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El Goalball como estrategia para la inclusión educativa de estudiantes con discapacidad visual

Goalball as a strategy for the educational inclusion of students with visual impairment

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Palabras claves:
Goalball, inclusión educativa, discapacidad visual, estrategia de inclusión, Educación Física.

Resumen

Introducción. El *Goalball*, un deporte paralímpico diseñado específicamente para personas con discapacidad visual emerge como una poderosa herramienta para fomentar la inclusión educativa. **Objetivo.** Diseñar una estrategia basada en este deporte, que permita desarrollar procesos de inclusión educativa entre estudiantes con discapacidad visual y quienes no la presentan y experimentalmente comprobarla. **Metodología.** Enfoque mixto, planteando en su etapa cuantitativa una investigación de tipo aplicada, por diseño pre-experimental y en la etapa cualitativa un diseño fenomenológico. La muestra de estudio de 15 participantes se seleccionó a través de un muestreo no probabilístico por criterio de inserción (estudiantes no videntes) con un total de 6 participantes de una Institución Especializada y por un muestreo por voluntariado (estudiantes convencionales), un total de 9 participantes de una Institución de Educación Pública. Se aplicó la técnica de la observación y como instrumentos una ficha de observación de los procesos inclusivos dentro de la clase de Educación Física, además se aplicó una entrevista a profundidad para determinar las experiencias vividas durante la intervención realizada. Se utilizó el paquete estadístico SPSS 26 para el desarrollo de un análisis descriptivo e inferencial entre los periodos de estudio. **Resultados.** Se obtuvieron diferencias significativas entre los periodos de estudio en todas las dimensiones que determinan el nivel de inclusión dentro de la clase de Educación Física, además de un planteamiento de categorías general, axial y ejecutiva en base a las experiencias expresadas por los participantes. **Conclusión.** La práctica del *Goalball* en escuelas fomenta la inclusión y empatía entre estudiantes, mostrando que adaptar entornos y compartir experiencias construye una comunidad educativa más inclusiva y consciente de la diversidad. **Área de estudio general:** Educación. **Área de estudio específica:** Educación Física.

Keywords:
Goalball, educational inclusion, visual impairment,

Abstract

Introduction.*Goalball*, a Paralympic sport designed specifically for people with visual impairment, emerges as a powerful tool to promote educational inclusion.**Objective.**To design a strategy based on this sport, which allows the development of educational inclusion processes between students with visual impairment and those without

inclusion strategy, Physical Education.

visual impairment, and to experimentally prove it.**Methodology.**Mixed approach, proposing in its quantitative stage research of applied type, by pre-experimental design and in the qualitative stage a phenomenological design. The study sample of 15 participants was selected through a non-probabilistic sampling by insertion criterion (blind students) with a total of 6 participants from a Specialized Institution and by a voluntary sampling (conventional students), a total of 9 participants from a Public Education Institution. The observation technique was applied and as instruments an observation sheet of the inclusive processes within the Physical Education class was used, in addition, an in-depth interview was applied to determine the experiences lived during the intervention conducted.The SPSS 26 statistical package was used for the development of a descriptive and inferential analysis between the study periods. Results. Significant differences were obtained between the study periods in all the dimensions that determine the level of inclusion within the Physical Education class, in addition to a general, axial, and executive category approach based on the experiences expressed by the participants. Conclusion. The practice of Goalball in schools fosters inclusion and empathy among students, showing that adapting environments and sharing experiences builds a more inclusive and diversity-conscious educational community. General area of study: Education. Specific area of study: Physical Education.

Introduction

Visual impairment in children is a condition that significantly affects more than just the ability to see; it influences multiple aspects of development and quality of life. This health problem can arise from a variety of sources, including genetic factors, problems during pregnancy, birth complications, childhood illnesses, or as yet unidentified causes. These conditions not only limit a child's visual perception, but also have a profound impact on their educational, social, and physical development.

The importance of understanding the causes and consequences of visual impairment is critical to developing effective intervention and support strategies that enable these children to reach their full potential. Through a multidisciplinary approach that includes specialized education, rehabilitation therapies and the adaptation of physical activities, it

is possible to mitigate some of the challenges these children face, promoting their inclusion and participation in a society that values diversity and equal opportunities.

The impact of visual impairment generates a loss in the child's learning processes, with low vision or blindness. The anatomical classification of the causes of visual loss defines the part of the eye that is damaged and that causes the greatest visual loss, in the same way there are other ways of acquiring visual disability: hereditary, intrauterine, perinatal, childhood and unknown (Escárcega et al., 2019).

