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Original article

Physical Education teacher competence for the inclusion of students with disabilities: an analysis

*Competencia del profesor de Educación Física, para la inclusión de escolares con
discapacidad: un análisis*

*Competência do professor de Educação Física para a inclusão de alunos com deficiência:
uma análise*

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ABSTRACT

The study focused on the perceived competence of physical education teachers for the inclusion of elementary schoolchildren with physical disabilities. The objective was to analyze the perceived competence of physical education teachers for the inclusion of elementary schoolchildren with physical disabilities in two municipalities in the central region of Cuba. Data were obtained from a questionnaire administered to 40 teachers. Theoretical methods such as analytical-synthetic and inductive-deductive ones were used, as well as empirical methods such as interviews, observations, and surveys. The results of the research reflected the description of the self-perception of teachers from both populations in all three dimensions. The conclusion was that teachers from the municipality of Cabaiguán had the most favorable self-perception regarding making specific adaptations, providing peer instruction, and confidence in the process of including students with disabilities in physical education classes.

Keywords: competence, physical disability, schoolchildren, physical education teacher

RESUMEN

El estudio se enmarcó en la competencia percibida por los profesores de Educación Física para la inclusión de escolares primarios con discapacidad física. Se formuló como objetivo analizar la competencia percibida por profesores de Educación Física para la inclusión de escolares primarios con discapacidad física, en dos municipios de la región central de Cuba. Los datos se obtuvieron de la aplicación de un cuestionario a 40 profesores. Se utilizaron métodos teóricos como el analítico-sintético y el inductivo-deductivo; y empíricos como la entrevista, la observación y la encuesta; del nivel matemático y/o estadístico, la distribución empírica de frecuencia. El resultado de la investigación reflejó la descripción de la autopercepción de los profesores de ambas poblaciones, en las tres dimensiones. Se concluyó con la autopercepción más favorable de los profesores del municipio de Cabaiguán, para realizar adaptaciones específicas, emitir instrucción a los iguales y seguridad en el proceso de inclusión de escolares con discapacidad en la clase de Educación Física.



Palabras clave: competencia, discapacidad física, escolares, profesor de Educación Física

RESUMO

O estudo focou na competência percebida de professores de educação física para a inclusão de alunos do ensino fundamental com deficiência física. O objetivo foi analisar a competência percebida de professores de educação física para a inclusão de alunos do ensino fundamental com deficiência física em dois municípios no centro de Cuba. Os dados foram obtidos a partir de um questionário aplicado a 40 professores. Métodos teóricos como métodos analítico-sintéticos e indutivo-dedutivos foram utilizados, bem como métodos empíricos como entrevistas, observações e pesquisas. Os resultados da pesquisa refletiram a descrição da autopercepção de professores de ambas as populações em todas as três dimensões. A conclusão foi que os professores do município de Cabaiguán tiveram a autopercepção mais favorável em relação a fazer adaptações específicas, fornecer instrução entre pares e confiança no processo de inclusão de alunos com deficiência nas aulas de educação física.

Palavras-chave: competição, deficiência física, escolares, professor de educação física

INTRODUCTION

The concept of inclusion has gained place as the right of every person to receive a quality education, allowing students with disabilities access to education on equal terms, greater interaction, understanding, and acceptance; although attitudes toward inclusion vary among teachers (González and Triana, 2018); (Paz, 2020).

To achieve the inclusion of schoolchildren with special educational needs, the professional involved must consider the need to develop a set of competencies that guarantee this process, such as sound pedagogical skills, theoretical and practical knowledge, a flexible, open, permanent, tolerant, and respectful attitude toward diversity, and adequate resources



to implement inclusion. This constitutes one of the main challenges in educational systems today (Campos et al., 2021).

However, on several occasions it is perceived that Physical Education (PE) teachers do not see this process as a problematic aspect, so the authors consulted consider that the most important factor for inclusion in PE is the attitude and perception of competence that teachers have of themselves, since in the studies carried out, professionals do not feel prepared and consider their training to be deficient in this field (Nieva and Lleixà, 2018).

Initial and ongoing training to address diversity should be conditioned by how the teacher perceives the degree of difficulty in carrying out the inclusion process, which allows demonstrating inclusive skills in the PE class (Abellán and Sáez, 2019).

For PE to be inclusive, it must be a philosophy and practice that ensures that all individuals, regardless of age and ability, have equal opportunities to practice; where success factors such as the provision of material resources, accessibility to the environment, adaptations to activities, support and relationships, services, organizational systems and policies, and positive attitudes are not lacking.

