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The readiness of physical education and sports professionals to participate in educational activities for sustainable development of society

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection.

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Abstract

Background and study aim. To demonstrate the influence of the author's methodological system on the formation of future specialists in physical culture and sports and their readiness for educational activities for sustainable development of society.

Material and methods. The study involved 390 students from the faculties of physical education of T. H. Shevchenko National University «Chernihiv Colehium», the National University of Life and Environmental Sciences of Ukraine, Sumy State University, and Sumy State Pedagogical University named after A.S. Makarenko, future specialists in physical culture and sports. Students were informed about the features of the study and voluntarily participated in the pedagogical experiment. The participants of the study are represented by both sexes of different courses, from which the control and experimental groups were formed. Methods used: pedagogical experiments, surveys, questionnaires, testing, analysis, synthesis and generalisation of information; methods of mathematical statistics.

Results. At the ascertaining stage of the pedagogical experiment, the indicator of readiness for educational activities for sustainable development of society in the control and experimental groups was almost the same at all levels, with a significant predominance of low levels. 69.35% and 65.09% of respondents in the control and experimental groups had a low level of the studied indicator, 18.06% and 19.08% –satisfactory level, 9.81% and 10.44% – average level, and 2.78% and 5.42% – high level, respectively. At the end of the experiment, a positive impact of the methodological training system on the studied quality was observed. At the final stage of the study, Pearson's correlation coefficient was $\chi^2_{empirical} = 22.67$, with a critical value $\chi^2_{critical} = 5.99$ ($p < 0.05$). The most significant changes were observed in the cognitive and practical components of readiness. The number of students with low levels decreased by 2.8 times and almost 2 times, the number of students with satisfactory levels increased by 6.8 times and 2.8 times, and the number of students with average levels of cognitive and practical components increased by 14.8 and 6.5 times, respectively. The number of students with a high level of development in the practical component of readiness for educational activities for sustainable development of society increased by 2.5 times. In the control group, at the end of the pedagogical experiment, there were no significant changes in the indicators of any of the studied components of physical education and sports specialists' readiness for educational activities for sustainable development.

Conclusions. The experimental methodological system has a positive impact on the formation of future physical education and sport specialists' readiness to participate in educational activities for sustainable development of society. At the beginning of the pedagogical experiment in both groups, on average, 68.56% respondents had a low, 19.49% satisfactory, 9.12% average, and 2.83% high level of readiness for educational activities for sustainable development. At the end of the pedagogical experiment, the indicators in the experimental group improved significantly: the number of students with a low level of the studied indicator (30.18%) decreased by 2.3 times; the number of students with a satisfactory level increased by 1.8 times (35.37%); and the number of students with medium (26.11%) and high (8.33%) levels of readiness for educational activities for sustainable development of society increased by 2.9 times.

Keywords: sustainable development, physical education, sports, physical education teacher, sports coach.

Анотація

Готовність фахівців фізичної культури і спорту до освітньої діяльності для сталого розвитку суспільства

Галина Цигура, Сергій Гаркуша

Мета. Показати результати впливу авторської методичної системи на формування готовності майбутніх

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фахівців фізичної культури і спорту до освітньої діяльності для сталого розвитку суспільства.

Матеріал і методи. У дослідженні брали участь 390 студентів факультетів фізичного виховання Національного університету «Чернігівський колегіум» імені Т. Г. Шевченка, Національного університету біоресурсів і природокористування України, Сумського державного університету та Сумського державного педагогічного університету імені А. С. Макаренка – майбутні фахівці фізичної культури і спорту. Студенти були інформовані про всі особливості дослідження і брали участь у педагогічному експерименті добровільно. Учасники дослідження представлені обома статями різних курсів, з яких було сформовано контрольну та експериментальну групи. Використані методи: педагогічний експеримент, опитування, анкетування, тестування, аналіз, синтез та узагальнення інформації; методи математичної статистики.

Результати. На констатувальному етапі педагогічного експерименту показник сформованості готовності до освітньої діяльності для сталого розвитку у контрольній та експериментальній групах був майже однаковим за усіма рівнями, зі значним переважанням низького. 69,35% та 65,09% респондентів контрольної та експериментальної груп мали низький рівень досліджуваного показника, 18,06% та 19,08% – задовільний, 9,81% та 10,44% – середній, 2,78% та 5,42% – високий рівень відповідно. Наприкінці експерименту спостерігали позитивний вплив використаної методичної системи підготовки на досліджувану якість. Показник критерію Пірсона на завершальному етапі дослідження становив $\chi^2_{\text{емпіричне}} = 22,67$ при критичному його значенні $\chi^2_{\text{критичне}} = 5,99$ ($p < 0,05$). Найбільш істотні зрушення виявили за показниками когнітивного та практичного компонентів готовності. У 2,8 раза та майже в 2 рази зменшилася кількість студентів з низьким, у 6,8 раза та 2,8 раза збільшилася кількість студентів із задовільним, у 14,8 раза та 6,5 раза збільшилася кількість студентів із середнім рівнями сформованості когнітивного та практичного компонентів відповідно. У 2,5 раза збільшилася кількість студентів із високим рівнем сформованості практичного компонента готовності до освітньої діяльності для сталого розвитку суспільства. У контрольній групі на період завершення педагогічного експерименту істотних змін показників жодного з досліджуваних компонентів готовності майбутніх фахівців фізичної культури і спорту до освітньої діяльності для сталого розвитку не спостерігали.

