



International Journal
Social and Political Sciences

International Journal Social and Political Sciences

(I J S P S)

e-ISSN: 3089-5936 p-ISSN: 3089-5987

Vol 2, No 3 December (2025): Page no: 186-202

Available online at

<https://journal.austrodemika.org/index.php/ijspss>



Politics of Inclusion and Adaptive Physical Education: A Systematic Review of Policy Implementation for Students with Special Needs

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<https://doi.org/10.69812/ijspss.v2i3.145>

Article Info



Article History

Received:

July 30, 2025

Revised:

December 11, 2025

Accepted:

December 30, 2025

Abstract:

Inclusive adaptive physical education has emerged as a critical focus within global educational policy, particularly in advancing equitable access for students with special needs. This study aims to synthesize current knowledge on the politics and implementation of inclusive adaptive physical education policies from 2020 to 2025. Using a systematic literature review approach guided by the PRISMA 2020 protocol, 53 peer-reviewed articles were analyzed through mixed methods, combining bibliometric mapping with thematic content analysis. Results reveal a sharp increase in publications peaking in 2022, influenced by global equity movements and the COVID-19 pandemic, followed by a decline suggesting research fatigue or a shift toward practice-oriented studies. Conceptually, the literature is dominated by traditional paradigms such as Universal Design for Learning and the social model of disability, which prioritize curriculum flexibility, teacher training, and access to physical activity. However, gaps remain in addressing emerging dimensions like intersectionality, cultural responsiveness, and institutional reform. The findings also highlight that implementation is frequently educator-centric, potentially neglecting broader structural and community-based factors. This study contributes to the existing knowledge base by offering a synthesized framework that integrates global policy, conceptual foundations, and practical mechanisms, while also identifying the limitations of current approaches. The results underscore the need for more context-sensitive, inclusive, and collaborative policy designs. Future research should engage in longitudinal and cross-cultural inquiries, incorporate diverse stakeholder voices, and build international networks to ensure the sustainability and impact of inclusive adaptive physical education practices.

Keyword: Inclusive Education, Adaptive Physical Education, Policy Implementation, Disability Inclusion, Systematic Review

INTRODUCTION

In recent years, the movement toward inclusive education has become increasingly prominent across global educational systems. This paradigm shift promotes the integration of students with special needs into mainstream schooling, emphasizing

equal access to quality education for all. Within this framework, physical education (PE) holds a significant position not only in promoting physical health and motor development but also in fostering social inclusion, emotional well-being, and peer interaction. However, the practical realization of inclusive PE, particularly adaptive physical education (APE) for students with special educational needs (SEN), remains a persistent challenge. Conducting a Systematic Literature Review (SLR) on the politics of inclusion and adaptive physical education is thus crucial to understanding the multifaceted dimensions of this educational endeavor (Haegele et al., 2020; Morley et al., 2020; Mieghem et al., 2020).

A systematic literature review offers a comprehensive and methodologically rigorous synthesis of existing studies, allowing researchers and policymakers to assess the current state of knowledge, identify critical challenges, and suggest actionable solutions. In the context of inclusive physical education, an SLR is essential for evaluating existing legal and policy frameworks, assessing the adequacy of infrastructure and human resources, and understanding pedagogical approaches that effectively support students with SEN. For instance, a study analyzing legal policy frameworks highlights structural and human resource limitations in implementing inclusive physical education in schools, suggesting that significant systemic barriers remain unresolved (Piekarz-Porter et al., 2021; Roccliffe et al., 2022; Waisath et al., 2022).

Furthermore, adapted pedagogical strategies have emerged as central to facilitating the participation and development of students with SEN in PE contexts. These strategies often involve curriculum modifications, individualized support, and the use of assistive technologies, all aimed at enabling equitable access to learning outcomes. The success of inclusive physical education is largely dependent on teachers' ability to adapt instruction and assessment to meet diverse student needs. However, the effectiveness of these strategies is not only a pedagogical issue but also deeply rooted in broader political and institutional contexts, such as policy mandates, funding availability, and teacher training infrastructures (Rakaa et al., 2025; Biesta et al., 2023).

Equally important are the lived experiences and perceptions of students with special needs themselves. There is a growing recognition in the literature of the importance of student voice in evaluating the inclusivity of educational environments. Students with SEN often encounter discrimination, marginalization, and psychological challenges such as diminished self-esteem during PE classes. This perspective underscores the necessity of considering students' subjective experiences as central to assessing the true effectiveness of inclusive practices. In doing so, an SLR can serve as a platform for amplifying the voices of those who are most directly affected by inclusion policies yet frequently underrepresented in the discourse (Coates & Vickerman, 2008; Tobbell et al., 2021).

Despite the growing corpus of research on inclusion in physical education, considerable challenges persist in achieving meaningful and sustainable implementation. These challenges include, but are not limited to, inadequate school infrastructure, insufficient teacher training, and limited access to adaptive equipment and facilities. The shortage of specialized personnel and lack of inclusive planning hinder the fulfillment of inclusive mandates in PE settings. Moreover, teachers often report feeling unprepared or unsupported when tasked with accommodating the diverse needs of students with disabilities, pointing to systemic shortcomings in teacher education and professional development programs (Hamza, 2024; Rubiana et al., 2025).

