

Effects of Sports Games Combined with English Teaching on Children's Attention and Learning Performance

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Abstract

The teaching principle of "music teaching" is implemented to facilitate children's learning through play and behaviour. During classroom instruction, teachers should appropriately incorporate sports competitions to foster students' interest in sports, ensure their active participation, and facilitate the development of their athletic abilities. During the primary school stage, students experience rapid development in their physical and mental attributes. The author administered oral and written English assessments to randomly selected classes from Grade 3 to Grade 6 at South Road Primary School, which is affiliated with A University. The author selected students who scored below 60 for the attention QPT test in each grade. From this group, we selected 10 students with low, average, and high attention levels. This resulted in a total of 30 students in each grade forming the control class. We compared the QPT scores between the 30 individuals in the experimental group and the 30 individuals in the control group. The experimental class and the control class exhibited a notable disparity in academic performance across grades 3 to 6. The implementation of experimental teaching resulted in significant improvements in the attention QPT scores of both the upper and lower grades in the experimental class. The study demonstrates that sustained adherence to teaching children English through sports games can effectively enhance their attention levels. Furthermore, implementing sports game teaching aligns with children's psychological characteristics and significantly enhances their performance in English learning.

Keywords: Sports Games; English Teaching; Children's Attention; Academic Record

Introduction

Primary school is a critical stage in a child's development, as it marks their initial separation from parental care and the beginning of independent learning and social interaction. During this developmental stage, children typically exhibit a natural inclination towards play, while students often possess an innate desire to engage in various physical activities. The age limit of students influences their level of self-control. In classroom teaching, it is important for teachers to incorporate sports games to engage students, promote their interest in sports, encourage physical activity, and provide opportunities for students to enhance their sports skills. During primary school, students experience significant physical and mental development. Action plays a crucial role in the psychological development of infants and young children. The origin and development of individual psychology are closely linked to action behaviour. From a developmental epistemology perspective, understanding the origin involves more than simple perception.

Furthermore, it aligns fundamental perception and the state of thinking with the development of action. Under the influence of social individuals and the coincidental cognitive association, newborns experiment with novel

behavioural actions and receive first validation and approval from external stimuli during the execution of these behaviours. Repetitive engagement in these motions stimulates brain development and enhances the structural refinement of the brain during its developmental process. The sole means of conveying sports is through the progression of physical actions. Therefore, it is evident that the cognitive abilities, intellectual capacity, and focus of athletes significantly contribute to their developmental progress. A recent study conducted by researchers at the University of Illinois, as reported in the latest edition of the *Journal of Neurology*, reveals a positive correlation between children's engagement in physical activity and their ability to concentrate during study sessions. Researchers at the University of Illinois, as reported in the latest edition of the *Journal of Neurology*, reveal that physical activity improves children's focus and academic performance.

Generally, physical activities typically encompass physical education, playtime activities, and extracurricular sports. Teachers should regularly adapt their teaching methods based on students' progress and enhance students' overall abilities through interactive learning experiences. Games are a unique social practice that arise from specific needs within human society and serve as a reflection of social

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culture. During the observation of teaching practices, it was evident that students' academic performance was significantly influenced by their level of attentiveness during classroom instruction. To enhance academic performance, it is crucial to develop effective attentional skills, improve attention levels, and cultivate efficient study habits, thereby optimising efforts in both academic pursuits and daily life. Modern competitive sports have their origins in various folk games, which are closely linked to early human game behaviours and physical entertainment activities.

Throughout human history, certain folk games have evolved into modern competitive sports, gaining popularity among the masses. This transformation has occurred over generations, as these games have been passed down and modified through induction, creation, improvement, and innovation. Scholars and experts from various disciplines have long held divergent definitions and interpretations of games, leading to differing research angles and perspectives. Informal games, such as recreational ball, can also be considered sports activities. Games are a form of sports and cultural entertainment. It represents various aspects of human society, including labour, the military, culture, and daily life, in a specific format. Figure 1 depicts a schematic diagram illustrating children's attention, as presented by Liu (2021).