The visually impaired person has a delay in the development of their motor skills and interactions towards impaired social behaviors, they are often excluded from these activities due to an emphasis on performance and technical ability, which decreases their participation in a Physical Education (PE) class (De Luna et al., 2023).

In this way, the child loses fine and gross motor development, as a basic part of his initial stage, developing less participation in sports and games where skills are required such as: throwing, running, and catching, for example, walking with the wings of a guide (Brian et al., 2020).

People with visual impairments are less physically active compared to a healthy person. It is important for them to participate in physical activity, so that they can achieve better active development in the physical, mental and health aspects (Engdahl-Høgåsen & Bentzen, 2023). For this, some direct methods are proposed, providing direct communication with the child, by exchanging information through different media, thanks to the development of "Braille" writing that provides a diversity of interpretation and communication in the development of the child's learning (Rebernik et al., 2021).

In this way, it will be possible to work in a more self-efficient way. In order for the visually impaired student to become familiar with Braille reading, they need to learn certain specific didactic parts, through a TICS model learning process, for which they will be able to learn the features, movements, senses, smell and touch (Rosas et al., 2021). In this sense, the so-called inclusive language is also important, which refers to the verbal and written part in social, work and educational spaces that seeks to represent a collective part in excluded, marginalized or discriminated areas, such as people with special and specific disabilities (Parra & Serafini, 2021).

Inclusive work with students with disabilities becomes a very important challenge for PE teachers, as they must try to meet the diverse needs of all students, however, educational policy ideologies make this a complex and dynamic process (Mihajlovic, 2019). Thus, in a PE class, the main priority is to ensure that students with disabilities are included in the educational environment, in an inclusive, safe environment and also controlled by the teacher (Cummiskey & Gabbei, 2019).

It is important to take the time to prepare and plan for a PE class scenario, providing class development and preparation for students with special educational needs (SEN) who work on their motor and cognitive skills applied through practical workshops in their educational environment (Pinder & Renshaw, 2019). In this sense, it is currently necessary to start with new educational school scenarios, incorporating diversity, respect and equal opportunities for all students with disabilities. Regardless of their condition, in addition to having a profile of suitable teachers to take on the teaching challenge (Mena et al., 2020). Similarly, an inclusive process that can be rescued is the practice of sports within educational institutions, which require a set of rules and collaborations between authorities, teachers and parents who play an extremely important role in the education of their children (Ainscow, 2020).

The implementation of Goalball within PE programs in inclusive educational contexts transcends the mere promotion of physical development and health, as argued by Montenegro & Fernández-Cerero (2024). This approach stands as an advanced mechanism to promote equity and ensure equal conditions for all students. Its integration goes beyond the strengthening of physical capacities, extending to the inculcation of fundamental values such as mutual respect, cooperation and acceptance of diversity, thus consolidating itself as an effective strategy for progress towards greater inclusion in the sports field.

Motivation, understood as an intrinsically personal and differentiated attribute among individuals with visual impairments, plays an essential role in acting as a catalyst for participation in sports activities designed with inclusive criteria. The elucidation of the particular motivations that incite each individual is essential for the proper direction of inclusive initiatives, seeking to meet the precise expectations of athletes with visual impairments (Zambrano & Hincapié, 2022). This conception extends with equal relevance to adapted athletes, for whom their disability condition can constitute the core that shapes their incentives to engage in sports practices. Therefore, the recognition and deep understanding of these motivations emerge as crucial aspects in the design and offering of sports activities that are genuinely adaptive and respond to the needs and aspirations of adapted athletes.

Despite significant advances in the field of educational inclusion, there remains a notable discrepancy in the evolution of pedagogical paradigms towards adaptation to diversity, limiting universal accessibility to learning opportunities and compromising effective inclusion. This problem is rooted in the persistence of traditional educational models, which, for the most part, maintain an adherence to conventional and rigid methodologies, focusing on the homogenization of the educational process (Pérez et al., 2024). Within this framework, the incorporation of inclusive sports, such as Goalball, stands out as an innovative strategy that facilitates the overcoming of educational barriers and encourages

the participation of individuals with visual disabilities. Thus, these sports act as catalysts for the promotion of a genuinely inclusive educational experience, underlining the importance of adapting pedagogical approaches to the needs of student diversity.

Goalball is a sport developed for people or athletes with visual disabilities, with its own training methods. The evolution of this sport makes the methodology associated with strategies, tactics, techniques and physics in training more effective (Tosim et al., 2021). There is interest throughout the world in adapted sport, thus integrating the Summer Paralympic Games, in which the men's branch was included in the 1976 games in Toronto and the women's branch in the New York games in 1984 (Fernández et al., 2021). The impact of Goalball favors adaptation in people with visual disabilities, exploring their physical conditions as well as their intellectual part, in addition to presenting better living conditions and increasing their functionality in the motor, social and affective part (Kokhan et al., 2021).