The attitudinal disposition of educators also plays a pivotal role in shaping inclusive environments. Teacher attitudes towards inclusion have shown improvement

post-Salamanca Statement, yet disparities remain across different regions and educational contexts. Negative attitudes or low self-efficacy among teachers can act as significant barriers to inclusion, regardless of policy intentions or resource allocations. Thus, a robust SLR should examine not only the institutional and structural elements but also the human factors influencing the success or failure of inclusive physical education (Tarantino et al., 2023; Martín et al., 2021).

Undertaking an SLR on such a sensitive and impactful topic necessitates careful ethical considerations. Research involving marginalized groups must be particularly attentive to issues of representation, consent, and contextual sensitivity. Inclusive research methodologies are needed to ensure that the voices and perspectives of students with disabilities are genuinely represented in academic inquiry. Similarly, qualitative research approaches are essential for capturing the nuanced experiences of students and understanding how inclusion is perceived and enacted by different stakeholders. Ethical scholarship in this field must prioritize inclusivity not only in topic but also in method (Wilhelmsen & Sørensen, 2017; Lamata et al., 2025).

An SLR can also generate significant policy insights, particularly in relation to enhancing teacher competencies, designing adaptive curricula, and developing inclusive school environments. The findings of such a review could inform targeted interventions to address infrastructural deficiencies, such as retrofitting school facilities to improve accessibility or incorporating universal design principles into new school construction. Moreover, ongoing professional development opportunities can be shaped by SLR findings, ensuring that teachers are equipped with both the technical skills and ethical frameworks necessary for inclusive instruction. This aligns with the importance of adopting a social-relational model of disability in policy formulation, an approach that recognizes the interplay between individual impairments and systemic barriers to participation (Wang, 2019).

Additionally, the review can influence how schools allocate resources and design collaborative models involving special education professionals, general PE teachers, and community stakeholders. Inclusive PE must move beyond mere physical access to a more comprehensive model that includes emotional and social inclusion, curricular adaptation, and community integration. Policy recommendations derived from an SLR can thus foster more holistic and contextually grounded approaches to inclusion (Arroyo-Rojas & Hodge, 2024).

Notably, current literature reveals several important gaps that need to be addressed. Much of the research on adapted PE in Brazilian public schools has neglected the emotional and professional experiences of teachers. This oversight is critical, as teachers' perceptions and professional support systems significantly influence their ability to deliver inclusive instruction. Furthermore, there is a glaring absence of research on the perspectives of students without disabilities regarding inclusive PE. Understanding how these students perceive inclusion can provide important insights into social dynamics, peer relationships, and the cultural fabric of school communities, all of which are integral to the success of inclusion initiatives (Barros et al., 2023; Edwards et al., 2019).

An SLR can bridge these knowledge gaps by synthesizing diverse perspectives, methodological approaches, and geographic contexts. Such a review can also facilitate cross-cultural comparisons, highlighting how different countries and regions navigate the challenges of inclusion in physical education. In doing so, it becomes possible to identify both context-specific barriers and universal principles that support successful

inclusive practices. Moreover, comparative studies can offer valuable lessons for policymakers, educators, and researchers working to refine their approaches to adaptive PE.

Based on the above description, this systematic literature review on the politics of inclusion and adaptive physical education for students with special needs is an important step in realizing the principles of equity, access, and justice in education. Through a rigorous and ethically grounded synthesis of existing research, a systematic literature review (SLR) can illuminate the structural, pedagogical, and interpersonal factors that shape the landscape of inclusive physical education. By identifying critical challenges and gaps in the literature, such a review can guide future research, inform policy development, and contribute to the creation of more inclusive, responsive, and empowering educational environments for all students.

RESEARCH METHOD

This study employs a systematic literature review (SLR) methodology to comprehensively examine the politics of inclusion and adaptive physical education policy implementation for students with special needs. The systematic review approach was selected to provide a rigorous and transparent synthesis of existing research, enabling the identification of patterns, gaps, and trends in the current body of knowledge (Tricco et al., 2016). Pencarian literatur sistematis ini mengikuti protokol *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) 2020 (Page et al., 2022).

The search strategy was conducted on three indexed databases (Scopus, PubMed, and Lens) up to July 24, 2025, using a combination of Boolean operators for four conceptual domains: (1) physical education field (“adaptive physical education” OR “inclusive physical education”), (2) policy aspects (“policy” OR “politics” OR ‘implementation’), and (3) target population (“students with special needs” OR “students with disabilities”). No language restrictions were applied to minimize geographical bias. Figure 1 illustrates the search and selection stages.

