

## Improving the psychophysiological condition of secondary school learners through the Olympic education program during the Covid-19 pandemic

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**Abstract.** The *article aims* to evaluate the impact of the proposed "Olympic Education" program on the physical and psycho-emotional state of middle school children. *Materials and methods.* We conducted research in Chernivtsi specialized schools, and 34 children aged 13-14 participated in the experiments. We tested effectiveness experimentally. A group of 16 boys and 18 girls were involved in the extracurricular activities based on the proposed program. *Results.* The results of the transformative experiment proved that implementation of the innovative program contributed to a significant increase in the indicators referring to the physical and psycho-emotional state of children aged 13-14. Using a large arsenal of mobile games and online activities contributed to probable changes ( $p < 0.05$ ;  $p < 0.001$ ) in the indicators characterizing the respiratory system, particularly the breath retention time on inhalation and exhalation increased in both groups. Implementing the Olympic education program contributed to a probable ( $p < 0.05$ ;  $p < 0.001$ ) improvement of the vast majority of volitional qualities in both groups. *Conclusions.* The results obtained during the pedagogical experiment testify to the effectiveness of the innovative Olympic education program in improving the physical and psycho-emotional state of secondary school children.

**Key words:** Olympic Education, Covid-19, online learning, secondary school learners, Physical Education, psychophysiological condition.

**Resumen.** El artículo tiene como objetivo evaluar el impacto del programa propuesto "Educación Olímpica" en el estado físico y psicoemocional de los niños de la escuela media. *Materiales y métodos.* Realizamos investigaciones en escuelas especializadas de Chernivtsi, y 34 niños de 13 a 14 años participaron en los experimentos. Probamos la efectividad experimentalmente. Un grupo de 16 niños y 18 niñas participaron en las actividades extraescolares en base al programa propuesto. *Resultados.* Los resultados del experimento transformador demostraron que la implementación del programa innovador contribuyó a un aumento significativo en los indicadores relacionados con el estado físico y psicoemocional de los niños de 13 a 14 años. El uso de un gran arsenal de juegos móviles y actividades en línea contribuyó a cambios probables ( $p < 0,05$ ;  $p < 0,001$ ) en los indicadores que caracterizan el sistema respiratorio, particularmente el tiempo de retención de la respiración en la inhalación y la exhalación aumentó en ambos grupos. La implementación del programa de educación olímpica contribuyó a una probable ( $p < 0,05$ ;  $p < 0,001$ ) mejora de la gran mayoría de las cualidades volitivas en ambos grupos. *Conclusiones.* Los resultados obtenidos durante el experimento pedagógico dan testimonio de la eficacia del innovador programa de educación olímpica para mejorar el estado físico y psicoemocional de los niños de secundaria.

**Palabras clave:** Educación Olímpica, Covid-19, aprendizaje en línea, estudiantes de secundaria, Educación Física, condición psicofisiológica.

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### Introduction

Harmonious development of children is an essential aspect of the educational process, which provides favourable conditions for strengthening their health, and developing the motor skills that contribute to physical, mental, social and spiritual health, especially in the period of Covid-19 (Tomenko et al., 2017; Pasichnyk et al., 2018; Galan et al., 2018; Griban et al., 2018; Popovych et al., 2021; Chan et al., 2021). Olympic education is a philosophy of life that, in a balanced way, elevates all the qualities of the body, will and mind. Thus, the main content of Olympism is education (Tekin, Akbay, & Din, 2018). Olympic education is an area that needs to be researched and studied in detail. The educational value of the Olympic movement is also invaluable, as it is a way of integrating Ukrainian culture, experience and scientific knowledge, which contributes to the formation of a generally developed, educated person, in particular, a teacher in the field of physical education and sports (Bakhtiyarova et al., 2020; Galan et al., 2021).

