

Psychophysical Training of Young People for Homeland Defence Using Means of Physical Culture and Sports

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Abstract: *The research prominence lies in an increasing interest of the state in patriotic education and physical training of young people for homeland defence. There is an urgent today to reconstruct the ethnic model of patriotic education and its component, in particular military-and-patriotic education, identify the means of physical culture and sports (physical exercise; natural, artificial and hygienic factors) and justify their use under reforms in education following the needs and demands of the individual and the society in Ukraine. The research aims to theoretically justify and experimentally verify the effectiveness of military-and-patriotic education of young people using physical culture and sports based on ethnopedagogy, following neuropedagogical criteria of their psychophysical readiness for homeland defence. The authors of the research offer to introduce the specialized course on martial arts of Ukraine, which refers to the worldview and mindset of Ukrainians underlying the Ukrainian military (combat) culture, as well as strengthening and enhancement of neuropsychological properties and symptom complexes of character. The control group pupils (25) were taught based on the traditional system (they acquired and improved their knowledge, abilities and skills in preliminary military training). The experimental group pupils (25) purposefully studied the specialized course on the martial arts of Ukraine. Such methods as surveys, questionnaires, tests, interviews and observations were used to conduct neuropsychological diagnostics of young people's readiness for homeland defence. In EG, the number of the respondents with a high level of psychophysical readiness for homeland defence has increased by 10.3%; the number of the respondents with an average level of psychophysical readiness for homeland defence has increased only by 2.2%; the number of the respondents with a low level of psychophysical readiness for homeland defence has decreased by 12.5%. Modern military-and-patriotic education of young people can be considered effective if the pedagogical model of military-and patriotic education using physical culture and sports and taking into account neuropsychological and neuropedagogical factors is integrated into the modern system of national education.*

Keywords: *patriotic education, physical culture and sports, military culture, physical training, psychophysical readiness.*

How to cite: Prots, R., Yakovliv, V., Medynskyi, S., Kharchenko, R., Hryb, T., Klymenchenko, T., Ihnatenko, S., Buzhynia, I., & Maksymchuk, B. (2021). Psychophysical Training of Young People for Homeland Defence Using Means of Physical Culture and Sports. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 12(3), 149-171. <https://doi.org/10.18662/brain/12.3/225>

Introduction

The research prominence lies in an increasing interest of the state in patriotic education and physical training of young people for homeland defence. Nowadays, one of the strategic tasks is the integration of all educational forces of society for the full development of young people, their physical and moral health, ability to adapt to dynamic socio-cultural, economic, political circumstances and be a patriot, who is ready for labour and homeland defence, given the current conditions of Ukraine's political life, radical changes in Eastern European geopolitics and Ukraine's relations with neighbouring countries, direct threats to Ukraine's territorial integrity and sovereignty.

Military-and-patriotic education acts as the basis of preliminary military training of young people, which, according to the latest research, does not meet the needs of the society, taking into account low efficiency of military-and patriotic education, its content and means, formalism, bureaucratization and market orientation. The modern process of military-and-patriotic education is characterized by weak information and methodological support, outdated facilities, inconsistency with the needs and demands of pupils, low qualification of teaching staff, insufficient use of research, historical sources, multimedia educational resources, as well as the experience of folk pedagogy.

There is an urgent today to reconstruct the ethnic model of patriotic education and its component, in particular military-and-patriotic education, identify the means of physical culture and sports (physical exercise; natural, artificial and hygienic factors) and justify their use under reforms in education following the needs and demands of the individual and the society in Ukraine. These problems can be solved by referring to the experience of ethnopedagogy, which defines such principles of educational work with young people as nationality, natural and cultural conformity, humanization, democratization and ethnicization.

The problem of military-and-patriotic education of youth is rather complex, multifaceted and, at the same time, one of the least covered and most relevant for the education system and the state as a whole. Many classic works on Ukrainian pedagogy pay particular attention to solving this particular problem based on folk pedagogy and scientific psycho-pedagogical knowledge. However, traditional views take little account of neuropsychological and neurophysiological characteristics of adolescents and young adults today. Using neuropsychological diagnostics, Kekelidze (2014) makes an important generalization: ethnocultural factors combine those

attitudes and traditions which are both constructive and negative for a modern person. It is essential to consider modern neuropsychological aspects, such as acceleration, more rapid physical development, weak motivation to learn traditions, high sensitivity to modern axiological trends, to determine the relevance of ethnocultural and ethnopedagogical traditions (Kekelidze, 2014).