Similarly, in the practice of Goalball some peculiar characteristics are presented within the physical, psychological and cognitive sphere, the first aspect within this sport is to reduce the body mass index (BMI), the second aspect is the development of cardiorespiratory resistance, muscle strength and flexibility, the third aspect is an optimal development of postural control compared to sedentary people in addition to having a good auditory reaction (Petrigna et al., 2020).

In the IBSA (International Blind Sports Federation), there is a visual classification used by the letter B accompanied by the numbers 1,2 and 3, the lower the number, the greater the vision loss, thus the classification being: B1, B2 and B3 (Silva do Nascimento et al., 2019). In the city of Ambato Ecuador, there is the Fénix Club for people with visual disabilities, where different physical, psychological and cognitive abilities are developed. In the aforementioned club, we find athletes with B1 and B2 grades who practice Goalball, using all safety measures when developing their activity.

In the context of PE, particular challenges are identified for students with visual impairments that require specialized attention. The incorporation of inclusive sports, such as Goalball, is revealed as an effective means to positively influence the strengthening of confidence, self-esteem and resilience in these students, according to Godoy-Briceño et al. (2024). The integration of such activities in the school curriculum transcends mere sports participation, by offering essential platforms for social interaction with peers without visual impairments, thus promoting an enriched learning environment. Furthermore, Goalball emerges as a primary pedagogical tool to encourage the adoption of inclusive values and foster a transformation in perceptions and attitudes towards people with visual impairments, contributing significantly to the construction of a more inclusive and empathetic educational community.

Based on the above and taking into account the benefits that Goalball presents and the skills that this sport develops in people with visual disabilities, the objective of the research is to design a strategy based on this sport, which allows the development of educational inclusion processes between students with visual disabilities and those who do not have them and to experimentally verify it.

Methodology

Research design

This research work was developed under a mixed approach, proposing in its quantitative stage an applied type of research, by pre-experimental design, explanatory scope, field and longitudinal section. In the qualitative stage of the study, a phenomenological design was applied to analyze and interpret the experiences of those involved in the educational process in the application of the proposed proposal.

For the theoretical foundation process, the analytical-synthetic method was applied, analyzing each study variable from its general aspects to its specificities and vice versa. In the development of the research and construction of new knowledge, the hypothetical-deductive method was applied, which allowed the verification process of the study hypotheses, supported by the application of statistical-mathematical methods and the descriptive method in the phenomenological analysis.

Population and study sample

The study population was considered a total of 170 students of the Basic General Secondary Education Sublevel, from a Public Educational Unit in the city of Ambato, Ecuador, and 22 students from a Specialized Education Institution for people with special educational needs (NEE) of the same locality, through a non-probabilistic sampling by insertion criterion (blind students) a total of 6 participants were selected from the Specialized Institution and by a sampling by volunteers (conventional students), a sample of 9 participants was selected from the Public Education Institution, working with a final sample of 15 students, characteristics of which are evidenced below:

Table 1

Characteristics of the study sample

Presence of visual impairment	Variables	Male (n=7 – 46.7%)		Female (n=8 – 53.3%)		Total (n=15 – 100%)	
		M	DS±	M	DS±	M	DS±
No (n=9 – 60%)	Age (years)	12.7	1,2	12.7	0.8	12.7	0.9
	Weight (kg)	50.3	0.58	45.5	2.4	47.1	3.1
	Height (m)	153	6.1	151	3.3	151.7	4.2
Yeah	Age (years)	12.8	0.9	12.5	0.7	12.7	0.8

(n=6 – 40%)	Weight (kg)	50	1.4	47.5	2.1	49.2	1.9
	Height (m)	153.5	4.4	151	0	152.7	3.7

Note. Descriptive analysis of mean values (M) and standard deviations (SD)±)

The study sample consisted mostly of conventional students and a smaller group of blind students with a disability classification according to the International Blind Sports Association (IBSA):

- **B1:**Visual acuity poorer than LogMAR 2.6
- **B2:**Visual acuity in the range between LogMAR 1.5 to 2.6 (inclusive) and/or visual field constricted to a diameter of less than 10º

Similarly, there was a higher percentage of female students and in general the average age of the group fluctuated between 12.5 and 12.8 years.

