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Evaluation of the effectiveness of applying movement games for the development of motor skills in children aged 7-12 years

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Abstract

Introduction. As children grow, motor performance develops. Motor performance skills enable children to process information efficiently when managing specific tasks. Although children develop motor skills through various physical activities, this can be more easily achieved when they engage in voluntary activities aligned with their interests. Movement games provide children with the opportunity to play with minimal rules and without constraints

Aim. The current study aims to explore the effectiveness of a movement games intervention program in improving the motor performance components related to the motor skills of young school-aged children.

Material and method. The research involved administering a structured questionnaire to physical education teachers, focusing on the evaluation of children's motor skills through movement games. The data collection occurred over two months, followed by result processing and interpretation.

Results. In early school-age children, the pace of physical development is much slower than in earlier stages. In terms of height and weight, there is significant interindividual variability. We can state that there are no significant differences between boys and girls until the "growth spurt," which occurs towards the end of early school age—around age 10 for girls and around age 12 for boys.

Conclusions. Children's interest in sports has decreased, and physical education classes are insufficient to meet all objectives. Programs based on movement games can increase participation in physical activity, help prevent obesity, and should be complemented by organized sports outside school.

***Key words**: motor skills, movement games, evaluation.*

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Introduction

Motor skills encompass a set of processes and mechanisms that involve all motor actions performed by an individual using only skeletal muscles, through phasic or dynamic contractions, or that maintain a particular posture through tonic or static contractions, with the goal of maintaining relationships with the natural or social environment, including through the practice of sports. (Albu et all, 2006; Stetz, 2018; Puta et all, 2022). The approach to this topic in the scientific endeavor is based on considerations related to the correlation between the effectiveness of applying and evaluating movement games for motor skill development and creating a motivating environment for primary school students (Cojanu et all, 2022).

Games involve rules and their observance, and their use as an educational tool contributes to the child's moral development and better school and social integration(Rada et all, 2024). Practicing playful activities in the primary school environment ensures harmonious physical development, improvement of motor skills, mobility, and flexibility according to the somato-functional characteristics of each student (Dima, 2017; Hantiu, 2002). Conversely, the lack of play negatively affects brain development and problem-solving abilities (Pellis et al., 2010). Additionally, engaging in age-appropriate movement games develops motor skills essential for the harmonious development of the body without placing pressure on the joints. Games allow children to learn and practice new skills in a safe and supportive environment (Boucher, 1999).

Supporting the above, we believe that by implementing movement games specific to this age group as alternatives to traditional physical education lessons, students can be encouraged to actively participate in curricular activities. Sports fields are essential for developing games (Radu et all, 2024). To improve the quality and quantity of sports games in an area, the number of playing surfaces must increase (Alecu A., 2020; Cretu, 2001). Games, in general, as (Carstea, 2000) states, are playful activities with significant implications for the development of participants' personalities in various ways, including their contribution to social integration (Nicola, 2000; Schiopu et all, 1995).

The Effects of Movement Games on Motor Capacity Motor skills:

- Core motor skills such as coordination and control of the main muscle groups
- The body's ability to coordinate movements and perform tasks
- Gross motor skills that involve large muscles, such as those in the arms and legs, in various movements (running, walking, throwing, jumping, etc.) (Pacuraru et all, 2011; Stanescu, 2009) *Beneficial Effects:*
- Develops a strong bone and muscle structure
- Ensures harmonious growth and development
- Improves balance
- Maintains and develops flexibility
- Supports appropriate weight
- Aids in relaxation
- Enhances self-esteem
- Promotes socialization

The purpose of our research was to select movement games specific to the primary school environment that can be used as instructional alternatives in physical education lessons, in line with the competencies established for these students, aiming to develop motor capacity.(Cojanu et all, 2023). The experiment's foundation consists of the concept expressed through the evaluation of the effectiveness of applying movement games for motor development in the primary education cycles and the objectives—physical education competencies. Formulated as a modern concept, competency can be defined as the structured, articulated set of knowledge, skills, and attitudes.