Висновки. Експериментальна методична система має позитивний вплив на формування готовності майбутніх фахівців фізичної культури і спорту до освітньої діяльності для сталого розвитку суспільства. На початку педагогічного експерименту в обох групах в середньому 68,56% респондентів мали низький, 19,49% – задовільний, 9,12% – середній, 2,83% – високий рівень сформованості готовності до освітньої діяльності для сталого розвитку. В кінці педагогічного експерименту в експериментальній групі показники значно покращилися – у 2,3 раза зменшилася кількість студентів з низьким рівнем досліджуваного показника (30,18%); у 1,8 раза збільшилася кількість студентів із задовільним рівнем (35,37%); у 2,9 раза збільшилася кількість студентів із середнім (26,11%) та високим (8,33%) рівнями сформованості готовності до освітньої діяльності для сталого розвитку суспільства.

Ключові слова: освіта для сталого розвитку, фізичне виховання, спорт, учитель фізичної культури, тренер з виду спорту.

Introduction

The current stage of human development requires the formation of an innovative personality based on the advanced development of education [1], which should be reoriented towards education for sustainable development [2]. In Ukraine, there is currently no systematic transition to sustainable education [3], but there are serious developments in this area in preschool, school, and higher education [4]. Despite the difficult historical period of testing by aggression and war on the part of the Russian Federation, which Ukrainian society has been going through for decades, Ukraine is striving for integration into the European space [5].

The issue of sustainable development education is being studied by scientists abroad [6]. The reorientation of the education sector to education for sustainable development depends on the level of development of states and the identity of peoples, but it occurs on a global scale [7]. After all, education is considered a factor in sustainable development [2]. In parallel with the education sector, world sport has joined the implementation of the Millennium Development Goals and then the Sustainable Development Goals [8, 9]. This happened long before the official recognition of sport as a factor of sustainable development in 2018 [10]. However, there has been little scientific research on the involvement of physical culture and sport in sustainable development activities. Every year since 2000, there has been an increase in scholarly interest in this topic, but it is mainly about sports for sustainable development [11]. Since 2018, research has become more diverse, with scholars paying attention to the education of physical education and sports professionals, the expansion of health and physical education (HPE) curricula with education for sustainable development' [12], and educational aspects of sustainable development in the field of physical education and sports to rethink and reorient physical education towards sustainable development [13], studying the tasks of sustainable development goals that can be integrated into the educational context through physical education [14], and finding out the understanding and knowledge of sustainable development of physical education teachers and the problems of pedagogical activities for sustainable development in physical education [15, 16, 17]. Especially valuable is the practice of physical education and sports in the implementation of various sustainable development goals, which have received positive feedback from communities [9, 18, 19].

In Ukraine, the involvement of physical culture and sports in promoting sustainable development of society has been little studied and is considered from the perspective of either purely environmental education [20, 21] or social issues [22, 23]. Unfortunately, this does not create a picture of a holistic vision of sustainable development and solving global human problems through the participation of physical culture and sport among specialists in this field.

A modern specialist in physical culture and sport, working at school, should develop the following competences in students: competence in natural sciences and technologies, social and civic competence, environmental literacy, and healthy living [24]. The obvious basis for this is the training of a specialist in accordance with the standard, which provides for the formation of a complete list of competencies during the training period, including: "2. The ability to exercise one's rights and responsibilities as a member of society, to be aware of the values of civil (democratic) society and the need for its sustainable development, the rule of law and human and civil rights and freedoms in Ukraine" [25]. Since the term "to be aware" has the interpretation "to comprehend with the mind, to perceive consciously, to understand the meaning, sense; to correctly assess something" [26], competence "...to be aware of the values of civil (democratic) society and the need for its sustainable development..." should include a whole set of components, in particular, the following: understanding the essence of the new paradigm of human development and knowledge of the reasons for its emergence; knowledge of the end result to which the entire world society aspires; and knowledge of the ways to achieve sustainable development and implementation. Having paid attention to this, we found out that, at present, specialists in physical culture and sports are not sufficiently aware of the issues of sustainable development, are able to establish the connection of physical culture and sports only with the goals of sustainable social development [27], and future specialists in this field need to acquire knowledge, skills and abilities on a wide variety of sustainable development issues [28]. Therefore, we focused on training future specialists in physical culture and sports for sustainable development.

The purpose of this study is to show the results of the impact of the author's methodological system on the formation of future physical culture and sports specialists' readiness for educational activities that promote sustainable development of society.