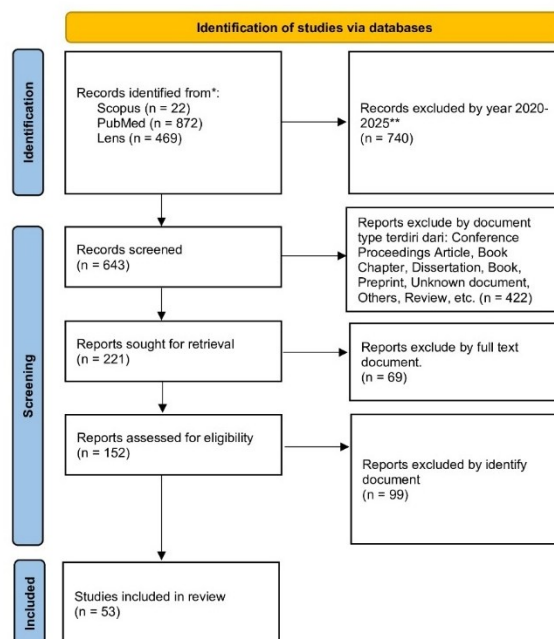


Figure 1. PRISMA Flow Diagram
 Source: (Adapted from Page et al., 2021)

Based on the PRISMA 2020 diagram, the systematic review process began with the identification of 1,363 potential studies from three databases (Scopus: 22, PubMed: 872, Lens: 469). A total of 740 studies were immediately excluded because they were published outside the 2020-2025 timeframe. From the remaining 643 studies, a screening was conducted based on document type, resulting in 422 studies (such as conference proceedings, book chapters, dissertations, etc.) being excluded. A total of 221 studies were then selected for further evaluation, but 69 studies could not be obtained in full text. Of the 152 studies successfully assessed for eligibility, 99 studies were excluded based on eligibility criteria (referred to as “identity documents”), leaving 53 studies that met all criteria and were included in the review. This process demonstrated strict screening, with the majority of studies excluded at the year range and document type stages (Polanin, Pigott, Espelage, & Grotper, 2019).

Inclusion criteria stipulate that studies must: (a) examine the implementation of inclusive education policies in the context of adaptive physical education, (b) be published between 2020 and 2025, and (c) focus on local, national, or international policies. Exclusions apply to: (a) non-academic documents (media reports, editorials), (b) studies without explicit policy analysis, and (c) research in non-physical education fields.

Data analysis used a mixed methods approach. First, bibliometric analysis was conducted using Biblioshiny software (R Bibliometrix package) to map temporal trends, author/institutional collaboration networks, thematic keyword clustering, and citation patterns (Aria & Cuccurullo, 2017). Second, thematic analysis was applied to qualitative findings to identify policy implementation patterns, structural barriers, and strategic recommendations (Batra, 2021).

- RQ1: How have research trends in politics of inclusion and adaptive physical education policy implementation evolved over the past decade (2020-2025)?
- RQ2: What types of policy frameworks and implementation models have been applied in adaptive physical education for students with special needs?
- RQ3: What are the challenges and barriers in implementing inclusive adaptive physical education policies?
- RQ4: What are the opportunities and facilitating factors that emerge from the implementation of adaptive physical education policies for students with special needs?
- RQ5: What are the theoretical and practical implications of current policy implementation research for future development of inclusive adaptive physical education practices?

RESULT AND DISCUSSION

1. RQ1: How Have Research Trends In Politics of Inclusion and Adaptive Physical Education Policy Implementation Evolved Over The Past Decade (2020-2025)?

The results of bibliometric analysis of 53 articles that met the criteria showed that studies on inclusive politics and adaptive physical education policies experienced a significant upward trend between 2020 and 2025. Based on Figure 2, the annual data on the number of scientific publications from 2020 to 2025 shows a fluctuating pattern that reflects the dynamics of academic attention to the issues of political inclusion and adaptive physical education policy. In 2020, there were 6 articles published, increasing significantly to 10 articles in 2021 and peaking at 14 articles in 2022. This increase indicates strong academic momentum, likely influenced by growing global awareness of the importance of inclusive education. However, after 2022, there was a consistent decline:

publications dropped to 10 articles in 2023, 7 articles in 2024, and returned to the initial number of 6 articles in 2025. This gradual decline suggests the possibility of topic saturation, resource constraints, or a shift in research focus to other more pressing issues. This pattern is important to note because while the need for inclusive physical education remains high, the continuity of academic research appears not yet fully sustained in the medium term.

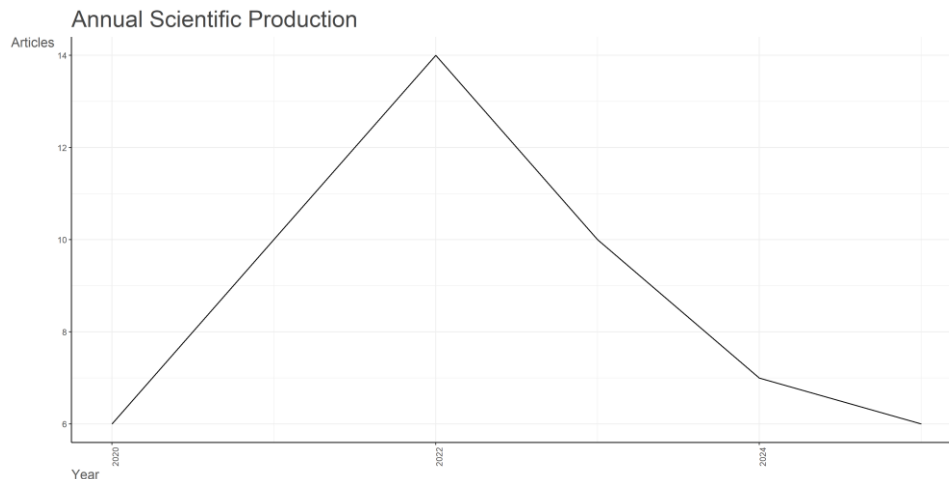


Figure 2. Annual Scientific Production On Inclusive Adaptive Physical Education Policy
Source: (Biblioshiny analysis, 2025)

The bibliometric analysis reveals a fluctuating trajectory in research on inclusive adaptive physical education policy, peaking in 2022 before experiencing a steady decline. This trend reflects broader dynamics in the academic landscape, where the initial surge from 2020 to 2022 is likely driven by heightened global concern for educational equity, particularly in response to the COVID-19 pandemic's disproportionate effects on vulnerable student populations (Hamdamova, Sadikova, & Abdiyeva, 2013).