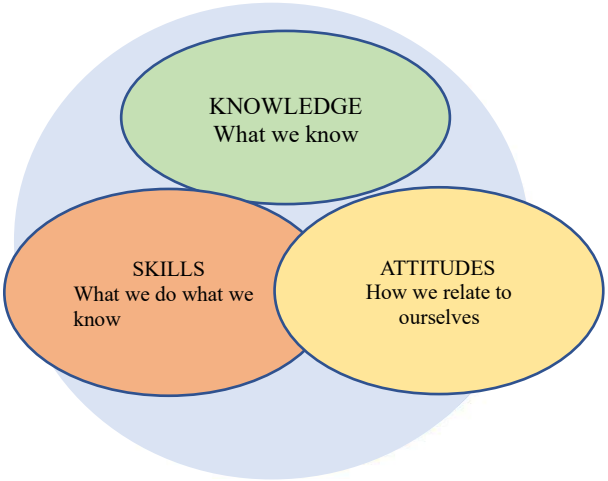

***Fig. 1**. The Structure of the Competency Concept*

The objectives of physical education are directly related to, derived from, and compose what we have come to call the "ideal" of physical education. This has two meanings: on the one hand, as a general goal of physical education, integrated into the overall educational ideal, and on the other hand, as a maximal model, broadly projected with guiding value, which can also serve as an evaluation criterion.(Parker et all, 2022) The entire process of developing and integrating the objectives into the educational system follows a dynamic illustrated below (fig. 2, Dragnea, 2002, pp. 68-69):

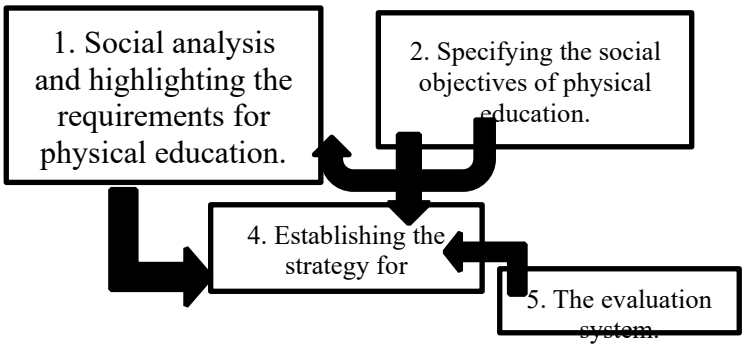

***Fig. 2.** Strategy for Defining Physical Education*

Aim

Objectives (Dragnea, 2002, p. 69)

The objectives/competencies of physical education specific to education are pursued. Whenever there is a need to optimize the physical education process, it starts with the revision and reformulation of the objectives, and only then is the content of the instructional-educational process developed (Stancu, 2018; Catanescu, 2019; Mihai et all, 2024).

Based on the general competencies:

1. Utilizing psychomotor achievements to maintain health and promote harmonious physical development.
2. Practicing motor skills and capacities according to individual psychomotor abilities.
3. Participating in organized or spontaneous games and motor activities.
4. Using specialized language in communication related to physical exercise and sports activities.
5. Integrating specific achievements into actions aimed at optimizing health, growth, physical development, and motor capacity.
6. Adopting appropriate behavior in interpersonal and group relationships, based on respect and fair play during motor activities at school and beyond.

Achieved through specific competencies:

- Constantly acting to enhance one's physical development harmony.
- Demonstrating appropriate indicators of motor qualities, depending on the specifics of motor actions.

- Applying fundamental and elementary sports motor skills in varied motor actions.
- Exhibiting cooperative and helpful attitudes during motor activities.
- Assuming leadership or subordinate roles specific to motor activities.
- Applying personal and group hygiene rules in curricular and extracurricular activities.
- Using methods to strengthen the body through exposure to natural environmental factors.
- Demonstrating appropriate indicators of combined motor qualities.
- Applying sports motor skills according to regulations.
- Utilizing sports skills with aesthetic components in class or school representation activities.
- Demonstrating fair play during motor/sports activities.
- Consistently displaying assertive behavior during competitive sports activities.

From a practical standpoint, in teaching physical education at the primary level, the following methodological approach is respected (Toma, 2017; Rosu et all, 2022):

- For 6-7-year-old students, movement games with multiple but simple actions and rules are chosen, avoiding direct contact with opponents as much as possible.
- For 8-9-year-old students, the complexity of games increases, and actions and rules become more intricate.
- For 10-12-year-old students, even preparatory activities for sports games can be introduced.

