doi: 10.15330/msuc.2026.34.133-137

Dmytro KOROTKYKH,
a graduate of the third (educational and scientific) level of higher education
in the specialty 015 Professional Education (by specialization), assistant professor
of the Department of Sports and Pedagogical Disciplines,
Vasyl Stefanyk Carpathian National University (Ivano-Frankivsk, Ukraine)

Дмитро КОРОТКИХ,
здобувач третього (освітньо-наукового) рівня вищої освіти спеціальності 015 Професійна освіта
(за спеціалізаціями), асистент кафедри спортивно-педагогічних дисциплін,
Карпатський національний університет імені Василя Стефаника (м. Івано-Франківськ, Україна)
dmytro.korotkykh@cnu.edu.ua,
ORCID ID:0009-0002-2687-8703

Bibliographic description of the article: Korotkykh D. (2026). Theoretical substantiation of the structural and functional model of professional training of future physical education teachers for teaching badminton in general secondary education institutions. *Mountain School of the Ukrainian Carpathians*. *34. 133-137.*

Бібліографічний опис статті: Коротких Д. (2026). Теоретичне обґрунтування структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти. *Гірська школа Українських Карпат. 34. 133-137.*

УДК 378.147:796.344:373.5

THEORETICAL SUBSTANTIATION OF THE STRUCTURAL AND FUNCTIONAL MODEL OF PROFESSIONAL TRAINING OF FUTURE PHYSICAL EDUCATION TEACHERS FOR TEACHING BADMINTON IN GENERAL SECONDARY EDUCATION INSTITUTIONS

Abstract. The article highlights the problem of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions in the context of the modernization of higher pedagogical education and the reform of school physical education.

The purpose of the article is to reveal the conceptual foundations, structure, and content of the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

Research methods: theoretical methods—analysis, synthesis, comparison, generalization, and systematization of scientific sources, regulatory and legal documents, and educational and professional programmes; modelling—for designing the structural and functional model of the professional training of future Physical Education teachers.

Scientific novelty of the study lies in the theoretical substantiation and development of the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions, which ensures the integration of theoretical, methodological, and practical components, the application of educational and digital technologies, and orients the educational process towards the formation of the motivational, cognitive, and praxeological components of the professional readiness of future Physical Education teachers to teach badminton. Its conceptual foundations, structure, content, and interrelationships between the structural components have been determined. The model consists of target, methodological, content, organizational and procedural, and diagnostic and resultative blocks, which function as an integral pedagogical system.

The practical significance of the obtained results lies in the possibility of using the proposed model in the modernization of educational and professional programmes for the training of future Physical Education teachers, the development of educational and methodological support for educational components, the improvement of the content of sports and pedagogical disciplines, the organization of teaching practice, specialised courses and training sessions, as well as in the system of postgraduate pedagogical education.

Keywords: professional training, future Physical Education teachers, badminton, structural and functional model, general secondary education institutions, professional readiness.

ТЕОРЕТИЧНЕ ОБГРУНТУВАННЯ СТРУКТУРНО-ФУНКЦІОНАЛЬНОЇ МОДЕЛІ ПРОФЕСІЙНОЇ ПІДГОТОВКИ МАЙБУТНІХ УЧИТЕЛІВ ФІЗИЧНОЇ КУЛЬТУРИ ДО ВИКЛАДАННЯ БАДМІНТОНУ В ЗАКЛАДАХ ЗАГАЛЬНОЇ СЕРЕДНЬОЇ ОСВІТИ

Анотація. У статті актуалізовано проблему професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти в умовах модернізації вищої педагогічної освіти та реформування шкільної фізкультурної освіти.

Мета статті полягає у розкритті концептуальних засад, структури та змісту структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти.

Методи дослідження: теоретичні – аналіз, синтез, порівняння, узагальнення та систематизація наукових джерел, нормативно-правових документів і освітньо-професійних програм; моделювання – для проєктування структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури.

Наукова новизна дослідження полягає в теоретичному обґрунтуванні та розробленні структурно-функціональної моделі професійної підготовки майбутніх учителів фізичної культури до викладання бадмінтону в закладах загальної середньої освіти, яка забезпечує інтеграцію теоретичної, методичної та практичної складових, застосування освітніх і цифрових технологій та орієнтує освітній процес на формування мотиваційного, когнітивного, праксеологічного компонентів професійної готовності майбутніх учителів фізичної культури до викладання бадмінтону. Визначено її концептуальні засади, структуру, зміст і взаємозв'язки між структурними компонентами. Модель складається з цільового, методологічного, змістового, організаційно-процесуального та діагностично-результативного блоків, які функціонують як цілісна педагогічна система.

