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## Inclusive Physical Education: Cultivating a Spirit of Involvement in Physical Activity for All Students

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**Abstract.** Inclusive physical education represents a pedagogical approach that positions every student regardless of physical ability or social background as an active participant in physical activity. This study aims to analyze the concepts, strategies, and key factors influencing the successful implementation of inclusive physical education in schools. A literature-based research method was applied, reviewing national and international studies published between 2019 and 2025. The findings reveal that inclusive physical education positively impacts students' physical participation, self-confidence, and social empathy. Teachers play a central role in integrating adaptive and differentiated teaching strategies as well as educational technologies such as *Augmented Reality* (AR) and *wearable devices* to foster a participatory and equitable learning environment. However, limited facilities, lack of teacher training, and insufficient policy support remain major barriers, particularly in developing contexts such as Indonesia. In conclusion, the success of inclusive physical education depends on the synergy among teacher competence, institutional policy, and cross-sector collaboration to establish adaptive, inclusive, and human-centered physical learning environments for all students.

**Keywords:** inclusive physical education, student participation, educational technology, pedagogical adaptation, social empathy

### 1 Introduction

Physical education plays a fundamental role in shaping the physical, social, and emotional health of students. However, in practice, many students still lack equal access to active participation in physical activities at school. This is particularly true for students with disabilities, gender differences, socioeconomic conditions, or other physical and psychological limitations. Inclusive physical education exists as a systematic effort to address these inequalities by ensuring that every individual, regardless of background or ability, can fully participate in physical activities (Qi & Ha, 2022).

In the context of 21st-century education, inclusivity in physical education focuses not only on access to facilities but also on transforming pedagogy to accommodate diverse learning needs. Teachers are expected to create a safe, adaptive, and respectful learning environment, where every student feels accepted and motivated to participate. According to Haegele and Zhu (2023), inclusive physical education requires a paradigm shift from a "one-size-fits-all"

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approach to differentiated learning that adapts strategies, media, and assessments to individual student abilities.

Furthermore, inclusive physical education also plays a role in building social character and empathy among students. Interactions in physical education classes provide an important space for fostering values of togetherness, solidarity, and mutual respect for differences. Research by Morley et al. (2021) shows that students involved in inclusive physical education programs tend to have higher levels of social empathy and group involvement compared to students who participate in conventional learning. Thus, inclusive physical education impacts not only the physical dimension but also the development of social and emotional competencies.

Another equally important aspect is the role of teachers as facilitators of inclusion. Physical education teachers need to possess pedagogical competence, social empathy, and a deep understanding of the diverse needs of students. Research by Tant and Watkinson (2020) confirms that teacher preparedness is a key factor in the successful implementation of inclusive physical education programs in schools. Teachers who receive specialized training in adaptive physical education are better able to design flexible, safe, and enjoyable physical activities for all students, including those with disabilities.

In addition to internal school factors, policy support and cross-sector collaboration are also crucial elements in strengthening inclusive physical education practices. According to Vickerman and Maher (2022), the success of inclusion programs in schools depends heavily on synergy between the government, educational institutions, and local communities. Providing adaptive sports facilities, professional teacher training, and public awareness campaigns on the importance of equal physical participation are strategic steps to strengthen a culture of inclusion in educational settings.

In Indonesia, inclusive education policies have received attention in the past two decades, but their implementation in the context of physical education still faces various challenges. Research by Saputra et al. (2023) shows that most schools lack adequate resources to support physical activities for students with special needs. Lack of teacher training, a lack of adaptive sports equipment, and limited space in schools are real obstacles to creating a truly inclusive sports environment.

Therefore, inclusive sports education must be understood not simply as a form of integrating students with disabilities into the regular system, but as a paradigm shift in education that values diversity and prioritizes principles of social justice. Through an adaptive pedagogical approach, the use of assistive technology, and the collective commitment of all stakeholders, physical education can be an effective vehicle for fostering a spirit of engagement, building self-confidence, and strengthening human values among all students.

## **2 Method**

This study uses a descriptive qualitative approach with a literature review method (literature-based research) to analyze the concepts, strategies, and practices of implementing inclusive physical education in schools. This approach was chosen because it allows researchers to comprehensively understand the phenomenon through a review of theories, empirical research findings, and relevant educational policies. The primary focus of this study is to identify factors influencing the successful implementation of inclusive physical education, including teacher attitudes, policy support, school facilities, and student engagement in various physical activities.