The problem of military-and-patriotic education in Ukrainian pedagogy is being solved in the context of the following areas: 1) preparing for national service in the Armed Forces of Ukraine and choosing military professions within the course on homeland defence; 2) organizing extracurricular (out-of-school) activities aimed at training for labour and homeland defence; 3) being an important problem of Ukrainian pedagogy. At the same time, such an approach seems to be rather one-sided. Therefore, the problem of military-and-patriotic education of young people becomes interdisciplinary. Philosophers, sociologists, psychologists, political scientists, military officers, educators and rehabilitation specialists are involved in building the content of the concept of “military-and-patriotic education”, as well as defining its goals, ways and means of implementation.

Modern neuropsychology is gradually displacing a neuropedagogical approach in scientific discourse and pays more and more attention to diagnostics and correction of the negative impact of sports. The scope of research covers issues ranging from neuropsychological modelling of the sports process (Barr, 2003) to the prediction and psychocorrection of sub-contact injuries (Tsushima et al., 2018).

In Ukrainian pedagogy, Sukhomlynskyi (1977) incorporated comprehensive psychophysical development of the child and patriotic education in national education. It must be noted that psychophysical aspects of military-and patriotic education can be specified in the following contexts: A. Afanasiev (2006) considers psychological problems in patriotic education of the military; Baka & Korzh (2004) study military-and-patriotic education of young people together with physical education under the appropriate psycho-pedagogical conditions; H. Vashchenko (1997) justifies military-and-patriotic education of young people in the context of the educational ideal; O. Vyshnevskyi (2003) substantiates it in relation to cultivating national self-consciousness in young people; V. Ivashkovskyi (2002) clarifies psycho-pedagogical conditions for training high school pupils for military service in the Armed Forces of Ukraine; Kyrychenko (2004) analyzes the process of training high school pupils for homeland defence in the system of military-and-patriotic, sports-and-technical and preliminary military activities; Krasylnyk (2002) analyzes patriotic education of military

officers; Tomchuk (1994) reveals psychological principles of preparing pupils for homeland defence; Shtokvysh (1997) studies the military component of ethnic culture. Thus, neuropedagogical and neuropsychological problems of the military “self-image”, personal motivation, difficulties caused by personal neuropsychological features, acmeological aspects of higher achievements and psychological aspects of initial military training have been widely covered by Ukrainian researchers. Still, one should pay more attention to medical factors (sports medicine, personal neuropsychological profile, the type of nervous system that limits or accelerates military-and-patriotic development).

Besides, many researchers consider the problems of military-and-patriotic education in military-and-patriotic and sports associations, extracurricular (out-of-school) activities, as well as the ways of reviving the experience of folk (Cossack) pedagogy. These aspects indirectly correlate with neuropsychology and contain psychosocial and ethnopsychological aspects. V. Ivashkovskiy (2002) presents a draft regulation and programme of the military-sports game “Sokil” (Falcon). Kyrychenko (2004) offers some methodical recommendations on conducting youth Cossack sports games “Kozatski Zabavy” (Cossack Fun), as well as the activities of the youth organization “Moloda Sich” (Young Sich) as a means of educating high school pupils following the military Cossack traditions of the Ukrainian people. A. Shakhov (1992) analyzes pedagogical aspects of the traditions of the Zaporozhian Cossacks. However, Ukrainian teachers have not studied the means of physical culture and sports in their accordance with the goals and means of military-and-patriotic education of young people yet. Different aspects of the problem under study are covered in the works of many scholars (Bakhmat et al., 2019; Behas et al., 2019; Bezliudnyi et al., 2019; Gerasymova et al., 2019; Halaidiuk et al., 2018; Maksymchuk et al., 2018; Melnyk et al., 2019; Nerubasska & Maksymchuk 2020; Petrova, 2017; Sitovskiy et al., 2019; Sheremet et al., 2019).

With regard to the research areas traditional for Ukrainian neuropedagogy and military psychology, the problem of military-and-patriotic education of young people using physical culture and sports based on neuropsychology should be considered in the following areas: 1) determining the psycho-pedagogical aspect of the connection between military-and-patriotic and physical education; 2) developing the neuropedagogical model of military-and-patriotic education of young people using physical culture and sports; 3) justifying pedagogical means of general physical culture and applied physical training of young people as the basis

for preserving the gene pool of the nation, displaying patriotic consciousness, self-consciousness and self-identification.

The research aims to theoretically justify and experimentally verify the effectiveness of military-and-patriotic education of young people using physical culture and sports based on ethnopedagogy, following the criterion of their neuropsychological and psychophysical readiness for homeland defence

Methods and materials

The content of military-and-patriotic education, as a set of goals, includes the following: 1) military-sports training and 2) preliminary military education (training). Military-sports training is a component of a holistic process of military-and-patriotic education, which is organized in various forms of extracurricular and out-of-school activities. The system of out-of-school education incorporates military-and-patriotic and military-sports games, such as “Zakhysnyk Vitchyzny” (Homeland Defender), “Kozatski rozvahy” (Cossack Entertainment), “Kozatski Zabavy” (Cossack Fun), “Dzhura”, “Sokil” (Falcon), “Kozatskyi vyshkil” (Cossack Training), “Maibutnii voin” (A Future Warrior) for different age groups, as well as the activities of defence-and-sports health camps.