Olympic education is a pedagogical process that covers

all levels of education. Studying at university is one of the most critical periods in a person's physical, moral and spiritual development. It helps to form moral and social principles of behaviour, which will later form the basis for future teachers of physical education (Polikarpova, 2003; Galan et al., 2022). Olympic education aims to create a way of life based on obtaining joy of effort, increasing the educational value of positive example, social responsibility and respect for universal fundamental ethical principles. These teaching methods instil in children respect for the environment and form the habit of leading a healthy lifestyle. In addition, Olympic education makes children interested in sports, which will significantly improve the nation's overall health and, subsequently, the demographic state of the country (Kruglik, 2016; Popovych et al., 2022).

Olympic Charter defines Olympism as a philosophy of life that elevates and unites body, spirit and mind into a balanced whole. These concepts embrace the multifaceted socio-humanistic meaning of Olympism. The first founding principle of the Olympic movement carries the enormous social potential of humanism, which opens vast opportuni-

ties for researching this phenomenon from the perspective of the past, present and future (Kruglyk et al., 2021).

Olympic education plays a significant role in educating the personality of the future teacher of Physical Education. It has a positive force on regularities. It provides specific role models and thus actively forms future specialists' consciousness, subconsciousness, beliefs, and feelings. It also helps future teachers to gain social experience (Momot, 2017; Bulatova & Platonov, 2018).

The young generation begins to realize the historical value and responsibility to the state and its citizens, creating an unstoppable desire to actively participate in the Olympic movement, defend their state, and contribute to its development. One of the most important benefits is that it unites patriotic education with the people's history and culture, traditions, customs and language (Hua Pan, Xiaowei Liu, 2011; Martinez Patiño et al., 2016; Galan, 2022).

Ukraine is an active participant in the international Olympic movement. There is an urgent need to raise issues related to general Olympic education and future teachers' competence in this field, which makes this paper relevant.

## Material & methods

### Participants

The research used the following methods: analyzing and generalizing scientific and methodological literature, documentary materials, logical-theoretical analysis, comparative analysis, synthesis and systematization, pedagogical diagnostics involving systematic I observation, mathematical statistics, and psychophysical tests and methods.

We conducted the research among schoolchildren in Chernivtsi specialized schools. Thirty-four children aged 13-14 took part in the pedagogical experiment. They formed an experimental group that participated in various activities within the developed innovative "Olympic Education" program. The study aimed to monitor and measure the schoolchildren's psychophysical condition. At the beginning of the pedagogical experiment, we assigned all the boys and girls to the leading medical group according to the conclusions of the medical examination. We researched the effectiveness of the pedagogical influence of the proposed educational program.

### Procedure

The collected data were analyzed using percentage ratio and survey analysis.

An innovative program aims to examine the practical value of implementing the ideas of Olympic education in the educational process in secondary school educational institutions. The program embraced 185 academic hours per academic year. We conducted classes two times a week, both online and offline.

The program includes various stages and tasks. The information-diagnostic stage consists of several tasks, in particular, the assessment of the initial level of theoretical knowledge related to the issues of health care, Olympic

values, patriotism, physical culture and sports; motivation for doing physical exercises; levels of physical fitness, and motor activity.

The tasks of the interactive stage focus on the formation of a patriotic position and the humanistic ideals of Olympism. The control-corrective stage includes evaluation of the effectiveness of the proposed forms and means of Olympic education in the formation of moral and volitional qualities, increasing the level of theoretical knowledge in the field of physical education and sports, motivation to attend lessons, the level of physical fitness, and motor activity.

The interactive stage takes place as both classroom and extracurricular activities and in various forms, such as the organized school day; mini-lectures; physical exercises during the breaks; sports clubs; excursions; mass physical culture activities; holidays and thematic evenings; quests; master classes. These activities introduce various types of sports, increasing physical activity among children, encouraging them to play sports, improving their health and forming new skills and abilities for a particular sport. For instance, reading the fairy tale 'Olympic Dream', which highlights and promotes Olympic values through the depiction of historical and sports aspects; Olympic puzzles and Olympic quest, which contribute to the well-rounded upbringing of modern youth through Olympic education and sports; motivational videos; webinars; seminars.

