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Original article

Development of distributive attention in physical education lessons for children aged 11-12

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Abstract

Aim. The aim of our study is to promote physical education as a tool in the development of children's concentration in both physical education lessons and other subjects in the specific curriculum of the gymnasium cycle.

Methods. 50 students, divided into two groups, participated for 6 months in an experiment that focused on developing distributive attention but also attention time by going through twice a week specially selected and designed games and exercises. Students, ages 11 to 12, had to complete various puzzles, math operations, and complete sentences at the end of physical tasks. The research was carried out with the consent of the parents

Results. The impact of the experiment validates the hypothesis of the paper and allows us to say that capitalizing on the content of the program through appropriate teaching strategies in high school, students gained faster and more efficient development of attention by applying exercises and games specially designed in the physical education lesson.

Conclusions. In addition to contributing to the development of high school students 'attention by applying specific tests in the physical education lesson, the structures included in the experiment also contributed to the development of all students' mental processes, positive personality traits and social integration. by increasing their ability to socialize.

Keywords: Curriculum physical education, attention.

Introduction

The physical education lesson is effective not only when solving current tasks, in connection with the acquisition of movement, training and development of motor skills, performing exercises, but also when, at the same time, makes the student understand their importance and need in the development of his personality, in the general activity that he carries out and will carry out. Beyond the formation of movement skills, the development of attention in different branches of sports, the lesson of physical education must awaken in the student the desire to practice physical exercises (Dumont, 2004).

In the current context of the tasks that the school has to solve, physical education is included in the program of promoting the human personality in full accordance with the demands of today and tomorrow of our society.

Physical education and school sports provide students with opportunities to learn and practice the skills needed to develop and maintain healthy fitness throughout life. In addition to physical development, it brings a kind of knowledge and understanding based on rules, on respect that leads to the social awareness of physical education correlated with social interaction. The value of physical education must be understood from an early age to determine students to be active throughout life.

The development of attention in the physical education lesson in the gymnasium cycle must be considered as a priority task of the physical education, this quality having first of all a direct influence on the development of the students. (Stead, Neville 2010)

Attention is present in physical education at all ages, offering teachers a wide range of exercises and technical procedures that can effectively influence the increase of development capacity, ensuring a multilateral motor training in this regard (Silva, Prado, Scardovelli, Boschi, Campos, Frère, 2015).

Due to causes related to the process of growth, morphofunctional development and motor skills, the development of attention to the middle school cycle can lose its natural character, in the sense of deformity, by deviating more or less from the basic mechanism (Cosmovici, 1996), correct, of the exercises that applies in the physical education lesson.

Therefore, it is necessary for physical education lessons in secondary education to contain exercises that lead to an effective method for developing the attention that, later, on the background of the basic mechanism, in a specific higher education, to be subjected to the process of improvement, in accordance with the specific requirements of the specialized events in different sports.

Several studies have been launched on the link between cognitive development in children and their physical activity, with new studies being conducted all the time. Statistics often agree on a positive correlation, resulting in a comprehensive set of suggestions for improving a child's academic potential through exercise. (Chaddock-Heyman, 2013; Lees, Hopkins, 2013, Deák,

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2003)

The HBSC report (Health Behavior in School-aged Children), which refers to health-related behaviors in schoolchildren, at the international level shows that, in Romania, the levels of physical activity among adolescents are decreasing compared to 2014, while sedentary behaviors they are growing sharply (Roberts, Freeman et al, 2019).

Sport and exercise are important for the development of the child's body in optimal conditions, which is why it is recommended that he have an active life. Through physical games, the child will be able to develop muscles, learn to control his breathing and lead to an improvement in cognitive function.

