INCLUSIVE PRACTICES FOR STUDENTS WITH DISABILITIES IN PHYSICAL EDUCATION CLASSES: A LITERATURE REVIEW

PRÁCTICAS INCLUSIVAS EN EDUCACIÓN FÍSICA PARA ESTUDIANTES CON DISCAPACIDAD: REVISIÓN DE LITERATURA

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Abstract

Inclusive practices in education ensure access, participation and learning for all students, promoting equity and respect for diversity. The aim of the study was to identify practices for including students with disabilities in international school-based physical education using a systematic review. For this purpose, the PRISMA methodology was employed, enabling the identification of 43 articles that met the selection criteria. Web of Science, Scopus and PubMed databases were used, where a search was carried out with the keywords "physical education", "disability", "inclusion" and "special educational needs" between 2015 and 2023. A classification was conducted based on two dimensions related to inclusive practices outside and inside the physical education classroom. The identification and categorization of these inclusive practices allow for an analysis of the diverse inclusive strategies reported in the literature, highlighting the main areas of focus in recent years: emotional support, space organization, pedagogical support in physical education classes, educational projects, public policies, and initial teacher training. Future research should focus efforts on the involvement of parents and/or guardians of students with disabilities, as well as on the individual distinction of each type of disability present among students at the school level.

Keywords: Inclusion, inclusive strategies, disability, special educational needs, school physical education.

Resumen

Las prácticas inclusivas en educación permiten garantizar el acceso, la participación y el aprendizaje de todos los estudiantes, promoviendo equidad y respeto a la diversidad. El objetivo del estudio fue identificar prácticas de inclusión de estudiantes con discapacidad en la educación física escolar internacional. Se utilizó la metodología PRISMA que permitió la identificación de 43 artículos que cumplieron con los criterios de selección. Se utilizaron las bases de datos Web of Science, Scopus y PubMed en donde se realizó una búsqueda con las palabras clave "educación física", "discapacidad", "inclusión" y "necesidades educativas especiales" entre los años 2015 y 2023. Se realizó una clasificación según dos dimensiones relacionadas con las prácticas inclusivas fuera del aula y dentro del aula de educación física. La identificación de dichas prácticas inclusivas y su categorización permiten un análisis de las diversas estrategias inclusivas reportadas en la literatura iluminando cuáles han sido los principales focos de interés en los últimos años: apoyo emocional, organización del espacio, apoyo pedagógico en la clase de educación física, proyecto educativo, políticas públicas y la formación inicial docente. Futuras investigaciones deberían dirigir esfuerzos hacia el involucramiento de padres y/o apoderados de estudiantes con discapacidades, así como también a la distinción individual de cada tipo de discapacidad presente en el alumnado en etapa escolar.

Palabras clave: Inclusión, estrategias inclusivas, discapacidad, necesidades educativas especiales, educación física.

Introduction

Issues related to the promotion of Inclusive Education are on the agendas of many developed and developing countries. Efforts by international organizations like as UNESCO with its Education For All program (UNESCO, 2001) and the United Nations with the Convention on Human Rights for persons with disabilities Organización de las Naciones Unidas (2006), encourage the development of initiatives that provide educational opportunities for all students regardless of their origin, financial situation, gender and/or disability (OECD, 2007).

Based on the Declaration of Human Rights for Disabled Persons Organización de las Naciones Unidas (2006), the student is understood from a bio-psycho-social perspective through three main domains, namely: biological approach, relating to their health condition and personal medical features; psychological aspects where the students' beliefs, thoughts, and emotions play a fundamental role (Fierro & Contreras, 2024); and the social approach, in which the main focus is not on the person with a disability, but rather on how the environment (teacher, classmates, educational community in general) could generate facilities or obstacles in learning process of students who present some kind of disability.

The importance of inclusive education lies in the need to build more democratic, just, and equitable societies through educational systems, ensuring that all students have access, without exclusion, to opportunities for the development of their full human potential (Van Mieghem et al., 2020). By removing barriers to learning and developing educational policies that promote epistemological values associated with companionship and respect for diversity, evidence suggests that individuals are better prepared to contribute to the construction of more inclusive societies in which everyone has the opportunity to participate actively and under equal conditions (Gamonales et al., 2024).

Therefore, it is important to develop inclusive practices in physical education, as it is a key subject area for students' social, emotional, and motor development. Such practices or teaching strategies should guarantee the right of all students to participate and should promote holistic development by focusing on self-confidence, self-esteem, and social development, in addition to motor skills (Gámez-Calvo et al., 2024). These practices are expected to contribute to improvements in school climate and group cohesion. Evidence also suggests benefits related to improved academic performance and the development of social life skills. Inclusive practices in physical education not only benefit students with disabilities but also the entire educational community, thereby contributing to the creation of a more just and equitable society (Fierro-Saldaña & Treviño-Villarreal, 2025).