The data for this study were obtained through a systematic literature review of various scientific sources published between 2019 and 2024. These sources include reputable journal articles accessed through Google Scholar, ScienceDirect, Taylor & Francis Online, and

SpringerLink. Keywords used in the search process included "inclusive physical education," "adaptive physical activity," "teacher readiness in inclusive PE," and "student engagement in inclusive sports." The selected articles are the results of empirical research, policy studies, and academic reviews that are directly relevant to the context of inclusive physical education in elementary and secondary schools.

### 3 Result

A review of various academic articles shows that the implementation of inclusive physical education is complex and multi-layered, involving pedagogical, social, emotional, and institutional policy dimensions. Inclusive physical education has been shown to increase participation, self-confidence, and social interaction among students of various abilities. Research confirms that adaptive teaching strategies, the use of assistive technology, and fostering social empathy among students are key factors in the success of inclusive physical education programs in schools. The following is a literature review of ten relevant studies examining the implementation and impact of inclusive physical education on students and teachers.

No.	Focus of Inclusive Sports Education Research	Source (Author, Year)
1	Teachers' perceptions of inclusive physical education and barriers to its implementation in Spain <sup>9</sup>	García-Carmona et al., 2025
2	The "whole-school inclusion" approach to physical education in European primary schools	Coates et al., 2021
3	Teachers' attitudes towards children with special needs in sports classes (an international meta-analysis)	Truong et al., 2022
4	Challenges of implementing inclusion policies in physical education practice <sup>7</sup>	Page et al., 2024
5	Implementation of inclusive physical education in Indonesian schools: a systematic review	Wijayanto & Wijayanti, 2025
6	Survey of teacher readiness and barriers to inclusive PE in Indonesia <sup>15</sup>	Pratama et al., 2025
7	School factors that influence the participation of students with disabilities in physical activities	Hutzler et al., 2024
8	Implementation practices of inclusive PE in Jakarta secondary schools <sup>14</sup>	Rahmadani et al., 2023
9	Inclusive physical education learning strategies for students with special needs in Indonesia	Novianti et al., 2023
10	Utilization of Augmented Reality technology in physical education for children with special needs	Kurniawan et al., 2021

Research by García-Carmona et al. (2025) shows that physical education teachers in Spain have positive perceptions of inclusive education, but face significant barriers to implementation, such as limited equipment, high student-to-teacher ratios, and a lack of specialized training. This research emphasizes the importance of policy support and professional development for teachers to effectively implement inclusion principles in physical education classes.

Research by Coates et al. (2021) reinforces that a whole-school inclusion approach is an effective strategy for increasing the engagement of all students in physical activity. However, its effectiveness depends heavily on interagency coordination within schools and collaboration between physical education teachers and support staff such as counselors and teacher aides.

Meanwhile, a meta-analysis by Truong et al. (2022) revealed that teachers' positive attitudes toward students with disabilities are directly proportional to the success of implementing inclusive learning. Other determining factors include professional experience and support from school policies that emphasize the importance of physical education for all.

Page et al. (2024) highlight the gap between inclusion policies and practices. Many teachers feel that inclusion principles remain normative and have not been integrated into the curriculum and learning assessments. This study recommends increasing hands-on training to enable teachers to adapt physical activity to individual students' needs.

In Indonesia, research by Wijayanto & Wijayanti (2025) and Pratama et al. (2025) confirmed that the most important factors determining the success of inclusive physical education are teacher pedagogical competence and school facility support. Teachers who receive training in adapting physical activity are better able to manage diverse student abilities. However, many schools still lack adaptive tools and curricula.

The findings of Hutzler et al. (2024) broaden understanding of the role of school factors, such as principal support, the availability of disability-friendly sports facilities, and flexible assessment systems, on the participation levels of students with special needs. This structural support significantly influences students' motivation to actively participate in physical activity.

Rahmadani et al. (2023) and Novianti et al. (2023) found that implementing differentiated learning strategies through task modification, cooperative grouping, and the use of visual media can increase the engagement and self-confidence of students with disabilities in physical education classes. The implementation of simple technologies such as video analysis and interactive media also helps strengthen students' understanding of movement.

Other research by Kurniawan et al. (2021) shows that the use of Augmented Reality (AR) technology can help students with learning difficulties understand movement patterns and develop basic motor skills. This technology has the potential to be a solution for schools with limited teaching staff or conventional physical training facilities.