Materials and methods

Study participants

The study involved 390 future specialists in physical culture and sports who were students of the faculties of physical education of T. H. Shevchenko National University «Chernihiv Colehium», the National University of Life and Environmental Sciences of Ukraine, Sumy State University, and Sumy State Pedagogical University named after A.S. Makarenko. Students were informed about the features of the study and voluntarily participated in the pedagogical experiment. To conduct the pedagogical experiment, control and experimental groups were formed. The participants of the study are represented by both sexes in different courses. At the ascertaining stage of the experiment, both groups consisted of 90 students each: the control group consisted of 52 boys (57.8%) and 38 girls (42.2%); the experimental group consisted of 55 boys (61.1%) and 35 girls (38.9%). At the formative stage of the experiment, the control group consisted of 83 students, including 44 boys (53%) and 39 girls (47%); the experimental group consisted of 90 students, including 49 boys (54.4%) and 41 girls (45.6%).

Study organisation

The pedagogical experiment was conducted in stages from 2019 to 2024 in accordance with recommendations [29]. The components of future physical culture and sports specialists' readiness for educational activities for sustainable development were preliminarily identified: motivation and value, worldview, cognitive, practical, and reflective [30]. Well-known questionnaires were used to diagnose the formation of motivational and value, worldview, and reflective components: "New Ecological Paradigm" (NEP) by R. Dunlop, K. Van Lier, A.; Mertig, R. Jones [31, p. 433], "Rapid Diagnostic of Social Values of the Individual" [32, p.357] (the list of values was expanded by the values of sustainable development in accordance with the generally accepted goals of sustainable development), "Identification of the dominant learning motive" [33] (expanded by the author's questionnaire for self-assessment of motivation to learn by the following components: cognitive interest in sustainable development, desire for educational activities for sustainable development, cognitive interest in educational activities for sustainable development in the field of physical culture and sports), "Identification of levels of development of students' reflection" [34, p.291 (with the introduction of sustainable development issues).

To diagnose the formation of the cognitive component, thematic tests were used, which included questions related to the following blocks of knowledge: historical origins and formation of sustainable development, problems of civilisation and ways to overcome them; basic ecological laws of life on the planet; the essence of sustainable development; the essence of environmental, economic and social components of sustainable development; understanding their interdependence; involvement of the educational and sports sectors in promoting sustainable development and understanding the role of a specialist in physical culture and sports

To diagnose the formation of the practical component, thematic tests with open-ended questions were used, which enabled the respondent to be creative in their task completion. The questions in the tests were related to methodological work in the following categories: work in a physical education lesson or sports section, extracurricular activities and community activities, and managerial position. All the test questions corresponded to the material proposed for studying during the acquaintance of students with the materials of the author's course "Sustainable Development in Physical Education and Sports" [19].

The ascertaining stage of the study involved testing future specialists in physical culture and sports to determine the initial level of their readiness to work

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towards sustainable development. During the formative stage, an experimental methodological training system was introduced for the participants of the experimental group. The formative stage ended with a diagnosis of the level of readiness of the participants for educational activities for sustainable development. The methods used in the study were: study and analysis of scientific and methodological literature, pedagogical experiments, surveys, questionnaires, testing, analysis, synthesis and generalisation of information and methods of mathematical statistics.

All tests and questionnaires were created using Google Form and distributed via Google classroom. The questions in the tests corresponded to the material offered for study during the acquaintance of students with the materials of the author's course "Sustainable Development in Physical Culture and Sports" and readiness indicators. Formation of the readiness of future specialists in physical culture and sports for educational activities for sustainable development and each of its components was assessed by converting the scores received by students into the ECTS scale for assessing the quality of educational achievements of students of higher education institutions: 0-59 points – low level, 60-74 points – satisfactory level, 75-89 points – average level, 90-100 points – high level.

Statistical analysis

Systematisation of the materials and mathematical processing were performed using Microsoft® Excel 2010. The nonparametric Pearson's χ^2 test was used to compare the results of the study at a significance level of $p < 0.05$ [35].

Results

At the ascertaining stage of the pedagogical experiment in the control and experimental groups, the level of formation of future specialists' readiness for educational activities for sustainable development of society was determined (Fig. 1). It was almost the same in the control and experimental groups at all levels, with a significant predominance in the low-level group. Thus, 69.35% and 65.09% of respondents in the control and experimental groups had a low level of the studied indicator, 18.06% and 19.08% had satisfactory level, 9.81% and 10.44% had average level, and 2.78% and 5.42% had high level, respectively.

The analysis of the final test data revealed a significant improvement in the indicator of the formation of future physical culture and sports specialists' readiness for educational activities for sustainable development in the experimental group. In particular, in the control group, 67.78% of students had a low level of this indicator: 20.93% satisfactory; 8.43% average; and 2.87% – high level of this indicator (Fig. 1). In the experimental group, the number of students with a low level of the studied indicator decreased by 2.2 times compared to the initial data, which amounted to 30.18%; students with a satisfactory level of readiness became 35.37%; the number of students with an average level increased to 26.11% and 8.33%, respectively, with a high level of readiness for educational activities for sustainable development (Fig. 1).