As a result of this social approach, inclusive physical education in schools is specifically understood through the efforts made by teachers and the broader educational community to develop inclusive school practices within educational contexts that involve students with and without disabilities (Fierro & Treviño, 2023).

In this case, the physical education teacher plays a key role as a facilitator of inclusion (Overton et al., 2017), by creating and developing methodological strategies that effectively include all students. It is known that inclusive practices in the physical education class not only benefit the learning of students with disabilities, but also reinforce the interpersonal skills of their peers, increasing their awareness and knowledge of disabilities, and the democratic social participation necessary in other areas of the human sphere (Qi & Wang, 2018).

Research about inclusion in the learning process has had so far focused on ensuring educational spaces or places for students with disabilities in a regular school Fernández Cabrera et al. (2019). Nevertheless, the relationship of the various elements that, disaggregated into methodological strategies, could favor the realization of educational inclusion of students with disabilities that have not yet been studied so that the real benefits of the physical education inclusion process can be established. In conjunction with this, several authors (Wang, 2019; Capio et al., 2015) emphasize the need for international research that organizes and relates the factors of inclusion and that deepens, at the same time, into the methodological strategies within the physical education class.

The literature on inclusion in physical education shows significant progress in terms of approaches and strategies; however, challenges remain regarding the implementation and effectiveness of these practices in diverse school contexts. This study not only compiles and organizes relevant information but also proposes categories that facilitate a deeper

understanding of the factors that promote inclusion, making it possible to identify existing gaps in the current body of research.

Effective practices will be understood as those pedagogical and methodological strategies that have demonstrated positive and verifiable outcomes in the inclusion of students with disabilities in school physical education (Fierro-Saldaña, 2024). These may include, for example, practices that promote the active participation of these students, support the development of physical and social skills, and contribute to an inclusive and equitable learning environment.

This review responds to the need to identify, organize, and categorize the various inclusive educational practices implemented in school settings. Specifically, it seeks to answer the following research question: Which specific practices for the inclusion of students with disabilities in school physical education have been identified as effective in the academic literature between 2015 and 2025?

The present study aims to identify effective inclusion practices for students with disabilities in the context of international school physical education by analyzing the available literature. Addressing this topic is crucial to ensuring more equitable and inclusive educational environments where the diverse abilities of students are recognized and valued.

The findings of this review provide a valuable theoretical guide for researchers interested in exploring specific aspects of inclusion in physical education in greater depth. From a practical perspective, the methodological strategies identified may also be used in the initial training of physical education teachers (Contreras & Fierro, 2024), as well as by teachers and other educational stakeholders to develop inclusive pedagogical practices aligned with a holistic view of human development (UNESCO, 2015).

Materials and Methods

Methodological Design

To address the research question, a mixed or integrative approach was employed, allowing for the exploration and synthesis of a wide range of evidence to uncover emerging categories or themes in the reviewed literature. This review adheres to the PRISMA guidelines (Page et al., 2022), following fundamental principles of transparency, rigor, and clear presentation of results. The steps taken included: formulating the research question, conducting a systematic literature search, identifying emerging categories, critically evaluating the quality of methodologies, presenting the results clearly through dimensions and categories, and ensuring ethical and quality considerations.

Search Procedure

The databases Web of Science, Scopus, and PubMed were used. This selection was justified because PubMed is an essential database for topics related to health, well-being, and medical issues, which is particularly relevant when studying inclusive practices for people with disabilities. It includes studies on physiology, motor development, and the adaptations required for physical activity among populations with functional diversity (Fierro & Contreras, 2024). Scopus, in turn, is one of the largest and most multidisciplinary databases, making it suitable for a comprehensive review of the literature. It includes research in areas such as education, social sciences, and health, allowing for a holistic approach to inclusion in physical education by addressing both pedagogical aspects and professional practice (Visser et al., 2021).

Finally, Web of Science, with its international coverage and high-quality standards, is an excellent database for ensuring a literature review that includes high-impact studies. In addition, it provides strong representation of research in the fields of education and social sciences, which are essential for evaluating inclusive practices in educational settings (Gregorio-Chaviano et al., 2022).

Each database contributes a different perspective that, when combined, allows for a comprehensive and balanced review of studies on inclusion in physical education, ensuring the relevance and quality of the selected studies. The literature review included articles published between 2015 and 2023. This time frame was selected to ensure the inclusion of recent and relevant studies, reflecting both advances and current trends in inclusive practices in physical education for students with disabilities.

The keywords used were: "physical education," "disabilities," "inclusion," and "special educational needs." The Boolean operator "physical NEAR/O education" was used to restrict the results exclusively to studies related to physical education.

The search yielded a total of 250 articles related to the topics described above.