The subsequent decrease in scholarly output from 2023 onward raises concerns about research sustainability and may signify paradigmatic saturation, as described by Alawieh, Saad, Dimisko, Barrow, & Chern (2023), in which early theoretical enthusiasm is replaced by methodological fatigue or resource limitations. Alternatively, it may reflect a shift from policy-oriented studies toward practical implementation research, marking a developmental transition in the field.

This temporal pattern corresponds with global policy cycles, including the influence of the UN Sustainable Development Goals and post-Salamanca initiatives, suggesting that academic inquiry tends to mirror international policy momentum rather than initiate it (Mladenov & Brennan, 2021). The peak in 2022 also aligns with global disability rights events, reinforcing this correlation. As Aucante & Baudot (2018) notes in his innovation diffusion model, early research surges often confront implementation barriers that temper continued scholarly engagement.

Thus, the post-2022 decline may indicate the need for more complex, longitudinal studies and sustainable institutional support. To maintain momentum, the field must establish long-term funding structures and collaborative research networks, while developing robust theoretical models capable of resisting the volatility of shifting political and social agendas.

2. **RQ2: What Types Of Policy Frameworks and Implementation Models Have Been Applied In Adaptive Physical Education for Students With Special Needs?**

a. **World Cloud**

To provide a visual understanding of the conceptual focus that emerged from the 53 articles analyzed, the following image presents the results of a word cloud generated through Biblioshiny analysis. This visualization represents the frequency and relevance of the most frequently used keywords in the literature on inclusive adaptive physical education policy.



Figure 3. Most Frequent Author Keywords in Inclusive Adaptive Physical Education Literature
Source: (Biblioshiny analysis, 2025)

Based on the visualization in Figure 3, it appears that the terms physical activity, inclusion, humans, students with disabilities, disability, and inclusive physical education dominate the literature corpus. This indicates that the policy framework and implementation model for adaptive physical education consistently emphasize the principles of inclusion and equal access to physical activities for students with special needs. Additionally, the emergence of keywords such as “adapted physical education,” “teacher training,” and “school teachers” indicates a strong focus on strengthening the capacity of educators as a key element in policy implementation. The most common approach is reflected in the adoption of the Universal Design for Learning (UDL) framework and the social model of disability, which prioritize curriculum flexibility, active student participation, and the removal of structural barriers in the physical education environment. These findings reinforce the conclusion that the success of policies depends on the integration of inclusive pedagogical concepts with sustained institutional support.

The word cloud visualization highlights the dominance of foundational terms like “physical activity,” “inclusion,” and “students with disabilities,” reflecting a rights-based orientation rooted in international frameworks such as the Convention on the Rights of Persons with Disabilities (Amor et al., 2019). Frequent mentions of “teacher training” and “adapted physical education” point to capacity-building as a key implementation strategy (Hasson, Beemer, Ajibewa, & Eisman, 2021). However, this conceptual consistency may also signal “conceptual stagnation”, as emerging ideas like “intersectionality” or “community engagement” remain absent (Barmaki, 2020). While the use of Universal

Design for Learning and social model frameworks reflects theoretical maturity, current policies risk lacking the flexibility to respond to complex, context-specific challenges.

b. Co-occurrence Network

Next, the author examines the conceptual structure of literature related to adaptive physical education policies for students with special needs. The following image shows a co-occurrence network of keywords visualized through Biblioshiny analysis. This visualization illustrates the interrelationships between concepts in the literature based on the frequency of their co-occurrence in a single document, reflecting the thematic integration and conceptual direction of the research.

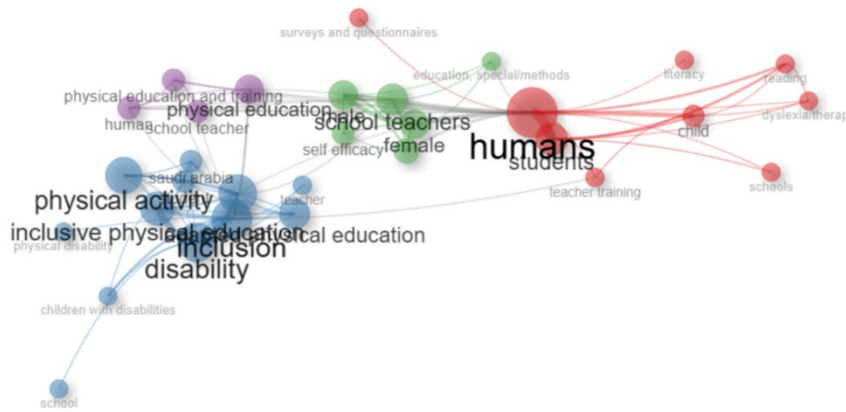


Figure 1. Keyword Co-occurrence network in adaptive inclusive physical education literature
Source: (Biblioshiny analysis, 2025)

