

TEACHING METHODS USED IN PRIMARY EDUCATION FOR MAKING PHYSICAL EDUCATION CLASS MORE EFFECTIVE

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Abstract

The objective is to demonstrate the importance of games that involve movement and of applicative pathways planning for making the class of physical education and sports in primary education more effective.

Materials and methods. The participants in the research were 52 pupils (males: n=28 and females: n=24). The experiment was carried out between November 2016 and May 2017, at Andrei Mureșanu High School in Brasov county. In order to optimize physical education classes, we used dynamic games and applicative pathways throughout the research and within the instructive and educational process.

Results. The average of the results of the final tests highlighted statistically significant differences compared to the initial test, for all students taking part in the experiment, with a materiality threshold of $p < 0.05$.

Conclusions. The experiment showed that the final scores achieved by the experimental group were much higher compared to the initial test.

The use of movement games and applicative pathways led to an increased attractiveness of physical education classes, as the pupils took more pleasure in taking part in the teaching process.

During the physical education class, teachers should use as many dynamic games as possible, as well as applicative pathways, routes etc., taking into account the positive effects that these factors have on the attractiveness of the teaching process. It is also important to take into consideration children's physical and psychological characteristics when organizing these activities.

Keywords: physical education class, games involving movement, applicative pathways, pupils.

Introduction

One of the problems of school physical education is the optimization of the educational process of schoolchildren (Ivashchenko et al., 2018).

Nowadays, neither children and their parents, nor even some teachers, focus on the importance of physical education classes. Therefore, pupils no longer take pleasure in participating in these classes or, furthermore, they completely stop participating in them, for various reasons.

Children should be encouraged to exercise, because by doing that, they develop their social skills, become more self-confident, happier and more optimistic, they learn to win and lose, acquire self-discipline, learn how to take care of their body and health, increase creativity and develop their intellectual abilities.

The principal method for learning the basic and utilitarian – applicative motor skills is the game. Dynamic games are used mainly in primary education, taking into consideration children's age and their interests. These games must be used on a regular basis by teachers / specialised physical education instructors, because they positively influence the child, in every way, they keep monotony at bay, and pupils develop a sense of competition, wanting to outdo themselves and others.

During physical education classes, movement games are used in order for children to develop and refine locomotor skills (walking, running, jumping, escalate, climbing, crawling), handling skills (propulsion: one- and two-handed throw from standing position, launch, throw by pushing, hitting different objects with the hand and foot and absorption: one- and two-handed grip from standing position and while moving different objects, from self-throwing and from partner's throws,

transport of light objects grabbed with one/both hands, individually and in pairs), stability skills (axial: bending, stretching, twisting, return, rocking and static or dynamic postures: fundamental and derived postures, applying paths comprising developed locomotor, handling and stability skills, variants of routes comprising acquired skills, in the form of a contest between teams), as well as motor skills (speed, ability, resistance, strength and mobility) [http://programe.ise.ro].

There are several researches that analyse the ways of making physical education classes effective through movement games or other attractive means (Bălan, & Shaao, 2013; Farias, Valerio & Mesquita, 2018; Gülten, Önal, Berisha, & Yaman, 2016; Stolz & Pill, 2013; Valantine, Madic, & Sporis, 2017; Bădicu, & Prisăcaru, 2012; Iconomescu, & Talaghir, 2014).

The purpose of the research is to demonstrate the importance of movement games and of applicative pathways for making the physical education class in primary education more effective.

Materials and methods

Participants. The sample of this research consisted of 52 pupils, 28 of whom were males and 24 — females, aged between 9 and 10.

The participants in this experiment were pupils in 4th grade A and 4th grade B.

Experimental protocol. The experiment was carried out between November 2016 – May 2017, at Andrei Muresanu High School, in Brasov county.

In 4th grade A (n = 27) and 4th grade B (n = 25), we used dynamic games and applicative pathways within the instructive and educational process, in order to improve the efficiency and quality of physical education classes.