Nowadays, children have a problem because they are used to the constant stimuli that reside in the phone applications, so that they cannot concentrate in the classroom. Generations Z (10-24 years old) and Alpha (0-9 years old) were born in a world where algorithms make them click, scroll and slide at a very quick pace. Today's teachers ask themself permanently how can they adapt the traditional curriculum to accommodate technology-raised students. Early brain development is a complex topic, but in recent years researchers around the world have expressed concern about the impact of smartphones and media multitasking on concentration. (Wilmer, Sherman, Chein, 2017)

Sallis, McKenzie, Beets, Beighle, Erwin, Lee (2012) published a paper on the fact that physical education is educational content, using a "comprehensive but physically active approach that involves teaching social, cognitive, and physical skills and achieving other goals through movement". This perspective is also emphasized by Siedentop (2009), who states that physical education is education through movement. Sallis, McKenzie et al (2012) point out two main objectives of physical education: preparing children and young people for an active life and engaging them in physical activity during physical education classes.

The aim of our study is to promote physical education as a tool in the development of children's concentration in both physical education lessons and other subjects in the specific curriculum of the gymnasium cycle. In our scientific approach we started from the hypothesis that, if we capitalize on the content of the program using specific basic methods, by applying exercises and games specially designed for gymnasium students, we can improve their attention to both physical education and other subjects in curriculum.

Methods

50 students, divided into two groups, participated for 6 months in an experiment that focused on developing distributive attention but also attention time by going through twice a week specially selected and designed games and exercises. Students, ages 11 to 12, had to complete various puzzles, math operations, and complete sentences at the end of physical tasks.

The students completed the program developed during the physical education lessons. The exercises dedicated to our research have been introduced in all the lesson links, so that the students can benefit as much as possible from our intervention.

The students included in our study were asked to take the Prague test at the beginning and end of the research. This test allows the diagnosis of distributive attention.

Subjects are asked to complete on the four-column answer page. Several numbers are entered in the boxes to the left of each column. Next to each number, on the right side, is a free box. In each free box the subjects must write the number that corresponds to a number in the box on the left, written in capital letters in a table. The table contains 100 boxes, each box containing a capitalized number and a lowercase number. The duration of the test is 16 minutes. The total number of correct numbers found is then calculated and reported to the appropriate scale.

For the proposed experiment we established for the initial test as well as for the final one, the application of some exercises and games, specially designed for the development of the attention to the gymnasium classes.

Results and dicussions

The results of the experimental class following the initial and final tests as well as their average, obtained in this experiment are centralized in the following tables:

Table 1. Experimental class values at the initial and final test - Prague test

Initial testing	M ± SD	43.64±15.37
	Cv %	35.23
Final testing	M ± SD	54.92±16.29
	Cv %	29.67

"t" Test	7.83

In the table above, which represents the Prague Test, a statistically significant difference is observed between the initial test and the final test of the experiment class with the significance threshold p <0.0005.

As shown in Table 1 of the Prague Test, the experiment group obtained an average of M= 43.64 on the initial test and an average of M= 54.92 on the final test.

The coefficient of variability (CV) characterizes the group as inhomogeneous in both tests, which allows us to believe that only a part of the students tested in this group contributes to the average.

The difference in averages between the two tests demonstrates a very good statistical significance, the values obtained by students in the final test being much better than those in the initial test. We believe that the curriculum applied by us in physical education lessons has contributed to increasing the ability to distribute attention and to developing the students' observational spirit.

In order to be able to observe if the indices of distributive attention have improved, we compared the annual averages of the experiment group in the year before the research with those of the year of our research.

Table 2. Averages of the general school grades obtained in the school year 2020-2021 - Experimental group

Fifth class	M ± DS	8.47± 0.86
	Cv %	10.25
Sixth class	M± DS	8.7±0.79
	Cv %	9.13
"t" Test		3.55

According to the table above, which represents values of the averages school grades obtained in the school year 2020-2021, there is a statistically significant difference between the general average of the 5th grade and the general average of the 6th grade - in the experiment group, with a significance threshold p <0.005.

As shown in table no. 2 experiment group obtains at the initial testing an average of = 8,47 and at the final testing an average of = 8,7.

The coefficient of variability (CV) characterizes the group as being with average homogeneity at the initial test and homogeneous at the final test, which allows us to believe that all students tested in this group contribute to the average.