Based on the co-occurrence map visualization in Figure 4, it shows that the terms physical activity, inclusion, disability, and inclusive physical education form the main cluster (blue), which represents the most solid conceptual foundation in the policy framework and implementation model of adaptive physical education. This cluster shows that policies tend to be based on the principle of universal access to physical activity with an approach that is responsive to the diversity of student needs. The green cluster centered on school teachers, self-efficacy, and teacher training highlights the implementation dimension emphasizing the crucial role of educators in program success. Meanwhile, the red cluster surrounding the concepts of humans, students, and children illustrates a demographic focus and an individual-needs-based approach. These findings indicate that the most widely adopted implementation model integrates structural and pedagogical approaches through teacher involvement, strengthening adaptive learning design, and aligning macro policies with micro practices in schools.

3. RQ3: What Are The Challenges and Barriers in Implementing Inclusive Adaptive Physical Education Policies?

a. Thematic Map

To reinforce the identification of thematic structures in the literature related to adaptive physical education policies for students with special needs, the following visualization presents a thematic map resulting from Biblioshiny analysis. This map groups keywords into four quadrants based on their level of importance (centrality) and level of development (density), reflecting the conceptual position of the themes in the research domain.

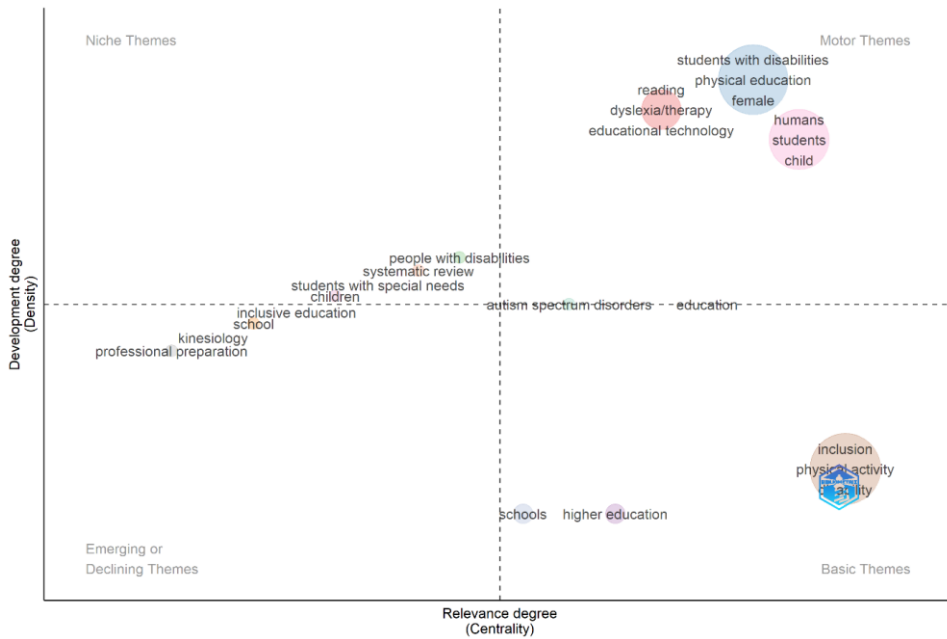


Figure 5. Thematic Map of Research On Inclusive Adaptive Physical Education Policy
 Source: (Biblioshiny analysis, 2025)

The results of the analysis of Figure 5 show that themes such as inclusion, physical activity, and disability are located in the “Basic Themes” quadrant, indicating that these concepts form the main foundation of the policy framework and implementation model for adaptive physical education. Their presence as basic themes reflects theoretical consistency and paradigm uniformity in many studies. On the other hand, terms such as students with disabilities, physical education, female, and educational technology are located in the “Motor Themes” quadrant, indicating that these topics are not only conceptually relevant but also undergoing intensive development in policy practice and research.

Meanwhile, themes such as inclusive education, school, and professional preparation are in the “Emerging or Declining Themes” quadrant, suggesting that institution-based approaches and professional training are still underdeveloped or beginning to be abandoned. These results illustrate that most adaptive physical education policy implementation models are still rooted in traditional approaches that emphasize inclusion as a normative principle, with little focus on institutional strengthening and educator capacity.

4. RQ4: What are the Opportunities and Facilitating Factors That Emerge From the Implementation of Adaptive Physical Education Policies for Students With Special Needs?

To support the analysis of factors that facilitate the implementation of adaptive physical education policies, the following figure presents a visualization of topic trends based on the frequency of occurrence of key terms in the literature. This visualization provides an overview not only of the dominant terms but also shows the temporal distribution of these terms over the period 2021–2024.

The data in Figure 6 shows that the terms physical activity and inclusion have the highest frequency, each appearing 11 times, followed by humans (10 times) and disability (9 times). The term “physical activity” spans a broad timeframe, from 2021 (Q1) to 2023

(Q3), indicating sustained attention to physical activity as a key component of adaptive policies. Meanwhile, “inclusion” appears intensively but concentrated in 2022 (Q1–Q3), reflecting the peak of conceptual discourse on equal access during that period. The term “humans,” which represents the general target population, shows a continuing trend until 2024 (Q3), indicating its growing relevance in the context of policy implementation.