### Methods

Doing this research required the following methods: pedagogical observation, pedagogical testing and pedagogical experiment.

The use of functional breath-hold tests by Stange and Gench made it possible to determine the functional capabilities of the respiratory system in conditions of hypoxia. The test with the dosed physical load (*Rufe Index*) made it possible to determine the reaction of the cardiovascular system to dynamic load and establish the level of physical performance. A set of psychological tests enabled us to determine willpower and the level of mental stress. We used the technique for evaluating volatility and willpower (Kadiyeva, 2022) to determine the volatility level before and after the pedagogical experiment. Observations integrated methods of Olympic education. The volatility level corresponded to a five-point system: 5 points meant that volatility and willpower are very developed, 4 - developed, 3 - weakly developed, 2 - very weakly developed, and 1 - no volatility and willpower developed. We evaluated the following volatility and willpower qualities: discipline, autonomy, perseverance, endurance, organization, determination, and initiative.

We used Luscher's test to assess the psycho-emotional state, based on the assumption that the choice of colour often reflects the focus of the subject on a particular activity, mood, functional state and the most stable personality traits. For the calculation, it is necessary to compare the order of places occupied by the colours in the selection

with their "ideal" location (34251607). First, we calculated the difference between the occupied space and the normative position of the colour. Then these differences (their absolute values, without considering the sign) were summed up. The value of the deviation from the autogenous norm varies from 0 to 32 and can be even.

We divided the research methodology for assessing the current psycho-emotional state of the child (e.i. identifying the deviation from the auto-norm) into several levels: Level 1 (0-5.5), which points out to the absence of unproductive (not related to any practical activity) tension, high neuropsychological stability. Level 2 (5,6-11) reflects a slight unproductive tension and good neuropsychological stability. Level 3 (11.1-17) is an average level of unproductive tension, which means that the examinee copes with his duties within the limits of the requirements that have developed in society. Level 4 (17.1-23) is increased unproductive tension and decreased neuropsychological stability. Level 5 (23.1-32) is a distinctive unproductive tension which presupposes low neuropsychological stability and high fatigue.

The vegetative coefficient (VC) characterizes the relative predominance of sympathetic (ergotropic tone) or parasympathetic (trophotropic tone) effects of the autonomic nervous system. The predominance of ergotropic tone ( $VC > 1$ ) reflects the desire to spend energy, while the predominance of trophotropic ( $VC < 1$ ) refers to its accumulation and need for rest. The formula used in the research is the  $VC = (18-K-Z) / (18-C Z)$ , where: R, Y, B, and G are the places of red, yellow, blue and green colours, respectively. Table 1 presents the estimate of the vegetative coefficient.

Table 1.  
Evaluation of the vegetative coefficient

Standard scores	1	2	3	4	5	6	7
Range of values of the vegetative coefficient, units	0.2	0.3-0.4	0.5-0.8	0.9-1.2	1.3-1.9	2.0-3.1	3.2

Table 2.  
Indicators of the physical condition of schoolchildren aged 13-14 before and after the pedagogical experiment, (n=34)

The indicators	Boys (n=16)			Girl (n=18)		
	Before the experiment	After the experiment	P	Before the experiment	After the experiment	P
	$\bar{x} \pm s$	$\bar{x} \pm s$		$\bar{x} \pm s$	$\bar{x} \pm s$	
Gench Test, s	24.8±2.7	29.6±2.8**	0.001	24.2±3.1	27.4±3.2**	0.001
Stange Test, s	49.3±5.16	52.7±6.23**	0.001	44.7±5.28	48.6±6.24*	0.04
Index Rufe, units	10.4±1.36	8.1±0.13*	0.02	11.2±1.05	8.2±0.97**	0.001
Running 30 m, s	6.2±0.28	6.1±0.16	0.54	6.4±0.23	6.3±0.16	0.61
Shuttle run 4x9 m, s	11.8±0.54	11.7±0.22	1.00 a.m	11.9±0.46	11.8±0.42	1.00 a.m
Leaning the body forward from a sitting position, cm	3.1±1.23	3.2±1.16	1.00 a.m	11.7±3.22	11.9±3.04	1.00 a.m
Lifting the body trunk in a sitting position in 30 seconds, times	16.3±1.04	17.2±1.45	0.88	13.2±1.26	14.1±1.34	0.96

Note: \* the difference is statistically significant at the  $p < 0.05$  level; \*\* the difference is statistically significant at the  $p < 0.001$  level in comparison with the results at the beginning of the pedagogical experiment according to the non-parametric Wilcoxon test for dependent samples.

