

**Vol. (17), No. (62), Part two, July 2024, PP. 1 – 29**

**Empowering Physical Education teachers to include  
Special Educational Needs Students in Physical  
Education Classes**

*By*

**Al Reem Al Yaqoubi**

**PHD student United Arab of Emirates  
University Department of Special  
Education PO. 0000**

---

## **Empowering Physical Education teachers to include Special Educational Needs Students in Physical Education Classes**

**Al Reem Al Yaqoubi**

---

### **Abstract**

This study delves into the realm of inclusive practices within physical education PE for students with special educational needs SEN, aiming to identify effective strategies, elucidate existing challenges, and provide recommendations for improvement. Through a comprehensive review of literature, it investigates educators' endeavors in accommodating diverse needs, underscores the significance of educator training, and identifies barriers hindering the implementation and sustainability of inclusive PE. Educators employ various strategies to foster inclusivity in PE, including curriculum adaptation, intentional instructional practices, personalized approaches, and the integration of adaptive tools and technologies. However, challenges such as environmental barriers, attitudinal biases, and cultural factors impede the successful implementation of inclusive practices. Attitudinal barriers, including negative attitudes towards disabilities and lack of disability awareness, are pervasive and significantly impact the experiences of SEN students within educational settings. Furthermore, cultural barriers and curriculum-related challenges pose additional obstacles to creating inclusive PE environments. To address these challenges, recommendations are proposed, including the integration of emerging trends and innovations such as technology and adaptive equipment, creation of supportive learning environments through collaboration with special education professionals and stakeholders, implementation of motivational strategies to engage students, and conducting longitudinal studies to assess the long-term impact of inclusive PE. Collaboration among educators, researchers, and stakeholders is essential to advance inclusive practices and ensure equitable access to PE classes for all students.

**Keywords:** inclusive practices, physical education, special educational needs, strategies, professional development, sustainability

## تمكين معلمي التربية الرياضية من دمج الطلاب ذوي الاحتياجات التعليمية الخاصة في فصول التربية الرياضية

الريم اليعقوبي(\*)

### مستخلص الدراسة

تتناول هذه الدراسة مجال الممارسات الشاملة داخل حصص التربية البدنية لذوي الاحتياجات التعليمية الخاصة، بهدف تحديد الاستراتيجيات الفعالة، وتوضيح التحديات الحالية، وتقديم توصيات للتحسين من خلال استعراض شامل للأدبيات السابقة، تستكشف الدراسة جهود المربين في استيعاب الاحتياجات الخاصة، وتؤكد أهمية تدريب المعلمين، وتحدد العوائق التي تعيق تنفيذ واستدامة التعليم الرياضي الشامل. يستخدم المربون مجموعة متنوعة من الاستراتيجيات لتعزيز الشمولية في حصص التربية البدنية، بما في ذلك تكييف المناهج، والممارسات التعليمية المقصودة ودمج الأدوات والتقنيات التكيفية. ومع ذلك، تعيق التحديات مثل العوائق البيئية، والتحديات الاتجاهية، والعوامل الثقافية تنفيذ الممارسات الشاملة بنجاح. تعتبر العوائق الاتجاهية، بما في ذلك الآراء السلبية تجاه الإعاقات ونقص الوعي بالإعاقة، شائعة وتؤثر بشكل كبير على تجارب طلاب التربية الخاصة في البيئات التعليمية. علاوة على ذلك، تشكل العوائق الثقافية والتحديات ذات الصلة بالمناهج عقبات إضافية أمام خلق بيئات تعليمية رياضية شاملة. لمواجهة هذه التحديات، يتم اقتراح توصيات، بما في ذلك دمج الاتجاهات والابتكارات الناشئة مثل التكنولوجيا والمعدات التكيفية، وخلق بيئات تعلم مدعومة من خلال التعاون مع متخصصي التربية الخاصة وأصحاب المؤسسات التربوية، وتنفيذ استراتيجيات تحفيزية لجذب الطلاب، وإجراء دراسات طويلة المدى لتقييم الأثر الطويل الأمد للتعليم الرياضي الشامل. يعتبر التعاون بين المعلمين والباحثين أمرًا ضروريًا لتعزيز الممارسات الشاملة وضمان الوصول العادل إلى فصول التربية الرياضية لجميع الطلاب.

(\*) طالب دكتوراه جامعة الإمارات العربية المتحدة قسم التربية الخاصة بـ 0000 .

## **Introduction**

Special education needs SEN students are those who face learning difficulties or disabilities that make it harder for them to learn than other students of the same age. Students may have difficulties in areas such as perception, understanding and responding, information processing, or social interaction (Dixon, 2022).

SEN students encompass a diverse range of individuals requiring tailored support to engage effectively in physical education. These students may experience physical, cognitive, or sensory impairments that necessitate accommodations or modifications within the educational framework. However, prevailing challenges, including negative assumptions and inadequate teacher preparation, hinder their seamless integration into mainstream physical education settings (Dixon, 2022).

In the realm of physical education, the inclusion of students with SEN stands as a crucial frontier. The landscape reveals a significant gap between awareness of Inclusive Physical Education IPE, teacher self-efficacy, and the education of students with special needs, echoing concerns prevalent in educational sphere (Celestino et al. 2023). Despite strides made in educational reform, challenges persist in providing appropriate adapted physical education programs for SEN students (Lidor & Hutzler, 2019). Time planning and curriculum-based assessments often fall short in supporting effective physical education programs tailored to their needs. Moreover, a notable deficiency in the self-efficacy of mainstream physical education teachers in teaching students with special needs declares the issue. Many teachers lack the skills and knowledge to employ suitable teaching methods, resulting in discomfort and, at times, exclusion of SEN students from mainstream activities.

Inclusivity lies at the heart of modern educational paradigms, emphasizing the participation and engagement of all students, regardless of ability or disability. In the context of physical education, fostering inclusivity not only cultivates a supportive learning environment but also promotes holistic development and well-being among SEN students (Kristén et al., 2020). Recognizing the essential value of inclusive practices, efforts to empower physical education teachers to effectively accommodate SEN students are imperative for fostering equitable educational opportunities.