Exclusion Criteria

The following criteria were used to filter the articles identified in the search:

1. **Focus on specific health conditions:** Studies exclusively focused on health conditions (such as skin diseases, cardiovascular diseases, overweight, cancer, or other medical conditions) were excluded when they were not directly related to inclusive practices in school physical education.
2. **Lack of empirical findings:** Studies that did not present empirical data on school inclusion strategies in physical education were excluded. This included research focused solely on program evaluation, policy analysis, or studies that did not address practical inclusion strategies implemented in school settings.
3. Study population outside the school context: Studies focused on adults, preschool children, fitness, or competitive sports were excluded. Only research related to physical education in school settings was retained.
4. Lack of complete results: Only studies providing complete and accessible results for analysis were included. Studies that did not report raw data and offered only authors' interpretations or discussions were excluded.

The articles selected for this review were subjected to a quality assessment following standardized criteria commonly used in literature reviews. The purpose of this process was to ensure the validity, relevance, and reliability of the included studies. The following aspects were examined:

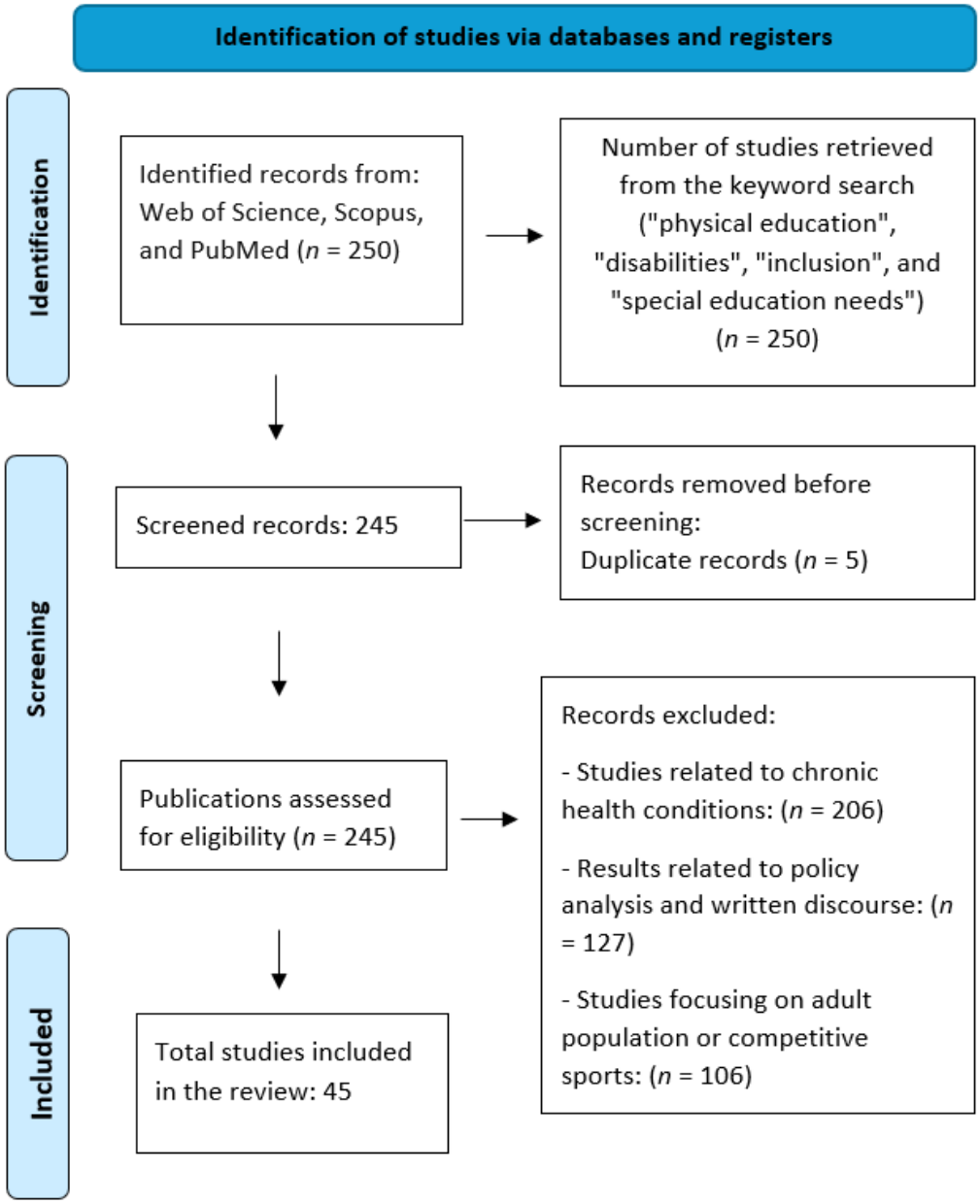
- **Methodological design:** Studies were assessed to determine whether their research design was appropriate for addressing their stated research objectives.
- **Clarity in the description of inclusive strategies:** Only studies that explicitly described the strategies used in inclusive practices within school physical education were included.
- **Rigor in the presentation of results:** Priority was given to articles that provided clear empirical findings, distinguishing between raw data and the authors' interpretations.
- **Transparency and replicability:** Consistency in the methods and the possibility of replicating the studies based on the information provided were taken into consideration.

