

Didactic experiences Cooperative-sensitizing games to improve attitudes towards disability in physical education in primary education. Vol. 8, no. 1; p. 60-80, January 2022.

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Cooperative-sensitizing games to improve attitudes towards disabilities in physical education in primary school

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Summary

The acceptance of peers is one of the facilitators to achieve the inclusion of students with disabilities and Physical Education is one of the most appropriate areas to promote positive attitudes. This work presents a didactic proposal of cooperative-sensitizing games in Physical Education in Primary Education. The main objective of this proposal is to analyse the effect of the first implementation of this type of games on the attitudes towards disability, and to analyse the barriers and facilitators of its implementation. It is developed with 51 students in the fifth year of Primary Education. The results obtained show that the practice of a series of cooperative-sensitizing games led the participants improve their attitudes towards disability in Physical Education. Among the main facilitators, the assessment of capacities and empathy stand out, while the fear of the students has been identified as the main barrier. It is concluded that this proposal of cooperative-sensitizing games can be useful in raising awareness of disability in Physical Education in Primary Education.

Key words

Simulation; cooperation; games; attitudes; inclusion.

Abstract

The acceptance of peers is one of the facilitators to achieve the inclusion of students with disabilities and Physical Education is one of the most appropriate areas to promote positive attitudes. This work presents a didactic proposal of cooperative-sensitizing games in Physical Education in Primary Education. The main objective of this proposal is to analyse the effect of the first implementation of this type of games on the attitudes towards disability, and to analyse the barriers and facilitators of its implementation. It is developed with 51 students in the fifth year of Primary Education. The results obtained show that the practice of a series of cooperative-sensitizing games led the participants improve their attitudes towards disability in Physical Education. Among the main facilitators, the assessment of capacities and empathy stand out, while the fear of the students has been identified as the main barrier. It is concluded that this proposal of cooperative-sensitizing games can be useful in raising awareness of disability in Physical Education in Primary Education.

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Introduction

The total percentage of students with Special Educational Needs within mainstream schools in the 2019-2020 academic year is 83% and, according to the type of disability, the following data are available: 40.3% corresponds to the category of multiple disabilities, 75.2% corresponds to intellectual disability, 83.3% corresponds to the category of general developmental disorder, 88.3% corresponds to motor disability, 94.9% corresponds to hearing disability, 94.9% to visual disability and 98.3% corresponds to the category of behavioural/personality disorder (Ministerio de Educación y Formación Profesional, 2021).

In this context, addressing diversity requires building an inclusive school model in which practices are based on the principles of taking all children into account, regardless of their characteristics and difficulties. A school that promotes democracy, equity, equality, diversity and belonging in its classrooms, in its sessions and with its students, but even more so, that shapes students to recognise that it is normal for us to be different (Simoni, Santillana and Yáñez, 2013).

One of the facilitators of inclusion of students with disabilities in Physical Education is the positive attitude of their peer group (Wilhelmsen and Sørensen, 2017). Various strategies are used in order to encourage a change in attitudes towards disability and improve the inclusion of pupils in Primary Education in the area of Physical Education. Among them, we emphasize those based on the educational potential of games, such as cooperative games and sensitizing games.

On the one hand, cooperative games require players to act in a group-oriented way, in which each participant collaborates with the others to achieve a common goal (Omecaña and Ruiz, 2016). These promote a positive assessment of peers, an increase in social relationships and facilitate the acceptance of diversity (Ruiz, 2008).

For example, Lavega, Planas and Ruiz (2014) analyse the cooperative motor behaviours of 40 children (18 with disabilities and 22 without disabilities) aged 8 to 11 years, in order to interpret the interaction process followed by each of the pupils participating in a workshop designed to promote inclusion through cooperative games. The conducted study

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confirms that all participants were able to actively participate in the cooperative games, engaging in adapted cooperative motor behaviours related to empathy, social dialogue and socio-affectivity.

Ríos (2009) states that cooperation helps to encourage the participation of students with disabilities. Cooperation enhances the inclusion of students with disabilities whilst excessive competition hinders inclusion. A study by Reina, Hutzler, Iñiguez-Santiago and Moreno-Murcia (2016) addresses the relationship between perceived skill level and competitiveness; the results show that students who felt more competitive and skilled had a more negative attitude towards disability. In the same vein, Abellán, Sáez-Gallego and Reina (2018) show similar results in their study. Therefore, it seems that excessive competitiveness hinders the improvement of attitudes towards disability and the inclusion of students with disabilities in Physical Education, especially when Physical Education has a competitive focus. In this study, we propose a cooperative approach to Physical Education with the aim of raising awareness of disability.