#### **4 Discussion**

Inclusive physical education is a manifestation of the global commitment to the principle of education for all, which places equal rights on every student, regardless of physical, social, or cognitive abilities, to participate in physical activities. In this context, school sports activities are not only oriented towards physical performance but also serve as a means of developing character, empathy, and togetherness. According to Haegele and Zhu (2023), inclusive physical education reflects a learning environment that values diversity and provides opportunities for all students to develop their optimal physical potential.

One of the main challenges in implementing inclusive physical education is how teachers can design adaptive and equitable activities for students with diverse abilities. Teachers are required to possess differentiated pedagogical skills, namely adapting the intensity, form of activity, and learning objectives to each student's individual abilities. Vickerman and Maher (2022) emphasize that physical education teachers act as facilitators who integrate the principles of equity and inclusion into every stage of the teaching and learning process. This approach requires flexibility and creativity in creating a safe and supportive learning environment.

The role of teachers is also closely related to their attitudes and beliefs about the concept of inclusion. Research shows that teachers who have a positive view of diversity tend to be better able to create a learning environment that supports all students (Block & Obrusnikova, 2021). This positive attitude is often formed through professional training, hands-on experience, and institutional support. Therefore, teacher training is a strategic step that must be prioritized to ensure that inclusive practices are not limited to discourse but are actually implemented in daily physical education activities at school.

In addition to pedagogical aspects, the social dimension is also a crucial element in inclusive physical education. Through interactions in physical activities, students learn to appreciate differences, build cooperation, and develop empathy for classmates with disabilities. Goodwin and Peers (2019) highlight that social relationships between students with and without disabilities are a crucial factor in encouraging the active participation of students with special needs. When students feel social support from their environment, they tend to be more confident and participate more actively in physical activities.

School policies that support inclusion also have a significant impact on the successful implementation of inclusive physical education programs. Educational institutions that instill inclusive values in their vision and curriculum tend to be more successful in creating a school culture that embraces diversity. Hutzler et al. (2024) emphasize that factors such as principal leadership, access to disability-friendly sports facilities, and financial support are positively correlated with participation rates for students with special needs. In other words, inclusion is not solely the responsibility of teachers but the collective effort of the entire educational ecosystem.

Technology is also an innovative element in strengthening the implementation of inclusive sports education. Devices such as wearable fitness trackers, video motion analysis, and augmented reality technology have been proven to assist teachers in providing accurate feedback while motivating students to participate. Kurniawan et al. (2021) demonstrated that the use of AR-based technology can improve students with learning difficulties' understanding of basic movement concepts and increase engagement in physical education. Technology integration not only expands access but also improves the quality of evaluation and personalizes learning.

However, various obstacles remain, especially in developing countries like Indonesia. Research by Saputra et al. (2023) shows that many schools still lack adaptive sports facilities and teachers trained to manage diverse student populations. Furthermore, the digital divide between schools widens the gap in the implementation of technology-based inclusive strategies. Therefore, collaboration between the government, educational institutions, and local communities is key to strengthening the structural foundation of inclusive sports education in Indonesia.

Conceptually, inclusive sports education is not only about including students with special needs in regular physical activities, but also about building a learning system that values diversity and strengthens a sense of community. Effective implementation requires a holistic approach that encompasses pedagogy, policy, technology, and human values. With the support of ongoing training, affirmative action policies, and learning innovations, physical education can become a key vehicle for fostering a spirit of engagement and social solidarity among students of all abilities.

## **5 Conclusion**

Based on the results of the study and discussion outlined above, it can be concluded that inclusive sports education is a strategic effort to realize an education system that is fair,

participatory, and oriented towards the diversity of student abilities. Through this approach, physical activity serves not only as a means of improving physical fitness but also as a medium for developing social, emotional, and moral values such as empathy, solidarity, and cooperation among students.

Teachers play a central role in the successful implementation of inclusive sports education. Adaptive pedagogical competence, a positive attitude toward diversity, and the ability to manage differences are the main foundations for building a welcoming learning environment for all students. Institutional support, such as school policies that support inclusion, the provision of adaptive facilities, and professional training for teachers, also determine the sustainability of the program.

Furthermore, the use of learning technologies such as Augmented Reality (AR), video motion analysis, and wearable fitness devices has been shown to enrich the learning experiences of students with special needs, increase their engagement in physical activity, and help teachers conduct more objective and personalized evaluations.

However, the implementation of inclusive sports education still faces several challenges, particularly in developing countries like Indonesia. Limited resources, supporting facilities, and the digital divide between schools remain major obstacles. Therefore, ongoing collaboration between the government, educational institutions, and the community is needed to strengthen structural capacity and an inclusive culture within the school environment.

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