Military-and-patriotic education of pupils in grades 1-11 is implemented with maximum consideration of neuropsychological and physical potentials of different age-related and personal characteristics. It should be considered as a consistent development of personality, which consists of certain stages, namely, junior, middle and senior school age. Each of these stages has its content and features depending on the previous stage and aims to reach the next stage with a different development level of motivation, as well as the cognitive and emotional-and-volitional sphere. The final stage of military-and-patriotic education of pupils is preliminary military training of young males, whose main subject in secondary school is Homeland Defence. It is part of the standard curriculum of 11-year comprehensive schools, approved by the Order of the Ministry of Education and Science of Ukraine No 406 as of April 20, 2018.

The programme of Homeland Defence for educational institutions of the general secondary education system is recommended by the Ministry of Education and Science of Ukraine. It encompasses general military, fire, tactical, combat, applied physical, military medical training, as well as training in military topography and the basics of civil defence. The implementation of such a variety of a young person’s psychophysical transformations should

take into account constant neuropsychological diagnostics and testing, especially regarding stress and psychological deformities (Randolph et al., 2005).

The practical means of military-and-patriotic education in secondary schools in the process of preliminary military training are the following: revealing the general content and justifying the need for service in the Armed Forces of Ukraine; forming and developing readiness to defend the Ukrainian state in young people; developing legal consciousness and personal qualities necessary for military professional activity. Thus, military-and-patriotic education is aimed at developing a positive motivation to fulfil a patriotic duty, that is, to protect Ukraine, in young citizens.

Unfortunately, the state of military-and-patriotic education as a preliminary military training of young males does not meet the needs of the army and the society in terms of preparing a citizen as a patriot. Nowadays, it is not enough to familiarize young people with the Armed Forces of Ukraine, their goals and structure, prepare physically and provide them with the necessary amount of military and technical knowledge. It is more important to teach moral and axiological aspects. It is related to developing both the worldview and mindset of pupils, making them aware of the historicity of their statehood and the achievements of the Ukrainian people, which can be achieved through intensive use of the experience of folk (Cossack) pedagogy. The intensity and psychophysiological focus of military-and-patriotic education requires maintaining personal profiles, keeping personal diaries on self-regulation and, eventually, using computer programmes to record psychological symptom complex, stress resistance and prevention of mental and physical injuries (Randolph et al., 2005).

Therefore, it is essential to recreating the model of military-and-patriotic education of young people using physical culture and sports, taking into account such pedagogical and neuropsychological parameters: the concept of “military-and-patriotic education”; its goals, objectives, forms, methods and means; the indicators of educatedness. The main criterion of educatedness in the process of military-and-patriotic education of young people is their psychophysical readiness for labour and homeland defence. Psychophysical readiness is manifested in neuropsychological stability; a high level of motivation and socio-psychological readiness for homeland defence; a low level of social and situational anxiety and mental stability in the process of preliminary military training; an appropriate level of physical applied training (endurance, strength, speed, agility).

The authors of the research offer to introduce the specialized course on martial arts of Ukraine, which refers to the worldview and mindset of

Ukrainians underlying the Ukrainian military (combat) culture, to reach an appropriate level of educatedness of young people in the process of military-and-patriotic education using physical culture and sports. The implementation of the specialized course can help to solve the main urgent tasks set by the society before the educational process of preliminary military training, namely, developing modern military culture of young people (including the military); using the techniques of folk (Cossack) pedagogy and the experience of physical education so that pupils can acquire the necessary military knowledge and skills; developing physical culture in pupils in the process of preliminary military training with the aim of enhancing their psychophysical readiness for homeland defence; strengthening the sense of effective patriotism in schoolchildren; developing their stable motivation and interest in studying and mastering the military culture of Ukrainians; identifying the ways to use the knowledge, abilities and skills in martial arts of Ukraine in the perspective of military activity; ensuring optimal and purposeful intellectual, psychophysical preliminary military training of young people to fulfill the civic duty to defend homeland.

The experimental work consisted of several stages. At each of them, the goals were defined, the content was specified, and the obtained results were analyzed. The validation of the proposed model of military-and-patriotic education using physical culture and sports taking into account neuropsychological indicators was aimed at increasing the level of psychophysical readiness of high school pupils to defend the homeland in the process of preliminary military training as the main criterion of military-and-patriotic education.

The three levels of psychophysical readiness of high school pupils to defend homeland (high, average, low) were determined through analyzing psychophysical indicators relevant for each age group, the experience of folk (Cossack) pedagogy, activities of practising teachers, as well as understanding the specifics of military-and-patriotic education using physical culture and sports and the requirements for preliminary military training of young males.