Research techniques and instruments

When proposing a mixed research design, the following research techniques and instruments were established:

Table 2

Research techniques and instruments

Technique	Instrument	Description
Observation (quantitative)	Observation sheet	Evaluation of the inclusion process in the practice of Goalball of the study sample based on the dimensions: - Social and relational - Motivational and values - Motor skills and coordination Likert scale (0 to 3) Never – 0; Sometimes 1; Often -2; Always – 3 Combrach alpha (0.716 – acceptable)

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Table 2

Research techniques and instruments (continued)

Technique	Instrument	Description
Survey (qualitative)	In depth interview	Questions (5) open in depth to representatives of the participating student groups (conventional and blind) and the sports coach, questions related to: For students with visual impairments: - Personal experience - Feelings and perceptions - Barriers and facilitators - Interaction with peers - Educational Impact For students without disabilities - Goalball Perception - Empathy and understanding - Learning experiences - Challenges and achievements - Suggestions for inclusion For Coaches - Teaching strategies - Observations on the interaction - Challenges in training. - Goalball's impact on inclusion - Recommendations for future activities

Statistical treatment of the results

The statistical package SPSS version 25 for Windows was applied, developing a descriptive analysis of mean values and standard deviations in the quantitative variables and a frequency and percentage analysis for the qualitative variables. In the general verification of the results, the Shapiro Wilk normality test was used, which determined the application of the nonparametric test for dependent paired samples of Wilcoxon.

Intervention plan

The research was based on the design of an inclusion strategy based on the game of Goalball, which was implemented for 8 weeks with a weekly session for its development. The proposal raised content related to the social and relational dimensions between the study participants, the aspects of motivation and values of inclusion, as well as the development of skills and motor coordination as substantial elements of the inclusive process within the educational system:

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Table 3

Proposal for a strategy for the educational inclusion of students with visual disabilities based on Goalball

Session	Content/Activities	Class Objective	Participants' actions
1st	Orientation in the playing space.	Learn to navigate the playing field taking into account the characteristics of each participant.	Blind people: Familiarization with the playing space. Visionaries: Familiarization with the use of a mask, a sound ball, and markings in the playing area.
2nd	Learning technical actions of passing and receiving Goalball.	Learn the basic technique of passing and receiving the ball.	Blind people: Learning basic passing and receiving techniques through verbal instructions from coaches. Sighted: Learning basic passing and receiving techniques through verbal cues from coaches and guidance from blind participants.
3rd	Learning technical actions for throwing and receiving the goal in Goalball.	Learn the basic technique of throwing and receiving the ball by the goalkeeper.	Blind: Learning the basic techniques of throwing and receiving the ball by the goalkeeper through verbal instructions from the coaches. Sighted: Learning the basic techniques of throwing and receiving the ball by the goalkeeper through verbal instructions from the coaches and the guidance of blind participants.
4th	Learning tactical game actions by deepening the basic techniques learned.	Learn tactical approaches to the game by applying and perfecting the basic techniques learned.	Learning tactical actions in the game, developing a joint practice between blind and sighted participants with verbal instructions to perfect the basic techniques of Goalball
5th	Mock game with mixed rules and teams	Improve technique and tactics through a regular Goalball match between mixed teams	Development of tactical game actions between mixed teams, supported by verbal instructions and the guidance of blind participants through continuous physical contact.

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Table 3

Proposal for a strategy for the educational inclusion of students with visual disabilities based on Goalball (continued)

Session	Content/Activities	Class Objective	Participants' actions
6th	Mock game with specific rules and equipment (blind and sighted).	Improve technique and tactics through a regular Goalball match between specific teams (blind and sighted).	Development of tactical game actions between specific teams (blind and sighted), supported by verbal instructions from the coaches.
7th	Awareness game.	Develop skills of agility, spatial perception, auditory discrimination through playful actions.	Development of agility skills, spatial perception, auditory discrimination through playful actions between mixed teams.
8th	Endgame	Develop a Goalball game under all rules and penalties with mixed teams.	Development of tactical and technical skills learned through a real game of Goalball with mixed teams.

Results

The application of the observation form to evaluate the process of inclusion in the practice of Goalball, allowed to demonstrate the results obtained by groups of participants in the PRE and POST intervention periods, developing an analysis for each dimension established as part of the inclusion in the educational field:

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Table 4

Results of the social and relational dimension of the inclusion process PRE and POST intervention

Items observed	Clairvoyant group (n=9 – 60%)					Blind group (n=6 – 40%)				
	PRE		POST		P	PRE		POST		P
	M	DS±	M	DS±		M	DS±	M	DS±	
Active participation	1.33	0.87	2.67	0.50	0.014*	1.33	1.03	2.33	0.52	0.034*
Relationship between colleagues	1.67	0.71	2.56	0.53	0.011*	1.50	0.54	2.50	0.55	0.043*
Cooperation with DV students	1.22	0.67	2.56	0.53	0.010*	3	0	3	0	1**
Cooperative problem solving	0.89	0.78	2.56	0.53	0.006*	1	0.63	2.67	0.52	0.023*
Evidence of inclusion	1.33	0.50	2.67	0.50	0.006*	3	0	3	0	1**
Effective communication	1.33	0.71	2.78	0.44	0.009*	0.67	0.52	2.50	0.55	0.020*
Social and relational	7.78	2.44	15.78	1.30	0.007*	10.50	1.52	16	0.89	0.028*