The above comparisons were based on the calculation of Pearson's criterion, which was used to determine the differences between the series of indicators of our samples in the control and experimental groups (Table 1). Thus, the indicators of Pearson's criterion indicate the similarity of the control and experimental groups in terms of the level of formation of the practical component of readiness for educational activities for sustainable development at the beginning of the pedagogical experiment: $\chi^2_{empirical} < \chi^2_{critical}$ ($0.216 < 5.99$, $p < 0.05$); and a significant difference between these groups after the formative stage of the experiment: $\chi^2_{empirical} > \chi^2_{critical}$ ($22.67 > 5.99$, $p < 0.05$).

It is interesting to analyse the data on the components of readiness for educational activities for sustainable development that we have identified. For ease of description, we have combined the components that characterise the personality, i.e. motivational

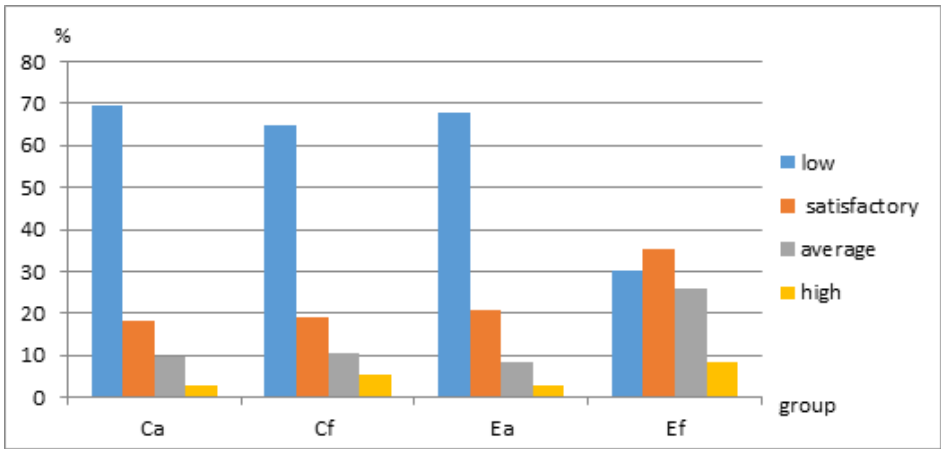

Figure 1. Diagram of the levels of readiness of future specialists in physical culture and sports for educational activities for sustainable development of society (%):
Ca – control group, ascertaining stage of the experiment
Cf – control group, formative stage of the experiment
Ea – experimental group, ascertaining stage of the experiment
Ef – experimental group, formative stage of the experiment
Similar designations are used in the rest of the diagrams.

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Table 1. Distribution of students by level of educational readiness for sustainable development of society (generalised data by identified components)

Groups of students	Levels of readiness formation				$X^2_{empirical}$	$X^2_{critical}$ $p < 0,05$
	low	satisfactory	average	high		
Ascertaining stage of the experiment						
Control (n = 90)	62	16	9	3	0,216	5,99
Experimental (n = 90)	61	19	7	3		
Formative stage of the experiment						
Control (n = 83)	54	16	9	4	22,67	5,99
Experimental (n = 90)	27	31	23	9		

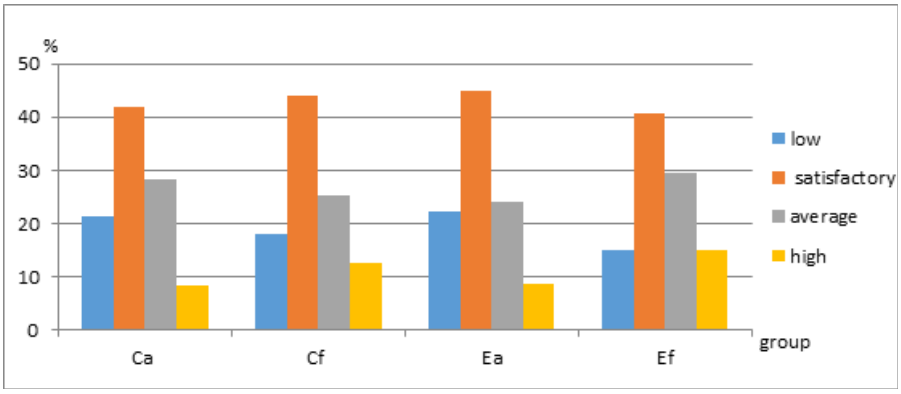

Figure. 2. Diagram of levels of formation of the personal component of future physical culture and sports specialists' readiness for educational activities for sustainable development of society (%):
Ca – control group, ascertaining stage of the experiment
Cf – control group, formative stage of the experiment
Ea – experimental group, ascertaining stage of the experiment
Ef – experimental group, formative stage of the experiment