Experimental research facilities included comprehensive schools in Drohobych, Sumy, Kyiv, Moscow, Odesa, Izmail, Vinnytsia, Lviv. In total, almost 850 high school pupils (males) and 100 teachers providing preliminary military training were involved in various types of the experimental work.

The formative experiment was conducted to verify the effectiveness of the model of military-and-patriotic education of young people using physical culture and sports and the effectiveness of the specialized course on the martial arts of Ukraine, taking into account the criterion of

psychophysical readiness of high school pupils for homeland defence. A sample volume for the control and experimental groups (CG and EG) is as follows: $n_c = 25$ pupils and $n_e = 25$ pupils. The method of serial selection was used to determine the sample volume. This selection makes it possible to assess the statistical probability of the research results. CG pupils (25) were taught on the basis the traditional system (they acquired and improved their knowledge, abilities and skills in preliminary military training). EG pupils (25) purposefully studied the specialized course on the martial arts of Ukraine.

Such methods as surveys, questionnaires, tests, interviews and observations were used to identify psychophysical readiness of young people for homeland defence.

Initially, the results of the questionnaires were analyzed to determine the level of neuropsychological stability of pupils (a constructive attitude to the social surrounding and the level of self-criticism, ability to adapt to new social circumstances, well-developed self-regulation, self-confidence, optimism, activity, endurance, resilience). The pupils were asked to fill in the author's questionnaire based on Kyrychenko's questionnaire "Forecast" (Kyrychenko, 2008), which aims to identify the state of those neuropsychological personality traits that are of paramount importance for the process of social adaptation and regulation of behaviour in military professional activities.

Next, the authors of the research used a system of tests to determine the level of psychophysical readiness of pupils for homeland defence in terms of motivation and socio-psychological readiness; social and situational anxiety of young males in the process of preliminary military training; their physical applied training in the specification of levels (high, average, low). Also, they used the method of studying the individual physical and psychological qualities of pupils in the process of their preliminary military training (Kyrychenko, 2004).

The level of motivation and socio-psychological readiness of young males for homeland defence was identified by assessing the respondents' tests, which included 35 statements, from which they needed to choose no more than seven and write their serial numbers on a separate sheet of paper. The level of motivation and socio-psychological readiness of young males for homeland defence was calculated by finding an algebraic sum of points from the selected answers.

The next step of neuropsychological research was to identify the level of social and situational anxiety of pupils in the process of preliminary military training. It was identified using the following author's methodology:

it contains a brief description of situations (pleasant, unpleasant) that may happen in the life of a young person. Certain descriptions of situations that may cause anxiety are grouped as follows: Group I - situations related to preliminary military training; Group II - situations related to the expectation of possible military service; Group III - situations related to the content, the complexity of preliminary military training and activities in the context of homeland defence; Group IV - situations actualizing the idea of oneself as a future warrior, as well as self-assessment of readiness to defend the homeland; Group V - situations related to communication in the process of preliminary military training.

The final step of the initial diagnostics at the ascertaining stage of the formative experiment is to identify the level of physical applied training of young males in terms of endurance, strength, speed and agility. The authors of the research used Kyrychenko's standards when identifying the level of physical applied training in the process of military-and-patriotic education of young people (Kyrychenko, 2008).

Thus, this research theoretically justifies and offers to solve the problem of military-and-patriotic education of young people using physical culture and sports based on ethnopedagogy and neuropedagogy through the author's elaboration of the content and the introduction of a special model for developing psychophysical readiness in young people for homeland defence as the main criterion of military-and-patriotic education in the process of preliminary military training.

Results

The results of the questionnaire prove that 60% of teachers providing preliminary military training do not use neuropedagogical methods of folk pedagogy in lessons on within the course on homeland defence; 33% of them partially use them; only 7% are familiar with the experience of folk (Cossack) pedagogy and use it in the process of military-and-patriotic education in lessons within this course. Thus, there appears to be the need for special training (retraining) of teachers providing preliminary military training to encourage them to use the experience of medicine, neuropsychology, folk military culture, in particular (Cossack) pedagogy and the elements of the martial arts of Ukraine not only as a means but also as the object of training and education. Also, it is essential to promote folk (Cossack) pedagogy among practising teachers and the general public, which will make the process of military-and-patriotic education of young people more effective and efficient.

The next step of this research was to generalize the relative assessment of the initial diagnostics of pupils' psychophysical readiness for homeland defence in terms of their neuropsychological stability/instability, motivation and anxiety about the prospects of military activity, physical applied training (endurance, strength, speed, agility). Based on the results obtained earlier, the authors of the research tracked an increase in the indicators of low, average and high levels of military-and-patriotic education of pupils in CG and EG before and after the experiment.