The potential change occurred ( $p < 0.05$ ;  $p < 0.001$ ) at the end of the pedagogical experiment. In particular, we observed significant changes in indicators of the respiratory system's functional state and the level of its work capacity. At the end of the pedagogic experiment, the duration of breath retention time on exhalation and inhalation increased by 19.5 % and 6.7 % in boys and 13.2 % and 8.7 % in girls. Such an increase in these indicators is due primarily to using a large arsenal of physical exercises

We evaluated the vegetative factor according to the following indicators: 1, 2 - exhaustion, setting on inactivity, and chronic fatigue. 3 - the setting for optimizing energy consumption; the moderate need for recovery and rest. 4, 5 - the setting for active action; optimal mobilization of physical and mental resources. 6, 7 - excessive excitement and fussiness; the level of anxiety is excessively high.

### Data analysis

The research results were processed by mathematical processing methods using the following statistical methods: descriptive statistics, sampling method, Wilkie-Shapiro consistency criterion, and non-parametric Wilcoxon criteria. We used "Statistica 13.0" and "Excel 2019" (Microsoft, USA), which made it possible to analyze the data and calculate the fundamental values.

### Results

Numerous studies conducted in the field of Olympic sports confirm that the study of the Olympic movement brings considerable educational and upbringing value and significance in the development and formation of a well-rounded personality. Introducing children and youth to the principles and values of Olympism is essential in the educational systems across countries.

In addition, increasing the knowledge of the issues of the Olympic movement will also positively contribute to increasing children's interest in active physical exercises.

In order to evaluate the impact of the Olympic education methods on the cardio-respiratory system, physical capacity and the development of the primary motor qualities of boys and girls aged 13-14, we conducted a comparative analysis of indicators before and after the pedagogical experiment. Table 2 shows the results of the experiment.

in Olympic education classes, which contributed to developing a better ability under hypoxia conditions. Repeated testing of children's essential motor skills development made it possible to assess the influence of Olympic education tools on strength, speed, dexterity, and flexibility (see Table 3). The analysis of the results shows no changes ( $p > 0.05$ ). However, we observed positive dynamics of the suggested indicators.

The results of the formative experiment prove the im-

portance and expediency of using Olympic education methods in forming secondary school children's psychophysiological condition. The average group results of the children of both genders at the beginning of the pedagogical experiment indicate poorly developed volitional qualities, particularly discipline, autonomy, perseverance, endurance, determination, and initiative (see Table 3). Moreover, 13-14-year-old boys seemed to lack organ-

ization skills. At the end of the pedagogical experiment, boys and girls had positive dynamics in demonstrating volatility and willpower qualities such as discipline, autonomy, persistence, organization, and determination. Involving schoolchildren in competitive activities within a sports club as a part of the extra-curricular program "Olympic Education" allows them to develop perseverance, purposefulness, endurance, and self-control.

Table 3. Average statistical indicators of secondary school children's volatility, (n=34)