Perceived self-efficacy in the educational context is based on how teachers perceive themselves with respect to their skills and abilities to effectively structure academic activities in the classroom. It is taken into account that not all teachers experience high levels of self-efficacy, and an alternative would be the introduction of inclusive strategies from initial and ongoing teacher training.

Studies related to teachers' beliefs, perceptions and positive attitudes towards the inclusion of students with disabilities in PE correspond to Marín and Ramón (2021); Rhenals and Arango (2022) who declare the need to modify beliefs to initiate positive behavior and maintain it over time, attitudes as barriers or facilitators of inclusion and the inclusion of adapted or inclusive PE programs in initial training, which improves the perception of self-efficacy.



The aforementioned authors also point out that the educational quality of a program must be based on the perceptions of the people involved in its development, the significant relationship between self-efficacy and the inclusive strategies of teachers in training, and the importance of providing them with the training, tools, and knowledge to be able to undertake their role in an inclusive context.

Some authors such as Nieva and Lleixá (2018) agree in considering it appropriate to study the professional competencies of PE during their ongoing training, as it allows them to know and reflect on their beliefs in relation to the participation and inclusion of students with special educational needs, and to suggest guidelines for action in pedagogical and didactic aspects.

However, in the last two decades, proposals for adapted physical activity competencies and intervention programs to promote them have emerged with great force, including those of Jiménez and Cuevas (2013) and Valencia et al. (2020); the former seeks to establish a competencies profile in adapted physical activity for the physical activity professional.

These competencies include demonstrating sensitivity and a positive attitude toward people with disabilities; applying valid techniques and instruments to assess specific needs and prepare the environment in advance; demonstrating basic knowledge of terminology, legislation, and the characteristics of people with disabilities; and designing, programming, and making the necessary adaptations for students with different abilities, at the specific levels of their direct competence.

Other competencies include planning individual inclusive physical activities; demonstrating the ability to create, adapt, and appropriately use materials; understanding adaptive sports, promoting and teaching them; and communicating effectively with people with disabilities.

However, Reina et al. (2019) consider that despite the positive evolution that has occurred in recent decades, the training received by PE teachers still shows deficiencies, which affects their professional development. In this sense, the study presented aimed to analyze PE



teachers' perceptions of their competence in including primary schoolchildren with physical disabilities in PE classes.

MATERIALS AND METHODS

The design was exploratory/descriptive, using observation, interviews, and questionnaires to collect and analyze information, and descriptive statistics, using frequency and percentage distribution, to present the teachers' results.

Population and sample

The sample consisted of 40 PE teachers from primary schools, including students with physical disabilities, in the municipalities of Santa Clara (SC) and Cabaiguán, in the Central Region of Cuba. For the authors' comparative purposes, they were divided into two groups, 20 from each municipality. The questionnaire was completed by all 40 teachers.

Instrument

A part of the instrument was used: Teacher self-efficacy scale for the inclusion of schoolchildren with disabilities in PE, adapted to the Spanish context by Reina, Hemmelmayer and Sierra (2016), with a scale consisting of four parts, and three subscales, which evaluated the competence to conduct a physical condition test, for teaching sports abilities and games.

The questions asked were grouped into situations where the teacher addressed the inclusion of a student with an intellectual disability (part one), a physical disability (part two), and a visual disability (part three), specifically regarding the assessment of physical abilities, teaching motor abilities, and organizing team sports games.

The second part addressed the inclusion of a student with a physical disability. Teachers were asked to answer 12 questions about their abilities and confidence in including the student in the classroom. A text was presented with a series of questions about how competent/capable the student feels and how to make different adaptations. The teacher



was asked to answer a series of questions, including whether the student would be in the PE class during the following week.

Text describing a physically disabled student: Javier is a 6th grade student with a spinal cord injury. He cannot walk, so he uses a wheelchair. Javier likes the same sports as his classmates, but he doesn't do very well in a game situation. Although he can move his wheelchair, he is slower than the others and tires after propelling it for a few minutes. He can pass and serve a volleyball, but not far enough to get it over the net, and he can pass balls thrown directly to him. However, he lacks the upper limb strength to shoot a basketball high enough to score a basket. Because he cannot use his legs, he cannot kick a soccer ball, but he can push it forward with his wheelchair.

The questionnaire used Likert scale questions with values ranging from five (complete competence) to one (no competence), which allowed teachers to assess how confident they felt in carrying out the aspects described in the items.