On the other hand, sensitizing games allow participants to experience the limitations of people with disabilities in a playful way and assess their capacities (Ríos, Blanco, Bonany and Carol, 1998). The main objective of these games is to raise awareness among participants about the reality of people with disabilities, to foster positive and supportive attitudes based on respect for diversity and to avoid negative or non-inclusive attitudes through enjoyment and participation (Ríos et al., 1998).

These games have been used in studies to raise awareness, sensitize and change students' attitudes towards disability and the results have been positive. For example, Navarro (2009) analyses the effects of fun activities and games aimed at primary school pupils in order to achieve greater awareness and better integration of classmates with special needs into the school dynamic. The study proved successful in achieving a level of awareness of disability.

González and Baños (2012) analyse the change in attitudes towards disability in physical activity classes through the practice of a sport for people with visual impairment (Goalball). Following the study, a significant change in attitudes and beliefs about sharing spaces and experiences with students with visual impairment was observed. In this sense,

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adapted sport is used as a sensitizing game, as indicated in the work of Abellán and Sáez-Gallego (2017).

Based on these results, the idea arose of combining awareness-raising games and cooperative games to promote inclusion, avoid situations of rejection or isolation of pupils and improve attitudes towards disability in Physical Education classes. A didactic proposal was developed which brought these games together, creating the cooperative-sensitizing games. This proposal presents the evaluation of the first use of this type of games in the context of Physical Education in Primary Education.

This didactic experience is a step towards the search for mediating variables that facilitate awareness of disability in Physical Education classes. New variables such as the different didactic strategies used in the work of Reina et al. (2020) or the effect of competitiveness analysed in the work of Ocete, Pérez-Tejero, Reina and Coterón (2020) have been added to the classic variables such as previous contact or the duration of the interventions.

Didactic approach

This intervention combines cooperative games and sensitizing games in Physical Education at the Primary Education stage with the aim of improving the attitudes towards disability of the participating pupils.

Cooperative-sensitizing games are those in which participants experience the limitations of people with difficulties in a playful way and value their abilities through games with common objectives, which favour positive interaction and collaboration among participants. The main characteristics of these games are outlined below (Figure 1).

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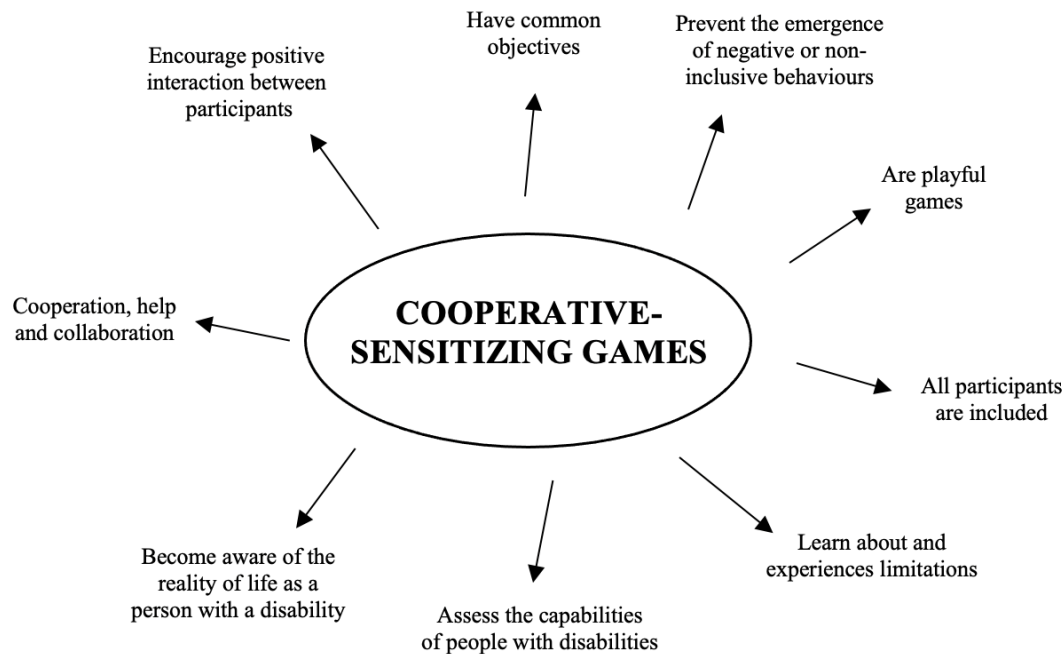


Figure 1. Main characteristics of cooperative-sensitizing games (Own creation).