This study offers insights into the impact of sports on attention in preschool children from a research standpoint. Domestic research on sports primarily focuses on theoretical frameworks, training methodologies, and practical applications, with limited empirical investigations concerning children's psychological aspects. This study aims to examine the impact of physical activity on children's attention. The teaching principle of "music teaching" is implemented to facilitate children's learning through play and behaviour. In the context of classroom instruction, it is advisable for teachers to appropriately incorporate sports competitions to foster students' interest in such activities. This approach ensures students' engagement and provides them with opportunities to enhance their physical abilities and sports proficiency through active participation in these competitions. During the primary school stage, students experience rapid development in their physical and mental attributes.

The author administered oral and written English assessments to randomly selected classes from Grade 3 to Grade 6 at South Road Primary School, which is affiliated with A University. Students with grades below 60, who were selected for the attention QPT test in each grade, were included in the study. Researchers selected 10 students from this group based on their levels of attention: poor,

average, and good. This resulted in a total of 30 students in each grade forming the control class. We compared the QPT scores between the 30 individuals in the experimental group and the 30 individuals in the control group. The experimental group and the control group exhibited a notable disparity in academic performance across grades 3 to 6. The implementation of experimental teaching resulted in significant improvements in the attention QPT scores of both the upper and lower grades in the experimental class. The study demonstrates that sustained adherence to teaching children English through sports games effectively enhances their attention levels. Moreover, implementing sports game teaching aligns with children's psychological characteristics and significantly improves their performance in English learning.

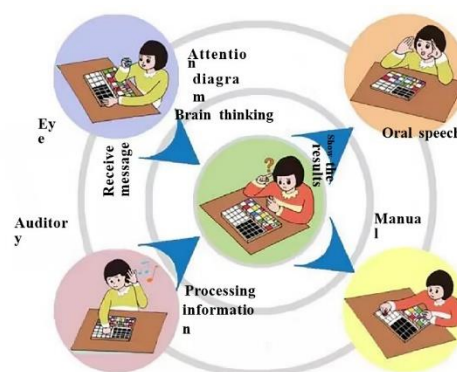


Figure 1. Schematic Diagram of Children's Attention.

Literature Review

Attention is a psychological process that occurs when individuals selectively respond to certain stimuli in their environment. Despite the constant presence of unknown stimuli, humans are unable to respond to all of them. Instead, they choose to focus on specific stimuli, resulting in a concentrated and directed psychological phenomenon known as attention. This process involves the allocation of limited psychological resources. The term "attention" encompasses a range of psychological processes. Psychological activities selectively engage with stimuli, transforming them into distinct reaction information while simultaneously disregarding other stimuli. There are also single-focused events that prioritise one activity exclusively, disregarding other stimuli, whether they are inherent or external. Views on the concept of attention vary among educators, philosophers, and psychologists across different countries. The impact of different types of physical exercise on the attention stability of children during a "specific period" of childhood is significant. Engaging in movement activities not only enhances physical abilities and skills but also promotes the

development of the brain's nervous system and intelligence. Individuals can sustain this advantage in the development of both the body and mind throughout their lifetime.

In contemporary society, the education of children has become a significant concern. Furthermore, alongside the pursuit of a basic level of prosperity, the well-being of individuals has also garnered considerable attention. Health is crucial for individuals to demonstrate the significance of their existence. In the year 2000, individuals of both genders prioritised health as their primary aspiration. Villalba-Heredia and colleagues. This study examined the association between sleep and academic performance in children with ADHD compared to a control group without ADHD. The subjects assessed were Spanish, mathematics, and English as a foreign language. Villalba-Heredia et al. (2021) examined the various manifestations of ADHD and explored potential disparities in sleep patterns between weekdays and weekends (Desalegn et al., 2021). The beneficiary children (n=240) and non-benefit children (n=240) from 16 public schools were recruited and followed for one school year. The absence rate refers to the total number of days that children are absent from school within a given year. Academic achievement was assessed by calculating the mean scores across ten subjects completed by students within a given year. The data were analysed using multivariate mixed effects negative binomial and linear regression models. The Cedama district in southern Ethiopia is characterised by a food insecurity zone (Desalegn et al., 2021).