Tests and measurements. The initial test was taken by the pupils in both groups at the beginning of November 2016, and the final test was taken at the end of May 2017.

The physical tests were the following:

a) The 25 m speed running trial, on flat ground. The start was given by auditory signal and the timer started once the back leg moved. The recorded time was measured in seconds.

b) The long distance run trial, on flat ground; pupils were divided into groups of six each. The run was continuous, at each pupil's pace, for distances appropriate to each score.

c) Sports minigame (simple structure of game): acquired technical methods were carried into effect in an isolated manner, the quality of the method was assessed.

d) Skillfulness: pupils performed jumping rope in place individually, on one leg. The number of repetitions was recorded.

Statistical analyses. Statistical analyses were conducted by SPSS (IBM SPSS Statistics Version 20).

The descriptive statistics used in this research were: arithmetic average, median, standard deviation, variation coefficient and t-test.

Study results

We observe that, in the initial test of the speed running trial, the average was 1.55, and after the dynamic games and the applicative pathways, the average is 2.25, Table 1). As t has a value 6.199 and Sig. (2-tailed) is lower than 0.05, we notice a significant difference between the two physical tests. (Table 2).

We can observe that, following the initial test of the speed running trial, most boys and girls achieved a score of 8 out of 10, 19 pupils got a score of 9, and only 5 got a perfect score of 10 (Fig. 1). After the final tests, the scores of both boys and girls increased significantly, 26 of them achieving the score of 10, 13 of them – a score of 9 and 13 – 8. (Fig. 2).

In Table 3, we observe that the average of scores for the initial test for the speed running trial is 1.36, and after performing the dynamic games and the applicative pathways, the average is 2.13. As t has a value 6.492 and Sig. (2-tailed) is lower than 0.05, there is a noticeable significant difference between the results achieved in the two trials (Table 4).

In the initial tests for the long distance run trial, 14 boys and 22 girls achieved a score of 8, 10 boys and 3 girls – a score of 9, 3 boys and no girls – a score of 10 (Fig. 3). The scores achieved at the final tests were: 3 boys and 14 girls got 8, 9 boys and 9 girls got 9, 15 boys and 9 girls achieved a 10 (Fig. 4). Higher scores are observed in the case of boys because of their cardiovascular endurance, which is increasing in 4th grade. The girls' scores did not increase much, because in girls, fatigue sets in faster than in boys.

In Table 5, we notice that the average in the initial test for sports minigame is 1.51, and after applying the dynamic games and applicative pathways, the average is 2.21. As t's value is 5.192 and Sig. (2-tailed) is lower than 0.05, we observe a significant difference between the results in the two trials. (Table 6).

The results achieved in the initial tests were the following: 7 boys and 21 girls got an 8, 17 boys and 4 girls – 9, 3 boys and no girl – 10 (Fig. 5), and the results of the final test: one boy and 14 girls – 8, 10 boys and a girl – 9, 16 boys and 10 girls – 10 (Fig. 6).

We can note, through Table 7, that the average in the initial test for skillfulness is 1.61, and after applying the dynamic games and applicative pathways, the average is 2.28. As t has a value of 5.519 and Sig. (2-tailed) is lower than 0.05, a significant difference between the results of the two trials is observed. (Table 8).

Table 1. Difference between the values of the initial and final tests of the 25 m speed running trial

Tests		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Speed running trial – initial test	1.5577	52	.66902	.09278
	Speed running trial – final test	2.2500	52	.83725	.11611

Table 2. Results of the t-test analysis for dependent samples of the 25 m speed running trial

Tests	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Speed running trial – initial test Speed running trial – final test	-.69231	.80534	.11168	-.91652	-.46810	-6.199	51	.000