Objectives

The main objective of this work is to analyse the effect of a didactic intervention based on cooperative-sensitizing games on the attitudes towards disability of a group of fifth year primary school pupils in Physical Education.

The following specific objectives are also intended:

- Experience possible limitations of people with disabilities from a playful perspective.
- Assess the capacities of people with disabilities.
- Find out the teacher's perception of the intervention.
- Perceive facilitators and barriers of the experience.

Context and participants

The didactic proposal is aimed towards a public school in a city of Castilla-La Mancha (Spain), which has a total of 439 pupils enrolled. A total of 51 pupils in the 5th year of

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Primary Education (age range = 10-11 years) from three different strands (A, B and C) took part in the proposal. Table 1 shows the distribution by group and gender.

Table 1. *Characteristics of the participating groups.*

	A	B	C
Boys	10	9	7
Girls	9	8	8
Total	19	17	15

Thirty students indicated that they had a family member and/or friend with a disability and 29 that they had had a classmate with a disability. These pupils had never participated in Physical Education sessions on disability before, so this was the first time they had participated in this type of intervention, in this case cooperative-sensitizing games.

The group's Physical Education teacher is 43 years old and has been teaching for 17 years. The intervention was conducted by a 23-year-old primary school teacher with a major in Physical Education, with 1 year of teaching experience, during her internship as part of a professional master's degree in Physical Education, who is the main author of the study. It was the first practical experience with awareness-raising programmes for both of them, although the main author had theoretical and practical knowledge from her initial training in both the bachelor's and master's degrees.

Development of the proposal

The didactic proposal consisted of the elaboration, development and evaluation of three sessions of cooperative-sensitizing games, which were carried out separately in the three participating groups. Each of these sessions lasted 45 minutes and took place in the same week.

The methodology used during the sessions was active, inclusive and participatory, promoting cooperation among the students. A positive atmosphere of tolerance and respect

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for differences was created. Furthermore, the excessive competitiveness that sometimes arises in Physical Education classes, situations of exclusion and discrimination of pupils, and the feeling of failure and fear of failure that many pupils sometimes suffer from, were avoided.

Different cooperative games and challenges were carried out in which the pupils experienced different disabilities, in which the simulation technique was used, a strategy commonly used in interventions to promote inclusion in the field of Physical Education. It is the "simulation", pretence or appearance of a disability, such as changes in a person's point of view about him/herself, about other people, or about a specific situation. It serves as a resource to encourage positive attitudes by increasing awareness of the condition of people with disabilities because during active simulations they improve self-efficacy, influencing attitudes towards inclusion and improving the stereotypical view of peers with disabilities, contributing to the debunking of false myths about disability (Ocete, Pérez-Tejero and Coterón, 2015).

With regard to cooperation, among the different types of cooperative games that exist, this proposal mainly focuses on two of them: "think, share and act" and "collective score/result". The "think, share and act" technique consists of posing a specific motor problem that the pupils must solve as a group. Each student thinks of possible solutions to the problem. Afterwards, they present their ideas to their partners and choose to do one of them. Based on the results, they can correct their motor actions, seeking greater effectiveness, or decide whether it is better to carry out a different idea (Velázquez, 2014). The "collective score" technique consists of performing a given task either individually, in pairs or small groups collaborating towards a common goal, i.e. achieving a group result, i.e. scoring points collectively. Therefore, each student contributes his or her effort to the overall achievement (Fernández-Río, 2017).

Table 3 presents the outline of the proposal, indicating the type of disability simulated, the type of cooperative game and an example of a game used during the session.

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Table 3. *Outline of the didactic proposal.*

Session	Simulation	Cooperative game	Example
1	Visually Impaired (VI)	Collective score	"Boom, the bomb has exploded." The pupils will be put into pairs, one of them will play the role of a person with VI (wearing a scarf) and the other will act as a guide, accompanying and protecting him/her. They will then switch roles. Each pair represents a bomb, so the guides must prevent two bombs from colliding so that they don't explode.
2	Physical disability (PD)	Think, share, act	"Offside." Each player will be seated on the floor (simulating a PD) and will have a soft ball. The basketball will be placed in the centre of the square. The aim is to try to get the basketball out of the square by throwing the soft balls.
3	Hearing Impairment (HI)	Think, share, act	"How do we get across the river?" All groups will initially be arranged on one side of the river with their ears covered (simulating a HI). The aim is to form a bridge with their materials so that all members of the group can cross the river through interaction and non-verbal communication.