Note: Descriptive analysis of mean values (M), standard deviations (SD±) with significant differences at the level of P≤0.05 (*) and P>0.05 (**)

The analysis of the results of the social and relational dimension of the inclusion process showed that in all the indicators evaluated, both for the sighted and blind students, there were significant differences at a level of P≤0.05Between the study periods, only in the indicators of "cooperation with students with VD and in the evidence of inclusion with them, the group of blind students did not present differences at a descriptive level and therefore at a statistical level.

Table 5

Results of the motivation and values dimension of the inclusion process PRE and POST intervention

Items observed	Clairvoyant group (n=9 – 60%)					Blind group (n=6 – 40%)				
	PRE		POST		P	PRE		POST		P
	M	DS±	M	DS±		M	DS±	M	DS±	
Motivation in carrying out the activity	1.78	0.67	2.56	0.53	0.020*	1.67	0.82	2.83	0.41	0.038*
Practice values during participation	1.56	0.73	1.78	0.67	0.157**	1.83	0.75	2.50	0.55	0.046*

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Table 5

Results of the motivation and values dimension of the inclusion process PRE and POST intervention (continued)

Items observed	Clairvoyant group (n=9 – 60%)				P	Blind group (n=6 – 40%)				P
	PRE		POST			PRE		POST		
	M	DS±	M	M		M	DS±	M	DS±	
Motivational and values	3.33	0.87	4.33	0.71	0.024*	3.50	1.38	5.33	0.82	0.034*

Note:descriptive analysis of mean values (M), standard deviations (SD±) with significant differences at P≤0.05 (*) and P>0.05 (**) levels.

The analysis of the results of the motivation and values dimension of the inclusion process, showed in relation to the group of sighted students significant differences at a level of P≤0.05 only in the indicator of "Motivation in carrying out the activity" and on the contrary without significant differences at a level of P>0.05 in the indicator of "Practice of values during participation", however at a general level there were significant differences in the dimension analyzed. In relation to the group of blind students, there were significant differences at a level of P≤0.05 in all the indicators and in the dimension evaluated in general.

Table 6

Results of the dimension of skills and motor coordination in the inclusion process PRE and POST intervention

Items observed	Clairvoyant group (n=9 – 60%)				P	Blind group (n=6 – 40%)				P
	PRE		POST			PRE		POST		
	M	DS±	M	DS±		M	DS±	M	DS±	
It shows motor coordination in the execution of the necessary actions	1.33	1.12	2.67	0.50	0.014*	1	0.89	2.50	0.55	0.041*
It shows a management of skills for the execution of the activity	1	1.12	2.33	0.50	0.010*	1.83	0.98	2.67	0.52	0.059*
Motor skills and coordination	2.33	1.12	5	0.50	0.007*	2.83	0.41	5.17	0.75	0.026*

Note:descriptive analysis of mean values (M), standard deviations (SD±) with significant differences at P≤0.05 (*) and P>0.05 (**) levels.

The analysis of the results of the motor skills and coordination dimension of the inclusion process showed, in relation to both groups of students (sighted and blind), the existence of significant differences at a level of P≤0.05 in all indicators and in the dimension in general.

In summary, an improvement was observed in all the dimensions evaluated with positive results at a descriptive and inferential level:

Table 7

Results of the inclusion process PRE and POST intervention

Items observed	Clairvoyant group (n=9 – 60%)				P	Blind group (n=6 – 40%)				P
	PRE		POST			PRE		POST		
	M	DS±	M	DS±		M	DS±	M	DS±	
Social and relationship	7.78	2.44	15.78	1.31	0.007*	10.50	1.52	16	0.89	0.028*
Motivation and values	3.33	0.87	4.33	0.71	0.024*	3.50	1.38	5.33	0.82	0.034*
Motor skills and coordination	2.33	1.12	5	0.50	0.007*	2.83	0.41	5.17	0.75	0.026*
State of inclusion	13.44	2.24	25,11	1.36	0.007*	16.83	2.64	26.50	2.17	0.027*

Note:descriptive analysis of mean values (M), standard deviations (SD±) with significant differences at P≤0.05 (*) and P>0.05 (**) levels.