Overview of Sports Game Method

Meaning of Sports Game Law

The sports game method is an instructional approach in which teachers use entertaining games during sports instruction. This teaching method diverges from the conventional indoctrination approach and offers enhanced adaptability and engagement. Games can effectively enhance students' interest in learning, promote active participation in class, enhance sports knowledge, and improve physical fitness, thereby facilitating the achievement of classroom teaching goals. The impact of physical exercise on children's attention stability is significant. Childhood is a crucial period for the development of physical abilities, the brain and nervous system, and intelligence. Engaging in physical activities not only enhances physical fitness but also promotes cognitive development. These advantages have lifelong benefits for both the body and the mind. In contemporary society, the

well-being of children and their education has become a significant concern. Moreover, alongside the establishment of a basic affluent society, the issue of health has also garnered considerable attention from individuals. Good health is crucial for individuals to demonstrate the significance of their lives. The results of a global Millennium Poll conducted in 2000 indicate that individuals of both genders prioritise health as their foremost aspiration (Zhao, 2021).

Characteristics of Sports Game Method

Sports games in primary school sports teaching possess two distinct characteristics: interest and simplicity. Sports games in educational settings have the potential to create a conducive and enjoyable environment for students to engage in physical activities. These games can enhance students' sports skills and foster a positive teacher-student relationship, ultimately improving the effectiveness of classroom instruction. The primary advantage of the sports game method is its simplicity, as it does not necessitate a complex teaching environment or specialised equipment, in contrast to other teaching methods. Teachers can enhance classroom teaching effectiveness by utilising suitable instructional strategies.

Methods

Experimental Teacher Training

This study utilises Taiwan Jiayin English textbooks to provide training for experimental teachers. The training covers various aspects such as classroom management, teaching plan design, multicultural communication, communication skills, teaching aid production, effective teaching strategies for words, dialogues, grammar, songs, stories, and designing teaching games. The emphasis is on implementing the sports game teaching method as a teaching mode.

Subjects

The pre-experiment was conducted in September 2020. The English tests, both oral and written, were administered to randomly selected classes ranging from Grade 3 to Grade 6 at South Road Primary School, which is affiliated with A University. Students with grades below 60 were chosen for the attention QPT test in each grade. From this group, 10 students with poor, average, and good attention were selected, resulting in a total of 30 students in each grade forming the control class. Similarly, 30 students from grades 3 to 6 who enrolled in September at the B English Southern Suburb Branch were selected as experimental classes in each grade. Researchers compared the QPT scores of 30 individuals in both the experimental

and control classes. The study findings indicate a significant disparity in academic performance between the experimental and control groups across grades 3 to 6, as demonstrated in Table 1 and Figure 2. There is a significant disparity in the QPT test scores between grades 3 and 4, as well as between grades 5 and 6. However, there is no significant disparity in the QPT test scores among grades 3, 4, 5, and 6 (Tables 2 and 3).

In this experiment, the third and fourth grades were assigned to the junior group, while the fifth and sixth grades were assigned to the senior group. A total of 84 individuals, consisting of 21 students from each grade in both the experimental and control classes, were selected as study participants based on their identical scores in the attention QPT test.

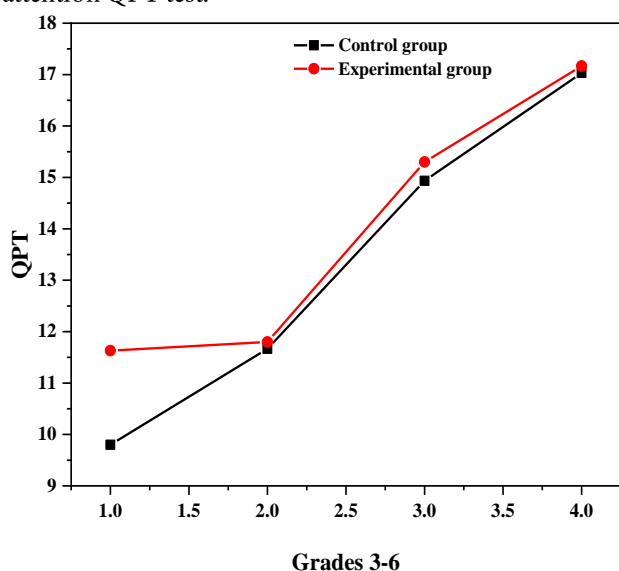


Figure 2. Comparison of Significant Differences in Attention QPT Scores in Grades 3, 4, 5 and 6.

Table 1

Comparison of the Significant Differences in the Scores of Attentions QPT in Grades 3, 4, 5 and 6.