Materials and method

To achieve the proposed goal related to the chosen topic, we created a plan that outlines the stages of the operational process. The implementation of these stages is presented below, both for what was planned and what was successfully accomplished as part of the content of the topic and its temporal structure.For the efficient execution of our study, the stages followed during our research were established from the outset:

1. April 2023: Choosing the topic and formulating the title of the paper.
2. May-June 2023: Defining the goal, hypotheses, and achievable tasks.
3. June 2023: Stating the premises that generate the goal and hypotheses of the paper.
4. June - December 2023: Bibliographic documentation for the theoretical foundation of the paper.
5. January-February 2024: Administering the questionnaire.
6. March-April 2024: Processing and interpreting the results.
7. May 2024: Formulating conclusions and recommendations.

Investigated Sample

The sample consisted of 20 physical education and sports teachers, from classes (10 third-grade and 10 fourth-grade) at General Schools no. 10, 11, 13, 19, and 20 in Piteşti, and General Schools no. 2, 3, and 4 in the municipality of Curtea de Argeş.From the total of 20 teachers investigated, we determined the following:

- 6 teachers – hold a definitive teaching degree;
- 6 teachers – hold a second-degree teaching certification;
- 8 teachers – hold a first-degree teaching certification.

The questionnaire was administered between January and February 2024, with result analysis conducted in March and April 2024. The physical education teachers' questionnaire consisted of 9 open-ended questions, allowing us to assess the importance of aspects related to children's motor capacity during physical activities.

Results

At the conclusion of the questionnaire-based survey, we can primarily note that we have achieved the intended goal for which this questionnaire was constructed. From the dynamics of the responses provided by specialists in the field, we can observe a clear trend towards the evolution of the instructional-educational process within the content of physical education and sports lessons, emphasizing the need to introduce attractive and motivating methods for school children at this age.

Regarding the first question of the questionnaire, which seeks to find out if the teachers **"consider the 2 hours/week allocated to physical education for primary school students sufficient,"** the analysis of the teachers' responses reveals the following breakdown: **Affirmative - 4 responses; Negative - 16 responses** (Figure 1). This once again demonstrates that the allocated hours are considered very insufficient, and the majority believe this should be changed.

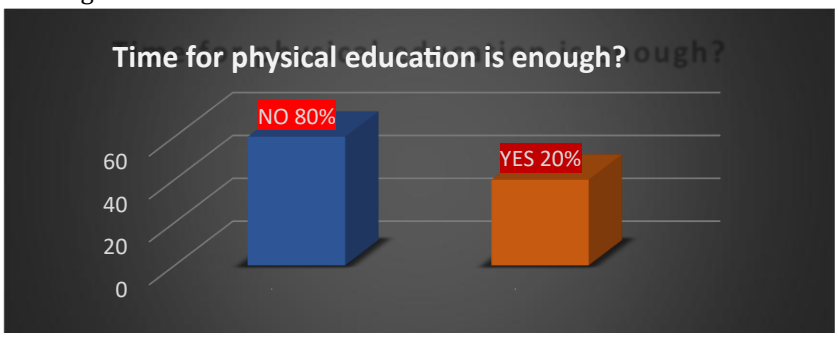

***Fig. 1**. Answer distribution question no 1 - Proportion of Time Allocated to Physical Education*

Table 1. Physical Education teachers questionnaire

The question	Yes	No
Consider 2 hours/week sufficient. allocated to physical education for primary school students?	4	16
Is it beneficial to carry out other sports activities in the form of games with the teacher outside of physical education and sports classes?	6	14
Is passing control tests a problem for children?	13	7
Do you consider practicing a sport in an organized club useful?	4	16
Have you tried to develop the child's enjoyment of exercise using the movement game?	12	8
Do children frequently bring medical exemptions from physical exertion?	8	12
Do you think that if they worked in homogeneous groups, using the game of movement, the children would give a better performance?	15	5
"Do you consider it appropriate to carry out a program of 10-15 minutes/hour for children that contains movement games adapted to their needs?	16	4
"During the physical education class, do you consider that you have the necessary time to work for pleasure using the game or other means?	8	12

Question 6 asked the teachers whether **"Children frequently bring medical excuses to avoid physical effort."** The analysis of their responses reveals the following distribution: **Affirmative - 8 responses; Negative - 12 responses** (Figure 2). I find this very encouraging, as it indicates that these children want to overcome their situation, and therefore, they can set an example for their peers.