Despite growing awareness of the importance of inclusive practices in physical education, there remains a significant gap between awareness and implementation. While there is a wealth of literature addressing the challenges faced by students with SEN in mainstream physical education settings, there is a dearth of research specifically focusing on the strategies employed by educators to address these challenges effectively. Additionally, there is limited understanding of the training and professional development opportunities available to educators to enhance their capacity to accommodate SEN students in physical education classes.

Furthermore, while inclusive physical education programs are recognized as essential for the holistic development and well-being of SEN students, there are persistent challenges and barriers hindering their implementation and sustainability. These challenges may stem from factors such as inadequate resources, negative attitudes, and a lack of expertise among educators.

### **Purpose of the study**

This study aims to provide a comprehensive understanding of the accessibility and utilization of physical education among students with

special needs, with a specific emphasis on empowering physical education teachers. By evaluating the current situation and identifying areas requiring enhancement, this literature review seeks to improve the effectiveness of physical education strategies tailored to SEN students. This investigation will explore specific strategies educators employ to accommodate the diverse needs of students with special educational needs in physical education classes, examine the training and professional development opportunities available to educators to enhance their ability to effectively include SEN students, and address the challenges and barriers in implementing and sustaining inclusive physical education programs, proposing potential solutions for overcoming these obstacles.

### **Methodology**

The literature review was conducted to explore strategies employed by educators to accommodate diverse needs within physical education PE settings, with a specific focus on students with special educational needs SEN. The search strategy involved accessing academic databases such as PubMed, Google Scholar, and Education Source, using keywords such as "inclusive physical education," "strategies for SEN students," and "educator training." A total of 17 relevant articles from the last ten years were identified for inclusion in the review.

Articles were included if they addressed strategies, challenges, or training programs related to inclusive practices in physical education, particularly concerning students with special education classes. The inclusion criteria encompassed studies published in peer-reviewed journals, conference proceedings, and scholarly books. The publication date range was not restricted, and articles in languages other than English were considered if English translations were available.

Out of the initially identified articles, three were excluded from the review due to small sample sizes and an elevated risk of bias, as assessed through a qualitative evaluation of study methodologies. These articles were deemed insufficiently robust to contribute to the comprehensive understanding of the topic.

Data extraction focused on identifying key themes, strategies, challenges, and recommendations presented in the included articles. A thematic analysis approach was employed to synthesize the extracted information and identify patterns across the literature. The extracted data were organized into categories based on the strategies employed by educators, challenges faced in implementation, and recommendations for enhancing inclusive practices.

The quality of the included articles was assessed based on criteria such as study design, sample size, methodology, and relevance to the research question. Articles were evaluated for their methodological rigor and potential biases to ensure the credibility and reliability of the synthesized findings.

### Literature Review table

Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
<p><b>“Including Students with Disabilities in a Physical Education Teacher Preparation Program: An Institutional Perspective”</b></p> <p>(Lidor &amp; Hutzler, 2019)</p>	<p>The study aimed to explore the challenges and strategies involved in including students with disabilities in physical education teacher preparation programs from an institutional perspective</p>	<p>The study involved interviewing students with disabilities enrolled in a physical education teacher preparation program to identify aspects of university coursework and field experiences contributing to their ability to implement inclusion</p>	<p>The study utilized interviews to gather data on the experiences and perspectives of students with disabilities in the physical education teacher preparation program</p>	<p>The study revealed a lack of consistency across teacher preparation programs within one university and a disconnect between the knowledge of inclusion presented in coursework and students' real-world field experience observations</p>	<p>Future research directions include the need to bridge the gap between intention and behavior in the inclusion of children with disabilities in physical education, as well as the evaluation of the effectiveness of adaptations made in teacher preparation programs for students with disabilities</p>	<p>Some limitations of the study may include the limited evidence available for examining the inclusion processes of students with disabilities in teacher preparation programs, the challenges encountered in maintaining an inclusion program, and the need for further research to assess the impact of curriculum and pedagogical efforts on students with disabilities</p>

Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
The article does not explicitly mention a title, but it is published in the journal "Educational Sciences" in 2024, volume 14, page 49. (Celestino et al., 2023)	The purpose of the study is to identify the representations of physical education (PE) teachers regarding their training to promote the inclusion of students with specific health needs (SHNs). The study aims to understand the perceptions of PE teachers about their initial and continuous training for inclusive physical education, as well as their suggestions for improvement.	The study involved 151 PE teachers from various regions and districts of Portugal, including Algarve, Aveiro, Castelo Branco, Lisbon, Porto, and Viseu. The participants had an average of 23.6 years of teaching service, with 42% teaching in the 2nd cycle and 58% in the 3rd cycle and secondary. The majority were graduates (59%), followed by masters (37%) and doctors (4%).	The study used a questionnaire divided into seven parts, covering topics such as initial training, continuous training, and suggestions for improvement. The questionnaire was developed based on reference literature and went through a validation process involving specialists and pre-testing with PE teachers.	The study found that a majority of PE teachers felt inadequately prepared to teach PE to students with SHNs after their initial training. Many reported not having any contact with students with SHNs during their training process. The study also highlighted the need for reinforcement in study plans with specific and long-term curricular units, the introduction of real practice components in context, and supervised pedagogical practice in diverse contexts to improve teacher training for inclusion.	The study suggests the need for further research to develop training plans that effectively meet teachers' real needs, such as consolidating the pedagogical and didactic dimensions of PE, as well as assertive strategies for inclusion in activities.	The study acknowledges limitations related to the exploratory nature of the research and the use of the Google Forms platform for data collection, which may have limitations in validating the identity of respondents and their answers.
"Pre-Service Physical Education Teachers' Attitudes Toward Inclusive Physical Education" (Braksiek, 2021)	The study aimed to investigate the attitudes of pre-service physical education teachers toward inclusive physical education and to identify factors influencing these attitudes.	The sample consisted of pre-service physical education teachers enrolled in bachelor's degree programs. The exact sample size is not specified in the provided excerpts.	The study utilized the HainSL instrument to assess attitudes toward inclusive physical education among pre-service teachers.	The results indicated higher values on the narrow factor and lower values on the wide factor for pre-service physical education teachers compared to pre-service teachers of other subjects. However, pre-service physical education teachers showed lower values on the narrow factor compared to students of sport science.	Future research could focus on the impact of specific training programs on pre-service teachers' attitudes toward inclusive physical education. Additionally, exploring the effectiveness of different teaching strategies in promoting inclusive practices could be valuable for future studies.	The study's findings and generalizability may be limited by the sample size and composition, as the sample only included pre-service physical education teachers in bachelor's degree programs. The statistical power of the analyses of measurement invariance may have been limited due to the small size of some subsamples, particularly the group of pre-service PE teachers with ISIE.



Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
<p>"Still outsiders: The inclusion of disabled children and young people in physical education in England" (Dixon, 2022)</p>	<p>The study aimed to explore the embodied experiences of disabled children and young people in physical education and school sport settings, focusing on the challenges they face and the strategies that could enhance their inclusion.</p>	<p>The study involved 34 participants, including teaching professionals and parents of disabled children. Six Initial Teacher Training (ITT) providers were interviewed, along with PE teachers from various locations in England.</p>	<p>Semi-structured interviews were conducted with ITT providers and PE teachers to gather insights on inclusive PE practices and training needs. The interviews were audio-recorded and transcribed for analysis.</p>	<p>Findings highlighted the lack of consultation with parents of disabled children on inclusion issues and the need for improved ITT programs to address disability in PE. Participants suggested changes in ITT curriculum and practical experiences in special schools to enhance teachers' skills in supporting disabled students.</p>	<p>Future research could focus on the implementation and effectiveness of revised ITT programs in preparing teachers for inclusive PE practices. Additionally, exploring the perspectives of disabled children themselves could provide valuable insights into their experiences and needs in PE settings.</p>	<p>The study's sample size was relatively small and may not be fully representative of all disabled children, parents, and PE professionals in England.</p> <p>The research did not include the perspectives of disabled children directly, which could have enriched the findings.</p>
<p>"Overcoming Barriers on Including of Students with Autism Spectrum Disorders in Physical Education." (Houston-Wilson, 2021)</p>	<p>The purpose of the study is to review the literature on overcoming barriers to including students with Autism Spectrum Disorders in physical education.</p>	<p>Ten articles were selected for the study, involving a total of 367 individuals, including children with ASD, physical education teachers, professors, and instructors from various locations in the United States and Ireland.</p>	<p>Data collection methods included interviews, questionnaires, observations, surveys, self-efficacy scales, and rating forms.</p>	<p>The study identified limitations such as small sample sizes, limited time spent at sites, and potential influence on participants' efficacy due to interview settings.</p>	<p>Recommendations for future research include collecting data over a period of time, conducting larger studies with mixed methods, and focusing on different age groups of students with ASD.</p>	<p>Limitations of the studies included small sample sizes, limited time spent at sites, and potential influence on participants' efficacy during interviews.</p>
<p>"The co-development of inclusive tools in physical education for pupils with and without disabilities" (Kristén et al., 2020)</p>	<p>The study aimed to challenge existing norms and promote inclusive development of sports tools for all students, regardless of their circumstances. The specific focus was on testing and evaluating a prototype from a child's perspective.</p>	<p>The study was conducted at three elementary schools in south-west Sweden, involving approximately 15-20 children with and without disabilities, a total of around 60 children between 10 and 15 years of age. The schools were selected because they had inclusive classes in PE, and each school class had one or two students with disabilities.</p>	<p>The qualitative methods used in this study included interviews and participant observations using an intervention approach within ordinary PE school contexts. The researchers used applications such as jumping ropes, ball games, dance, circuit training, games, and play, and documentation of the study comprised recorded interviews, films.</p>	<p>Participation and inclusion were found to play an important role in developing and using the Kids Sand Glove in PE. The study suggested that participation and inclusion may enhance learning within the development and creative use in classes, in which it was necessary for the children to manage challenges and obstacles.</p>	<p>The study emphasized the importance of considering power relations when conducting interviews with children and suggested future research must take into account the power relationship between adults and pupils.</p>	<p>A few limitations of the study included the influence of power relations on interview responses, the potential impact of congruence on the students' feedback, and the need to address power and disability aspects in research involving children. The study also highlighted the need to consider potential bias in the research process and the limitations of involving all children in the classes studied</p>

Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
<p><b>Barriers and facilitators to inclusion in integrated physical education: Adapted physical educators' perspectives.</b></p> <p>(Haegele et al., 2020)</p>	<p>The purpose of the study was to explore the perspectives of certified adapted physical educators (CAPEs) on the barriers and facilitators to students with disabilities experiencing inclusion in integrated physical education.</p>	<p>The study included a sample of 99 CAPEs, with 74.7% being female. The participants were located across the United States and were working as adapted physical educators in K-12 settings at the time of survey completion.</p>	<p>Data collection was done using an online survey platform, Qualtrics. A 10-item questionnaire was used, with the first eight questions collecting demographic information and the final two questions asking participants to identify five factors that enable or prevent inclusive experiences for students with disabilities in integrated physical education.</p>	<p>The results showed that both teacher-related barriers and facilitators were more commonly reported than other factors such as environmental and policy-related barriers/facilitators. Social barriers, specifically welcoming and unwelcoming peers, were also commonly reported. The findings suggested that CAPEs placed the responsibility for inclusiveness on the teachers.</p>	<p>The study suggested that future research could adopt similar methodologies with students with disabilities as participants to gain further understanding of the factors that enable and prevent feelings of acceptance, value, and belonging within integrated physical education contexts.</p>	<p>The study had several limitations, including the use of an exploratory data collection methodology instead of in-depth interviews, the lack of focus on specific disabilities, and a lower than expected survey completion rate. Additionally, the study acknowledged that the reported barriers and facilitators do not guarantee feelings of inclusion among students with disabilities.</p>
<p><b>'Aspects regarding the integration of children with special educational needs through participation in physical education'</b></p> <p>(Baltic Journal of Health and Physical Activity   Vol 12   Iss 5, n.d.)</p>	<p>The purpose of the study is to determine if the integration of children with special educational needs in mainstream education is facilitated by physical activities. The study aims to highlight the development of sports skills for different categories of children with special educational needs and the issues related to their social inclusion, participation in sports activities, education in mainstream schools, and personal development.</p>	<p>The study included students from the 3rd and 4th grades in the primary cycle and students from the 5th, 6th, 7th, and 8th grades in the secondary cycle. The sample consisted of children with disabilities, totaling 14 children in the primary classes and 7 children in the lower secondary cycle. Additionally, the study included interactive communication with students, analysis of curricular documents, and methodical books of reference to gather information.</p>	<p>The instrument used in the study was a questionnaire consisting of 13 closed-ended questions with several answer options. The questionnaire was designed in collaboration with the school psychologist and aimed to gather information about students' perceptions of integrating children with special educational needs in physical education classes.</p>	<p>After studying and analyzing the questionnaires, it was found that 48% of secondary school students stated that they could participate in physical education classes just like other students, 26% stated that they needed support to exercise, and 13% chose options related to being exempted or practicing separate classes. Similarly, primary school students also provided similar responses.</p>	<p>The study highlights the need for future research to address the limitations and challenges associated with the integration of children with special educational needs in mainstream education. Further research could focus on identifying barriers to inclusion, implementing specialized teacher training, and exploring the role of legislation in supporting the inclusion process.</p>	<p>The study identified several limitations, including the lack of specialized teachers, emotional influence on participating students, and the need for legislative support for effective implementation of laws related to the inclusion of students with special educational needs. The study also pointed out that social rejection, family dynamics, and lack of resources were significant challenges to the inclusion process.</p>

Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
<p>"Training Future Physical Education Teachers for Professional Activities under the Conditions of Inclusive Education"</p> <p>(Demchenko et al., 2021)</p>	<p>To identify pedagogical conditions for training future physical education teachers to work with pupils in an inclusive learning environment. Develop and validate a model of a pedagogical system for training future physical education teachers to work with pupils in an inclusive learning environment. Identify levels of future teachers' readiness for professional activities under the conditions of inclusive education</p>	<p>The study involved 444 students majoring in physical education and sport, with 222 students in the experimental group and 222 students in the control group. The participants were from Pavlo Tychyna Uman State Pedagogical University, Kherson State University, Izmail State University of Humanities, and Mariupol State University</p>	<p>The instrument used in the study was a developed methodology for training future physical education teachers for professional activities under the conditions of inclusive education. This methodology included identification and final tests to assess students' readiness for professional activities</p>	<p>The results showed that students in the experimental group had a higher level of readiness for professional activities under the conditions of inclusive education compared to the control group. There was a significant increase in readiness levels in the experimental group from the assessment stage to the formative stage</p>	<p>Further validating the developed methodology for training future physical education teachers in inclusive education settings. Exploring the long-term effects of inclusive education training on the professional activities of physical education teachers. Investigating the impact of inclusive-pedagogical focus on other aspects of teacher training and student outcomes.</p>	<p>The study sample being limited to specific universities and regions, which may affect the generalizability of the results. The reliance on self-reported data from students, which could introduce bias into the results. The short-term nature of the study, which may not capture the full impact of inclusive education training on future physical education teachers' practices.</p>
<p>"Educating students with severe disabilities through an inclusive pedagogy in physical education"</p> <p>(Grenier et al., 2022)</p>	<p>To examine the pedagogical practices that encourage students with severe disabilities' participation in an elementary physical education program through the lens of ableism.</p>	<p>Focus group interviews were conducted with elementary students, and semi-structured interviews were conducted with eight educators in the school.</p>	<p>Field notes were conducted, and documents, including the lesson plan and journal entries, were collected as part of the research methodology</p>	<p>Findings reveal that the teacher's intentional instructional practices fostered students' engagement with peers and classroom activities. The results augment the literature describing teachers' orientations and pedagogical innovation that serve the needs of students with disabilities within general physical education settings.</p>	<p>The article does not explicitly mention future research directions.</p>	<p>The limitations of the study are not explicitly stated in the provided excerpts.</p>

Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
<p><b>"Inclusion of children with special educational needs and disabilities in physical education: A systematic review and meta-analysis of teachers' attitudes"</b>  (Tarantino et al. 2022)</p>	<p>The study aimed to investigate teachers' attitudes towards the inclusion of children with special educational needs and disabilities in physical education</p>	<p>The study included a total of 44 articles, with 28 studies reporting quantitative data and 18 studies reporting qualitative data. The sample included in-service primary and secondary school physical education teachers</p>	<p>The study used a mixed-methods approach, including both qualitative and quantitative studies. Quantitative data were collected using validated questionnaires or surveys, while qualitative data were obtained through interviews or open-ended questioning</p>	<p>The results indicated that teachers generally hold positive attitudes towards the inclusion of children with special educational needs and disabilities in physical education. The study highlighted the importance of creating inclusive environments for all students</p>	<p>The study suggested that future research should focus on developing interventions based on factors supported by both quantitative and qualitative evidence to promote inclusion in physical education. It also emphasized the need for continuity in the instrumentation used to assess teachers' attitudes to enable more comprehensive meta-analyses</p>	<p>One of the limitations of the study was the lack of consistent instrumentation across all quantitative studies, which hindered a more comprehensive meta-analysis of factors predicting teachers' attitudes. Consistent instrumentation would have allowed for the inclusion of more studies in the meta-analyses</p>
<p><b>"Attempts at Inclusive Practice in Integrated Physical Education: A Qualitative Exploration of PE and APE Teachers' Perspectives"</b>  (Wilson et al., 2020)</p>	<p>The study aimed to explore the perspectives of physical educators and adapted physical educators on inclusive practices in physical education</p>	<p>The study included a total of 78 teachers, with 30 being physical education (PE) teachers and 48 being adapted physical education (APE) teachers. The participants were primarily female, identified as European American, and had varying years of teaching experience</p>	<p>Qualitative description research using data from a larger project's survey</p>	<p>The thematic analysis resulted in the development of four themes: (a) "we do the best we can," (b) "inclusive PE depends on collaboration," (c) "anti-integration philosophy for students with severe disabilities," and (d) "inclusive PE is student need-based." The study highlighted the importance of collaboration and individualized approaches in promoting inclusive practices in physical education</p>	<p>The study suggested that future research could benefit from focusing more narrowly on physical education and adapted physical education teachers' experiences with inclusive practices in specific districts or states. Additionally, exploring the perspectives of teachers from different geographic contexts and delving deeper into the impact of specific disabilities on inclusive practices could be avenues for future research</p>	<p>Some limitations of the study include the delimitation of the target sample to PE teachers from Virginia, which may restrict the generalizability of the findings to other geographic contexts. The study also focused on one open-ended response item, which may limit the depth and breadth of participant responses. Additionally, the study did not delve deeply into specific disability types, which could have provided more nuanced insights into inclusive practices</p>