Evaluation

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An evaluation was carried out with two measurement stages, pre-test and post-test, to find out whether the objectives set after the implementation of the didactic proposal of cooperative-sensitizing games had been achieved. The following instruments were used for this purpose:

- Socio-demographic questionnaire, in which the following variables were analysed: i) gender (boy or girl); ii) having had contact with family members or friends with disabilities ("*Do you have a family member or close friend with a disability?*"); and iii) contact with classmates with disabilities in P.E. classes ("*Have you ever had a classmate with a disability in your P.E. class?*"). For reporting gender, students ticked the corresponding option, and for the rest of the questions they had to choose between the options: "Yes" or "No".
- Scale of Attitudes Towards Inclusion of Students with Disabilities in Physical Education (AISDPE) by Íñiguez-Santiago, Ferriz, Martínez-Galindo, Cebrián-Sánchez and Reina, (2017). The original scale was intended for secondary school students. It has recently been validated for primary school students by Abellán, Ferriz, Sáez-Gallego and Reina (2020).

This survey begins with the introductory sentence "*In Physical Education, regarding people with disabilities...*". This scale includes four items, which are related to the behavioural component of the attitude (e.g., "*I would not propose a person with a disability as captain of my team*"). Responses are collected on a Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores on this scale reveal a less positive attitude towards the participation of students with disabilities in Physical Education. A first control question ("*I go to school in [town where the intervention took place]*") is also included to ensure that students understood the procedure to follow to complete the survey.

Following the guidelines of Íñiguez-Santiago et al. (2017), an explanation of the concept of disability was added to the survey: "*a person with a disability is a person who, due to an impairment of a bodily structure or function (physical, sensory or intellectual), has limitations in performing what would be normal activities*". Before

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the students answered the questionnaire, the teacher explained the concept of disability, including examples and answering any questions they may have had. This survey was given to participants both before and after the cooperative-sensitizing games intervention, which served as a pre-test and post-test. The questionnaire has shown high reliability in the population of the present study ($\alpha=.879$).

- Focus group: Nine students were invited to participate, three from each group. The following criteria were established for participation: having been present in the three sessions of cooperative-sensitizing games, showing a participatory attitude and the ability to express their opinions on the intervention. For the selection of the sample, the help of the Physical Education teacher was requested. The aim was to find out the participants' ideas about disability, their experiences of the games, how they had felt and whether cooperation and help were important. To do this, firstly they were asked questions about people with disabilities and then about their experiences in the cooperative-sensitizing games. Some examples of questions: *"Do you think that people with disabilities have problems or difficulties in their daily life?"*, *"Do you think they need our help?"*, *"How did you feel during the games?"*, *"Did you help each other to achieve the goal of each game?"*, *"Do you think it is important to help each other?"*.
- Semi-structured interview: An interview was conducted with the Physical Education teacher to find out her opinion about the cooperative-sensitizing games sessions. Some of the questions asked were: *"Do you think carrying out this intervention has been positive?"*, *"What have the students learned?"*, *"Do you think it is important to work on these issues in Physical Education?"*.

Informed consent to participate was obtained from the legal guardians of the participating students, as well as from the teacher and those responsible for the school. The administration of the tests was carried out in the classroom of each group, during school hours and in the presence of the Physical Education teacher. The anonymity of all participants was

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guaranteed. The ethical recommendations of the American Psychological Association (2010) were respected during the data collection process.

Data analysis

For the quantitative data, Excel was used to collect all the data from the participants. SPSS.23 was then used to analyse these data. First, the normality test was carried out and once it was found that the distribution of the data did not meet the criteria for normality, non-parametric tests were conducted. Specifically, a side-by-side comparison (pre-test, post-test) was carried out using the *Wilcoxon* signed-rank test to compare the effect of the intervention on attitudes towards disability in Physical Education.

The analysis of the qualitative data collected was based on the identification of the units of analysis, the subsequent grouping of these into two categories (facilitators and barriers) and the codes assigned to these two categories; within facilitators: previous experiences, help, cooperation, assessment of capacities, trust, empathy and raising awareness, and within barriers: limitations and fear. The *Atlas.ti* programme was used for this purpose. An initial deductive analysis was carried out for the categories, followed by a subsequent inductive analysis for the generation of codes. The initial coding was carried out by the main author of the study. The resulting codes were extensively discussed with the second author, who acted as a critical friend. This process resulted in the final coding presented in the following section.