The indicators	Boys (n=16)		p	Girl (n=18)		p
	Before the experiment	After the experiment		Before the experiment	After the experiment	
	$\bar{x} \pm S$	$\bar{x} \pm S$		$\bar{x} \pm S$	$\bar{x} \pm S$	
Discipline, score	3.0±0.03	3.4±0.15	0.26	3.3±0.09	4.1±0.02 **	0.001
Autonomy, score	3.2±0.04	4.1±0.11	0.13	3.4±0.04	4.3±0.03 **	0.001
Perseverance, score	3.3±0.06	4.1±0.03 **	0.001	3.4±0.02	4.3±0.02 **	0.001
Stamina, score	3.1±0.02	4.2±0.01 **	0.001	3.2±0.09	4.4±0.09 *	0.03
Organization, score	2.7±0.03	4.2±0.02 *	0.04	3.1±0.04	4.2±0.03 **	0.001
Determination, score	3.6±0.08	4.3±0.06 **	0.001	3.6±0.07	4.4±0.02 **	0.001
Initiative, score	3.1±0.01	3.7±0.14	0.33	3.2±0.06	3.4±0.11	0.27

Note: \* the difference is statistically significant at the p<0.05 level; \*\* the difference is statistically significant at the p<0.001 level in comparison with the results at the beginning of the pedagogical experiment according to the non-parametric Wilcoxon test for dependent samples.

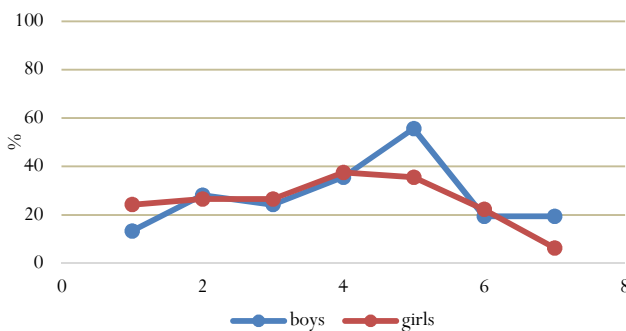


Fig. 1. The dynamics of the psychophysiological condition of boys and girls after conducting the pedagogical experiment (in %)  
1 – Discipline, 2 – Autonomy, 3 – Perseverance, 4 – Stamina, 5 – Organization, 6 – Determination, 7 – Initiative

The results prove the effectiveness of introducing the Olympic education program in improving the psychophysiological of schoolchildren. We observed positive dynamics towards increasing all studied variables in both gender groups. The results demonstrated by the boys of the indicator of discipline increased by 13.3 % (p>0.05), autonomy by 28.1 % (p>0.05), perseverance by 24.2 % (p<0.001), endurance by 35.5 % (p<0.001) and the most significant increase is 55.6 % (p<0.04) of the organization

indicator. The results demonstrated by the girls show that the increase in the results of the emotional-volitional sphere in the percentage equivalent is slightly lower. However, the results of the six parameters have a statistically significant difference compared to the initial data before the experiment. On average, the group result increased by 24.2 % (p<0.001), autonomy and perseverance by 26.5 % (p<0.001), endurance by 37.5 % (p<0.03) and organization by 35.5 % (p<0.001), determination by 22.2 % (p<0.001) (Fig. 1).

The following research stage was the study of children's psycho-emotional sphere. We used Lüscher's test to determine the total deviation from the autogenic norm and the vegetative coefficient.

The total deviation from the autogenic norm can indicate the degree of emotional discomfort from a state of absolute rest. The value of the total deviation from the autogenous norm is in the range of 0 to 32, where 32 indicates the maximum tension. The obtained test results prove the Olympic education program's effectiveness on the neuropsychological stability level observed in boys and girls aged 13-14 during the pedagogical experiment (see Fig. 2).



Figure. 2. The index of deviation from the autogenous norm tested in 13-14 years old boys and girls during the pedagogical experiment (p<0.001).

The data show that the vast majority of boys and girls aged 13-14, namely: 78.6 % (n=11) of boys and 72.2 % (n=13) of girls before the pedagogical experiment had eigenvalues in the range of 17.0-23.0, which indicates an increased level of unproductive tension. Schoolchildren with low neuropsychological stability demonstrate inattentiveness. Their attention is easily distracted, and such children can immerse themselves in emotional experiences for a long time. Considering the above, the behaviour of this category of studied schoolchildren is unpredictable. As a rule, schoolchildren need more sustainable motivation, which leads to a lack of purposeful actions and causes a sharp adverse reaction to any long-term work. Also, schoolchildren with low neuropsychological stability have low communication skills, which are limited to formal communication. Quite often, this category of schoolchildren has a fluctuating emotional experience. After integrating the Olympic education program, we observed a stable positive dynamic of neuropsychological stability in

both gender groups. Figure 2 shows that after completing the pedagogical experiment, the percentage of schoolchildren whose eigenvalues of deviation from the autogenous norm are from 10.3 to 15.1 units developed significantly ( $p < 0.001$ ), which indicates slight neuropsychological tension.