These parameters are specified in Table 1.

Table 1. *The dynamics in the development of the main indicators of psychophysical readiness of CG and EG pupils for homeland defence (%)*

No	<i>Indicators of psychophysical readiness for homeland defence</i>	Levels	Indicators					
			CG			EG		
			The number of respondents (25)			The number of respondents (25)		
			the before experiment	the after experiment	an increase	the before experiment	the after experiment	an increase
1.	<i>Neuropsychological instability</i>	high	20	16	-4	16	8	-8
		average	32	36	4	40	40	0
		low	48	48	0	44	52	8
2.	<i>The level of motivation and socio-psychological readiness for homeland defence</i>	high	0	0	0	0	8	8
		average	72	68	-4	80	76	-4
		low	28	32	4	20	16	-4
3.	<i>The level of social and situational anxiety in the process of preliminary military training</i>	high	48	44	-4	44	20	-24
		average	32	36	4	40	60	20
		low	20	20	0	16	20	4
4.	<i>Physical applied training (endurance – at the beginning of the 2nd year of training)</i>	high	8	8	0	8	20	12
		average	44	48	4	32	40	8
		low	48	44	-4	60	40	-20
5.	<i>Physical applied training (strength – at the beginning of the 2nd year of training)</i>	high	12	20	8	24	40	16
		average	72	64	-8	60	52	-8
		low	16	16	0	16	8	-8
6.	<i>Physical applied training (speed – at the beginning of</i>	high	20	20	0	16	36	20
		average	40	44	4	44	32	-12

	<i>the 2nd year of training)</i>	low	40	36	-4	40	32	-8
7.	<i>Physical applied training (agility – at the beginning of the 2nd year of training)</i>	high	8	8	0	8	12	4
		average	44	48	4	40	52	12
		low	48	44	-4	52	36	-16

These data make it possible to compare the results of the diagnostics (determining the average indicators of the quality) of the level of pupils' psychophysical readiness for homeland defence (by indicators: neuropsychological instability; motivation towards homeland defence; social and situational anxiety in the process of preliminary military training; (endurance, strength, speed, agility)) before and after the experiment and conclude the following: due to the application of the proposed model of military-and-patriotic education of young people using physical culture and sports based on neuropsychology and neuropedagogy and the introduction of the specialized course on the martial arts of Ukraine in preliminary military training G, the number of CG respondents with high and average levels of psychophysical readiness for homeland defence has increased by only 1.1% respectively; the number of the respondents with a low level of psychophysical readiness for homeland defence has decreased by 2.2%. In EG, the number of respondents with a high level of psychophysical readiness for homeland defence has increased by 10.3%; the number of respondents with an average level - only by 2.2%. It must be noted that the number of respondents with a low level of psychophysical readiness for homeland defence has decreased by 12.5%. The largest differences in the results of CG and EG pupils were recorded by the following indicators: social and situational anxiety in the process of preliminary military training and physical applied training (endurance, agility).

Also, the authors of the research mathematically processed the results of the input and output diagnostics to determine the average indicators of the quality to compare the empirical distributions of the level of pupils' psychophysical readiness for homeland defence in CG and EG. In turn, the obtained results made it possible to determine the deviations of differentiation concerning the level of psychophysical readiness for homeland defence in CG and EG pupils. The biggest discrepancies in the results are recorded by the following indicators: social and situational anxiety of young people in the process of preliminary military training and their physical applied training (endurance, agility). It proves that proper preliminary military training as the final stage of military-and-patriotic education of high school pupils can be conducted only using physical culture and sports. At the same time, it is impossible to effectively develop

psychophysical readiness for homeland defence in young people only through discreet weapons training and applied physical training. Therefore, it is vital to introduce the integrated course, similar in content to the proposed specialized course on the martial arts of Ukraine.

Discussion

A study of relevant scientific and methodological literature shows that both the semantic content of the concept should be defined and the problem of military-and-patriotic education should be studied in the sequence and interdependence of such concepts as “national education” - “patriotic education” - “military-and-patriotic education” - “preliminary military training”. Military-and-patriotic education is a component of patriotic education, which helps to develop intellectual, moral-and-psychological and physical readiness for homeland defence. At each stage, it is necessary to measure psychophysical and neuropsychological indicators, which are manifested in the dynamics of motivation, the natural acquisition of new competencies with minimal anxiety and stress.

The main objectives of the modern school in military-and-patriotic education are as follows: to develop spiritual, physical and psychological readiness in future soldiers with weapons in their hands to defend Ukraine, its territorial integrity, the interests of the people of Ukraine and guard its freedom.