The fourth and final part of the questionnaire collected demographic data from the participants, including age, years of work experience, adapted PE training, and previous experience in this field. To assess previous training experiences related to the study object, the following question was included: Have you previously taken any courses or training in adapted/inclusive activity/PE? In addition, to determine the level of prior experience or contact with people with disabilities, the following question was included: Have you previously been involved in any adapted/inclusive sport/PE situation?

Variables and dimensions

To achieve the objective of the study, the data obtained allowed the description of three dimensions of the study and their corresponding variables.



Table 2. Dimensions of the study and their corresponding variables.

1st Dimension: perception of competence for specific adaptations	
a	How competent do you feel at creating individual goals for Javier during the endurance test?
b	How competent do you feel to modify the test for Javier?
c	How competent do you feel to teach your colleagues how to help Javier?
d	How competent do you feel about making the environment safe for Javier during the endurance test?
2nd Dimension: perception of competence for the instruction of peers	
e	How competent do you feel to make modifications to sport abilities if Javier can't act like his peers when you teach sport skills?
F	How competent do you feel in making the environment safe for Javier when teaching the skills of the sport?
g	How competent do you feel about modifying the equipment to help Javier when teaching the basic skills of the sport?
h	How competent do you feel about teaching your teammates how to help Javier when teaching the skills of the sport?
3rd Dimension: Perception of competence for security	
i	How competent do you feel to modify the rules of the game for Javier?
j	How competent do you feel at modifying gear to help Javier during the game?
k	How competent do you feel in making the environment safe for Javier during the game?
l	How competent do you feel at teaching your teammates how to help Javier during the game?

Other variables studied were age, years of work experience, adapted PE training, and previous experience in this field.

Ethical considerations

The teachers surveyed were informed about the purpose and specifics of the study. The instrument's anonymity was maintained, and all participants provided their consent for the results to be disclosed.



RESULTS

The data obtained from the interview, observation, and survey were analyzed and statistically processed. Indicators included age and work experience, items from the main instrument used, training and experience in adapted PE, representation of perceived competencies for specific adaptations, peer training, and safety training. These are presented in graphs and tables below.

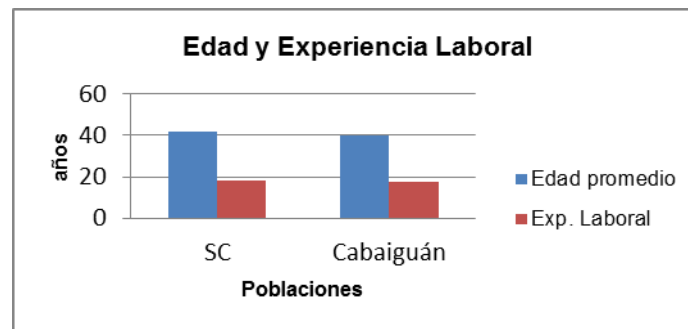


Figure 1. Age and work experience

Source: own elaboration

The first part of the instrument provided sociodemographic characteristics of the teachers. Regarding age, the average age was slightly higher in the SC population, at 41.6%, and 40% in Cabaiguán. Work experience averaged 18.4 years in SC, and 17.8 years in the Cabaiguán population.

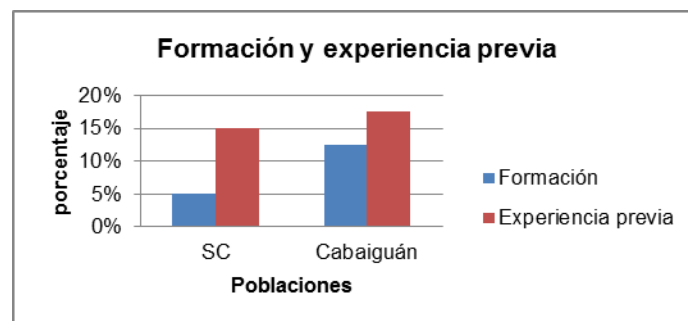


Figure 2. Training and experience in adapted Physical Education



Source: own elaboration

Regarding the training of participating teachers, 5% of the SC population received some adapted PE training during their Bachelor's Degree in Physical Education or continuing education; while in the Cabaiguán municipality, 13% did so. On the other hand, teachers in Cabaiguán had a greater amount of prior experience, specifically 17.5% and 15% of the SC population (Figure 2).