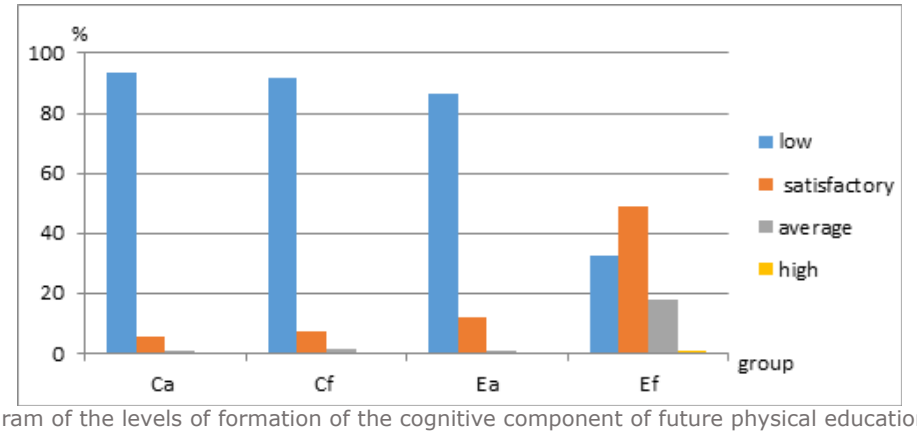

Figure. 3. Diagram of the levels of formation of the cognitive component of future physical education and sports specialists' readiness for educational activities for sustainable development of society (%):
Ca – control group, ascertaining stage of the experiment
Cf – control group, formative stage of the experiment
Ea – experimental group, ascertaining stage of the experiment
Ef – experimental group, formative stage of the experiment

and value, worldview, and reflective, into one called the "personal component". That is, the indicators of the personal component are the average values of these components at the corresponding levels (low, satisfactory, medium, high). According to the results presented in Fig. 2, at the beginning of the experiment in the control and experimental groups, the indicators of the level of formation of the personal component of the studied readiness were very close: 21.39% and 22.22% of respondents had low, 41.95% and 45.00% satisfactory, 28.33% and 24.17% average, 8.33% and 8.61% high levels, respectively. At the end of the study, the experimental group showed some changes in the indicators of this component compared to the control group of respondents and the initial indicators. Differences ranged from 4.45% to 7.22% between the scores of the experimental group at the beginning and end of the experiment and from 2.35% to 4.15% between the scores of the experimental and control groups at the final stage of the study.

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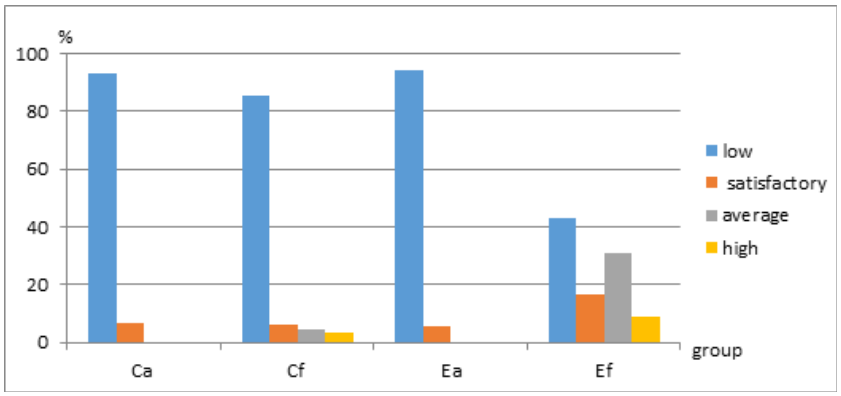

Figure. 4. Diagram of the levels of formation of the practical component of future physical education and sports specialists' readiness for educational activities for sustainable development of society (%):
Ca – control group, ascertaining stage of the experiment
Cf – control group, formative stage of the experiment
Ea – experimental group, ascertaining stage of the experiment
Ef – experimental group, formative stage of the experiment

Table 2. Distribution of students by levels of formation of components of readiness for educational activities for sustainable development of society

Groups of students	Levels of readiness formation				$\chi^2_{empirical}$	$\chi^2_{critical}$ p < 0,05
	low	satisfactory	average	high		
Personal component, ascertaining stage of the experiment						
Control (n = 90)	19	38	26	7	0,478	7,81
Experimental (n = 90)	20	40	22	8		
Personal component, formative stage of the experiment						
Control (n = 83)	15	37	21	10	1,134	7,81
Experimental (n = 90)	13	37	27	13		
Cognitive component, ascertaining stage of the experiment						
Control (n = 90)	84	5	1	0	2,22	3,84
Experimental (n = 90)	78	11	1	0		
Cognitive component, formative stage of the experiment						
Control (n = 83)	76	6	1	0	61,00	3,84
Experimental (n = 90)	30	43	16	1		
Practical component, ascertaining stage of the experiment						
Control (n = 90)	84	6	0	0	0,096	3,84
Experimental (n = 90)	85	5	0	0		
Practical component, formative stage of the experiment						
Control (n = 83)	71	5	4	3	36,18	5,99
Experimental (n = 90)	37	13	27	13		

The distribution of indicators before and after the experiment is quite different for the cognitive and practical components of the studied readiness (Fig. 3, 4). At the beginning of the study, a very large percentage of students in both groups had a low level of readiness in terms of these components from 85.54% to 93.33%. At the end of the study, significant changes were observed in the experimental group in terms of cognitive and practical components. Thus, 32.22% of students had low, 48.89% satisfactory, 17.78% average, and 1.11% high levels of cognitive component of readiness for educational activities for sustainable development (Fig. 3). Regarding the practical component, 43.33% of students had a low level of its formation, 16.67% had satisfactory, 31.11% had average, and 8.89% had high levels (Fig. 4). In the control group, after the formative stage of the study, the indicators of the cognitive and practical components changed insignificantly from 0.65% to 7.79% (Figs. 3, 4).