Article Title	Purpose of the Study	Sample Size & Participants	Instrument	Results	Future Research	Limitations
"Representations of Physical Education Teachers Regarding Their Training to Promote Inclusion of Students with Disabilities" (Celestino et al., 2023)	Investigate PE teachers' perceptions of training for inclusion of students with disabilities	151 PE teachers from various regions in Portugal	Questionnaire shared via email and social networks	Teachers felt inadequately prepared in initial training for teaching students with specific health needs	Focus on impact of informal training on intervention skills and improving teacher training efficiency across disciplines	Limited to perceptions of PE teachers in Portugal
"Including pupils with special educational needs and/or disabilities in mainstream secondary physical education: A revisit study" (Morley et al., 2020)	Explore UK teachers' perceptions of including pupils with SEND in mainstream secondary PE	31 secondary school teachers in the UK. These teachers were the participants in the study, and they were interviewed to explore their perceptions of including pupils with special educational needs and/or disabilities in mainstream secondary physical education.	Interviews with PE teachers	Juxtaposition between teachers' motivation to include pupils with SEND and actual ability to deliver meaningful experiences	Future research could explore strategies to bridge the gap between motivation and ability to deliver meaningful experiences	Limited to UK context, specific to secondary education
"Teacher's Ability in Applying Adaptive Physical Education Learning to Children with Special Needs" (Yahya, 2021)	Investigate teachers' ability to implement adaptive PE learning for children with special needs	The sample size for the study was 26 individuals, and the participants were directly involved in the implementation and observation of adaptive physical education learning for children with special needs at the school.	Descriptive research with quantitative approach including observations, interviews, questionnaires, and documentation	Teachers were able to conduct adaptive, creative, and enjoyable PE learning activities	Future research suggested focusing on adaptive learning considering various factors and collaborations among stakeholders	Not specified

---

## **Strategies Employed by Educators in Accommodating Diverse Needs**

There are various strategies which foster inclusive environments within physical education PE settings. Demchenko et al. (2021) and Celestino et al. (2023) both emphasize the importance of curriculum adaptation to cater diverse needs, particularly those of students with special educational needs SEN. Demchenko et al. 2021 advocate for immediate instructional strategies such as differentiating instruction and modifying activities to address individual needs in real-time within the classroom. Conversely, Celestino et al.2023 suggest a more comprehensive approach, focusing on long-term curricular changes and supervised practice for teachers. They propose incorporating specific and long-term curricular units to support inclusive education paradigms effectively. This suggests that while both studies prioritize curriculum adaptation, Celestino et al. 2023 underscore the necessity of tailored teacher training programs to ensure sustained implementation of inclusive practices.

In contrast, Grenier et al. (2022) delve into intentional instructional practices that foster student engagement and inclusion. They emphasize the importance of fostering a collaborative orientation, creating a learning community, and maintaining high expectations for all learners within the classroom. This approach prioritizes proactive strategies to create an inclusive classroom culture, where students feel valued and supported in their learning journey. On the other hand, Lidor and Hutzler (2019) focus specifically on personalized approaches such as individualized instruction and modifications to facilitate the successful inclusion of students with special needs. They highlight the importance of adapting teaching methods and environments to meet the unique needs of each student, thereby ensuring equitable participation and learning outcomes for all.

Kristén et al. (2020) advocate for a participatory approach involving students in the development process, emphasizing its inclusive design and challenging norms in participation and inclusion. Through collaboration with students, various improvements were suggested, including making the glove softer, using bolder colors, offering different sizes and weights, and ensuring ease of use and wear for all students. The design aimed to accommodate various student needs without requiring additional adjustments. Students reflected on their learning process during the tool's development, highlighting its universal applicability and its role in enabling children with special needs to fully participate in physical education classes.

In a similar vein, Yahya (2021) emphasizes the integration of assistive technologies and equipment to support children with special needs in physical education classes. Highlighting the importance of understanding students' characteristics and needs, Yahya 2021 underscores the role of tailored sports activities in enhancing motor skills and physical fitness. However, teachers are essential in this process, serving as companions, motivators, innovators, and task limiters to ensure effective learning for those students. The assessment of teachers' ability to implement adaptive physical education involved various research methods, with experienced teachers demonstrating proficiency in applying adaptive learning effectively. Thus, Yahya's findings underscore the collaborative effort required between teachers, students, and technology to facilitate inclusive physical education experiences for all students.

These findings underscore the complexity of fostering inclusive environments in physical education, highlighting the need for a multifaceted approach that combines curriculum adaptation, intentional instructional practices, personalized approaches, and the integration of adaptive tools and

technologies. It's clear that there is no one-size-fits-all solution, and effective inclusion requires a combination of strategies tailored to the unique needs of students. Furthermore, these studies highlight the importance of collaboration among teachers, students, and technology to create truly inclusive learning environments where all students feel valued, supported, and able to fully participate in physical education classes. As teachers continue to explore and implement these various strategies, ongoing research and dialogue will be essential to further refine and enhance inclusive practices in physical education.