Results

Quantitative results

The results of attitudes towards inclusion in Physical Education are presented in Table 4.

Table 4. *Results of attitudes towards inclusion in Physical Education (M±DT).*

	Pre-test	Post-test
I prefer not to interact with people with disabilities*.	1,79 ± 1,33	1,35 ± 0,80

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I would avoid doing class work with a person with a disability.	1,76 ± 1,25	1,49 ± 0,80
I would avoid having a person with a disability on my team*	1,89 ± 1,32	1,42 ± 0,83
I would not propose a person with a disability as captain of my team.	1,84 ± 1,34	1,53 ± 1,08
AISDPE Total	1,82 ± 1,20	1,44 ± 0,69

Note. Asterisk (*) indicates significant differences for $p < 0.05$.

The *Wilcoxon* test showed no significant differences for $p < 0.05$ for the total scale. In an item-by-item analysis, the *Wilcoxon* test reveals significant differences in item 1 ($Z = -2.27$, $p = .023$) and item 3 ($Z = -2.39$, $p = .017$). After the intervention, participants scored significantly lower on these items, showing a more positive attitude towards disability in Physical Education.

Qualitative results

The results obtained show a total of 68 quotes distributed in 9 codes that make up two main categories: facilitators and barriers, as can be seen in Table 5.

Table 5. Classification of codes and quotes in their respective categories.

Category	Codes	Quotes
Facilitators	Help	7
	Cooperation	4
	Assessment of capacities	12
	Trust	6
	Empathy	11
	Raising awareness	10
Barriers	Limitations	9
	Fear	6

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The facilitators category is the most representative across 6 codes: help, cooperation, assessment of capacities, trust, empathy and raising awareness (a total of 53 quotes). The names given are pseudonyms of the participants.

Participants discussed their experiences during the cooperative-sensitizing games intervention. In terms of cooperating and helping each other were the following comments: *“in the puzzle game we had to help guide each other because there were so many obstacles, so if you didn't guide well you wouldn't be able to do it”*, said Hugo, and Emma continued, *“and also in the film game we all had to work together to get it right so that the others could understand which film it was”*. The teacher confirmed this by stating *“they helped each other and worked together throughout the different games at all times”*.

They then commented on how they felt. *“Well... in some of the games I felt strange because I had never not been able to see or hear before, so I felt strange, but then I felt normal”*, said Inés. *“I felt... not compassion, but I don't know what... people with disabilities have to make a huge effort, whereas us, we were there for 5 minutes and we couldn't go any longer”* said Candela and Inés reaffirmed this answer and added *“and also emotion”*.

Students were asked what they learnt and the answers were as follows. Emma said *“well, it has helped me to understand people with disabilities...”*, and Inés responded, *“it's true, it's not as easy as people think, you have to trust someone else and it's very difficult”*. Candela adds:

“When you do it yourself and when you feel that the person doesn't see or whatever and you put yourself in their shoes, you realise that you shouldn't laugh at them because you can offend them and it's really difficult for them”.

Finally, the interviewer asked, *“and do you think it is important to work on this at school as we have done now?”* Hugo answered *“yes, to be more aware”* and Inés said, *“so that people see that it is not easy and if it were you, you wouldn't like it if they laughed at you and didn't help you...”*. The teacher added *“it has been a very positive intervention...the pupils have experienced different disabilities, they have put themselves in the shoes of people with disabilities and they have learned a lot...I think it is very important to work on this issue in this area...”*.

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However, we also observed a number of barriers in the implementation of this teaching experience. This category, consisting of 2 codes (15 quotes in total), involves limitations and fear. With regard to limitations, the pupils showed different types of limitations in cooperative-sensitizing games and related them to those that people with disabilities may have. *“It is not easy for people with disabilities to do some activities”* argued Nadia. *“Their body is not able and there are some things they cannot do...”*, added Silvia.

As for fear, Candela commented *“when you had to cover your eyes, I don't know, I was kind of scared because I was not used to it and I felt like I was going to crash”*. Marcus agreed: *“it was scary in case you crashed, I felt uncomfortable”*, and Inés added *“I just didn't trust it”*.