Практичне значення одержаних результатів полягає в можливості використання запропонованої моделі під час модернізації освітньо-професійних програм підготовки майбутніх учителів фізичної культури, розроблення навчально-методичного забезпечення освітніх компонентів, удосконалення змісту дисциплін спортивно-педагогічного циклу, організації педагогічної практики, спеціальних курсів і тренінгів, а також у системі післядипломної педагогічної освіти.

Ключові слова: професійна підготовка, майбутні учителі фізичної культури, бадмінтон, структурно-функціональна модель, заклади загальної середньої освіти, професійна готовність.

INTRODUCTION

The problem formulation. The current stage of modernization of the education system of Ukraine is characterised by increasing requirements for the quality of the professional training of future Physical Education teachers who are capable of effectively carrying out educational activities under the conditions of the reform of general secondary education, digital transformation, and the competency-based orientation of the educational process.

The professional training of a new generation of teaching staff, in particular future Physical Education teachers, is regulated by the Laws of Ukraine "On Higher Education" (2017, as amended), "On Education" (2017), "On Professional Pre-Higher Education" (2019), "On Complete General Secondary Education" (2020), "On Amendments to Certain Laws of Ukraine Regarding Ensuring the Quality of Higher Education" (2023), "On Physical Culture and Sport" (as amended in accordance with the Laws No. 2704-VIII of 25 April 2019 and others), "On Amendments to Certain Laws of Ukraine Regarding the Development of Individual Educational Trajectories and the Improvement of the Educational Process", the Strategy for the Development of Higher Education in Ukraine for 2022–2032 of 23 February 2022, the Resolution of the Cabinet of Ministers of Ukraine No. 988-r of 14 December 2016 "On Approval of the Concept for the Implementation of the State Policy in the Field of Reforming General Secondary Education 'The New Ukrainian School' for the Period until 2029", the National Strategy for Health-Enhancing Physical Activity in Ukraine for the Period until 2025 "Physical Activity – Healthy Lifestyle – Healthy Nation" (2016), the Strategy for the Development of Physical Culture and Sport for the Period until 2028 (2020), and others.

The conceptual foundations for implementing the reform of the New Ukrainian School actualise the need to train teachers who possess modern teaching methods, innovative technologies, digital tools, and are capable of developing learners' motivation for systematic physical activity, a healthy lifestyle, and participation in various sports.

The teaching of badminton in general secondary education institutions is one of the promising means of implementing the above-mentioned tasks, as it combines health-promoting, educational, and developmental potential. As practice shows, teaching badminton in general secondary education institutions contributes to the development of speed-strength abilities, coordination of movements, endurance, reaction speed, and spatial thinking, as well as to the formation of communication skills, responsibility, discipline, and a culture of a healthy lifestyle.

The results of the analysis of educational and professional programmes, curricula, and the content of the training of future Physical Education teachers indicate that the issues of badminton teaching methodology are often covered fragmentarily, without proper integration of the theoretical, methodological, practical, and digital components of professional training. This complicates the formation of the readiness of higher education students for high-quality badminton teaching in general secondary education institutions.

Therefore, there is an increasing need for the scientific substantiation of a structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions. We believe that such a model should ensure the integrity and systematic nature of professional training, integrate methodological approaches, pedagogical principles, modern educational content, innovative forms, methods, digital tools, and teaching technologies, and determine the interrelationships among all structural components of this process.

Analysis of recent research and publications. The analysis of scientific works demonstrates that the problem of the professional training of future Physical Education teachers is the focus of attention of both Ukrainian and foreign scholars. In particular, the issues of modelling the professional training of future Physical Education teachers are highlighted in the works of I. Tkachivska (Tkachivska, I., 2024, pp. 75–81); the peculiarities of the formation of subject knowledge and professional readiness of future Physical Education teachers for teaching sports games are revealed in the studies of W. S. Chey, P. Ward, K. Cho, E. Tsuda, L. Dillon, and their co-authors (Chey, W. S., Ward, P., Dillon,

L., Watanabe, R., Meyerhoff, S., Arroyo-Rojas, F., 2025, 261–271); the theoretical and methodological foundations of professional training models in physical education are substantiated in the works of R. L. Fjellner, V. Varea, and D. Barker (Fjellner, R. L., Varea, V., Barker, D., 2024, 329–345).