	Control Group	Experimental Group
Junior Class	9.8±2.64	11.63±3.94
Senior Class	11.667±3.909	11.8±4.098
Fifth Grade	14.933±4.443	15.3±4.598
Sixth Form	17.033±5.99	17.167±5.698
F Price	16.472	10.364

Table 2

Multiple Comparison of OPT Scores of Attentions Between Different Grades in the Control Class (S Method)

	Senior Class	Fifth Grade	Sixth Form
Junior Class	1.668	3.668	5.334
Senior Class	-	3.501	5.338
Fifth Grade	-	-	1.868

Table 3

Multiple Comparison of OPT Scores of Attentions Between Different Grades in the Experimental Class (S Method)

	Senior Class	Fifth Grade	Sixth Form
Junior Class	1.868	5.134	7.234
Senior Class	-	3.268	5.368
Fifth Grade	-	-	2.101

Experimental Group and Control Group

For this purpose, 42 kids from Grade 5, 6 (34) of B School make up the high (low) grade group in this experiment, while 42 students from Grade 5, 6 (34) of South Road Primary School of A University make up the control high (low) grade group.

Experimental Teaching Materials and Auxiliary Materials

The experiment utilises the Jiayin teaching material series, which offers well-connected units with rich and diverse content. The material engages and includes students by presenting it in a lifelike and story-based manner. Additionally, it includes creative and lively pictures that effectively stimulate children's thinking and imagination. Overall, this teaching material is highly suitable for implementing sports and sports game teaching. The auxiliary materials consist of annotated versions of the "Mental Power Test Manual," edited by Zhou Bucheng from the Department of Psychology at East China Normal University. These materials include the manual for the QPT test, the QPT answer sheet, and a stopwatch (Fan, 2021).

Experimental Course Progress and Teaching Environment

The experimental and control groups received distinct teaching methods over a three-month period, with both groups attending classes twice a week. Each class session lasted 100 minutes, resulting in a total of 48 class hours. After completing 2-3 units, both groups took a single test, and we meticulously recorded the test results. Both groups underwent a pre-experiment attention QPT test. The desks and chairs in the experimental group's classroom are arranged in a horseshoe shape, and the wooden floor is used for sports game instruction. The control group's classroom arranges the desks and chairs in a traditional parallel configuration.

Implementation of Attention Test

A test (3 minutes), "A" test number curve has several breaks, three abc curves, and many breaks on each curve. There are n disconnection points along line and write n in the answer column of "exercise paper". Do line B and C exercises in the same way. Test B (3 minutes). We now require the enumeration of the identical entity in B. Blue circles, rectangles, and triangles adorn the left rectangle. In the

centre, there are seven blue circles. So record the number "7" in the designated answer column on the exercise paper. Similarly, other graphics undergo the same processing procedure. The researchers will conduct Test C within a time frame of 3 minutes. Test C involves counting an equal number of words. The word "talent" is present in the left two lines, and the subject records "1" in the answer column of the "exercise paper". Apply the same methodology to the remaining words. Conduct a three-minute duration test. The D-test method is identical to the C-test method. What is the total count of numbers in the test, and how many of those numbers are the number 3? So, record the number "4" in the designated answer section of the exercise sheet. Complete exercises 4, 5, 6, and 7 using the same method. The E-J test must be conducted within a 5-minute timeframe. Participants must write down the sum of the two adjacent numbers on either side on the draft paper, ensuring that this sum matches the number provided in the question. When the sum of two numbers is 7, the answer column on the "exercise paper" should be filled with the number "1". Practices 8, 9, and 10 adhere to identical criteria. Give 5 minutes to calculate the values of E, F, G, H, I, and J sequentially, following the same procedure as previously described. Write down the results on the draft paper before proceeding to the next line. After completing the test, please ensure that the QPT answer paper is properly filled out with the necessary information. Subsequently, promptly collect both the test question paper and the answer paper. The experimental results were analysed based on the appropriate number of responses and the attention allocation criteria outlined in the manual (Pu, Bao, & Yang, 2021).