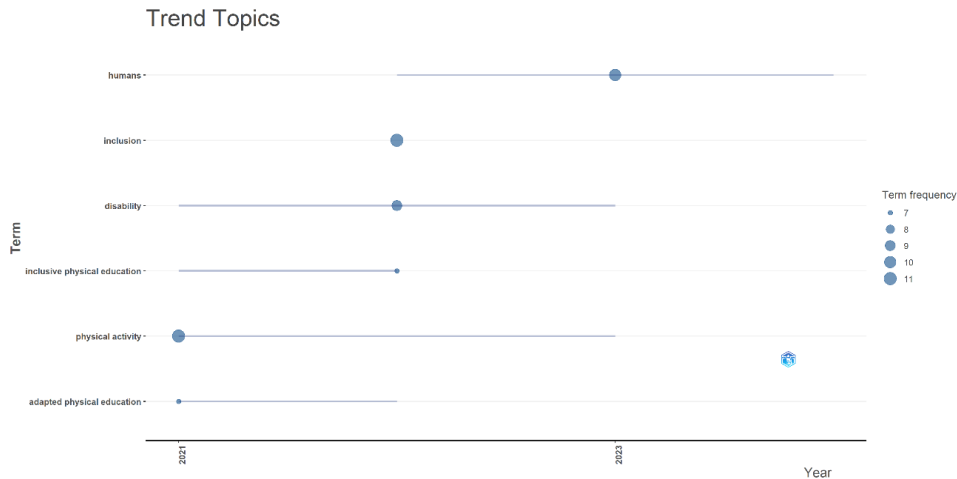


Figure 6. Trend Topics In Adaptive Inclusive Physical Education Literature (2021–2024) with Term Frequency And Distribution
Source: (Biblioshiny analysis, 2025)

These findings suggest that the most promising implementation opportunities lie in the consistency of policies that integrate adaptive physical activity, principles of inclusivity, and a focus on student diversity. Additionally, the presence of the terms “adapted physical education,” “inclusive physical education,” and “students with disabilities,” each appearing seven times and evenly distributed between 2021 and 2022, reinforces the urgency of teacher training and the development of flexible curricula as key facilitating factors.

5. RQ5: What are the Theoretical and Practical Implications Current Policy Implementation Research For Future Development of Inclusive Adaptive Physical Education Practices?

a. Institutional Collaboration Network

To analyze the theoretical and practical implications of research on inclusive adaptive physical education policy, the following visualization shows a map of institutional collaboration networks derived from the bibliometrics of 53 reviewed articles. The interpretation of Figure 7 shows that the institutional collaboration network in adaptive inclusive physical education policy research is still regionally concentrated, dominated by Indonesian universities such as Yogyakarta State University, Surabaya State University, and Padang State University. These three universities form a strong collaborative node, as indicated by the size of the labels and the thickness of the connection lines, which signify a high frequency of joint publications. Additionally, Inonu University, as an international node directly connected to universities in Indonesia, indicates the potential for a global network beginning to form, though it remains limited.



Figure 7. Institutional Collaboration Network in Adaptive Inclusive Physical Education Literature (2020–2025)
 Source: (Biblioshiny analysis, 2025)

On the other hand, institutions from Europe and North America, such as the University of Virginia, McGill University, or the University of California, appear scattered without significant connectivity within the main network. This has theoretical implications that knowledge production in this domain remains fragmented and has not yet achieved widespread epistemic integration globally. Practically, this indicates the need to expand cross-national collaboration, establish international research consortia, and promote cross-cultural academic exchange to enrich approaches to inclusive physical education policy.

b. Most Global Cited Documents

To reinforce the identification of literature contributions to the development of theory and practice in inclusive adaptive physical education policy, the author analyzed the distribution of the most globally cited articles in the study corpus.

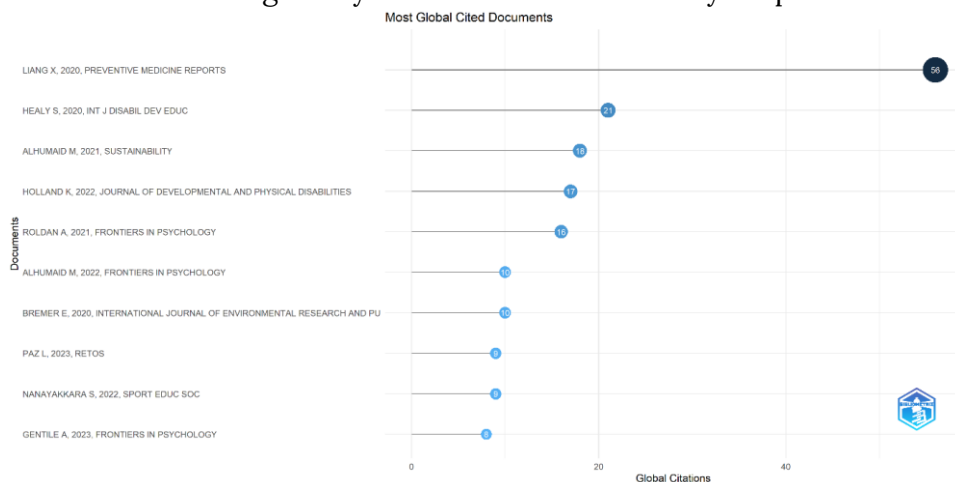


Figure 8. Most Global Cited Documents in Inclusive Adaptive Physical Education Literature (2020–2025)
 Source: (Biblioshiny analysis, 2025)