The problem of military-and-patriotic education of young people in its historical and pedagogical development is closely related to the military culture of Ukraine, its social role and importance in the process of nation-and state-building, as well as educational potential for the individual and the society. The authors of this research believe that military culture aims to develop pupils' legal culture, provide them with the knowledge about the international legislative acts regulating mutual relations during the armed conflict and protecting health, life and human dignity of servicemen and ordinary citizens, wounded persons, prisoners, hostages, refugees, missing persons. In modern Ukrainian society, the importance of the educational function of military culture is diminishing, which is associated with the decline of spirituality, neglect of historically formed educational military experience, distorted views on heroism.

The specifics of pedagogical developments, as well as the use of military-patriotic experience in education, depended on the historical circumstances of the colonial dependence of Ukrainian lands on different metropolises and the socio-political system of the state (states), which included Ukrainian territory at a certain cultural and historical stage (Poland,

the Russian Empire, the USSR). National pedagogical principles of military-and-patriotic education of young people using physical culture and sports were developed in historical accordance with the needs and demands of the public life of the Ukrainian people (community consolidation, protection from the enemy, cultivation of such personal roles as a citizen-and-patriot and a defender of homeland and its culture).

An example of the connection between military-and-patriotic education and military culture of the society is folk pedagogy of the Cossack era (Cossack pedagogy) when Ukrainian patriotism actively developed in the context of the struggle for the will of the people, and patriotic education acquired the features of military-and-patriotic education using physical culture and sports. However, the natural means of physical education (water, air, the sun) and artificially created (dance, herts (duels of Ukrainian Cossacks with their enemies before the battle), competitions) played the role of military training and bearing.

This research has also determined the leading theoretical and methodological motives behind a modern introduction and a study of military-and-patriotic education of young people in Cossack pedagogy, which implies using a neuropsychological approach and national traditions. Having considered the educational potential of Cossack traditions in folk pedagogy, the authors of the research state that the process of implementing the experience of Ukrainian martial arts is of an ethnopedagogical character since it involves ethnic components of pedagogy (Usatenko, 2008) and contains mechanisms for transmitting ethnocultural values, archetypes, symbols, myths and stereotypes. Besides, it forms ethnic identity, finds ways of generating and transforming through the education of ethnic spirituality, the mentality of the ethnic community, ethnocultural identity and the universal culture of the information-and-technology society. Finally, it searches for new forms of verbal and nonverbal communication and allows obtaining relevant theoretical and practical knowledge and skills.

The authors of the research have identified and described the ethnic components of pedagogy reflected in the educational experience of Ukrainian martial arts, namely:

- 1) a cultic and mythological attitude to the earth as a living being that protects and gives strength to the warrior; the knowledge about homeland as the land of ancestors and the native land; the awareness of the inseparable connection between the warrior and the native land, which is the object of protection and defence, as well as a source of strength and endurance;

- 2) the image of the pupil's self-formed by studying the history, traditions and life of the Zaporozhian army, the theory and practice of

martial arts of Cossacks and accepting the values and norms practised in the national military, competitive and game-related culture, which contributes to increasing a level of national self-consciousness, motivation and readiness to protect the interests of the native land, work for its well-being; the pupil's capacity for self-knowledge, self-development, self-improvement, independence and initiative;

3) the understanding of military affairs and homeland defence as one of the social roles of men and, at the same time, the awareness of women's main function in ethnic military culture, that is also protection, although through traditional means available to them: maternal (female) blessing accompanied by protective actions, including reading a blessing prayer, sprinkling with holy water, sprinkling the head with the consecrated earth, laying hands on the head, make the sign of the cross, attaching an amulet or the handkerchief embroidered especially for this moment (a traditional one sung in songs and poetic works), saddling and taking out a horse, taking weapons out of the house and putting them in the hands of a soldier; a peacekeeping function;

4) the awareness of the educational potential of computer games with the realities of ethnic, military and competitive culture, which are conditionally interpreted as a means of modern empirical pedagogy;

5) the capacity for non-verbal communication, which is a combat (or military) dance, combining such manifestations of human activity as dance and battle, war and game, competition and ritual, ceremony and spectacle, magic and fighting spirit, tension and relaxation, as well as the means of artistic reflection of the heroics of the Ukrainian people and a kind of system of combat training and retraining;

6) the development and improvement of endurance, strength, speed and agility since dancing combines movements, various acrobatic elements that differ in complexity, manner and speed of performance and require long training, proper breathing, plasticity and rhythm.

The obtained results should be analyzed in the context of didactical and educational characteristics and checked for neurocognitive and neurophysiological changes (Lovell, 2006). Also, they should incorporate constant neurophysiological testing of young athletes, especially at the stage of school education (Barr, 2003).