At the same time, the issue of the theoretical substantiation of the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions remains insufficiently investigated, which necessitates the development of an integral model aimed at forming the readiness of future Physical Education teachers for teaching badminton.

AIM OF THE RESEARCH

To reveal the conceptual foundations and the structural and content characteristics of the model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

RESEARCH METHODS

Theoretical methods: analysis, synthesis, generalisation, systematisation, and comparison of scientific literature, regulatory and legal documents, and educational and professional programmes; modelling—for developing the structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

RESULTS OF THE RESEARCH

The choice of modelling as a research method is explained by the fact that a model makes it possible to comprehensively represent the process of the professional training of future specialists, determine its structure, the regularities of its functioning, and the mechanisms of interaction among the components of the process under study. According to S. Kryshtanovych, L. Sushchenko, and D. Skalskyi, modelling is an important research tool because it makes it possible to interpret scientific knowledge, verify conceptual provisions, and ensure the closest possible correspondence between the developed model and the real pedagogical process (Kryshtanovych, S., Sushchenko, L., Skalskyi, D., 2021, pp. 36–39).

In the context of the stated problem, D. Bermudes substantiates a model for preparing future Physical Education teachers to implement elective modules, which combines the target, content, procedural, and resultative components of professional training (Bermudes, D., 2017, pp. 26–36).

I. Tkachivska developed and theoretically substantiated a model for the formation of the didactic competence of students majoring in 014 Secondary Education (Physical Education), aimed at improving the quality of the professional training of future teachers by means of Physical Education pedagogy and didactics. The model proposed by the author includes three interrelated components: motivational and informational, cognitive and content-related, and technological. The researcher pays particular attention to the interdisciplinary integration of the discipline "Pedagogy of Physical Education with the Fundamentals of Didactics" with professionally oriented educational components, which ensures the integrity of the professional training of future Physical Education teachers (Tkachivska, I., 2024, pp. 75–81).

In turn, A. Khodakovska states that a structural and functional model should integrate methodological approaches, teaching principles, pedagogical conditions, the content of training, and a system for diagnosing learning outcomes (Khodakovska, A., 2023, pp. 17–33).

Foreign studies devoted to modelling the educational process in the system of physical education teacher training are also important for substantiating the structural and functional model of the professional training of future Physical Education teachers. In particular, the studies by W. Chey, P. Ward, and their co-authors have demonstrated that the effectiveness of the professional training of future teachers is ensured through the systematic integration of Common Content Knowledge (CCK) and Specialized Content Knowledge (SCK), practical mastery of techniques, analysis of students' typical errors, and modelling of professional pedagogical situations (Chey, W. S., Ward, P., Cho, K., Tsuda, E., Atkinson, O., & Oh, D., 2022, pp. 87–101).

The authors emphasise that such a training model contributes not only to the formation of subject competence but also to the future teacher's ability to design the educational process, select effective teaching methods, and carry out pedagogical reflection (Chey, W. S., Ward, P., Dillon, L., Watanabe, R., Meyerhoff, S., Arroyo-Rojas, F., 2025, pp. 261–271).

The views of R. L. Fjellner, V. Varea, and D. Barker are valuable for our study. They argue that modern models of professional training in physical education should be based on the principles of Models-Based Practice, which involve the integration of methodological approaches, content, forms, methods, and teaching technologies into a single holistic system focused on achieving the defined learning outcomes. The researchers are convinced that the effectiveness of any professional training model depends not on the mechanical reproduction of its components but on the teacher's ability to adapt the model to the specific conditions of the educational environment, integrate different pedagogical approaches, and creatively design the educational process (Fjellner, R. L., Varea, V., & Barker, D., 2024, pp. 329–345).

We have developed a structural and functional model aimed at the theoretical substantiation, design, and implementation of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions, which ensures the formation of their readiness for effective professional and pedagogical activity in general secondary education institutions.

Achieving the stated objective involves solving the following interrelated tasks:

forming sustainable motivation for teaching badminton in general secondary education institutions; ensuring that higher education students acquire a system of psychological-pedagogical, methodological, and specialised knowledge concerning the organisation and conduct of Physical Education lessons using badminton; developing professional abilities and practical skills in teaching badminton techniques, tactics, and methodology; developing the ability to apply modern educational, digital, and health-preserving technologies in the educational process; acquiring experience in organising educational, extracurricular, and sports activities in badminton; developing reflective skills, the ability to carry out self-assessment, self-improvement, and continuous professional development.

