special educational needs", indicating a focus on teacher training and attitudes toward inclusive education. The green cluster is centered on keywords such as "inclusive education", "special education", and "education policy", indicating the relationship between education policy and the implementation of inclusive education. Meanwhile, the purple cluster includes keywords such as "inclusive schooling", "disability", and "parents", illustrating the relationship between inclusive schools, parents, and disabilities. The keyword "inclusive education" is at the center of many connections, indicating the importance of this theme in the research, with strong connections to other keywords such as "special education" and "disability". The time dimension is also visible from the color changes, where blue keywords such as "child" and "inclusive schooling" were more dominant before 2021, while green keywords such as "inclusive education" and "education policy" appeared more frequently in recent years. Some keywords such as "collaboration" appear more isolated, indicating that this topic still has a weak relationship with other themes. Overall, this map provides an in-depth picture of the focus and evolution of research in the context of inclusive education.

Table 2. Co-occurrence Network

Keyword in Scopus Database: "Physical Education" OR "Inclusive Education" OR "Diversity in Education"	
Cluster 1 (Red) 7 Items	Child, education, female, human, male, special educational needs
Cluster 2 (Green) 6 items	Attitudes, inclusion, inclusive schooling, integration, teacher education, teaching
Cluster 3 (Blue) 4 items	Disability, education policy, parents, special education
Cluster 4 (Yellow) 3 items	Collaboration, inclusive education, students with disabilities

Source: Processed via VosViewer; 2025

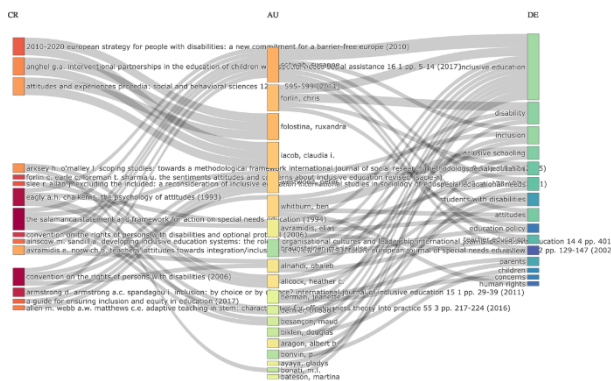
Figure 7. Word cloud



Source: Processed from RStudio, 2025

Figure 7. Word cloud results from bibliometric analysis in RStudio in line with the research topic "Physical Education in Inclusive Schools". Keywords such as "inclusive education", "child", "education", "teacher training", and "disabled children" emphasize the importance of implementing physical education that is friendly to the diversity of students, including children with special needs (Block & Obrusnikova, 2007). Physical education in inclusive schools requires special attention to physical and psychological aspects, which are reflected in words such as "self-concept", "motivation", "learning disorder", and "behavior disorder". Physical activities designed inclusively can help improve students' self-concept, build motivation to learn, and manage behavioral challenges through a collaborative approach. In addition, terms such as "acoustics", "noise", and "motion vibration" indicate the importance of a physical environment that supports physical activity in schools. Sports facilities designed with the needs of students with special needs in mind can provide a safe and comfortable experience for all learners (Van Reenen & Karusseit, 2017). A geographical context such as "South Africa" provides insight into how inclusive physical education can be implemented in a region with high cultural and social diversity. This shows the need for a contextual approach that integrates the principles of inclusion with local needs (Donnelly & Coakley, 2002). Overall, these results underline that physical education in inclusive schools serves not only to improve physical health, but also as a tool to build a sense of community, strengthen social values, and support students' personal development (Bailey, 2006; W. Li et al., 2007). With a holistic approach, physical education can be an important component in creating an inclusive, healthy, and sustainable learning environment.

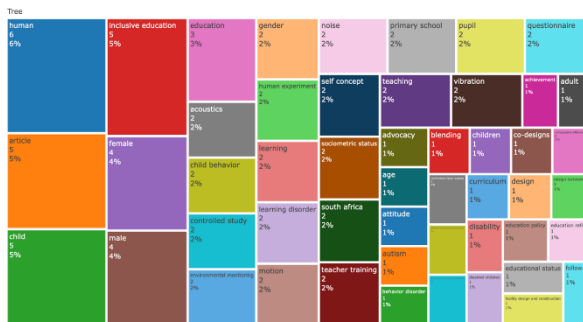
Figure 8. Three-Field



Source: Processed from RStudio, 2025

Figure 8. The results of the Three-Field Plot analysis show a close relationship between reference sources (CR), authors (AU), and keywords or topics (DE) in the study of inclusive education. In the reference column (CR), important documents such as "European Strategy for People with Disabilities: A New Commitment for a Barrier-Free Europe (2010)" and "The Salamanca Statement and Framework for Action on Special Needs Education (1994)" are visible, which are the basis for inclusive education policies and strategies. The author column (AU) identifies significant contributions from researchers such as Schwab, Susanne, Forlin, Chris, and Whitburn, Ben, who play a role in developing an understanding of inclusive education, especially in the aspects of experience and training. The topic column (DE) is dominated by keywords such as "inclusive education", "disability", and "students with disabilities", which reflect the main focus of the research on the implementation of inclusive education for students with special needs. (Humaira et al., 2021; Sharma, 2018). The inter-column linkages show that this research is strongly grounded in global strategic documents, with contributions from key researchers linking inclusive education policy and practice.