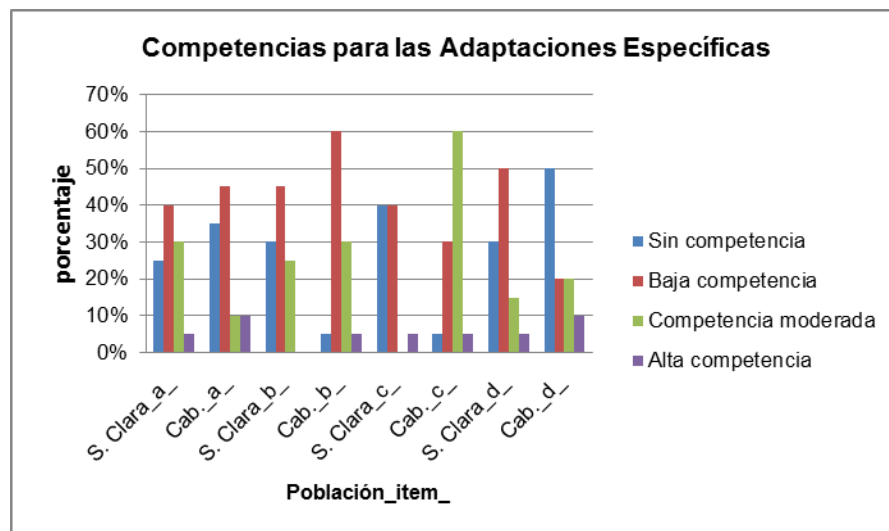


Figure 3. Representation of the perception of competencies for specific adaptations

Source: own elaboration

Figure 3 shows how 40% of SC teachers perceived themselves as unskilled in the specific adaptations in items (a, b, and c); 50% of the Cabaiguán population was significant in item (d), which is why they were characterized by not showing confidence or security in carrying out the task; they did not secure the environment, did not modify the materials, or set individual goals during the fitness tests.

SC teachers were identified as having low competence, especially by 60.0% in item (h), who showed little confidence and security to secure the environment to some extent, empirically modify the test, but did not set individual objectives, based on their physical condition.



The moderate competency was awarded mostly to the Cabaiguán population (60.0%) in item (c) teaching peers how to help with cases like Javier's. They showed confidence but were hesitant to carry out some tasks with the students; they secured the environment, modified the fitness test, and set individual goals for it.

Regarding those considered highly competent for specific adaptations, the Cabaiguán population stood out, with six teachers reporting making modifications to sports abilities, securing the environment, and modifying equipment.

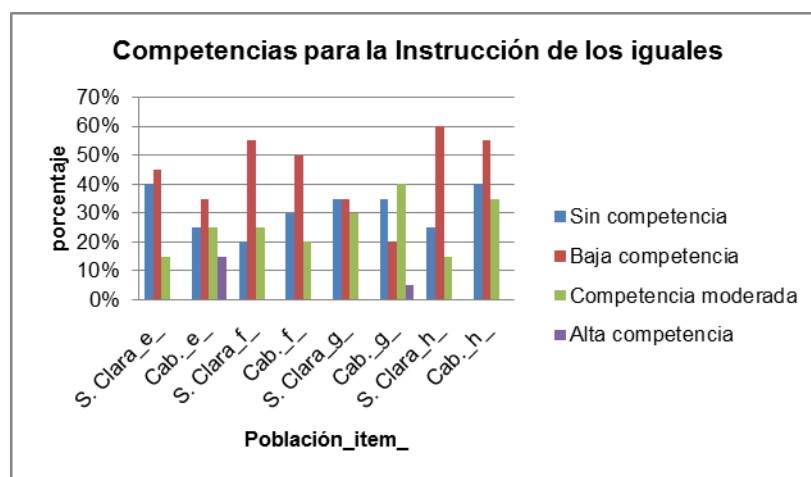


Figure 4. Representation of the perception of competencies for peer instruction

Source: own elaboration

Peer instruction was perceived by teachers in both populations as without competence, with a predominance of 40% of the Cabaiguán population in item (h) and the same percentage in SC in item (e); therefore, they did not show confidence or security in making modifications to the sport's skills. If Javier could not do it like his peers in learning the skills, they would also be unable to make the environment safe, modify the material, or teach their peers how to help him with the task.