Figure 8 shows that the most influential document globally is Liang's (2020) article in Preventive Medicine Reports with 56 citations, followed by Healy (2020) and Alhumaid (2021), with 21 and 18 citations, respectively. The dominance of these documents indicates

that topics addressing preventive health, disability, and sustainability form the primary foundation for developing an inclusive theoretical framework for adaptive physical education. The presence of articles published in reputable journals such as *Frontiers in Psychology*, *Sustainability*, and the *International Journal of Environmental Research and Public Health* signifies that an interdisciplinary approach encompassing psychology, public health, and education is key to driving the practical relevance of policy research. Implicitly, these results highlight the importance of integrating psychosocial health perspectives in designing adaptive physical education policies.

c. Most Relevant Source

As an additional approach to evaluating the quality and direction of knowledge development in inclusive adaptive physical education policy, the following visualization shows a list of the most relevant sources (journals) based on the number of documents included in the systematic analysis. This graph provides further insight into the main publication channels that serve as a medium for disseminating current ideas and research findings.

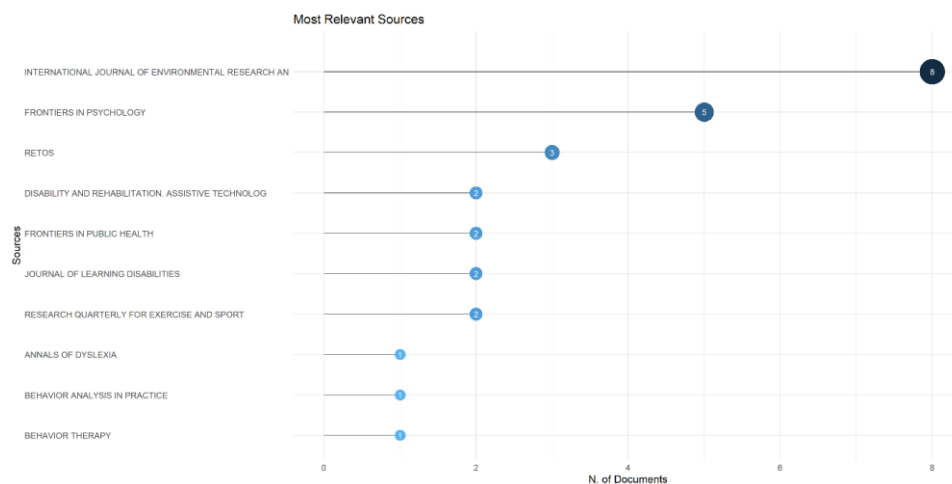


Figure 9. Most Relevant Sources in Inclusive Adaptive Physical Education Literature (2020–2025)
Source: (Biblioshiny analysis, 2025)

Based on the data in Figure 9, the *International Journal of Environmental Research and Public Health* is the journal with the most contributions, namely eight documents, followed by *Frontiers in Psychology* (five documents) and *Retos* (three documents). The dominance of these journals as primary sources reflects that research on adaptive physical education policy has shifted toward interdisciplinary approaches, particularly those integrating public health, psychology, and education policy issues. The dominance of journals focused on health and psychology reinforces the indication that policy implementation cannot be separated from considerations of students' psychosocial well-being and adaptive environmental support. Additionally, the diversity of sources such as *Disability and Rehabilitation, Assistive Technology*, *Annals of Dyslexia*, and *Research Quarterly for Exercise and Sport* indicates that this discourse is also developing within the fields of special education, assistive technology, and sports science.

This finding theoretically implies that research on inclusive physical education policy has entered an integrative phase, with an increasingly strong transdisciplinary approach. Practically, this underscores the importance of policy implementation strategies that not only rely on pedagogical approaches but also synergize with

psychological aspects, rehabilitative technology, and community support to create a truly inclusive and adaptive learning environment for students with special needs.

The bibliometric analysis of 53 selected studies reveals a significant upward trend in academic engagement with the politics of inclusion and adaptive physical education (APE) between 2020 and 2022. This period saw the peak in scientific output, particularly in 2022, with 14 publications, likely fueled by increased global attention to inclusive education frameworks. However, a noticeable decline in publications from 2023 to 2025 may reflect a combination of research fatigue, shifting academic priorities, or challenges in sustaining funding for longitudinal studies in this field. Despite the drop, the persistent production of studies throughout this period underscores the enduring relevance of inclusive APE within educational discourse.

The review highlights the dominance of key concepts such as "inclusion," "physical activity," "students with disabilities," and "adaptive physical education" across the literature. These terms reflect the primary orientation of APE policies toward equal access and participation in physical activities for students with special needs. Commonly adopted frameworks include the Universal Design for Learning (UDL) and the social model of disability. These models emphasize curriculum flexibility, barrier-free environments, and the alignment of pedagogical practices with diverse student needs. The implementation strategies consistently involve the reinforcement of teacher training programs and the institutionalization of inclusive values within school systems (de Oliveira, de Abreu van Munster, de Souza, & Lieberman, 2020).