### **Educator Training and Professional Development programs**

The current landscape of educator training programs, particularly in the domain of physical education, is characterized by a growing emphasis on the inclusion of students with special educational needs. Braksiek (2021) focuses specifically on pre-service physical education teachers, highlighting the crucial role of additional teacher training for special and inclusive education in shaping attitudes toward inclusive practices. The study underscores the positive impact of integrated training components on pre-service teachers' attitudes toward inclusion, indicating the significance of incorporating specialized training to address the needs of diverse student populations. Furthermore, Braksiek (2021) identifies variations in attitudes toward inclusive education based on the type of school setting, suggesting the importance of tailoring training programs to meet the unique needs of future teachers in different educational contexts.

In contrast, Morley et al. (2020) provide a comprehensive examination of training for educators in physical education, with a specific focus on the inclusion of students with SEN. The study highlights the lack of specific



training for teachers in effectively incorporating students with educational needs into mainstream physical education settings.

Morley et al. (2020) identify barriers such as inadequate funding for training and a disconnect between general SEN training and the unique challenges of physical education environments. The study also underscores the limited support from Learning Support Assistants LSAs in physical education compared to other subjects, emphasizing the need for enhanced collaboration and coordination between teachers and support staff to ensure effective inclusion.

Expanding beyond physical education, Lidor and Hutzler (2019) offer insights into the broader challenges and strategies associated with incorporating students with special needs into educator training programs. The authors emphasize the increasing number of students with special needs aspiring to become teachers, highlighting the need for educator training programs to adapt and accommodate their unique needs effectively. Lidor and Hutzler (2019) stress the importance of early engagement with key stakeholders and the establishment of dedicated committees to advance the implementation of laws and policies related to inclusion within educator training programs.

Inclusive pedagogy in adaptive physical education (APE) is a multifaceted domain that requires a deep understanding of individual student needs, effective teaching strategies, and supportive learning environments. Yahya's (2021) study highlights the importance of understanding the unique conditions and needs of children with special needs in APE. Through observations, interviews, and questionnaires, the study emphasizes the necessity of tailored instruction that takes into account the diverse abilities and

potential of each student. This aligns with the broader principles of inclusive pedagogy, which prioritize individualized support and accommodations to ensure equitable access to learning opportunities for all students.

Central to effective inclusive pedagogy in APE is the creation of adaptive environments that support the diverse needs of students. Yahya's (2021) research underscores the significance of modifying teaching approaches and providing accessible physical education activities to foster engagement and participation among children with special educational needs.

Demchenko et al. (2021) explore training models aimed at enhancing teacher preparedness for inclusive education settings, with a specific focus on physical education teachers. The study validates the effectiveness of these training models in improving teachers' readiness to work in inclusive environments, emphasizing the importance of interdisciplinary collaboration and administrative support.

Both Yahya (2021) and Demchenko et al. (2021) underscore the importance of interdisciplinary collaboration in promoting inclusive pedagogy in PE classes. Yahya's study emphasizes the need for teachers to collaborate with other professionals, such as therapists and support staff, to address the diverse needs of students effectively. Similarly, Demchenko et al. (2021) highlight the significance of interdisciplinary teamwork in creating inclusive educational environments that support the holistic development of children with special needs.

Professional development plays a critical role in shaping inclusive practices across various sectors, including education, healthcare, and social services. In the field of physical education PE, professional development is essential for equipping teachers with the knowledge, skills, and strategies

necessary to effectively include all students, including those with special educational needs.

Morley et al. (2020) and Grenier et al. (2022) shed light on the shortcomings of current professional development PD programs in PE classes, highlighting the lack of targeted training for teachers regarding inclusive practices, especially concerning students with SEN. This gap indicates a pressing need for more comprehensive and tailored PD initiatives in PE to equip teachers with the necessary knowledge and skills to effectively include all students.

Drawing from broader educational research, Celestino et al. (2023) emphasize the transformative potential of PD in promoting inclusive pedagogies. While their study does not specifically address PE, it underscores the importance of PD in creating welcoming and supportive learning environments for diverse learners across various educational settings. The principles of differentiated instruction, Universal Design for Learning UDL, and culturally responsive teaching highlighted in Celestino et al. (2023) align closely with the goals of inclusive PD programs in PE.

By incorporating strategies such as differentiated instruction, UDL, and culturally responsive teaching, PD programs can empower PE teachers to create inclusive learning environments that cater to the diverse needs of all students. Furthermore, fostering collaboration and maintaining high expectations for all learners are essential components of PD efforts to promote equitable practices in PE classes.

Educator training programs plays a vital role in fostering inclusive practices within physical education and adaptive physical education settings. While progress has been made in recognizing the importance of specialized

training and interdisciplinary collaboration, there remain significant gaps in PD programs, particularly concerning the inclusion of students with special educational needs. As moving forward, it's imperative to prioritize the development of comprehensive and tailored PD programs that equip educators with the necessary skills and knowledge to create truly inclusive learning environments.

### **Challenges and Barriers in Implementation and Sustainability**

Inclusive education seeks to provide equitable opportunities for all students, including those with different special educational needs to participate fully in educational settings. However, the successful implementation of inclusive practices faces several key challenges.

Haegele et al. (2020) identify environmental barriers as significant obstacles to the full participation of students with physical needs in inclusive education. These barriers encompass inaccessible passageways, narrow hallways, crowded spaces, and lack of accessible facilities within school premises. Such environmental challenges hinder mobility and access for students with special needs, impeding their ability to navigate the school environment and engage in educational activities effectively.

Both Haegele et al. (2020) and Houston-Wilson (2021) highlight attitudinal barriers as pervasive challenges in inclusive education. Negative attitudes towards special educational needs, lack of disability awareness among teachers, students, and parents, and difficulties in adapting the curriculum to meet diverse learning styles are identified as key attitudinal barriers. Additionally, unintentional attitudinal barriers and ethos considerations affect the social experiences of students with special needs, further hindering their inclusion within educational settings.

Attitudinal barriers encompass negative attitudes towards disabilities, a lack of disability awareness, and challenges in adapting the curriculum to meet diverse learning styles. These barriers are pervasive and can significantly impact the experiences of SEN students within educational settings Haegele et al. (2020).

Negative attitudes towards disabilities can manifest in various forms, such as stereotypes, prejudice, and discrimination. These attitudes can create a hostile or unwelcoming environment for SEN students, affecting their sense of belonging and self-esteem. Moreover, a lack of disability awareness among educators may lead to misconceptions or misunderstandings about the capabilities and needs of SEN students, further exacerbating barriers to inclusion Haegele et al. (2020).