In the criteria for low competence in peer instruction, SC teachers, with 60.0% in (h), demonstrated little confidence and security in making modifications to sport abilities or game rules and did not involve their group members in the task. Regarding moderate



competence, the population of Cabaiguán stood out (40% in item g) because they were confident, although they presented insecurity in carrying out some tasks, they secured the environment, made some modifications to sport skills, and occasionally encouraged help from their group members.

In the high competence criterion, it stood out in the population of Cabaiguán, with four teachers, of them three (15%) in item (e) made modifications in the sport abilities for Javier's case, and one (5%) in item (g) referring to the modification of the material, to help him.

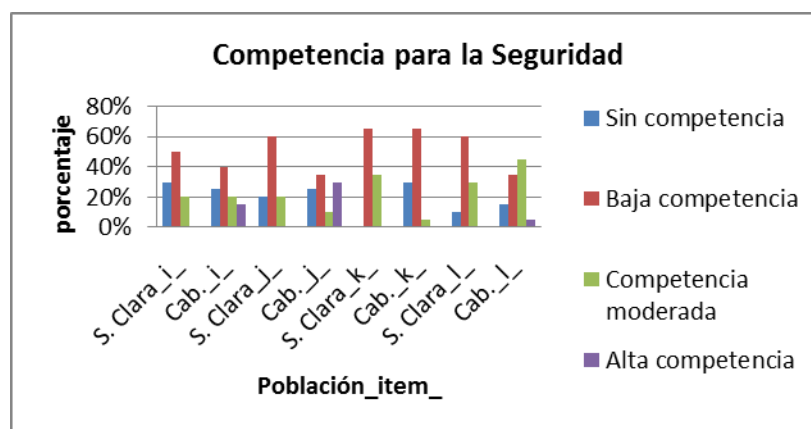


Figure 5. Representation of the perception of competence for security

Source: own elaboration

In Figure 5, both groups stated the criterion of without competence for safety, so they did not show confidence or security in modifying the materials to help Javier during the game and make the environment safe. It was highlighted that 30% of the teachers in items (i) Cabaiguán and (k) SC did not modify the rules of the game for Javier or involve his classmates in the task.

The highest percentage for safety was concentrated in the low and moderate competence criteria. The 65% of SC teachers with low competency in item (k) were highlighted. They showed little confidence and security in securing the environment, modifying equipment, setting individual goals for it during the fitness test. They were also unable to make modifications to sport abilities or game rules, or involve their classmates in the task.



Those tested with moderate proficiency in both populations expressed confidence but were hesitant to perform some tasks. They secured the environment, modified the equipment, and set individual goals for the fitness test, although they made no changes to sport abilities or the rules of the game. They occasionally involved their group mates in the task.

The 10 (%) teachers who were considered highly competent were from the population of Cabaiguán, they showed confidence and security to carry it out, one (5%) specifically in item (l) taught classmates how to help Javier during the game; six (30%) in item (j) modified the material, although they did not make modifications to the sport abilities and three (15%) in item (i) involved group mates in the task.

Table 2. Statistical data on mode behavior in the evaluated competencies

Mode	SC	Cabaiguán	SC	Cabaiguán	SC	Cabaiguán	SC	Cabaiguán
	CPAE-a	CPAE-a	CPAE-b	CPAE-b	CPAE-c	CPAE-c	CPAE-d	CPAE-d
Valid	20	20	20	20	20	20	20	20
mode	2	2	2	2	1	3	2	1
	CII-e	CII-e	CII-f	CII-f	CII-g	CII-g	CII-h	CII-h
Mode	2	2	2	2	1(a)	3	2	2
	CpS-i	CII-i	CII-j	CII-j	CII-k	CII-k	CII-l	CII-l
Mode	2	2	2	2	2	2	2	3

CPAE: competence to make specific adaptations.

CII: Competence for the instruction of peers

CpS : competence for safety

The mode reflected a predominance of low competence in making specific adaptations in both populations (items a, b, c, and d), indicating that teachers lacked the confidence and security to create individual objectives during the development of the endurance test and to modify it, to the detriment of those from SC, who did not demonstrate competence in teaching their colleagues how to help Javier (c), and those from Cabaiguán in securing the



environment (d). The teachers from Cabaiguán were moderately competent in teaching their colleagues how to help Javier, which placed them in better conditions than the teachers from SC.

Table 2 shows low competence as a mode for CII in both populations (items e, f, g and h), indicating that teachers were lacking in modifying sport abilities and making the environment safe for Javier; this was at the expense of those in SC, who reported no competence in modifying the material to assist him when teaching basic skills (g). The Cabaiguán teachers were judged to be moderately competent in teaching their peers how to help him, and were therefore more competent in instructing their peers.