The use of these criteria ensures that the findings presented in this review are grounded in high-quality evidence, thereby contributing to the reliability of the conclusions drawn.

Of the total number of articles identified, only 45 met the exclusion criteria described above and were included in the results of the present literature review (see Figure 1).

Figure 1

PRISMA Flowchart With Overall Study Results



Source: own elaboration

Data Analysis

The analysis of the data collected during the literature review followed a qualitative approach based on the thematic analysis framework proposed by Braun and Clarke (2006). This approach enabled the identification of recurring patterns and the organization of findings into conceptual categories related to inclusive practices in physical education. The process was carried out in several stages, which are described below.

In the first stage, a thorough reading of the full texts of the selected articles was conducted. This step made it possible to identify the objectives, methods, and main findings of each study, with particular emphasis on those that described inclusive strategies implemented in school settings.

Following familiarization with the data, the coding process was conducted, during which descriptive labels were assigned to textual excerpts addressing key elements related to the study topic. Initial labels included terms such as "curricular adaptations," "teachers' perceptions," "physical accessibility," and "teacher training for inclusion."

The generated codes were inductively grouped into broader categories, guided by the conceptual framework of inclusive education proposed by Ainscow & Miles, (2008). This process enabled the organization of the data into three major categories: macrosystemic factors, mesosystemic factors, and microsystemic factors.

To ensure the validity and consistency of the analysis, the categories were reviewed by a group of peer researchers. In addition, they were compared with the reference theoretical framework to ensure alignment with the key concepts of inclusive education. The analysis and categorization process was managed using Excel matrices, which facilitated data organization and made it possible to identify the frequency with which inclusive strategies appeared across the selected studies.

It is important to note that the categorization may have been influenced by the specific focus of the studies included in the review. However, the validation process and the use of a robust theoretical framework helped to minimize potential interpretative biases.

The main results of the study selection process indicate that a large number of studies focused not on inclusive practices themselves, but rather on theoretical guidelines and policies related to the inclusion of students in physical education classes (Figure 1).

Results

A summary of the descriptive characteristics of the reviewed articles is presented below. These studies report a range of effective inclusive practices that are primarily implemented within and/or outside the physical education classroom (Table 1).

Table 1

Report by Type of Inclusive Practice, School Level and Type of Disability

Reference by author	Practices inside the classroom			Practices outside the classroom				
	Emotional Support	Space Organization	Pedagogical Support	Educational Institution	Public Policy	Primary	Secondary	Type of Disability
Ackah-Jnr & Danso, (2019)		X		X		X	X	Motor
Al Salim, (2017)	X					X	X	All of them
An & Meaney, (2015)	X				X			All of them
Anokwuru, (2016)		X	X			X		Cognitive
Bertills et al., (2018)Canales et al., (2018)	XX		XX			XX	X	Physical and Cognitive
Columna et al., (2016)	X					X	X	All of them
Davis et al., (2007)	X	X	X	X	X	X	X	All of them
Gobbi et al., (2018)	X		X			X		Cognitive
Haegele et al., (2018)				X	X	X	X	All of them
Hodge et al., (2018)	X	X	X			X	X	All of them
Jin et al., (2018)	X					X	X	Motor
Kiuppis, (2018)			X			X	X	All of them
Laughlin et al., (2019)			X			X	X	Motor
Lautenbach & Antoniewicz, (2018)	X					X	X	All of them
Lee, (2016)					X	X	X	All of them
Lieberman et al., (2019)	X					X	X	All of them
Maher, (2017)			X			X	X	Cognitive
Maher et al., (2019)					X	X	X	All of them
Maher, (2016)			X	X		X	X	All of them
Majoko, (2019)	X	X	X	X	X	X		All of them
McKay et al., (2015)	X	X	X			X	X	All of them
Overton et al., (2017)		X	X			X		Motor
Petrie et al., (2018)	X		X			X	X	All of them
Qi, et al., (2017)				X	X	X	X	All of them
Qi & Wang, (2018)	X						X	All of them
Reina et al., (2019)	X						X	All of them
Ring et al., (2019)	X		X	X		X	X	All of them
Sit et al., (2019)			X			X		Motor
Taliaferro et al., (2015)					X	X	X	Motor
Tanure Alves et al., (2017)		X	X		X	X	X	Motor
Wang, (2019)	X		X		X	X	X	Motor
Wang, Qi et al., (2015)	X					X	X	All of them
Wang, Wang et al., (2015)	X	X				X	X	Cognitive
Wilhelmsen et al., (2019)	X					X	X	All of them
Yan & Deng, (2019)					X	X	X	All of them
Abellán-Hernández, (2015)					X	X	X	All of them
Abellán-Hernández & Hernández-Martínez, (2015)	X					X	X	All of them
Healy et al., (2017)				X		X	X	All of them
Ozer & Aksoy, (2016)				X		X	X	All of them
Ostlund, (2015)		X				X	X	Cognitive
Grenier & Miller, (2015)	X					X	X	All of them
Capio et al., (2015)			X			X		Motor

Source: own elaboration

The inclusive practices implemented within physical education classes can be grouped into three dimensions: emotional support strategies, the organization of the physical education learning environment, and pedagogical support within the classroom setting (see Table 2).