Similarly, based on the application of in-depth interviews as part of the proposed phenomenological design, the ideas of each interviewee could be established according to the proposed script:

Table 8

Interviewees' thoughts on their experiences in inclusive Goalball intervention

Ideas from students with visual impairments	Ideas from students without disabilities	Coaches' Ideas
Personal experience "Participating in Goalball has been transformative. I felt active, included, and able to compete on equal terms. This experience has given me confidence and made me feel valued in my educational community."	Goalball Perception "At first I found it to be a complicated sport, but I quickly realised its value as a tool for inclusion and its potential to build empathy."	Teaching strategies "I adapted the training to be inclusive, using balls with bells and blindfolds for the non-visually impaired participants, thus promoting a level playing field."

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Table 8

Interviewees' thoughts on their experiences in inclusive Goalball intervention(continuation)

Ideas from students with visual impairments	Ideas from students without disabilities	Coaches' Ideas
Feelings and perceptions "During the games, I experienced a mixture of excitement and nervousness. Winning a point or simply being able to participate filled me with joy and pride."	Empathy and understanding "Definitely. Understanding the challenges my visually impaired peers face has changed the way I view the world, making me more aware and considerate."	Observations on the interaction "I observed how sport served as a bridge, uniting students beyond their differences. Collaboration and mutual support grew noticeably throughout the sessions."
Barriers and facilitators "An initial barrier was adapting to the playing space, but the use of specific sounds to orient myself and the positive attitude of the coaches and teammates greatly facilitated my participation."	Learning experiences "I learned that inclusion goes beyond physical accessibility; it's about adapting our attitudes and actions to create a welcoming environment for everyone."	Challenges in training "The biggest challenge was adjusting activities to ensure everyone felt safe and engaged. This required creativity and flexibility in the pedagogical approach."
Interaction with peers "My interaction was mostly positive. Some colleagues were very receptive and cooperative, which improved the experience for everyone."	Challenges and achievements "The biggest challenge was learning to trust my other senses. Overcoming that taught me the importance of adaptability and effective communication."	Goalball's impact on inclusion "Goalball has had a significant impact, promoting not only physical but also social and emotional inclusion, encouraging students to value diversity."
Educational impact "This experience has enriched my education by teaching me team values, self-confidence and resilience, aspects that I apply in my academic life."	Suggestions for inclusion "I would promote more inclusive activities that require students without disabilities to put themselves in the shoes of their peers with disabilities, to foster mutual understanding and respect."	Recommendations for future activities "I would recommend regularly incorporating adaptive sports into the curriculum and providing training to students and staff on inclusion and adaptability."

Note:direct ideas from the interviewees

The analysis of the ideas raised by the representatives of the study sample for the interview process allowed us to develop a categorization at a general, axial and executive level, which showed the relationship between the actions, roles and perceptions of each of them.

Table 9

Summary of general, axial and executive categories of the experiences of participants in the inclusive Goalball intervention

General categories	Axial categories	Executive categories
Experiences and interactions It reflects personal experiences, the dynamics of interaction between students with and without visual impairments, and the interaction with the environment.	Promoting inclusion How Goalball acts as a catalyst for educational and social inclusion, through active participation and mutual understanding.	Strategies to improve educational practice Practical recommendations for integrating adaptive sports and promoting inclusion.
Barriers, facilitators and challenges It includes the specific obstacles faced, the elements that facilitated participation and the challenges overcome.	Development of social and personal skills Learning transversal skills such as communication, teamwork, and resilience.	Actions to strengthen empathy and mutual understanding Activities designed to raise awareness of individual differences and foster inclusive environments.
Change of perception and empathy It encompasses how experiences altered perceptions about visual impairment and fostered empathy.	Overcoming obstacles through adaptation and creativity Strategies used to adapt to the challenges presented by visual impairment and the integration of all students.	Inclusive policies and practices Suggestions for implementing educational policies that support inclusion and diversity.
Educational and social impact Consider the impact of the activity on learning, personal development and social inclusion.		

Note:categories based on the direct ideas of the interviewees.

General summary by category

Experiences and interactions:The practice of Goalball generates a space of equality, where differences are minimized and collaboration is essential.

Barriers, facilitators and challenges:Adapting the environment and having an open and positive attitude are key to overcoming barriers and promoting participation.

Change of perception and empathy:Direct exposure and shared experience are essential to the development of empathy and mutual understanding.

Educational and social impact:Goalball has a positive impact on learning, personal development and inclusion, extending beyond the sporting sphere.