Cultural barriers also contribute to the challenges of inclusive education. Haegele et al. (2020) highlight unintentional attitudinal barriers and ethos considerations that affect the social experiences of SEN students. These cultural factors may include societal norms, values, and beliefs about disability that influence attitudes and behaviors towards individuals with SEN. Additionally, Morley et al. (2020) underscore the influence of the type of SEN on inclusion efforts. Teachers may find it easier to include students with physical disabilities compared to those with social and emotional difficulties due to cultural biases and perceptions.

According to Tarantino et al., 2022, attitudinal and cultural barriers play a significant role in the successful implementation of inclusive PE programs. Teachers' attitudes towards inclusion, their self-efficacy in delivering inclusive pedagogies, and the broader school context all influence the success of these programs. The implementation of inclusive physical

education PE programs faces challenges related to the limited focus on both attitudes and self-efficacy of teachers in previous research, as well as the need to investigate the influence of teachers' demographics and school characteristics on their attitudes towards inclusion.

Students with physical disabilities encounter specific challenges related to their conditions or disabilities, as outlined by Haegele et al. (2020). These challenges include the need for personal assistants or teaching aides for basic activities, as well as requiring additional time to move between classes or complete school work due to their physical requirements. These physical limitations further exacerbate the barriers to full participation in inclusive education settings specially in physical education classes.

Adapting the curriculum to accommodate diverse learning styles is another key challenge. Students with special needs may require different instructional strategies, accommodations, or modifications to access the curriculum effectively. However, educators may struggle to implement these adjustments due to a lack of training or resources. This can result in students with SEN being excluded or left behind in the educational process (Haegele et al. 2020).

Houston-Wilson (2021) emphasizes the importance of increased understanding and training among educators to effectively include students with autism spectrum disorder ASD in physical education as an example to these challenges. Teachers' perceptions and attitudes towards students with ASD play a crucial role in shaping their educational experiences. Ongoing professional development and support are essential for educators to develop the knowledge, skills, and strategies necessary to create inclusive learning environments for students with ASD and other unique needs.

To promote long-term sustainability, it is essential to provide adequate support for teachers involved in inclusive education. This support can take various forms, including mentorship, coaching, and access to resources and materials tailored to meet the diverse needs of students with SEN. Additionally, collaboration with stakeholders, including administrators, parents, and community organizations, can provide valuable support networks for teachers navigating inclusive practices (Morley et al., 2020).

Disseminating research findings to key stakeholders is crucial for informing evidence-based practices and promoting sustainable inclusive education programs. By sharing research outcomes and best practices, educators, policymakers, and practitioners can make informed decisions and implement effective strategies to support SEN students. This dissemination process fosters a culture of continuous improvement and innovation within educational institutions (Morley et al., 2020).

Creating a conducive and inclusive environment is fundamental for the sustainability of inclusive education programs. This involves implementing appropriate modifications and adaptations based on students' individual learning needs and teachers' instructional styles. Additionally, fostering an understanding of differentiation strategies among educators and providing training for learning support assistants LSAs are essential components of creating an inclusive culture within educational settings (Morley et al., 2020).

To ensure the long-term sustainability of inclusive PE programs, it is essential to address the identified challenges and barriers. Strategies for sustainability may include the delivery of inclusion-related professional learning opportunities to school teachers, collaboration among teachers to

transform the school and foster an inclusive educational setting, and the importance of obtaining a qualification in teaching physical education to positively influence the inclusion of students with SEN in PE classes. According to, Tarantino et al., 2022 there is a need for further research to explore PE teachers' perceptions and attitudes regarding working with SEN students' profiles, as well as the importance of understanding the influence of the school context on teachers' behaviors towards inclusion.

There are clear challenges hindering the successful implementation of inclusive education, particularly in physical education settings, where environmental, attitudinal, cultural, and curriculum-related barriers impede full participation for SEN students. While strategies such as providing support for educators, disseminating research findings, creating inclusive environments, and addressing identified challenges offer pathways towards sustainability, collaborative efforts among stakeholders and ongoing professional development are crucial for their effectiveness.

## **Recommendations**

In considering future recommendations for enhancing inclusive practices in physical education teacher preparation programs and promoting the inclusion of SEN students, scholars have highlighted several interconnected themes across various studies.

Emerging trends and innovations in inclusive physical education, such as the integration of technology and adaptive equipment, have been consistently emphasized (Braksiek, 2021; Dixon, 2022; Lidor & Hutzler, 2019; Tarantino et al., 2022). These innovations aim to cater to the specific needs of SEN students, providing them with accessible and engaging



learning experiences. For instance, virtual reality and exergaming not only make physical education more accessible but also create immersive environments that can enhance students' motivation and enjoyment.

Creating supportive learning environments is identified as paramount in fostering inclusivity within physical education (Celestino et al., 2023; Demchenko et al., 2021; Yahya, 2021). This involves not only providing physical accommodations and resources but also cultivating a culture of acceptance and understanding among students and teachers. Collaborative efforts with special education professionals, parents, and community resources are seen as essential for enhancing support systems for students with diverse needs. For example, by setting inclusive policies and fostering collaboration among stakeholders, schools can create environments where all students feel valued and supported.

Motivational strategies are highly encouraged for engaging students and promoting active participation in physical education classes. These strategies, tailored to individual students' interests and needs, can boost their self-confidence and motivation. Incorporating choice, autonomy, and variety in activities further enhances students' motivation and enjoyment of physical education. By giving opportunities for students to set goals, receive positive reinforcement, and engage PE classes, educators can create environments where all students feel empowered to participate and succeed (Braksiek, 2021; Kassaw et al., 2017).

According to Tarantino et al., 2022; Tarantino & Neville, 2023; Yahya, 2021 longitudinal studies are suggested to assess the long-term impact of inclusive physical education on students' academic performance and well-being. Additionally, collaborative research efforts involving

educators, researchers, and stakeholders are essential for identifying best practices and evidence-based approaches to promote inclusivity in physical education settings. Conducting rigorous research and sharing findings across the educational community, educators can continually improve their practices and ensure that all students have access to high-quality physical education experiences.