Table 2

Dimensions and Categories Inside the Physical Education Classroom

Dimension	Category	Authors
Emotional Support in physical education classes	Emotional climate in the classroom setting (gym, sports court, schoolyard)	Al Salim, (2017); An & Meaney, (2015); Bertills et al., (2018); Columna et al., (2016); Lieberman et al., (2019); Majoko, (2019); McKay et al., (2015); Petrie et al., (2018); Qi & Wang, (2018); Wang, (2019); Wilhelmsen et al., (2019).
	Attitudes of the physical education teacher towards disability	Davis et al., (2007); Hodge et al., (2018); Lautenbach & Antoniewicz, (2018); Wang, Qi et al., (2015).
	Attitudes of the physical education classmates towards disability	Davis et al., (2007); Gobbi et al., (2018); Jin et al., (2018); Lautenbach & Antoniewicz, (2018); Reina et al., (2019); Ring et al., (2019); Wang, Wang et al., (2015); Grenier & Miller, (2015).
Space organization in physical education classes	Learning format in the gymnasium, schoolyard and/or sports court.	Anokwuru, (2016); Davis et al., (2007); Hodge et al., (2018); McKay et al., (2015); Tanure Alves et al., (2017); Ostlund, (2015); Vonlintel et al., (2017).
	Time and behavior management by the physical education teacher	Majoko, (2019); Wang, Qi et al., (2015); Ostlund, (2015).
	Use of space and specific materials (gymnasium, sports court, schoolyard, balls)	Ackah-Jnr & Danso, (2019); Overton et al., (2017); Wang, (2019); Ostlund, (2015).
Pedagogical Support in physical education classes	Adequacy of the curriculum and physical education activities	Anokwuru, (2016); Bertills et al., (2018); Canales et al., (2018); Hodge et al., (2018); Kiuppis, (2018); Laughlin et al., (2019); Majoko, (2019); McKay et al., (2015); Overton et al., (2017); Petrie et al, (2018); Sit et al., (2019); Capio et al., (2015).
	Professional assistance in the physical education class	Davis et al., (2007); Gobbi et al., (2018); Maher, (2017); Maher, (2016).

Source: own elaboration

Subsequently, the effective inclusive practices implemented outside physical education classes that were reported in the literature were categorized according to aspects related to the strategies adopted by educational institutions and the public policies of each country. These practices support and frame the effective inclusion of students with disabilities in physical education through programs derived from the governmental level (see Table 3).

Table 3

Dimensions and Categories Outside the Physical Education Classroom

Dimension	Category	Authors
Educational Institution	Inclusive Educational Project	Davis et al., (2007); Haegele et al., (2018); Qi et al., (2017).
	Collaboration among teachers of different subjects	Maher, (2016); Ring et al., (2019).
	Structural characteristics of the educational institution	Ackah-Jnr & Danso, (2019); Davis et al., (2007); Qi et al., (2017); Wang, (2019).
Public Policies	Inclusive National Policies for schools	Davis et al., (2007); Wang, (2019).
	Professional training of physical education teachers	An & Meaney, (2015); Haegele et al., (2018); Lee, (2016); Maher et al., (2019); Majoko, (2019); Qi et al., (2017); Taliaferro et al., (2015); Tanure Alves et al., (2017); Wang, (2019); Yan & Deng, (2019); Healy et al., (2017); Ozer & Aksoy, (2016)

Source: own elaboration

Discussion

The main findings reported in the literature regarding effective inclusive practices for students with disabilities in school physical education are presented in Tables 2 and 3, respectively. On the one hand, the findings related to practices implemented within physical education classes (see Table 2) identify strategies associated with emotional support, the organization of the gymnasium or teaching space, and pedagogical strategies employed by physical education teachers.

In turn, these dimensions are divided into categories that seek to provide a more detailed understanding of the inclusive practices in physical education reported in the literature, namely: (a) affective climate in the class setting (gymnasium, sports field, or playground); (b) physical education teachers' attitudes toward disability; (c) classmates' attitudes toward disability in physical education classes; (d) learning formats implemented in the gymnasium, playground, and/or sports field; (e) time and behavior management by the physical education teacher; (f) use of space and specific materials (gymnasium, sports field, playground, balls); (g) adaptation of the curriculum and activities in physical education; and (h) support provided by professionals during physical education classes.

On the other hand, the authors also frame these inclusive practices within macrosystemic levels (see Table 3), which refer to the various educational policies and programs available within educational institutions and supported by the broader public policy context. These dimensions are divided into categories that seek to explain the ways in which inclusive practices are implemented in the classroom, namely: (a) inclusive educational projects; (b) collaboration among teachers; (c) structural characteristics of schools; (d) national inclusive policies directed toward schools; and (e) initial teacher education for physical education teachers.