All the above data were confirmed by the calculations of Pearson's criterion for comparing the indicators between the control and experimental groups (Table 2). Thus, at the end of the experiment, Pearson's criterion indicates that there are no significant differences between the control and experimental groups in terms of the level of formation of the personal component of readiness for educational activities for sustainable development: $\chi^2_{empirical} < \chi^2_{critical}$ (1.134 < 7.81, p < 0.05). We have other dependencies for cognitive and practical components. The Pearson's criterion indicators show significant differences between the control and experimental groups in terms of the level of formation of the cognitive component of readiness for educational activities for sustainable development: $\chi^2_{empirical}$ = 61.00

and significantly exceeds $\chi^2_{critical} = 3.84$ ($p < 0.05$). Also, the indicators of Pearson's criterion indicate significant differences between the control and experimental groups in terms of the level of formation of the practical component of the studied readiness: $\chi^2_{empirical} > \chi^2_{critical}$ ($36.18 > 5.99$; $p < 0.05$).

Discussion

The study assumed that future physical education and sports specialists (students of physical education faculties) have a low level of formation of such integrative professional and personal quality as readiness for educational activities for sustainable development of society. Our previous studies [28] and those of foreign colleagues [15, 17] indicate that physical education teachers and coaches in various sports lack sufficient knowledge and skills for sustainable development. Therefore, we developed an experimental methodological system for training future physical education and sports specialists in educational activities for sustainable development and offered students the author's course "Sustainable Development in Physical Education and Sports" [19].

At the beginning of the pedagogical experiment, we found that on average, 68.56% of students had a low level of studied quality, 19.49% had satisfactory, 9.12% had average, and 2.83% had high level. We obtained such figures because of the much better indicators of the personal component (Fig. 2) compared to the indicators of the cognitive (Fig. 3) and activity (Fig. 4) components at the beginning of the study. Thus, on average, only 21.81% of students had a low level of formation in the personal component of their preparedness, while 90.00% and 93.89% of students had a low level of formation in the cognitive and practical components, respectively. This can be explained by the fact that issues related to sustainable development are not covered by students in physical education faculties, so they do not have the necessary knowledge and skills to promote sustainable development through professional activities in the field of physical culture and sports. However, issues related to sustainable development are quite simple to understand because they relate to every inhabitant of the planet and their daily needs. For example, the concepts of sustainable development, such as good health, quality education, employment, decent living standards, clean air and water, sufficient food and its safety, and equality in society, etc. are things that are understandable and valuable to everyone. Or the realisation that human activity does not always have a positive impact on the environment, nature, and people. An example of this is climate change with all its consequences in the form of more storms, tornadoes, tsunamis, flooding of land areas, etc.; major industrial accidents or wars that destroy not only human lives but also make very large areas uninhabitable for all living things. This trend is likely reflected in the initial indicators of the personal component.

At the end of the study, there were no significant changes in the indicators of personal development under the influence of the methodological system of preparation for educational activities for sustainable development introduced by us. We observed only slight fluctuations in the indicators towards improvement in the experimental group of students compared to the control group. The number of students with low and satisfactory levels decreased, and the number of students with medium and high levels of this indicator increased. However, the mathematical processing of the results showed that these fluctuations are within the limits of mathematical error. That is, within the framework of this work, we can only discuss positive trends in changes in the personal component of students in the experimental group under the influence of the methodological system introduced. Obviously, it makes sense to separately consider the changes in the components of the personal component, i.e. motivational, value, reflection, and worldview. This will be done in one of our next papers.

Significant improvement in the cognitive and practical components was observed at the end of the study in the experimental group compared with the control group. The number of students with low cognitive level and practical component scores decreased by 2.8 times and almost 2 times, respectively. The number of students with satisfactory scores increased 14.8 and 6.5 times, respectively, and the number of students with average levels of cognitive and practical components increased 6.8 and 2.8 times. The number of students with a high level of practical component of educational readiness for sustainable development increased by 2.5 times. The number of students with a high cognitive component increased slightly – by 1.11%. In the control group, at the end of the pedagogical experiment, there were no significant changes in the indicators of any of the studied components of physical education and sports specialists' readiness for educational activities for sustainable development of society.