Basic Principles in the Implementation of Game-Based Teaching

The fundamental principles are as follows: The principle of integrating entertainment and educational objectives. The principle of fostering children's intellectual development is that it is important to focus on the development of one's thoughts, emotions, and behaviours. The game design should be characterised by reasonability, diversity, vividness, interest, and flexibility. The principle of integrating specific activities with reflection and abstraction. The principle of integrating free choice and complete participation. The organisational principle of sports game teaching in this experiment emphasises the importance of aligning teaching content with sports game instruction while avoiding monotony and disinterest. Promoting children's autonomy and active engagement: It is imperative to ensure the inclusion of all children, rather than a select few, in participation efforts. It is imperative to enhance students' intellectual abilities and prioritise the development of their ideas, emotions, and behaviours (Villalba-Heredia et al., 2021).

Operation Process of Sports Game Teaching

Children concentrate their attention during the period when the new content is presented. Games align with specific teaching content during periods of distraction. This allows students to maintain concentration on the learning material at hand. In the context of word teaching, the teacher can enhance the learning experience by preparing relevant word cards in advance. By displaying corresponding pictures of the new words and engaging in reading activities, students can effectively grasp the meaning and pronunciation of the words. Additionally, incorporating simple mechanical exercises can further reinforce their understanding. Once students have a basic understanding of word pronunciation and meaning, they can use the game "What's the next?" to practice their pronunciation. When using a verb, teachers can employ a method that allows children to engage in both verbal and physical activities. This approach not only enhances children's comprehension of vocabulary but also nurtures their strong inclination to imitate and their curiosity. Additionally, it helps students sustain a high level of focus on their learning. The primary focus of grammar instruction is the introduction of grammatical structures. After presenting the grammatical structure and assessing students' comprehension, we design specific games for teaching based on the content of grammar and English sports games teaching principles. Accurate pronunciation and the teaching principles employed in sports games guide the instruction of letters and pronunciation. Commonly used pronunciation teaching games include activities such as observing the speaker's mouth movements and participating in pronunciation competitions. These games help maintain a high level of student engagement and attention. The study aims to utilise sports game teaching principles that align with children's cognitive rules. It involves selecting appropriate game types and employing sports game teaching and practice methods that are conducive to the physical and mental development of children. The study emphasises the consistent implementation of sports game teaching throughout the entire experimental process (He et al., 2021).

Results and Analysis

There Are Significant Differences in Attention Between Grades 3 and 5 in Primary School

The attention test (QPT) was administered to students in grades 3–5, and the F test was conducted to analyse the attention QPT scores across all grade levels. There was a significant difference in the stability of attention among students in grades 3 to 5 ($p < 0.01$).

Subsequent multiple comparisons were conducted on the attention QPT scores of students in grades 3, 4, 5, and 6. The results indicated that there was no statistically significant difference in the attention QPT scores between grades 3 and 4, as well as between grades 5 and 6. However, we observed a significant difference between grades 3 and 4, and grades 5 and 6.

Long-term Implementation of Sports Game Teaching and Training Can Affect and Improve Children's Attention Level

The implementation of experimental teaching resulted in significant improvements in the attention QPT scores of both the upper and lower grades in the experimental class. After three months of teaching sports games, we conducted a T-test to compare the attention QPT scores of the upper and lower grades in the experimental class with those in the control class. The results showed a significant difference between the attention QPT scores of the lower grade experimental class and the control class, as well as a significant difference between the attention QPT scores of the upper grade experimental class and the control class (Table 4).

Table 4

Comparison of Significant Differences in QPT Scores Between the Control Class and the Experimental Class After the Experiment (S Method)

	Control Group	Experimental Group	T
Junior Grade	11.52±1.693	14.238±1.672	-5.233
Senior Class	16.667±1.984	18.1429±1.7413	-2.565
	T (.05)=1.685	T (.01) =2.709	

The Effect of Sports Game Teaching on the Improvement of Attention Level is Better in Lower Grades and Higher Grades

Sports game teaching significantly impacted the attention QPT scores of both lower and higher-grade students. However, there was a notable difference in the growth range between the two groups, suggesting that sports game teaching was more effective for lower-grade students compared to higher-grade students. Sports game teaching and training have a greater impact on children in lower grades (Table 5) (Dobbin, Atherton, & Hill, 2021).

Table 5

Comparison of Significant Differences in QPT Increase Between High and Low Grades in the Experimental Class After the Experiment.

Junior Grade	Senior Class	T
3.4762±1.018	2.667±1.066	2.349
T (.05)=1.685	T (.01) =2.709	

Sports Game Teaching Can Significantly Improve Students' Academic Performance.