The categories of analysis that seek to answer the review question are described below: **Which specific practices for the inclusion of students with disabilities in school physical education have been identified as effective in the academic literature?**

Effective Inclusive Practices in Physical Education at the Classroom Level

This section presents the findings of the review related to the categories situated at the classroom level, as described above.

Emotional Support

Affective climate in the class setting (gymnasium, sports field, playground): The reviewed literature indicates that achieving inclusion requires a socio-emotional connection among educational actors within the class setting (Al Salim, 2017; An & Meaney, 2015). This is associated with respect among participants, enjoyment of the class, the quality of interpersonal interactions, and the low levels of anxiety demonstrated by students during physical education classes. The anxiety levels experienced by students with and without disabilities in physical education classes remain an under-researched topic. In this regard, the literature reviewed identifies this as a key factor for the inclusion of students with disabilities, due to the physical demands involved in the playful activities that characterize physical education classes (An & Meaney, 2015; Davis et al., 2007; Petrie et al., 2018).

Likewise, the competitive and/or collaborative nature of different physical activities and exercises (whether individual or team-based) may either facilitate or hinder the effective inclusion of students with disabilities (Grenier & Miller, 2015). Some studies recommend creating collaborative environments that promote teamwork, empathy, democratic participation, and reciprocity during physical activities. These activities should emphasize cooperation and companionship, and some form of assessment should be used to recognize and encourage these ways of engaging in collaborative games and exercises (Gobbi et al., 2018).

Physical education teachers' attitudes toward disability: This category relates to the ability of physical education teachers to provide socio-emotional support to students with and without disabilities (Lieberman et al., 2019). These attitudes are associated with the level of engagement and empathy that physical education teachers demonstrate toward their students (Hodge et al., 2018; Canales et al., 2018), as well as their sensitivity to the diversity present within the class. Such behaviors are reflected in aspects ranging from the tone of voice used when addressing students with disabilities, the way these students are referred to, and the types of activities and exercises that teachers ask them to perform (Qi et al., 2017; Tanure Alves et al., 2017).

These attitudes are also related to individual factors (Wang, Qi et al., 2015). On the one hand, they are associated with teachers' experience in working with students with disabilities and their level of knowledge regarding disability. On the other hand, female physical education teachers tend to demonstrate more positive attitudes, which are associated with greater inclusion of students with disabilities (Wilhelmsen et al., 2019).

Research has also identified that physical education teachers may display ambivalent or even contradictory attitudes in their practice. On the one hand, they often express an inclusive discourse and show concern for the actions to be implemented in their classes. However, when putting these strategies into practice, they may demonstrate a tendency toward disinterest or neglect regarding the learning of students with disabilities (Lautenbach & Antoniewicz, 2018).

Classmates' attitudes toward disability in physical education classes: This category is related to the ability of students within the class group to empathize with peers with disabilities, as well as to the degree of involvement and emotional support that classmates can provide during physical education classes. On the one hand, research indicates that the attitudes of physical education teachers toward students with disabilities shape the attitudes of the entire student group, making them a key influence on student behavior (Hodge et al., 2018; Canales et al., 2018). On the other hand, findings show that students without disabilities perceive physical education classes as an opportunity for inclusion and collaboration with their peers with disabilities, particularly in team and competitive sports (Grenier & Miller, 2015).

Likewise, research suggests that these attitudes are manifested in physical education classes through the concern and empathy that students without disabilities demonstrate toward their peers with disabilities in practice (Reina et al., 2019).

Organization of the Physical Space and Class Setting

Learning formats in the gymnasium, playground, and/or sports field: This category is related to the ways in which learning takes place within the settings where physical education is conducted, such as sports fields, school playgrounds, gymnasiums, and/or multi-purpose courts. In this regard, and in line with the dimension of attitudes, the literature suggests that inclusion is promoted through the design and implementation of collaborative and interactive strategies, in which students are positioned as the main agents of their own learning and collaboration is encouraged throughout the development of activities (Anokwuru, 2016).

The design of these strategies should have the underlying objective of promoting inclusive attitudes among peers toward students with disabilities through teamwork and democratic participation. Likewise, the literature indicates that physical education classes should be oriented toward each student's individual progress according to their own initial abilities and capacities, rather than focusing on the achievement of specific motor patterns or levels of sporting performance. This approach supports students' progress and effort, placing greater value on individual development than on achieving maximum performance standards based on age or gender (Davis et al., 2007).

Time and behavior management by the physical education teacher: These practices are related to the teacher's ability to allocate exercise time among students and to the ways in which rewards are provided or rules are reinforced depending on student behavior (Majoko, 2019). On the one hand, time allocation in physical education classes is a fundamental aspect of lesson planning, as classes take place in settings that differ from those in which students are usually located during the school day (Ostlund, 2015). Physical education teachers must consider the possibilities for independent mobility among students with disabilities, as well as the time required for their movement and transitions within the class setting (Wang, Wang et al., 2015).