Taking into account the above-mentioned ethnopedagogical and neuropsychological patterns and conditions, the cultural and pedagogical space of military-and-patriotic education involves an artificially created tool of physical education in the form of non-verbal communication, which is combat (or military) dance combining such manifestations of human activity

as dance and battle, war and game, competition and ritual, rite and spectacle, magic and fighting spirit, tension and relaxation. The historical experience of Ukrainians shows that martial arts are of great cognitive, educational and military-and-patriotic significance for modern young people, which also serve as the basis for the hopak, the world-famous Ukrainian folk dance. It is the dance that, much faster than the usual methods, gives the expected results in psychophysical training of those who study martial arts. Dancing as a means of pedagogical education significantly affects the development of those traits people need in everyday life and military activities (agility, coordination of movements, orientation in space, strength, endurance).

The scientific and theoretical value of the obtained results is as follows:

- for the first time, the effectiveness of military-and-patriotic education of young people based on ethnopedagogy and neuropsychology using physical culture and sports has been integrally determined, theoretically justified and experimentally verified; pedagogical principles of military-and-patriotic education of young people using physical culture and sports have been found to be developed following the needs and demands of the public life of the Ukrainian people (community consolidation, protection from the enemy); the concept of “the military culture of Ukraine” has been introduced into the educational space, and its educational significance for the individual and the society has been determined;

- the concept of “military-and-patriotic education” has been specified, which has made it possible to recreate the model of military-and-patriotic education of young people using physical culture and sports based on neuropedagogy; physical exercises (endurance, speed, strength, agility) have been found to contribute to developing heroic and patriotic traits of national character in the practice of folk pedagogy and be part of applied physical training for labour and military service due to the appropriate neuropedagogical conditions; the natural factors in physical education (water, air, the sun), as well as the artificially created ones (dancing, competition), have been found to play an important role in military training of young people;

- the use of ethnopsychological features with the corrective-diagnostic neuropedagogical and neuropsychological support and the study of Cossack pedagogy and the martial arts of Ukraine which accumulate the ways and means of military-and-patriotic education, in particular means of physical culture and sports, has been further developed; the reasons behind the decline of patriotic education and military-and-patriotic education of young Ukrainians as its component have been found to be the unjustified

national idea, the lack of a state-oriented model of patriotism, a slow transition from an authoritarian style of education to a democratic and personality-oriented one, as well as improper use of folk pedagogy.

Given the extremely unstable political and socio-economic situation in the country, these pedagogical miscalculations give rise to protest and opposition, nihilism and alienation, and even unwillingness to perform one's military duty to serve the homeland. Therefore, it is essential to study and implement the experience of folk pedagogy and neuropsychological monitoring in the educational process.

The practical value of the obtained results lies in developing and validating the specialized course on the martial arts of Ukraine within preliminary military training as the final stage of military-and-patriotic education using physical culture and sports in secondary schools. The authors of the research have elaborated relevant diagnostic means to determine the level of psychophysical readiness for homeland defence in young people as the main criterion of educatedness in the process of military-and-patriotic education using physical culture and sports. The research proves that neurosciences in military education help to take into account the personal psycho type, avoid psychological trauma and, at the same time, provide valid tools for measuring achievements and psychophysical dynamics (Della, & Anderson, 2012).

The scientific and methodological practices, provisions and conclusions of the research can be used when developing the specialized course on the means of physical culture and sports in military-and-patriotic education of young people for students from Ivan Franko Drohobych State Pedagogical University, elaborating curricula and textbooks for organizing extracurricular activities of pupils and students, as well as within research activities of students in higher education institutions.

Conclusions

An analysis of the obtained results has made it possible to draw such conclusions.

A retrospective study of the problem of military-and-patriotic education and its neuropsychological aspects shows that the main objectives of the modern school in military-and-patriotic education are as follows: to develop spiritual, physical and psychological readiness in future soldiers with weapons in their hands to defend Ukraine, its territorial integrity, the interests of the people of Ukraine and guard its freedom. Also, it is possible not only to avoid physical or mental trauma but also to achieve personal

dynamics of psychophysical, mental and value potentials inherent in a person.

An ethnopedagogical approach to the problem of military-and-patriotic education of young people determines the study of ethnic components of military-and-patriotic education using physical culture and sports; the selection of pedagogical tools from the range of folk, empirical pedagogy (a set of necessary principles, forms and methods), which help to achieve the goal of military-and-patriotic education, namely, physical (sports) education of young people is implemented; their national identity which is the basis of true patriotism is formed, as well as both psychological and physical readiness of young people for homeland defence and labour is developed.

Both modern implementation and study of military-and-patriotic education of young people in Cossack pedagogy determine the following priorities: using physical culture and sports to develop psychophysical readiness in young people to defend and love their homeland, respect for its heroic deeds, as well as ensuring comprehensive education based on the highest achievements of the national spirit and chivalrous spiritual traditions.