The mode reflected a low CpS in both populations (items e, f, g and h), which indicated that teachers showed little confidence and security in modifying the game rules and aid materials for Javier, or teaching classmates how to help him (c). Cabaiguán teachers were moderately competent in teaching classmates how to help him, which denoted higher CpS than SC teachers.

DISCUSSION

The study was conducted with primary school teachers and included students with physical disabilities from two municipalities in the Central Region of Cuba: SC and Cabaiguán.

In the age and work experience variables, the SC teacher group surpassed the Cabaiguán teacher group in average years. However, although both groups had general training in Physical Culture, a higher percentage of Cabaiguán teachers received some specific adapted PE training activity during their training. This somewhat justified the results in the other dimensions. This coincides with the study by Bermúdez and Navarrete (2020), where teachers who had contact or relationships with people with disabilities in different settings were in agreement with inclusion processes.

In the first dimension regarding the perception of competence to make specific adaptations, it was found that the Cabaiguán population had a higher perception of moderate and high competence compared to the SC teachers. This led to the inference that the Cabaiguán



teachers felt more confident administering the fitness test in the group, which included Javier. The SC teachers were teachers who required greater knowledge, preparation, and confidence to make specific adaptations, as improving the inclusion process for students with needs requires determining teachers' knowledge and self-efficacy levels.

The results obtained in the second dimension regarding peer instruction were perceived equally by teachers from both populations, according to the criteria of no, low, and moderate competence; however, four teachers from Cabaiguán considered themselves highly competent and made modifications to the sport's skills and equipment to help Javier. They agreed with what Lleixá and Ríos (2020) stated when they stated that breaking down the prejudice about the presence of students with different abilities in PE classes can be considered beneficial.

The adequate development of this competency showed a group of teachers with greater confidence in leading the teaching of basic skills in a team sport such as volleyball, basketball, or soccer during the first week of 6th-grade PE classes, in which Javier was included. It was necessary to propose alternative training and instruction in inclusive education, since, in line with Collado et al. (2020), one of the barriers identified for inclusion is the need to increase individual training to meet the requirements of an inclusive school system.

For safety, the highest percentage perceived as having low and moderate competence belonged to SC teachers for showing little confidence in securing the environment, modifying the material and setting individual objectives during the physical fitness test, they were also unable to make modifications to the sport abilities or rules of the game nor did they involve their group mates in the task.

In this same dimension, the teachers who were considered highly competent were from the population of Cabaiguán who showed confidence, security and motivation in constant improvement to carry out the task with Javier, by teaching their students how to play the sport itself, while they directed a team sport in the last week of the unit, this element agreed with the finding of Lleixá and Ríos (2020) when highlighting the need for teachers to be



aware of their responsibility in developing dynamics that promote participation, respect and inclusion.

The research results indicated that in the dimensions of perceived competence for specific adaptations, perceived competence for peer instruction, and perceived competence for safety, teachers perceived their level of competence as low or non-existent, especially those in the SC municipality. In this sense, teachers in Cabaiguán were more supportive of the development of intrinsic interest and academic direction in students, according to Murillo et al. (2020).

Overall, the results implied the adoption of training strategies to develop inclusive competencies in teachers from both populations; in agreement with Lobo de Diego et al. (2022), who referred to the relationship between the educational quality of an extracurricular municipal school sports program, based on the perceptions of the people involved in its development and the participating students.

CONCLUSIONS

The training received and prior experiences of both populations were insufficient to develop inclusion competencies in PE, so it was necessary to design training actions to develop this process with schoolchildren with disabilities.

The self-perception of competence of teachers in the municipality of Santa Clara categorizes them as less competent than those in the municipality of Cabaiguán in making specific adaptations, providing instruction to peers, and ensuring confidence in the process of including students with disabilities in PE classes.

The study's limitations were the partial application of the questionnaire, which limited the results to understanding teacher competence. The study calls for further research with this same objective, including students with visual and intellectual disabilities.

The study was conducted among two groups of teachers working at the primary level of education in two different regions of residence. A greater understanding of aspects such as



the number of students included, the specific type of disability, and the level of improvement and adaptation of PE programs at this level was required. However, a comparison of the perceptions of these teachers with those of special schools was not made.

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Conflict of interest statement:

The author declares that there are no conflicts of interest.

Author's contribution:

The author is responsible for writing the work and analyzing the documents.



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