On the other hand, behavior management is an aspect that is strongly emphasized in the literature, since the rewards or verbal encouragement provided by physical education teachers can promote positive behaviors among students with disabilities (Majoko, 2019; Wang, Qi et al., 2015). However, it is also recommended that such reinforcement be directed toward peers without disabilities in order to encourage inclusive attitudes and behaviors toward their classmates with disabilities.

Use of physical space and specific materials (Gymnasium, Sports Field, Playground, and Equipment): This category refers to strategies related to the physical environment of the class and the specific materials used in each activity or sport, both of which play a fundamental role in the quality and scope of inclusive practices (Ackah-Jnr & Danso, 2019; Ostlund, 2015).

On the one hand, the facilities to which students are required to move should provide architectural and structural accessibility. This includes access ramps, inclusive restrooms, appropriate lighting and acoustics, directional and exit signage, as well as prompt access to first-aid services (Overton et al., 2017). On the other hand, the materials used in each sport or activity (e.g., balls, hoops, ropes, mats, rackets, cones, springboards, vaulting horses, among others) generally encourage students to participate in class activities. However, it is essential to identify which materials can function as inclusive resources, ensuring that all students are able to use them. Materials that are difficult to handle or require advanced cognitive or physical skills may contribute to the exclusion of students with disabilities (Ackah-Jnr & Danso, 2019).

Pedagogical Support

Adaptation of the curriculum and activities in physical education: This is one of the categories most frequently addressed in the studies reviewed, as it focuses on specific strategies for inclusion within physical education classes. Some studies (Petrie et al., 2018; Canales et al., 2018) refer to the restructuring of learning objectives established at the central level, which requires the adaptation of certain activities to the characteristics of students. By making learning objectives more flexible, pedagogical practices can be adapted to students' individual characteristics, particularly when they present different levels of disability (Anokwuru, 2016).

Similarly, exercises, games, sports, and a variety of activities can be adapted (for example, individual or group assignments that require work at home, opportunities for students to contribute to group work according to their own abilities and characteristics, among others). Furthermore, in order to make these adaptations, physical education teachers need to

understand the characteristics of their students and their level of cognitive and motor development so that appropriate objectives can be established according to their individual circumstances, emphasizing progress throughout the learning process rather than final performance outcomes (Capio et al., 2015).

It is worth noting that a tension emerges within the findings. While some authors recognize the need to adapt certain activities, they argue against modifying the curriculum in its entirety. According to this perspective, achieving effective inclusion should not require distinctions between students, but rather the maintenance of an equitable and common assessment framework for all learners (Kiuppis, 2018).

Support from professionals in physical education classes: The collaboration of support professionals within the classroom is another factor that promotes inclusion. These professionals include special education teachers, speech and language therapists, occupational therapists, among others, who can make significant contributions to the appropriate adaptation of activities for students with disabilities. Through their specialized knowledge, these professionals can assist in adapting activities and exercises according to the individual characteristics of students, helping to ensure that their learning and development processes are aligned with their capabilities (Maher, 2017; Davis et al., 2007).

In contrast, it is important to consider that the presence of professionals assigned exclusively to students with disabilities may inadvertently encourage segregation when these students are separated from the physical education class and required to engage in activities parallel to those of their classmates (Gobbi et al., 2018).

Educational Institution

Inclusive educational project: Schools with inclusive institutional projects demonstrate the political commitment of school leaders and local educational authorities to provide inclusive education across all educational levels and subject areas (Davis et al., 2007; Haegele et al., 2018). Although some studies identify the school's educational project as a fundamental pillar of inclusion, most of the research reviewed does not specifically examine this category. Nevertheless, it is of considerable importance for actions related to school infrastructure, curriculum adaptations, and the attitudes of the educational community toward disability (Qi et al., 2017; Ocete Calvo et al., 2015; Fierro & Contreras, 2024).

Collaboration among teachers: This category refers to the quality and frequency of interactions among teachers, as well as between teachers and school administrators, aimed at working collaboratively across different subject areas while recognizing the importance of the social context in which students with and without disabilities develop (Maher, 2016). Such collaboration is not evident in the studies reviewed, either among physical education teachers or between physical education teachers and teachers of other subjects. This lack of collaboration may reduce potential opportunities for the development and inclusion of students with disabilities in physical education classes (Ring et al., 2019).

Structural characteristics of the school: This category refers to the material barriers and obstacles within school infrastructure that affect students' accessibility. Facilitating factors include infrastructure that is accessible for wheelchair users and students with visual impairments, inclusive restrooms, sports equipment, elevators, and/or ramps, among others (Ackah-Jnr & Danso, 2019). These structural characteristics may either facilitate or hinder the inclusion of students with disabilities, making it essential to identify both access routes and potential infrastructural barriers that students encounter in their daily school lives (Davis et al., 2007; Qi et al., 2017).