Overall, these recommendations underscore the interconnected nature of emerging trends, supportive learning environments, motivational strategies, and the need for ongoing research and collaborative efforts to advance inclusive practices in physical education classes. By addressing these key areas, educators and stakeholders can work towards creating more inclusive and equitable learning environments for all students, including those with special educational needs.

## **Conclusion**

Empowering physical education PE teachers to include students with special educational needs SEN in PE classes is paramount for fostering inclusive educational environments and promoting holistic development among all students. This literature review explored various strategies employed by educators to accommodate diverse needs, and discussed the significance of educator training and professional development programs. Additionally, this paper identified the challenges and barriers in implementation and sustainability.

From the emphasis on curriculum adaptation and instructional practices to the integration of assistive technologies and equipment, educators are adopting innovative approaches to meet the unique needs of

SEN students in PE classes. However, challenges such as environmental barriers, attitudinal biases, and cultural factors continue to pose obstacles to the successful implementation of inclusive practices.

Addressing these challenges requires collaborative efforts among educators, and stakeholders, as well as a commitment to ongoing research and professional development. By prioritizing emerging trends and innovations, creating supportive learning environments, implementing motivational strategies, and conducting rigorous research, we can advance inclusive practices in PE and ensure equitable access to physical education classes for all students.

Moving forward, it is essential to translate research findings into actionable strategies that promote inclusivity and diversity within educational institutions. By empowering PE teachers with the knowledge, skills, and resources necessary to effectively include SEN students, we can create inclusive learning environments that foster holistic development, promote social inclusion, and empower all students to thrive. Finally, by embracing the principles of inclusivity and equity, a more inclusive society will be built where every individual has the opportunity to reach their full potential, regardless of ability or disability.

---

## References

- Braksiek, M. (2021). Pre-service physical education teachers' attitudes toward inclusive physical education. *German Journal of Exercise and Sport Research*. <https://doi.org/10.1007/s12662-021-00755-1>
- Celestino, T., Ribeiro, E. J., Morgado, E. M. G., Leonido, L., & Pereira, A. (2023). Physical Education Teachers' Representations of Their Training to Promote the Inclusion of Students with Disabilities. *Education Sciences*. <https://doi.org/10.3390/educsci14010049>
- Demchenko, I., Maksymchuk, B., Bilan, V., Maksymchuk, R., & Kalynovska, I. (2021). Training Future Physical Education Teachers for Professional Activities under the Conditions of Inclusive Education. *Broad Research in Artificial Intelligence Neuroscience*. <https://doi.org/10.18662/brain/12.3/227>
- Dixon, K. (2022). Still outsiders. *Academia.edu*. [https://www.academia.edu/108806444/Still\\_outsiders?uc-sb-sw=30604769](https://www.academia.edu/108806444/Still_outsiders?uc-sb-sw=30604769)
- Grenier, M., Patey, M., & Grenier-Burtis, M. (2022). Educating students with severe disabilities through an inclusive pedagogy in physical education. *Sport, Education and Society*. <https://doi.org/10.1080/13573322.2022.2084064>
- Haegele, J. A., Wilson, W. J., Zhu, X., Bueche, J. J., Brady, E., & Li, C. (2020). Barriers and facilitators to inclusion in integrated physical education: Adapted physical educators' perspectives. *European Physical Education Review*. <https://doi.org/10.1177/1356336x20944429>

- Houston-Wilson, C. (2021). Overcoming Barriers on Including of Students with Autism Spectrum Disorders in Physical Education. <http://hdl.handle.net/20.500.12648/4068>
- Kassaw, A., Abir, T., Ejigu, A., & Mesfin, A. (2017). Challenges and Opportunities in Inclusion of Students with Physical Disabilities in Physical Education Practical Classes in North Shewa Zone, Ethiopia. *American Journal of Sports Science*, 5(2), 7-13. doi: 10.11648/j.ajss.20170502.11
- Kristén, L., Klingvall, B., & Ring, M. (2020). The co-development of inclusive tools in physical education for pupils with and without disabilities. *Sport in Society*.  
<https://doi.org/10.1080/17430437.2020.1819243>
- Lidor, R., & Hutzler, Y. (2019). Including Students with Disabilities in a Physical Education Teacher Preparation Program: An Institutional Perspective. *Intech Open eBooks*.  
<https://doi.org/10.5772/intechopen.85268>
- Morley, D., Banks, T., Haslingden, C., Kirk, B. S., Parkinson, S., Van Rossum, T., Morley, I., & Maher, A. (2020). Including pupils with special educational needs and/or disabilities in mainstream secondary physical education: A revisit study. *European Physical Education Review*. <https://doi.org/10.1177/1356336x20953872>
- Tarantino, G., & Neville, R. D. (2023). Inclusion of children with disabilities and special educational needs in physical education: an exploratory study of factors associated with Irish teachers' attitudes, self-efficacy, and school context. *Irish Educational Studies*.  
<https://doi.org/10.1080/03323315.2023.2260999>

- Tarantino, G., Makopoulou, K., & Neville, R. D. (2022). Special needs and physical activities. *Educational Research Review*, 36, 100456. <https://doi.org/10.1016/j.edurev.2022.100456>
- Wilson, W. J., Theriot, E. A., & Haegele, J. A. (2020). Attempting inclusive practice: perspectives of physical educators and adapted physical educators. *Curriculum Studies in Health and Physical Education*, 1-17. <https://doi.org/10.1080/25742981.2020.1806721>
- Yahya, M. (2021). Teacher's Ability In Applying Adaptive Physical Education Learning To Children With Special Needs. *Academia.edu*. [https://www.academia.edu/94394838/Teachers\\_Ability\\_In\\_Applying\\_Adaptive\\_Physical\\_Education\\_Learning\\_To\\_Children\\_With\\_Special\\_Needs](https://www.academia.edu/94394838/Teachers_Ability_In_Applying_Adaptive_Physical_Education_Learning_To_Children_With_Special_Needs)