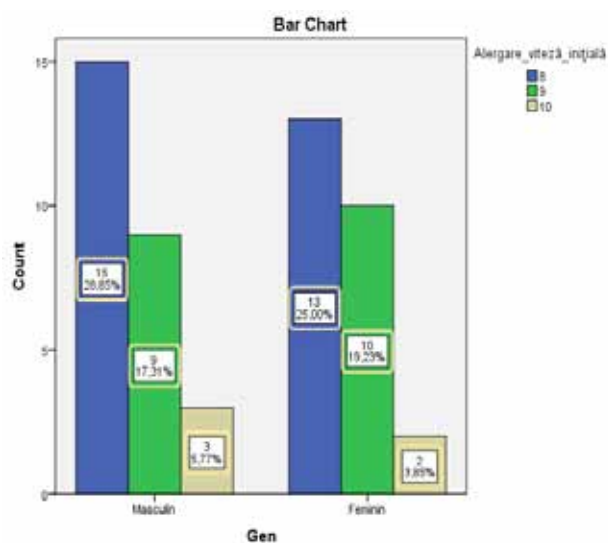


Fig. 1

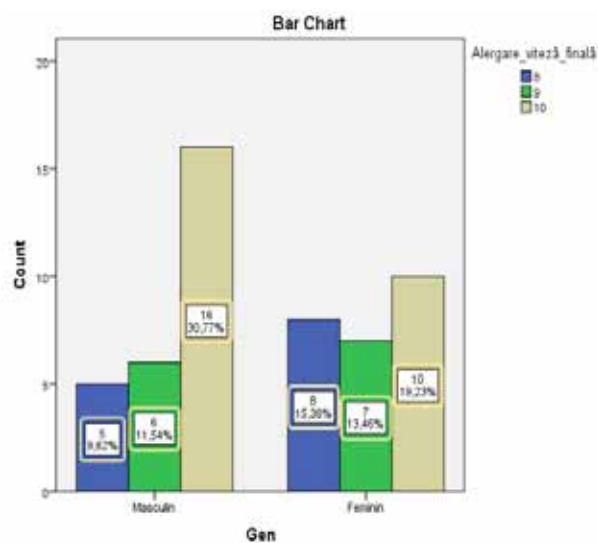


Fig. 2

Table 3. Difference between the values of the initial and final tests of the long distance run trial

Tests		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Long distance run trial – initial test	1.3654	52	.59504	.08252
	Long distance run trial – final test	2.1346	52	.88625	.12290

Table 4. Results of the t-test analysis for dependent samples of the long distance run trial

Tests	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Long distance run trial – initial test Long distance run trial – final test	-.76923	.85441	.11849	-1.00710	-.53136	-6.492	51	.000

Following the initial tests in the skillfulness trial, 19 boys and 7 girls got an 8, 6 boys and 14 girls got 9, 2 boys and 4 girls got a 10 (Fig. 7). In the final tests, the results were the following: 8 boys and 2 girls got an 8,

4 boys and 13 girls got a 9, 15 boys and 10 girls got 10 (Fig. 8). Although at this age, coordination capacity stagnates, the results increased in the experimental class.