Taking into account such an approach, the use of the neuropsychological potential of martial arts acts not only as a means but also as the object of educational activity, the use of which realizes the requirements and needs of modern Ukrainian society for cultivating a military culture in pupils, namely, developing pupils' legal culture; providing them with the knowledge about the international legislative acts regulating mutual relations during the armed conflict and protecting health, life and human dignity of servicemen and ordinary citizens, wounded persons, prisoners, hostages, refugees, missing persons. Such a need arises if one takes into account the orientation of the national education of Ukraine as the state towards European and international values; an accelerated pace of Ukraine's integration into the European and international space; joint international military exercises; international actions and UN missions; the spread of terrorist threats, which are becoming more and more international and need to be solved civilly; the armed conflicts, including in Ukraine. The problem of military-and-patriotic education and training of young people for homeland defence of the Fatherland is elaborated following the world trends in the development of military culture and has its characteristics.

The authors of the research have identified the main neuropedagogical aspects of implementing the experience of Cossack pedagogy, including mastering the worldview- and mindset-related basics and elements of the martial arts of Ukraine in the process of preliminary

military training as the final stage of military-and-patriotic education of pupils in secondary schools. However, the results of the ascertaining experiment indicate a low level of professional readiness in teachers providing preliminary military training to apply the experience of folk (Cossack) pedagogy, taking into account neuropsychological patterns. It can be explained by the following reasons: an insufficient number of the existing curricula and low effectiveness of methodologies for applying the experience of neuropedagogy in lessons within the course on homeland defence; insufficient interest of teachers in mastering and introducing the historical experience of the military (combat) culture of Ukrainians into educational practice; the lack of the structural-and-semantic model of military-and-patriotic education of young people using physical culture and sports based on neuropedagogy; the problem of pedagogical training of teachers providing preliminary military training, which has not been properly studied yet and requires immediate adjustment and updating.

An analysis of curricula and programmes of preliminary military training as the final stage of military-and-patriotic education of pupils in secondary schools has made it possible to develop and theoretically justify the model of military-and-patriotic education of high school pupils using physical culture and sports based on ethnopedagogy. Its main components include the concept of military-and-patriotic education; the goals of military-and-patriotic education; its main objectives, forms, methods and means; the indicators of psychophysical readiness.

The procedural essence in the development of psychophysical readiness for homeland defence in young people as the main criterion of military-and-patriotic education can be characterized by the following indicators: neuropsychological stability of pupils (a constructive attitude to the social surrounding and the level of self-criticism; ability to adapt to new social circumstances, well-developed self-regulation, self-confidence, optimism, activity, endurance, resilience); a high level of motivation and socio-psychological readiness for homeland defence; a low level of social and situational anxiety and mental stability in the process of preliminary military training; an appropriate level of physical applied training (endurance, strength, speed, agility).

The authors of the research have elaborated the content of the specialized course on the martial arts of Ukraine to ensure the functioning of the developed model. The following principles were chosen when selecting educational material for the specialized course to enhance pupils' psychophysical readiness for homeland defence: orientation; scientificity; priority of humanistic and democratic values, respect for the constitutional

rights and freedoms of man and citizen; interconnection and coherence; a neuropedagogical approach to the content, forms and methods of preliminary military training and educational work; natural and cultural conformity; nationality.

The comparison of the results obtained from the diagnostics (determining the average indicators of the quality) of the level of high school pupils' psychophysical readiness for homeland defence before and after the experiment makes it possible to conclude the following: due to the application of the proposed model of military-and-patriotic education of young people using physical culture and sports based on neuropsychology and neuropedagogy and the introduction of the specialized course on the martial arts of Ukraine in preliminary military training, the number of CG respondents with high and average levels of psychophysical readiness for homeland defence has increased by only 1.1% respectively; the number of the respondents with a low level of psychophysical readiness for homeland defence has decreased by 2.2%. In EG, the number of respondents with a high level of psychophysical readiness for homeland defence has increased by 10.3%; the number of respondents with an average level - only by 2.2%. It must be noted that the number of respondents with a low level of psychophysical readiness for homeland defence has decreased by 12.5%.

The results of this research indicate significant advantages in developing psychophysical readiness for homeland defence in EG. In turn, it proves the effectiveness of the proposed model of military-and-patriotic education of young people using physical culture and sports based on neuropedagogy and ethnopedagogy. Besides, it confirms the assumption that modern military-and-patriotic education of young people can be considered effective if a neuropedagogical approach to military-and-patriotic education using physical culture and sports has been integrated into the modern system of national education.

This research does not disclose all the sides of the scientific problem on military-and-patriotic education of young people using physical culture and sports based on ethnopedagogy. Further research should aim to cover such an aspect as improving physical applied training in the process of military-and-patriotic education based on ethnopedagogy and developing effective models of neuropsychological diagnostics of future military officers, taking into account personal mental and national values, stereotypes and archetypes in military training.

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