The difference in averages between the two tests demonstrates a very good statistical significance, the values obtained by students in the final test being much better than those in the initial test. We believe that the curriculum applied by us in physical education lessons has contributed to the increase of the general average of the students.

The results of the control class following the initial and final tests as well as their average, obtained in this experiment are centralized in the following tables:

Table 3. Control class values at the initial and final test - Prague test

Initial testing	M ± SD	49.52 ± 16.66
	Cv %	33.66
Final testing	M ± SD	52.32 ± 16.94
	Cv %	32.37
"t" Test		7.83

As shown in table no. 3, the control group obtains at the initial test an average of M= 49.52 and at the final test an average of M= 52.32.

The coefficient of variability (CV) characterizes the group as inhomogeneous in both tests, which allows us to believe that only a part of the students tested in this group contributes to the average.

The difference in averages between the two tests is statistically insignificant.

Table 4. Averages of the general school grades obtained in the school year 2020-2021 -Control group

Fifth class	M ± DS	8.28± 1.01
	Cv %	10.22
Sixth class	M± DS	8.32±1.17
	Cv %	14.08
"t" Test		3.34

According to the table above, which represents values of the averages obtained in the school year 2020-2021, there is a statistically insignificant difference between the general average of the 5th grade and the general average of the 6th grade - to the control class, with a significance threshold p <0.05.

As shown in table no. 4, respectively the graph no. 8 control group obtains at the initial test an average of M = 7.48 and at the final test an average of M = 7.58.

The coefficient of variability (CV) characterizes the group as a homogeneous average in both tests, which allows us to believe that all students tested in this group contribute to achieving the average.

The difference in averages between the two tests is statistically insignificant

The difference of the averages of the experimental and control groups at the final test for the Prague Test is statistically insignificant with the significance threshold p> 0.05.

A statistically insignificant difference is also registered between the avereages of general school grades of the two classes, experiment and control, at a significance threshold of p> 0.05. This aspect shows us that most likely the exercises applied by us in the physical education lesson did not have the expected effect in terms of distributive attention but also because the averages obtained by the students of the two classes were influenced by several factors.

We intend to conduct further research to identify these issues.

The 25 subjects from the experimental group aged between 11 and 12 years, 6th grade, responded differently to the tests applied, but in most cases there is a positive evolution of distributive attention, but also of cognitive flexibility.

The results based on the individual analysis of the students in the experiment group at the Prague Test will be presented in a subsequent research.

Coclusions

Physical education being present in all links of education, is called to contribute to the multilateral training of subjects, through the harmonious development of the body, strengthening the body, strengthening health, developing physical and mental qualities and training useful motor skills in life (Committee on Physical Activity and Physical Education in the School Environment,2013).

Physical education participates, through specific means and forms of organization, in the improvement of the processes of intellectual activity (imagination, creativity, motor memory, concentrated and distributive attention, speed of analysis, speed and decision), in the development of affective components (feelings, passions), and in educating important volitional qualities (courage, self-control, perseverance, perseverance) (Chen, Zhang, Callaghan, LaChappa, Chen, He, 2017).

One solution for convincing subjects of the need for independent exercise is the ongoing awareness of the training process. We consider it normal that the subject should not only be made to execute, but also to know what and how and especially why he executes, what are the effects of these executions on his development. Another solution is to recommend individual activity programs with regular verification of progress, as well as individualizing, within time and space, the performance of exercises to develop a motor quality, and in this regard

the indication of additional tasks for those subjects who they need them (Kohl, Cook, 2013).

The impact of the experiment validates the hypothesis of the paper and allows us to say that capitalizing on the content of the program through appropriate teaching strategies in high school, students gained faster and more efficient development of attention by applying exercises and games specially designed in the physical education lesson.

In addition to contributing to the development of gymnasium students 'attention by applying specific tests in the physical education lesson, the structures included in the experiment also contributed to the development of all students' mental processes, positive personality traits and social integration. by increasing their ability to socialize.

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