Discussion

The aim of this study was to analyse the effect of an intervention of cooperative-sensitizing games, carried out with students in the fifth year of Primary Education, on attitudes towards disability in Physical Education.

A novel perspective is presented because of the elaboration, development and evaluation of an intervention in which cooperative games and sensitizing games were combined. In this way, this study represents the first practical application of the proposal of cooperative-sensitizing games in Physical Education at the Primary Education stage, achieving positive results including the improvement of attitudes towards disability and the promotion of values such as respect for differences and inclusion.

The practice of a series of cooperative-sensitizing games led participants to improve their attitudes towards disability in Physical Education in all the items of the AISDPE questionnaire, although only in two of them were these improvements significant. These results indicate that students gave better values after the intervention, as shown for example by Hutzler, Fliess-Douer, Avraham, Reiter and Talmor (2007), McKay, Block and Park (2015) or Pérez-Torralba, Reina, Pastor-Vicedo and González-Víllora, (2018).

For example, Hutzler et al. (2007) conducted a study to explore the effect of two awareness-raising activities on children's attitudes towards their peers with disabilities. In the first activity they actively participated in a workshop simulating movement activities, while in

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the second intervention they observed their peers participating in a wheelchair basketball activity together with elite wheelchair basketball players. The results indicated significant positive effects on the cognitive and behavioural domains of attitudes towards disability.

Pérez-Torralba et al (2018) conducted research using para-sports, specifically Boccia and Goalball, for athletes with significant support needs to raise students' awareness of disability in their Physical Education classes with participants in the sixth year of primary school. The results revealed positive attitudes towards disability in the students who participated in the activity.

Furthermore, there is scientific evidence that cooperative games favour the inclusion of pupils. For example, Lavega et al. (2014) analysed the cooperative motor behaviours of 40 children (18 with disabilities and 22 without disabilities) aged 8 to 11 years, in order to interpret the interaction process followed by each of the pupils participating in a workshop designed to promote inclusion through cooperative games. The study confirmed that all participants were able to actively participate in the cooperative games, engaging in adapted cooperative motor behaviours related to empathy, social dialogue and socio-affectivity.

Moreover, it is emphasised that this change in attitudes was possible due to various facilitators such as positive attitudes and values of the participants and the teacher as observed in the results obtained in the qualitative study. As Martínez-Figueira (2013) states, indicators should be considered to recognise good inclusive practices, highlighting the attitudes and values of the entire educational community, defined as the inclusion of all, the acceptance of differences and the normality that this brings, equal access to opportunities, awareness of change, respect and tolerance. Participation and collaboration are also emphasized.

However, one barrier has been observed: fear. By putting themselves in the shoes of a person with a disability, the pupils experienced emotions that made it difficult for them to cope with the different situations encountered during the games because they were afraid of what might happen outside of their control. Martos-García and Valencia-Peris (2016) state that fear and mistrust caused by lack of knowledge are the worst barrier. Cordente-Mesas, González-Víllora, Block and Contreras-Jordan (2016) also note that it is common for students to feel afraid when experiencing a disability first-hand, for example, fear of the unknown, of

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falling, of becoming disoriented or of not trusting their guide, especially in the case of simulated visual impairment. Therefore, providing an atmosphere of safety and trust is essential to reduce these fears.

Conclusions

The implementation of the intervention programme based on the implementation of cooperative-sensitizing games has been a positive experience, succeeding in combining cooperative games and sensitizing games in order to improve attitudes towards disability in Physical Education among students in the fifth year of Primary Education.

The high motivation of the students, their interest and participation have helped to ensure that the intervention was carried out successfully, increasing students' awareness of sensitivity, inclusion and changes in attitudes.

The need to include cooperative-sensitizing games in Primary School Physical Education programmes is stressed, so that pupils can learn about and experience first-hand the sensations experienced by people with some type of disability, in order to foster values such as respect for differences and inclusion.

Finally, it should be noted that a number of limitations have been detected, such as the lack of a control group and the small sample size. A control group would have allowed a reliable comparison of the results with the experimental group, and other variables that may have influenced the results obtained could have been observed. Moreover, the small sample size prevents extrapolation of these findings to the rest of the population of primary school students. The need for further research in this area is identified in order to determine the effectiveness of this type of programme on attitudes towards people with disabilities in primary school Physical Education classes. Therefore, the evaluation of the effects of the practice of cooperative-sensitizing games as part of the content of Physical Education classes at the Primary Education stage is proposed as a future line of research.

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