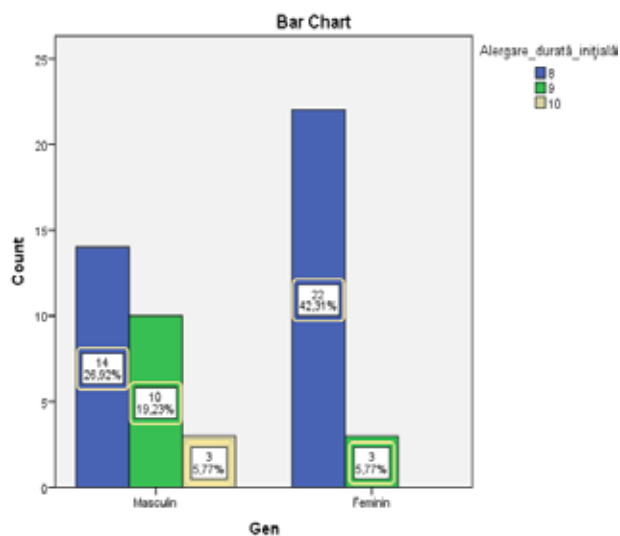


Fig. 3

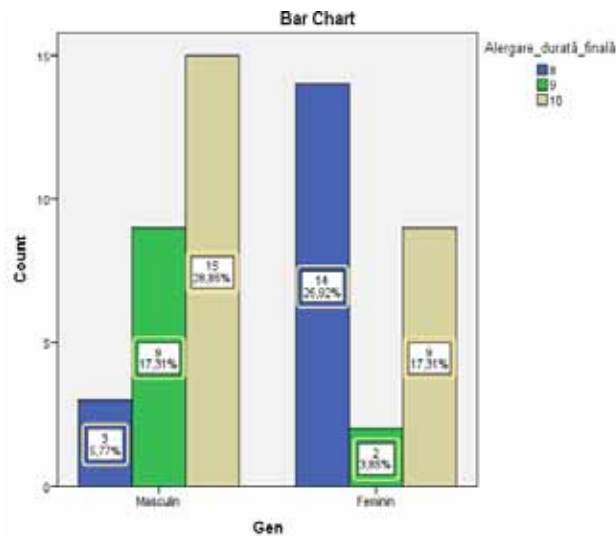


Fig. 4

Table 5. Difference between the values of the initial and final tests of the sports minigame

Tests		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Minigame – initial test	1.5192	52	.61006	.08460
	Minigame – final game	2.2115	52	.87080	.12076

Table 6. Results of the t-test analysis for dependent samples of the sports minigame

Tests	Paired Differences					t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1	Minigame – initial test Minigame – final test	-6.9231	.96077	.13323	-95979	-42483	-5.196	51	.000

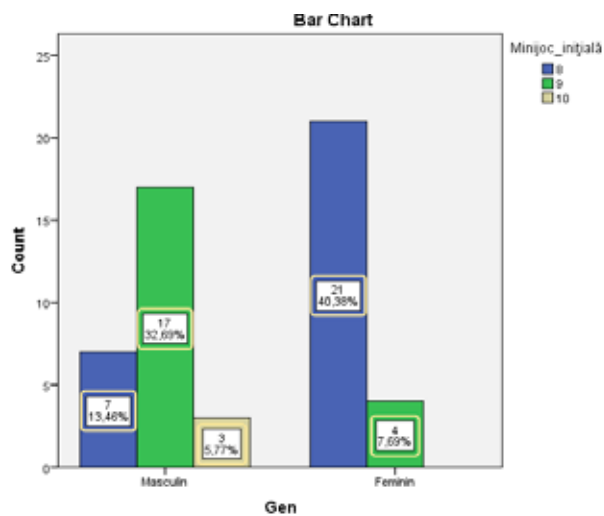


Fig. 5

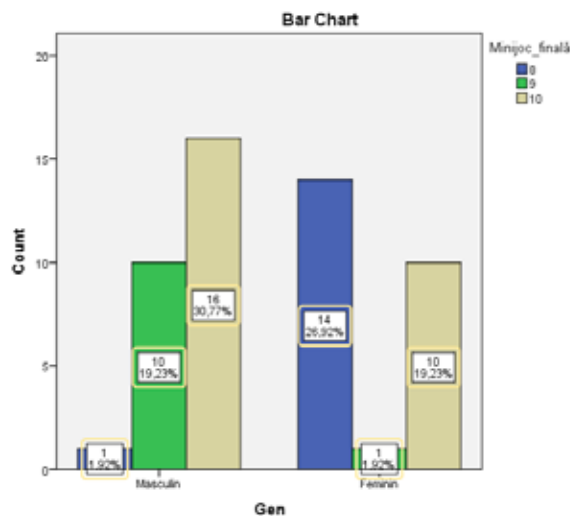


Fig. 6

Table 7. Difference between the values of the initial and final tests in the skillfulness trial