Conclusions

The experimental author's methodological system has a positive impact on the formation of future physical culture and sports specialists' readiness for educational activities that promote sustainable development of society. At the beginning of the pedagogical experiment in both groups, on average, 68.56% respondents had a low, 19.49% satisfactory, 9.12% average, and 2.83% high levels of readiness for educational activities for sustainable development. At the end of the pedagogical experiment, the indicators in the experimental group improved significantly: the number of students with a low level of the studied quality (30.18%) decreased by 2.3 times; the number of students with a satisfactory level (35.37%) increased by 1.8 times; and the number of students with medium (26.11%) and high (8.33%) levels of readiness for educational activities for sustainable development of society increased by 2.9 times.

References

1. Kremen VH, Luhovyi VI, Saukh PIu. Osvita i nauka – osnova innovatsiinoho liudskoho rozvytku. Visnyk NAPN Ukrainy, 2021; 2(2): 1-5. https://doi.org/10.37472/2707-305X-2020-2-2-14-3
2. UNECE Strategy for Education for Sustainable Development adopted at the High-level Meeting [of Environment and

Education Ministries, Vilnius, 17-18 March 2005]. 2005. [E_ECE_]CEP_AC.13_2005_3_Rev.1

3. Koreneva IM. Osvita dlia staloho rozvytku: realii Ukrainy. Visnyk Hlukhivskoho natsionalnoho pedahohichnoho universytetu imeni Oleksandra Dovzhenka. Seriia: Pedahohichni nauky, 2018; (1): 17-25. http://nbuv.gov.ua/UJRN/vgnpu_2018_1_4
4. Osvita v interesakh staloho rozvytku v Ukraini. Navchalno-piznavalni materialy. 2024. https://ecoosvita.org.ua/node/5
5. Association Agreement between the European Union and its Member States, of the one part, and Ukraine, of the other part, 22014A0529(01), 2014.
6. Grosseck G, Țîru LG, Bran RA. Education for Sustainable Development: Evolution and Perspectives: A Bibliometric Review of Research, 1992 – 2018. Sustainability, 2019; 11(21): 6136. https://doi.org/10.3390/su11216136
7. UNESCO Shaping the future we want: UN decade of education for sustainable development 2005-2014 (Final Report). 2014. https://unesdoc.unesco.org/ark:/48223/pf0000230171
8. IOC. Sustainability. 2024. https://olympics.com/ioc/sustainability
9. Tsyhura H. Diialnist u sportyvnii haluzi dlia staloho rozvytku suspilstva: zakordonnyi dosvid. Teoriia i metodyka fizychnoho vykhovannia i sportu, 2022; 1: 112-119. https://doi.org/10.32652/tmfvs.2022.1.112-119
10. Sport as an enabler of sustainable development. Resolution adopted by the General Assembly. 2018. A/RES/73/24. https://undocs.org/en/A/RES/73/24
11. Escher I. Sustainable development in sport as a research field: A bibliometric analysis. Journal of Physical Education and Sport, 2020; 20(5): 2803 – 2812. https://doi.org/10.7752/jpes.2020.s5381
12. Truong S. Expanding Curriculum Pathways Between Education for Sustainability (EfS) and Health and Physical Education (HPE). In: Malone K, Truong S, Gray T. (eds) Reimagining Sustainability in Precarious Times. Springer, Singapore. 2017. https://doi.org/10.1007/978-981-10-2550-1_16
13. Lundvall S, Fröberg A. From individual to lifelong environmental processes: reframing health in physical education with the sustainable development goals. Sport, Education and Society. 2022; 28(6): 684 – 696. https://doi.org/10.1080/13573322.2022.2062320
14. Baena-Morales S, Jerez-Mayorga D, Delgado-Floody P, Martínez-Martínez J. Sustainable Development Goals and Physical Education. A Proposal for Practice-Based Models. International Journal of Environmental Research and Public Health, 2021; 18(4): 2129. https://doi.org/10.3390/ijerph18042129
15. Baena-Morales S, Prieto-Ayuso A, Merma-Molina G, & González-Víllora S. Exploring physical education teachers' perceptions of sustainable development goals and education for sustainable development. Sport, Education and Society, 2022; 29(2): 162–179. https://doi.org/10.1080/13573322.2022.2121275
16. Baena-Morales S, & Ferriz-Valero A. What about physical education and Sustainable Development Goals? A scoping review. Physical Education and Sport Pedagogy, 2023: 1–18. https://doi.org/10.1080/17408989.2023.2214572
17. Merma-Molina G, Urrea-Solano M, González-Víllora S, Baena-Morales S. Future physical education teachers' perceptions of sustainability. Teaching and Teacher Education, 2023; 132: 104254. https://doi.org/10.1016/j.tate.2023.104254
18. Lynch T, Boylan M. United Nations Sustainable Development Goals: Promoting health and well-being through physical education partnerships. Cogent Education, 2016; 3(1). https://doi.org/10.1080/2331186X.2016.1188469
19. Tsyhura HO, Harkusha SV. Osnovy staloho rozvytku: navchalnyi posibnyk dlia studentiv spetsialnostei Serednia osvita (Fizychna kultura), Fizychna kultura i sport. Chernihiv: Desna Polihraf, 2024; 336.
20. Imas Ye, Yarmoliuk O, Boiko D. Orhanizatsiini zasady pryrodookhoronnoi diialnosti subiektiv mizhnarodnoho olimpiiskoho sportu. Molodizhnyi naukovyi visnyk Skhidnoievropeiskoho natsionalnoho universytetu imeni Lesi Ukrainky. Fizychne vykhovannia i sport, 2017; 26: 9–14.
21. Imas Ye, Yarmoliuk O, Bilko B, Shy Sh. Ekolohichna osvita v konteksti formuvannia staloho rozvytku sportu. Sportyvna nauka ta zdorovia liudyny: Naukove elektronne periodychne vydannia, 2020; 2(4): 10–26. https://elibrary.kubg.edu.ua/id/eprint/38790/1/Imas_Y_Yarmoliuk_O_Shishenwen_EOFSR_SSHH_2.pdf
22. Kachan OA, Prystynskyi VM. Kontseptsiia «Sport zarady rozvytku» u fizkulturno-ozdorovchii i sportyvno-masovii roboti zakladiv zahalnoi serednoi osvity. Monohrafiia. Sloviansk: vyd-vo B.I.Matorina, 2022; 162.
23. Bubka SN, Bulatova MM, redaktory. 25 rokiv razom. Olimpiiska osvita. Kyiv, 2017. https://reposit.uni-sport.edu.ua/handle/787878787/1100
24. Navchalna prohrama z fizychnoi kultury dlia 6–9 klasiv zakladiv zahalnoi serednoi osvity. A. Boliak, et al. 2022. https://mon.gov.ua/storage/app/media/zagalna%20serednya/programy-5-9-klas/2022/08/15/navchalna.programa-2022.fizichna-kultura-6-9.pdf
25. Ministerstvo osvity i nauky Ukrainy. (2019). Nakaz «Pro zatverdzhennia standartu vyshchoi osvity za spetsialnistiu 017«Fizychna kultura i sport» dlia pershoho (bakalavrskoho) rivnia vyshchoi osvity. 24.09.2019. №567. https://mon.gov.ua/storage/app/media/vishcha-osvita/zatverdzeni%20standarty/2021/07/28/017-Fizkultura.sport-bakalavr.28.07.pdf
26. Busel VT. (uklad.) Velykyi tlumachnyi slovnyk suchasnoi ukrainskoi movy. Kyiv; Irpin: Perun, 2005;1728. https://irbis-nbuv.gov.ua/ulib/item/UKR0000989
27. Tsyhura H, Harkusha S. Education for Sustainable Development: Understanding by Physical Education and Sports Specialists. Physical Education Theory and Methodology, 2023; 23(4): 614–621. https://doi.org/10.17309/tmfv.2023.4.17
28. Tsyhura H. Potreba studentiv fakultetu fizychnoho vykhovannia v obiznanosti z pytan staloho rozvytku. Pedahohichni nauky: teoriia, istoriia, innovatsiini tekhnolohii. Naukovyi zhurnal. SumDPU imeni A. S. Makarenka, 2021; 3(107): 294–307. https://doi.org/10.24139/2312-5993/2021.03/294-307
29. Sysoieva SO, Krystopchuk TIe. Metodolohiia naukovo-pedahohichnykh doslidzhen: Pidruchnyk. Rivne: Volynski oberehy, 2013. Sysoieva SO, Krystopchuk TYe. (2013). Metodolohiia naukovo-pedahohichnykh doslidzhen: Pidruchnyk. Rivne: Volynski oberehy.
30. Tsyhura HO. Sutnist i struktura hotovnosti maibutnikh