Discussion

As a result of the inclusion process, significant differences were evident in all the dimensions evaluated: Social and relational (0.028), Motivational and values (0.034),

Skills and motor coordination (0.026) and in general in the state of inclusion with a value of P≤0.05 (0.027), results that can be compared with the studies carried out by Campos - Campos et al. (2023), in which they showed differences in the dimensions: Values (0.000), participation (0.002), social awareness (0.004), critical reflection, motor skills and abilities (0.000), which at a general level presented significant differences in the state of inclusion at a level of P≤0.001.

The intervention proposal was based on a didactic unit in which contents were developed referring to learning technical actions of passing, receiving, throwing, goalkeeper reception, in addition to tactical game actions deepening the basic techniques learned, accompanied by simulations of games with mixed rules and teams of Goalball, with the aim of developing an inclusion process in students with and without visual disabilities, work that is related to what was proposed by Hernández-Beltrán et al. (2021), in the proposed didactic unit for Physical Education: "Goalball as an inclusion tool", in which knowledge contents of Goalball were developed, of the different strategies to develop the game (attack and defense), as well as the knowledge of the different disabilities that exist in the adaptation, creation of some sports and education on disabilities taking care of the materials and implementing norms of respect, as points that our proposal did not raise.

In the qualitative component of the study, interviews were conducted with a representative of students with disabilities, who expressed their expectations based on their personal experience, feelings and perceptions, barriers and facilitators, interaction with peers, and the educational impact they experienced when participating in this inclusive proposal. The student without visual impairment also expressed his ideas about the perception of Goalball, empathy and understanding, learning experiences, challenges, achievements, and his suggestions for inclusion under the application of proposals of this type. Many of these aspects were considered in what was proposed by MacDonald et al. (2020), in which a reverse integration program was proposed as a conceptual framework to guide the interpretation of the experiences of participants in the Goalball discipline, extracting main ideas in relation to the advantage of disability, the creation of team cohesion, the disappearance of disability, enjoyment and pride in practicing this adapted sport, with benefits to students with visual impairments, since they see disability as an advantage and without questioning assumptions about the capabilities of their teammates.

Conclusions

- The practice of Goalball within the educational environment acts as a powerful tool for inclusion, facilitating not only the adaptation and participation of students with visual impairments but also promoting a profound change in the perception and attitudes of students without disabilities. This change translates into greater empathy, mutual understanding, and collaboration among all members of the educational community. The research results obtained suggest that effective

inclusion is achieved through the adaptation of the environment, the promotion of shared experiences, and the promotion of educational policies and practices that value and celebrate diversity. This comprehensive approach contributes to the development of a more inclusive, empathetic society that is aware of the capabilities and potential of each individual.

Conflict of interest

The authors certify that there are no conflicts of interest in this work.

Bibliographic References

Ainscow, M. (2020). Promoting inclusion and equity in education: lessons from international experiences. Nordic Journal of Education Policy Studies, 6(1), 7-16.https://doi.org/10.1080/20020317.2020.1729587

Brian, A., Starrett, A., Haibach-Beach, P., De Meester, A., Taunton Miedema, S., Pennell, A., & Lieberman, L.J. (2020). Perceived motor competence mediates the relationship between gross motor skills and physical activity in youth with visual impairment. Exercise and Sport Research Quarterly, 93(2), 310-317.https://doi.org/10.1080/02701367.2020.1831688

Cummiskey, M., & Gabbei, R. (2019). Should disability sport be a unit within a general middle or high school physical education class? Journal of Physical Education, Recreation and Dance, 90(5), 57-60.https://doi.org/10.1080/07303084.2019.1583030

De Luna, Wellington, Ha Sur, Myung, & Shapiro, Deborah R. (2023). Using the Paralympic Sport Education and School Day Model to Increase Awareness and Inclusion of Students with Disabilities in Physical Education. Journal of Physical Education, Recreation and Dance, 94(5), 5-15.https://doi.org/10.1080/07303084.2023.2185327

Engdahl-Høgåsen, L., & Bentzen, M. (2023). How is participation of people with disabilities studied and understood in current research within the sport context? A systematic literature review. International Journal of Sport and Exercise Psychology.https://doi.org/10.1080/1750984X.2023.2261115

Escárcega Servín, R., Pérez, F., Charles Lansingh, V., & López Star, E. (2019). Visual impairment and blindness among students of a school for the blind in Querétaro, Mexico: a causal assessment. Mexican Journal of Ophthalmology, 93(4), 178-184.https://doi.org/10.24875/rmo.m19000080

Fernández Muñoz, M.P., Campos, K., Luarte Rocha, C., & Castelli, L.F. (2021). Sports preparation in goalball: a systematic review. thinking in movement: Journal of Exercise and Health Sciences, 19(1), 1-24.https://doi.org/10.15517/pensarmov.v19i1.45702