Using Lüscher's test made it possible to measure the autonomic coefficient, which characterizes the relative dominance of the sympathetic or parasympathetic autonomic nervous system. Figure 3 presents the results. The study of the individual results of both gender-age groups revealed a wide range of eigenvalues in the range of 0.3. up to 2.6 units, which indicates both the exhaustion of the nervous system and excessive excitability and commotion. Therefore, 28.6 % (n=4) of boys and 33.3 % (n=6) of girls had a low vegetative ratio, which may indicate a passive reaction to difficulties. These schoolchildren require intricate, multifaceted recovery actions.

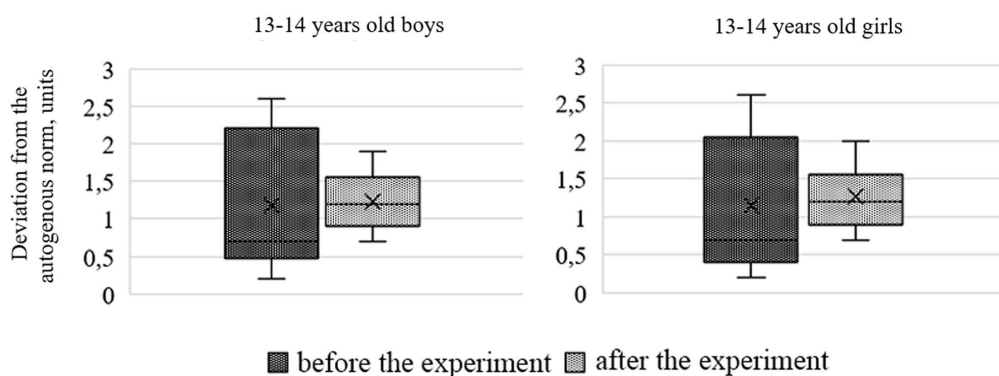


Figure. 3. The vegetative factor index tested in 13-14 years old boys and girls during the pedagogical experiment ( $p < 0.05$ ).

The results show that 42.8 % (n=6) of boys and 22.2 % (n=4) of girls had a high vegetative coefficient at the beginning of the pedagogical experiment, which indicates excessive excitability and commotion. Such students have a relatively high level of excitement. Often, such children fulfil specific tasks to release excess energy. The behaviour of these schoolchildren during difficult situations is inconsistent, and their actions and reactions are chaotic. As a rule, schoolchildren with a high intrinsic value of the vegetative coefficient are impulsive, have a visible decrease in emotional self-control, and unbalanced concessions. When extreme situations arise, such schoolchildren have low efficiency in performing actions. They may even have panic attacks. Engaging in any sport primarily builds emotional and volitional skills and significantly affects mental capacity. Repeated testing of the psycho-emotional sphere of 13-14-year-old children made it possible to establish the scale of impact of Olympic education program activities on children's emotional state. Individual results of the vegetative coefficient in both gender groups underwent positive changes ( $p < 0.05$ ). Children demonstrated the following results: the range of values was within 0.9-1.9 units for boys and 0.7-2.0 units

- for girls.

Such dynamics of individual results of the psycho-emotional state of children aged 13-14 are due to the use of bright objects during game activities. While playing on the renowned and modernized sports ground, the mood of middle school children significantly improved, affecting their class participation. The improvement of the psycho-emotional state also affected children's communicative skills. At the end of the pedagogical experiment, they began actively participating in mobile team games and helping each other while doing various tasks.