Tests		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Skillfulness – initial test	1.6154	52	.69038	.09574
	Skillfulness – final test	2.2885	52	.77552	.10755

Table 8. Results of the t-test analysis for dependent samples in the skillfulness trial

Tests	Paired Differences				t	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
Pair 1 Skillfulness – initial test Skillfulness – final test	-.67308	.87942	.12195	-91791	-42824	-5.519	51	.000

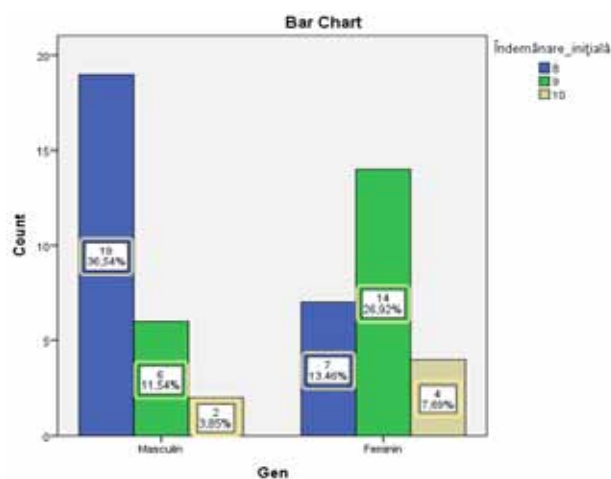


Fig. 7

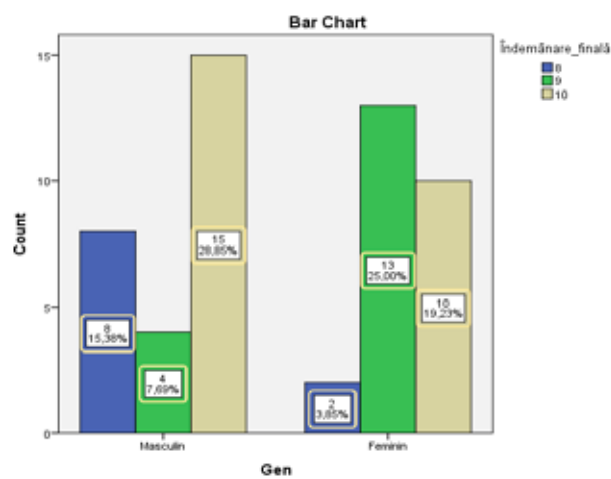


Fig. 8

Discussion

The main findings of the study are: 1) there are statistically significant differences between the initial and the final test for all physical tests taken by the pupils in the experimental group, following the movement games, 2) there are statistically significant differences between the initial and the final tests for all physical tests taken by the pupils in the experimental group, following the applicative pathways.

Several studies have analyzed the importance of movement games and of applicative pathways in improving physical education classes in all stages of education, especially in primary and secondary education.

Balan & Shao (2013) showed that, in the case of 7 or 8 year-old pupils, the attractiveness of exercises used in the teaching process to convey the content in the curriculum reflected in the increase of the pupils' physical and emotional involvement.

Dumitru & Moroianu (2016) state that games, in general, are playful activities with significant implications on the development of the personality

of pupils from various points of view, including that of contribution in terms of social integration. They are full, attractive, spontaneous, free, natural and disinterested activities. They also have recreational and countervailing valences. Therefore, they are highly used in the organizational forms of leisure of different categories of subjects.

Author Warchol (2016) believes that the quality and effectiveness of physical education in school is also determined by the level of content, methodology and organization of physical education lessons.

Conclusions

The experiment showed that the final scores achieved by the experimental group were much higher compared to the initial test.

The use of movement games and applicative pathways led to an increased attractiveness of physical education classes, as the pupils took more pleasure in taking part in the teaching process.

During the physical education class, teachers should use as many dynamic games as possible, as well

as applicative pathways, routes etc., taking into account the positive effects of these factors on the attractiveness of the teaching process. It is also important to take into consideration children's physical and psychological characteristics when organizing these activities.