Godoy-Briceño, J., Álvarez-Opazo, JJ., Zavala Crichton, JP, Solís Urra, P., & Rojas Moreno, S. (2024). Teachers self-efficacy and key factors for the inclusion of students with disabilities in Physical Education classes in Chile. Retos, 53, 130–138.https://doi.org/10.47197/retos.v53.102322

Hernández-Beltrán, V., Gámez-Calvo, L., & Gamonales, JM (2021). Proposal for a Teaching Unit for Physical Education: "Understanding sports for people with visual disabilities". E-motion: Journal of Education, Motor Skills and Research, 15, 77-101.https://doi.org/10.33776/remo.v0i15.5031

Kokhan, S., Romanova, E., Nadeina, L., Skaliy, T., Kowalski, W., Petrova-Gotova, T., & Krasimirova Lazarova, M. (2021). Goalball as a Factor of Physical Rehabilitation of Students with Visual Impairments. Palaestra, 36.https://js.sagamorepub.com/index.php/palaestra/article/view/11283

Parra, ML, & Serafini, EJ (2021). "Welcome everyone": inclusive language from a critical perspective for Spanish classes. Journal of Teaching of the Spanish Language, 8(2), 143-160.https://doi.org/10.1080/23247797.2021.2012739

Macdonald, C., Bryan, R.R., Lieberman, L.J., & Foley, J.T. (2020). "You Think Differently After Playing This Sport": Experiences of Collegiate Goalball Players. Recreational Sports Journal, 44(2), 139-148.https://doi.org/10.1177/1558866120964812

Mena Rengel, ED, Rengel Hinojosa, KE, Constante Barragán, MF, Molina Lozada, MA, & Riera Montenegro, MV (2020). Educational Inclusion in Pedagogical Processes. Redipe Bulletin Journal, 9(10), 55-61.https://doi.org/10.36260/rbr.v9i10.1087

Mihajlovic, C. (2019). Teachers' perceptions of the Finnish national curriculum and inclusive physical education practices. Curriculum Studies in Health and Physical Education, 10(3), 247-261.https://doi.org/10.1080/25742981.2019.1627670

Montenegro Rueda, M., & Fernández-Cerero, J. (2024). Inclusive sport: A pathway to equity and equal opportunities. Retos, 51, 356–364.https://doi.org/10.47197/retos.v51.100592

Pérez Vera, L., Sánchez Herrera, S., Rabazo Méndez, MJ, & Fernández Sánchez, MJ (2024). Educational inclusion of students with disabilities: an analysis of teachers' perception. Retos, 51, 1183–1193.https://doi.org/10.47197/retos.v51.100463

Petrigna, L., Giustino, V., Zangla, D., Aurea, S., Palma, R., Palma, A., & Battaglia, G. (2020). Physical fitness assessment in goalball: a scoping review of the literature. Heliyon, 6(7), E04407.https://doi.org/10.1016/j.heliyon.2020.e04407

Pinder, RA, & Renshaw, I. (2019). What can physical education coaches and teachers learn from a constraints-based approach to para sport? Pedagogy of Physical Education and Sport, 24(2), 190-205.https://doi.org/10.1080/17408989.2019.1571187

Rebernik, N., Favero, P., & Bahillo, A. (2021). Using digital tools and ethnography to rethink the design of inclusive cities for people with disabilities - Exploring material and immaterial dialogues. Disability and Society, 36(6), 952-977.https://doi.org/10.1080/09687599.2020.1779035

Rosas, R., Espinoza, V., Hohlberg, E., & Infante, S. (2021). Is Inclusive Education Always Successful? Comparative Results of the Regular and Special Systems. Latin American Journal of Inclusive Education, 15(1), 55-73.http://dx.doi.org/10.4067/S0718-73782021000100055

Silva do Nascimento, W.R., Pires de Camargo, E., Correia, E. d., & da Silva, V.A. (2019). Teaching interdisciplinary physics to students with visual impairments: the relationship with knowledge through the practice of Goalball. Journal of Cultural Studies, 5(14), 75-88.https://doi.org/10.32748/revec.v5i14.13252

Tosim, A., Galatti, L.R., & Montagner, P.C. (2021). Formal learning contexts for national and international goalball coaches. Physical Education and Science, 23(4), 202.https://doi.org/10.24215/23142561e202 https://efyc.fahce.unlp.edu.ar/article/view/efyce202

Zambrano Palencia, MA, & Hincapié Gallón, OL (2022). Facilitators in Paralympic sport: motives for sports practice in players with physical and visual disabilities. Retos, 44, 27–33.https://doi.org/10.47197/retos.v44i0.90277.

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