Overall, the positive changes in indicators that characterize the work of higher motor activity after experimenting confirm the effectiveness of our proposed program of correcting the psychophysiological condition through the Olympic education programme.

## Discussion

Nowadays, researchers and scholars focus on the study of regularities and peculiarities of children's physical and psychoemotional state, which plays an essential part in attaining the integrity and harmony of the child's potential

(Leonenko et al, 2019; Paliichuk et al, 2019; Mozolev et al, 2019; Popovych et al, 2022). Although many scholars have investigated the problem of improving secondary school children's physical and psychoemotional state, the issues related to improving such conditions during the Covid-19 pandemic remain understudied (Hortigüela-Alcalá et al, 2022). In this regard, they ensure that 13-14-year-old children's harmonious development becomes relevant among physical education scholars (Galan et al, 2020). The results of the studies proposed in the specialized literature show only insufficient data in the form of particular methods or applicable recommendations without estimating the impact of their integration into the physical education process. Furthermore, those studies do not cultivate the theoretical and methodological principles underlying their practical application (Kadieva & Blagii, 2021), which stimulated the theoretical substantiation and development of an innovative program through Olympic education during the Covid-19 pandemic (Pena-Pérez et al, 2023).

Ukraine is one of the leading countries in popularizing the Olympic movement and Olympic education, which international organizations recognize. Various innovative forms are being introduced in Ukraine to ensure the successful functioning of Olympic education programs through these methods and forms of teaching (Bulatova & Platonov 2018; Perederii 2018; Galan et al., 2021).

Considering the need to introduce distance education forms during the Covid-19 pandemic, many studies deal with integrating innovative information and communication technologies (ICTs) into the educational process within academic institutions (Bulatova, et al, 2019; Hakman et al, 2021). However, the suggested study focuses on evaluating and improving the volatility skills of secondary school children by incorporating the principles and values of Olympic education within the framework of the designed program (Article 2022).

Even though there are many studies in the field of Olympic education (Galan et al, 2020), the results of the proposed study discuss the inclusion of a distinctive program during the Covid-19 pandemic aimed at building knowledge about Olympic education. The results of the proposed study confirm and complement earlier studies (Bondar, 2015; Bulatova & Platonov, 2018; Hakman et al, 2020; Galan, 2022).

## Conclusions

We estimated the effectiveness of the proposed Olympic education program to modify the components of the physical and psycho-emotional state of the 13-14 years old children by comparing the average group results that reflect physical and psycho-emotional state before and after the pedagogical experiment. We used the non-parametric (rank) Wilcoxon W-test for dependent samples for qualitative statistical data analysis. At the end of the pedagogical experiment, we registered statistically significant modifi-

cations ( $p < 0.05$ ;  $p < 0.001$ ) in the indicators that describe the function of the respiratory system. For instance, the duration of breath retention on inhalation and exhalation increased. In both gender groups, the level of physical performance also improved, indicating a significant improvement in the cardiovascular system's response to dynamic exercise. Lessons incorporating Olympic education principles and methods enabled children aged 13-14 to improve their speed, strength qualities, flexibility and dexterity. The analysis of average group results, which reflect the emotional and volitional sphere of 13-14-year-old children after the pedagogical experiment, reaches a developed level. However, such qualities as a discipline in boys and initiative in girls remained poorly developed. The Olympic education program contributed to a statistically significant ( $p < 0.05$ ;  $p < 0.001$ ) advancement in volatility and willpower in both gender groups. The results indicate the practicality of using the Olympic education methods in teaching physical education at secondary school. The Olympic education program enhanced the psycho-emotional state of children aged 13-14. Moreover, it boosted interpersonal relationships among children. At the end of the pedagogical experiment, the part of children with a socially harmful assessment decreased significantly ( $p < 0.001$ ).

Thus, the results of the formative pedagogical experiment prove the positive impact of the Olympic education program on the physical and psycho-emotional and psycho-physiological condition of children aged 13-14.

## Conflict of interest

Authors state no conflict of interest.

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