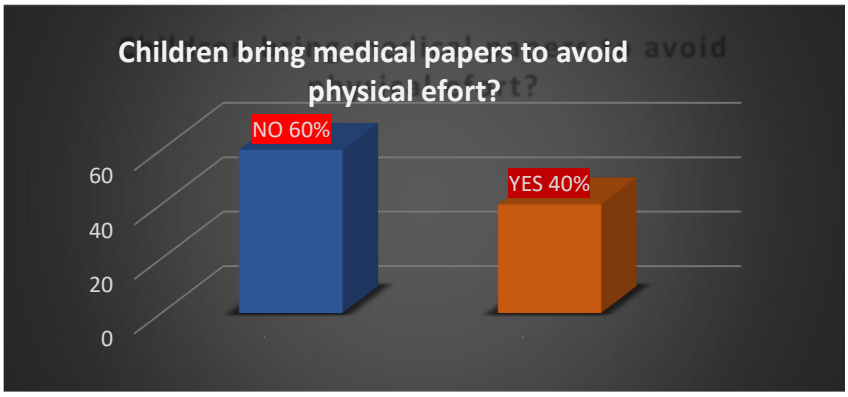

Fig. 2. *Answer distribution question no 6 - Proportion of Excuses from Physical Activity*

The last question addressed to the physical education and sports teachers asks whether **"During the physical education class, do you feel you have enough time to work in an enjoyable way using games or other methods?"** The analysis of their responses shows the following distribution: **Affirmative - 8 responses; Negative - 12 responses** (Figure 3.9). The time to achieve everything planned during physical education and sports classes is limited, as a lot of time is lost bringing the children into the gym, having them change, organizing them into formation, and managing the class. These aspects should be taken into consideration, and a solution should be sought to address this issue.

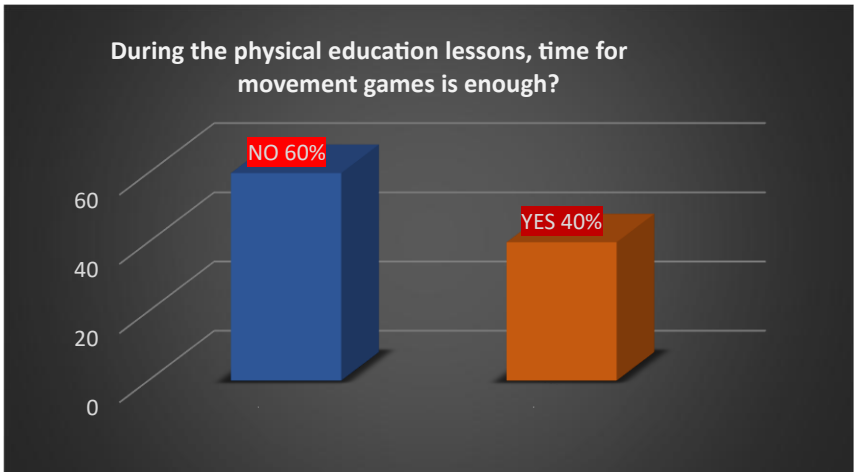

Fig. 3. *Answer distribution question no 9 - Opinion needed to Work Using Movement*

Discussions

Alongside engaging in physical activity, it is essential to implement educational programs on healthy eating, tailored to the age and needs of these children.

Introducing content in the form of games is necessary, as it enhances the effectiveness of children's physical activity within such activities.

The time allocated to physical activity in schools is insufficient to achieve harmonious physical development, and it should be supplemented with game-based activities during free time.

Conclusions

After reviewing the specialized literature and conducting the sociological survey, we can draw the following conclusions:

1. In recent years, the desire to engage in sports has significantly decreased, as today's children have different interests, and sports are not part of their focus.
2. Physical education and sports classes are insufficient for teachers to accomplish all their objectives, and the actual working time is very limited.
3. Developing a program with physical exercises entirely based on movement games would encourage more people to engage in physical activity, help prevent obesity, and significantly reduce the number of students excused from physical activity.
4. Physical activity within the school schedule must be supplemented with other activities, such as practicing a sport in an organized club.

Proposals and Recommendations

We propose that movement games be integrated into the curriculum to foster the cognitive and socioemotional development of children by leveraging the exceptional benefits these games offer. The formative and educational potential of movement games can support the development of children's emotional intelligence, leading to better adaptation to the demands of the school and social environment. Thus, students not only develop physically but also enhance their psychological well-being, self-confidence, and self-esteem. Like other activities specific to this discipline, their practice positively influences the quality of education. We recommend that

movement games serve as elements through which specific competencies can be developed in primary school students. Their structure aligns with the learning objectives designed for this age group.

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