Public Policy

National inclusive policies directed toward schools: This category is related to educational programs and policies developed at the governmental level that promote inclusive education through pedagogical guidelines for different subject areas (Davis et al., 2007). Most of the studies reviewed provide limited information regarding inclusive public policies or specific organizations that promote the inclusion of students with disabilities in mainstream classrooms, despite the fact that such policies constitute a fundamental driver of the educational decisions made within a country (Fierro & Treviño, 2023).

Initial teacher education for physical education teachers: Teacher education may be a factor that promotes the inclusion of students with disabilities (González & Macías, 2018; Hernández et al., 2017) through the preparation of professionals with both theoretical and practical knowledge regarding diversity, particularly disability and the ways in which inclusion can be promoted (Majoko, 2019; Abellán-Hernández, 2015). In this regard, the literature highlights the need to

create practical learning opportunities within initial teacher education programs that expose future physical education teachers to the diversity present in school settings. Such experiences would allow them, from an early stage of their professional preparation, to become familiar with the characteristics and needs of different students, as well as the barriers and facilitators that may be present within educational institutions.

Conclusion

Based on the analysis of the international literature, it is evident that there is a concentration of research focused on inclusive practices within physical education classes, highlighting the importance of the role of the physical education teacher in the inclusion of students with disabilities (Fernández Cabrera et al., 2019). However, most of these findings regarding effective practices are presented in a decontextualized manner, overlooking the fact that the strategies used by physical education teachers are situated within meso- and macrosystemic levels, such as the educational institution and public policy, which may either facilitate or hinder the inclusion of all students.

Along the same lines, the literature highlights the importance of advancing collaborative activities in physical education by modifying certain curricular activities to promote teamwork and cooperation rather than emphasizing competitive sports activities (Rello et al., 2018). Similarly, one of the strategies reported in the literature and highlighted by several studies (McKay et al., 2015) involves organizing visits for the entire class to Paralympic sporting events, during which different types of disabilities and the possibilities associated with each are explained to all students. The aim of this strategy is to increase awareness and understanding of the physical capabilities and potential of people with disabilities.

Likewise, the literature reveals that the use of space and materials plays a defining role in facilitating the inclusion of students with disabilities, and that teachers' decisions are closely linked to their understanding of specific disabilities and the knowledge acquired during their initial teacher education.

Some studies highlight the ambivalent attitudes of physical education teachers regarding the inclusive discourse they express in comparison with what they implement in practice. These attitudes are reflected in teachers' everyday actions and play a fundamental role in shaping and moderating inclusive learning environments for all students.

A limited number of studies have explored, through quantitative methodologies, the attitudes and beliefs of peers without disabilities, despite their relevance to inclusion within the classroom. Similarly, there is a lack of research examining the role of parents, family members, and/or caregivers of students with disabilities, their level of involvement in the educational community, and their participation in supporting the expected learning outcomes of students with disabilities.

Likewise, the literature tends to overlook the different types of disabilities that students may present. As a result, the practices reported do not respond to specific medical conditions or to the particular characteristics of students with disabilities.

This review has certain limitations that should be considered when interpreting the findings. First, although relevant and high-impact databases such as PubMed, Scopus, and Web of Science were selected, it is possible that some relevant studies were not included due to restrictions in the search terms used or because they were not indexed in these databases. Second, the review focused on studies published between 2015 and 2023, which may have excluded earlier research that, despite being older, could provide valuable historical perspectives. In addition, the exclusion of articles that did not present complete empirical findings may have limited the inclusion of important conceptual or theoretical studies. Finally, although rigorous quality assessment and categorization procedures were conducted, the interpretation of the data may have been influenced by biases inherent to the selection and analysis process.

Finally, future research should address issues related to the levels of involvement of parents, guardians, family members, and/or caregivers of students with disabilities in order to promote a more comprehensive understanding of the multifactorial contexts in which these students develop. Future studies should also examine the particularities associated with different types of disabilities, providing more detailed methodologies and strategies focused on the individual characteristics and support needs of students with disabilities in physical education classes.

In addition, there is a need for further investigation into pedagogical methodologies implemented within physical education classes, taking into account the principles of Universal Design for Learning, the characteristics of the student population, and collaboration among teachers and other professionals.

Ethics Committee Statement

This study did not require approval from an ethics committee because it consisted exclusively of a literature review based on the collection and analysis of previously published studies. As no primary data were collected from human or animal participants, and no sensitive information was accessed or manipulated, ethical approval was not required. The study was conducted in accordance with academic standards for the responsible use of published sources, including appropriate citation practices and respect for copyright regulations.

Conflict of Interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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Authors' Contributions

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Data Availability Statement

The data are available upon request from the corresponding author, Belén Fierro-Saldaña, bfierro@udla.cl

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