The keyword co-occurrence network further illustrates thematic cohesion, revealing three major conceptual clusters: (1) foundational principles of inclusion and physical access, (2) teacher efficacy and training as operational enablers, and (3) demographic considerations focused on individual student needs. These integrated models demonstrate how policy is translated into practice through structural and pedagogical interventions.

Despite the theoretical clarity of inclusive APE policies, several structural and systemic obstacles impede effective implementation. The thematic map situates foundational topics such as "disability" and "inclusion" as "Basic Themes," underscoring their centrality but also revealing stagnation in innovative applications. More dynamic topics such as "educational technology" and "students with disabilities" emerge as "Motor Themes," suggesting growing engagement with these practical aspects.

Conversely, underdeveloped themes such as "professional preparation" and "inclusive schools" are categorized as "Emerging or Declining Themes," pointing to critical gaps in institutional readiness and teacher development programs. These findings mirror earlier assertions that inclusive practices often falter due to underinvestment in training, inadequate infrastructure, and policy-practice mismatches (Rosidah et al., 2024).

The analysis of topic trends from 2021 to 2024 highlights terms such as "physical activity," "inclusion," and "humans" as recurrent and widely distributed across time. Their sustained presence indicates a fertile ground for further policy and pedagogical innovation. Moreover, the consistent appearance of terms like "adapted physical education" and "teacher training" reinforces the notion that capacity building remains a pivotal enabling factor.

Emerging opportunities lie in the expansion of adaptive curricula, the integration of assistive technologies, and the development of teacher support systems. Policy continuity and strategic investment in inclusive physical education are therefore

essential for scaling successful models and ensuring long-term impact (Batanero, Montenegro-Rueda, Fernández-Cerero, & García-Martínez, 2022).

The institutional collaboration network reflects a regional concentration of research activity, notably among Indonesian institutions such as Universitas Negeri Yogyakarta, Universitas Negeri Surabaya, and Universitas Negeri Padang. While this indicates a strong national commitment to inclusive APE, the lack of robust global partnerships suggests epistemological fragmentation. In contrast, Inonu University serves as an emerging bridge for international collaboration, though broader integration with Western academic institutions remains limited.

This insularity poses both theoretical and practical limitations. Theoretically, it inhibits the development of universally applicable models of inclusive APE, while practically it restricts the exchange of innovative practices and context-sensitive policy designs. Enhancing global research consortia could mitigate these issues and drive cross-cultural learning.

The most prolific journals in the field include the *International Journal of Environmental Research and Public Health*, *Frontiers in Psychology*, and *Retos*. This disciplinary spread reveals an increasing shift toward interdisciplinary approaches that connect education policy with psychology, public health, and sports sciences. Such convergence is indicative of a theoretical maturation within the field, where educational inclusion is no longer treated as an isolated pedagogical issue but as a complex, multifaceted challenge requiring diverse epistemologies and methodologies.

Practically, this integration highlights the necessity of multi-stakeholder engagement. Inclusive APE requires the concerted efforts of educators, therapists, policymakers, parents, and the wider community to create environments that are genuinely accommodating and empowering for students with disabilities.

In sum, the systematic review elucidates a vibrant but uneven landscape of research and practice concerning inclusive APE. On one hand, there is clear evidence of policy commitment and conceptual advancement. On the other, gaps persist in institutional capacity, professional training, and global knowledge exchange. Addressing these limitations will require the refinement of teacher education, the diversification of policy instruments, and the fostering of international collaborations.

Future studies should prioritize longitudinal designs, cross-cultural comparisons, and participatory research methodologies that center the voices of students with special needs. By embracing ethical inclusivity and methodological innovation, future research can bridge the gap between policy ideals and lived realities, thus advancing the broader goals of equity and social justice in education.

CONCLUSION

This study offers a comprehensive systematic literature review of inclusive adaptive physical education (APE) policy implementation, highlighting key trends, theoretical paradigms, and institutional dynamics shaping this domain between 2020 and 2025. The findings reveal an initial surge in scholarly interest influenced by global equity movements and international frameworks, followed by a decline likely due to research fatigue and shifting academic focus. Thematic and bibliometric analyses underscore the dominance of traditional paradigms—such as Universal Design for Learning and the social model of disability—while pointing to critical gaps in emerging themes like intersectionality, cultural responsiveness, and systemic institutional reform. The study emphasizes the centrality of teacher training and curriculum flexibility, but also notes

that implementation remains overly educator-centric, often overlooking broader contextual variables. By synthesizing these multidimensional insights, this research contributes to the academic discourse by mapping current knowledge structures and identifying theoretical stagnation alongside implementation challenges. Its significance lies in offering a structured framework that integrates policy, pedagogy, and context, thus supporting more holistic future approaches. Further research should explore longitudinal, cross-cultural, and participatory methods to examine real-world impacts, particularly by incorporating the voices of students with and without disabilities, and expanding global collaboration to overcome epistemic silos.

ACKNOWLEDGEMENT

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