Figure 9. Treemap



Source: Processed from RStudio, 2025

Figure 9. The treemap results of the data analysis show various dominant keywords relevant to the theme "Physical Education in Inclusive Schools." Keywords such as "inclusive education" (5%), "child" (5%), and "education" (3%) highlight the importance of integrating physical education as part of an inclusive approach that involves all students, including children with special needs. Terms such as "teacher training" (2%), "curriculum" (1%), and "teaching" (2%) reflect the need for teacher training and curriculum design that supports physical activity that is accessible to all students. In addition, physical environmental factors such as "noise" (2%), "acoustics" (2%), and "motion vibration" (2%) indicate that the success of physical education is also influenced by facilities that are friendly to students with various needs. Psychological aspects reflected through the keywords "self-concept" (2%) and "behavior disorder" (1%) underline the role of physical education in building students' self-confidence while helping them manage behavioral challenges through a collaborative approach. In line with Wallhead & Buckworth, (2004) physical education can improve students' self-concept and support their mental health. Overall, this treemap underlines the importance of a multidimensional approach to physical education



in inclusive schools that involves curriculum development, teacher training, and management of the physical and psychological environment to support the creation of a safe, comfortable, and inclusive learning experience for all students.

Discussion

Several systematic research reviews of the literature on physical education and sport show that this field has developed into a multidisciplinary concept that includes various curriculum approaches, such as health-based, ecological dynamics, as well as the integration of certain policies (Keskin et al., 2024; Mustafa et al., 2024; Picardo et al., 2024). Along with this development, technology is also increasingly integrated into physical education learning, which can increase its effectiveness in the physical, cognitive, social and emotional aspects of students (Al Ardha et al., 2024; Kotijah et al., 2025; Muñoz Marín et al., 2023). In essence, physical education is designed to encourage physical activity and can hone students' emotional intelligence (Chávez Erives et al., 2024; Marheni et al., 2024; Rivas et al., 2024).

Inclusive education has become a key component of the global education system, intending to ensure that all learners can gain access according to their needs, including those with special needs, to equal access to learning (Grove et al., 2019). Physical Education in inclusive schools not only supports students' physical health, but also plays a role in strengthening social and emotional skills for students (Goodwin & Watkinson, 2000). Bibliometric analysis in this study shows that publications related to physical education in inclusive schools have increased rapidly since 2020, which is most likely driven by more inclusive global education policies and increasing awareness of the importance of diversity in educational environments and learning processes (Stamer et al., 2021). Furthermore, if we look at the contributions of writers from various countries, especially Germany, Australia, and the United States, it shows that this issue has become a global concern (Block & Obrusnikova, 2007; Williyanto et al., 2023). Keywords such as “inclusive education,” “special educational needs,” and “teacher training” were prominent in the analysis, reflecting a primary concern with how physical education can be integrated into an inclusive curriculum with adequate support for teachers (Haegele & Sutherland, 2015; Romero-Carrazas et al., 2024). However, when viewed from the aspect of the challenges faced, including the lack of special training in improving the competence of physical education teachers in handling the needs of students with special needs in schools, as well as the limited physical facilities that are friendly to all students (Ramadhan et al., 2022; Vickerman & Maher, 2018). Visualization using the VOSviewer and RStudio tools shows that several theme clusters focus on teacher training, education policy, and the role of parents in supporting inclusive education (Chhetri et al., 2023). This analysis also highlights that despite significant efforts to address challenges and limitations, there is still a need for further research to address existing gaps, particularly in the practical implementation of physical education in inclusive schools (Robiyansah et al., 2020). Therefore, this bibliometric study could pave the way for further studies.

Conclusions

Research on physical education in inclusive schools using bibliometric analysis provides insight into the theme and its characteristics. The study analyzed metadata from 2014 to 2024, and some interesting conclusions were drawn. The distribution analysis of publications showed a sharp increase in the number of published documents, with a peak in 2022. Schwab, S., with 3 documents, was the most productive author. Universität Wien, with 3 documents, was the most productive affiliation, and Germany, with 11 documents, was the most productive country. International Journal of Inclusive Education, with several articles published, is the most productive journal. This study makes an important contribution to understanding bibliometric parameters in physical education research in inclusive schools. The results of the study describe the publication journey in this study. Through this study, we can understand the role of physical education in supporting inclusivity and diversity in educational environments and explore the social and pedagogical impacts of inclusive physical education. This information can be a basis for further research in the field of physical education in inclusive schools and provide valuable insights into the productivity, contribution, and trends in this research.



Conflict of Interest

The authors state that there is no conflict of interest.

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Authors' and translators' details:

Deswita Supriyatni	deswita291284@gmail.com	Author
Soni Nopembri	soninopembri@uny.ac.id	Author
Hari Yulianto	hari.yulianto@uny.ac.id	Author
Sandey Tantra Paramitha	sandeytantra18@upi.edu	Author
Muhammad Gilang Ramadhan	muhammad.gilang@unj.ac.id	Author
Eko Purnomo	ekopurnomo@fik.unp.ac.id	Author