The implementation of sports game teaching for lower grades has led to significant improvements in the learning outcomes of students in the experimental class after three months. This suggests that sports game teaching can effectively enhance the learning effectiveness of students in lower grades. Additional T-tests were conducted to analyse the learning outcomes, revealing a significant disparity in the improvement of learning outcomes between the experimental class of lower-grade students and the control class (See Table 6). The academic performance of students in the experimental class significantly improved after three months of sports game teaching for senior students. We conducted additional T-tests to assess the impact of sports game teaching on academic performance. The results indicate significant differences in the improvement of academic performance between the senior experimental class and the control class (See Table 7).

Table 6

Comparison of Significant Differences in Learning Performance of the Control Class in the Junior Experimental Class.

Junior Grade	Examination Performance	T
Control Group	78.36±10.88	T (.01) =2.424
Experimental Group	94.62±5.02	T.01) =1.685
		T(.0D) =7.029**

Table 7

Comparison of Significant Differences in Learning Performance Between the Experimental Class and the Control Class

Senior Class	Examination Performance	T
Control Group	78.81±7.77	T(.01) =2.424
Experimental Group	95.80±4.19	T(.01)=1.685
	T=8.838	

The table above indicates that the experimental class outperforms the control class in terms of learning performance. This suggests a strong correlation between learning outcomes and the quality of learning attention, even when intelligence levels are similar. In the field of education, it is not uncommon to come across students who possess high intellectual abilities yet struggle to achieve satisfactory grades across all subjects. This can be attributed to their inclination towards playful behaviour, lack of attentiveness during class, and a tendency to engage in minor distractions. To enhance learning efficiency, it is essential to consistently and systematically foster students' attention, guiding them to align their attention with the demands of learning.

Additionally, it is crucial to ensure that students have a clear understanding of their learning objectives and tasks. Teachers should employ suitable teaching methods based on different learning objectives to ensure students maintain high levels of concentration during the learning process, ultimately leading to optimal learning outcomes. Implementing sports game teaching in rural primary schools in China can be challenging due to the specific hardware requirements and the limitation of class sizes to 25 students. However, sports game teaching has been found to effectively enhance children's attention levels. Currently, inadequate conditions and overcrowding prevent the widespread promotion of sports game education (Ross, Legg, & Wilson, 2021).

Conclusion

Given the current state of children's English classroom learning, as well as the principles of children's cognitive and psychological development and sports game teaching theory, the author integrates the theory of sports game teaching into instruction. This approach aims to convert mundane language learning into engaging and enjoyable activities that students willingly participate in. By doing so, the author creates immersive language communication scenarios for students. Incorporating games into children's English teaching facilitates both learning and play, ensuring a truly game-based approach. This study highlights the feasibility of incorporating comprehensive and organised sports game instruction for children. Research has shown that the consistent and extended integration of sports game instruction has a notable beneficial effect on children's English language proficiency. The extended and structured incorporation of sports game instruction has a beneficial effect on children's attention levels. The implementation of sports game teaching in lower

and higher grades has a significant positive effect on the attention level of lower grades and a substantial overall impact. The author investigates training methods to enhance children's classroom attention, thoroughly examines teaching methods for children's English sports games, and applies them in this experiment. This study examines the effectiveness of a single teaching method used in children's English classes as well as the challenges children face in maintaining focus and attention during these classes. Empirical evidence has demonstrated that incorporating sports game teaching aligns with children's psychological characteristics and has the potential to enhance their classroom attention and English learning outcomes. Currently, most Chinese individuals are only children. Both parents and educational institutions place significant emphasis on safety education. Consequently, teachers prioritise safety in their teaching methods, while parents excessively protect their children's safety in daily life. This excessive protection often leads to a lack of physical activity and neglects the impact of sports on children's physical and psychological well-being. It is recommended that parents and educational institutions prioritise the proper implementation of healthy exercise techniques and their psychological effects on children. This involves abandoning the notion of unrestricted child activities, fostering children's inherent abilities, promoting physical fitness at a national level, and acknowledging the principles of natural laws. To enhance children's participation motivation and promote sensory perception and experiential learning, it is suggested that sports facilities in children's institutions be improved to increase tool diversification and enhance goal orientation. It is important to address safety and health concerns during sports activities. It establishes the basis for developing children's physical and mental well-being, coordination skills, attention span, and initiative.

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