Conflict of interest

The author declares no conflict of interest.

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МЕТОДИКА НАВЧАННЯ, ЩО ВИКОРИСТОВУЄТЬСЯ У ПОЧАТКОВІЙ ОСВІТІ ДЛЯ ПІДВИЩЕННЯ ЕФЕКТИВНОСТІ ЗАНЯТЬ З ФІЗИЧНОЇ КУЛЬТУРИ

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Реферат. Стаття: 7 с., 8 табл., 8 рис., 11 джерел.

Мета: продемонструвати важливість рухливих ігор та планування апікативних стратегій для підвищення ефективності занять з фізичної культури та спорту у початковій освіті.

Матеріали та методи: у дослідженні брали участь 52 учня: хлопці (n=28), дівчата (n=24). Експеримент проводився у період з листопада 2016 року по травень 2017 року в середній школі імені Андрія Мурешану у графстві Брашов. Для оптимізації занять з фізичної культури протягом дослідження та у рамках навчального й освітнього

процесу використовувалися динамічні ігри та апікативні стратегії.

Результати: середні результати кінцевих тестів висвітлили статистично значущі відмінності у порівнянні з початковим тестом в усіх учнів, які брали участь в експерименті, з порогом суттєвості $p < 0,05$.

Висновки: експеримент показав, що кінцеві результати, отримані експериментальною групою, були набагато вищими порівняно з початковим тестом.

Використання рухливих ігор та апікативних стратегій призвело до підвищення привабливості

занять з фізичної культури, оскільки учні отримували більше задоволення від участі у навчальному процесі.

Під час проведення занять з фізичної культури вчителям слід використовувати якомога більше динамічних ігор, аплікативних стратегій тощо, беручи до уваги позитивний вплив цих факторів на прива-

бливість навчального процесу. Також слід вказати, що ці види активності мають бути організовані з урахуванням фізичних та психологічних характеристик дітей.

Ключові слова: заняття з фізичної культури, рухливі ігри, аплікативні стратегії, учні.

МЕТОДИКИ ОБУЧЕНИЯ, КОТОРАЯ ИСПОЛЬЗУЕТСЯ В НАЧАЛЬНОМ ОБРАЗОВАНИИ ДЛЯ ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ЗАНЯТИЙ ПО ФИЗИЧЕСКОЙ КУЛЬТУРЕ

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Реферат. Стаття: 7 с., 8 табл., 8 рис., 11 источник.

Цель: показать важность подвижных игр и планирования апликативных стратегий для повышения эффективности занятий по физической культуре и спорту в начальном образовании.

Материалы и методы: в исследовании приняли участие 52 ученика: мальчики (n=28), девочки (n=24). Эксперимент проводился в период с ноября 2016 по май 2017 года в средней школе имени Андрея Мурешана в графстве Брашов. Для оптимизации занятий по физической культуре в течение исследования и в рамках учебного и образовательного процесса использовались динамические игры и апликативные стратегии.

Результаты: средние результаты конечных тестов осветили статистически значимые различия по сравнению с начальным тестом у всех учеников, участвовавших в эксперименте, с порогом ответственности $p < 0,05$.

Выводы: эксперимент показал, что конечные результаты, полученные экспериментальной групп-

пой, были намного выше по сравнению с исходным тестом.

Использование подвижных игр и апликативных стратегий привело к повышению привлекательности занятий по физической культуре, поскольку ученики получали больше удовольствия от участия в учебном процессе.

При проведении занятий по физической культуре учителям следует использовать как можно больше динамических игр, апликативных стратегий и т.д., принимая во внимание положительное влияние этих факторов на привлекательность учебного процесса. Также следует указать, что эти виды активности должны быть организованы с учетом физических и психологических характеристик детей.

Ключевые слова: занятия по физической культуре, подвижные игры, апликативные стратегии, ученики.

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