fakhivtsiv fizychnoi kultury i sportu do osvitnoi hotovnosti dlia staloho rozvytku. Visnyk Natsionalnoho universytetu «Chernihivskyi kolehium» imeni T. H. Shevchenka, Seriia: Pedahohichni nauky, holov. red. MO Nosko. Chernihiv: NUChK, 2020; 10(166): 191–196.

31. Skrebets VO, Shlimakova II. Ekolohichna psykholohiia: pidruchnyk. K.: Vydavnychyi dim «Slovo», 2014; 456.
32. Kozliakovskyi PA. Sotsialna psykholohiia: Kurs lektsii. Praktykum. Khrestomatiia. Mykolaiv: Vyd. derzh. un-t, 2005; 424.
33. Lemak MV, Petryshche VP. (uklad.) Psykholohu dlia roboty. Diahnostychni metodyky: zbirnyk. Uzhhorod: Vydavnytstvo Oleksandra Harkushi, 2011; 607
34. Kurylenko NV. Formuvannia ekolohichnoi kompetentnosti uchniv osnovnoi shkoly u protsesi navchannia fizyky. Dys. na zdob.nauk.st.kand.ped.nauk, 13.00.02 – teoriia ta metodyka navchannia (fizyka), Kherson. 2015; 316.
35. Herych MS, Syniavska OO. Matematychna statystyka: navch.posib. Uzhhorod: DVNZ UZhNU, 2021; 146.

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