The structural and functional model consists of interconnected blocks: target, methodological, content, organizational and procedural, and diagnostic and resultative. Let us consider these blocks in more detail.

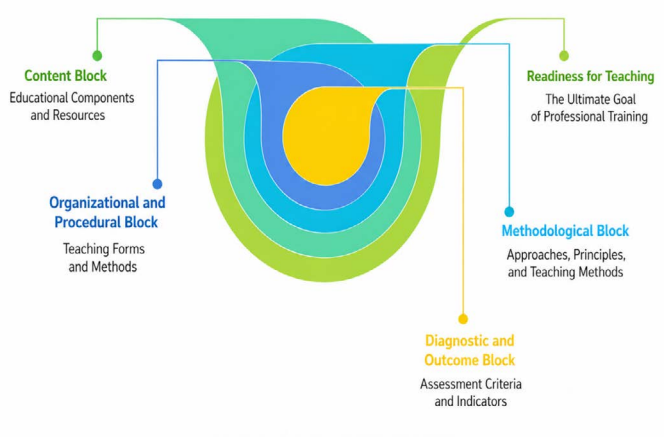


Fig. 1.1. Structural and functional model of professional training of future physical education teachers for teaching badminton in secondary education institutions.

Let us consider these blocks in more detail.

The target block defines the social demand of society, the purpose, objectives, and the expected outcome of professional training, which consists in forming the readiness of future Physical Education teachers for effective badminton teaching in general secondary education institutions.

The methodological block includes a set of methodological approaches (systemic, activity-based, practice-oriented, competence-based, axiological, and health-preserving) as well as general didactic principles (scientific character, systematicity and consistency, professional orientation, practical orientation, and individualisation) and specific principles (competence orientation, health preservation, pedagogical partnership, and sports-pedagogical orientation) of professional training. These determine the logic of organising the educational process, as well as the general concept of the model's functioning, the content of its structural components, the peculiarities of their interaction, and the mechanisms for achieving the stated objective.

The content block integrates educational components (compulsory and elective), educational and methodological support, digital educational resources, specialised courses, training sessions, practical classes, and teaching practice, the content of which is aimed at developing the professional, methodological, technical and tactical, organisational, digital, and reflective competencies of the future teacher.

The organizational and procedural block characterises the forms, methods, technologies, and pedagogical conditions for implementing the model. A leading role is assigned to interactive teaching methods, modelling of professional situations, project-based activities, digital technologies, video analysis of exercise performance techniques, blended learning, teaching practice, and the independent work of higher education students.

The diagnostic and resultative block provides for the determination of the criteria, indicators, and levels of the formation of the readiness of future Physical Education teachers to teach badminton. It is advisable to use motivational and value-based, cognitive, activity-practical, and reflective criteria, which comprehensively characterise the professional readiness of future teachers.

The result of the functioning of the proposed structural and functional model is the formed readiness of the future Physical Education teacher to teach badminton in general secondary education institutions, which is manifested in a high level of professional motivation, profound theoretical knowledge, well-developed methodological skills, the ability to organise the educational process in accordance with the modern requirements of the New Ukrainian School, use digital technologies, carry out pedagogical reflection, and ensure the physical development of learners by means of badminton.

It should be noted that the practical implementation of the developed structural and functional model was also based on the long-term experience of the author of the dissertation, Dmytro Korotkyi, as an Assistant at the Department of Sports and Pedagogical Disciplines of Vasyl Stefanyk Precarpathian National University and Deputy Chairman of the Ivano-Frankivsk Regional Badminton Federation.

The author's high level of sports mastery is confirmed by his victory at the 2026 Ukrainian Badminton Championship among Veterans and Amateur Players in the MS45 category (https://surl.li/ccsrpi), where he won the title of Champion of Ukraine for the third consecutive time (2024–2026).

The practical experience gained was used in the development of the educational and methodological complex, the conduct of practical classes, master classes, and internal training tournaments, which contributed to strengthening the practice-oriented component of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The theoretically substantiated structural and functional model of the professional training of future Physical Education teachers for teaching badminton in general secondary education institutions is an integral pedagogical system built on the interrelationship of methodological approaches, general didactic and specific principles, coordinated structural components, pedagogical conditions, content, forms, methods, and teaching tools aimed at achieving the defined research objective.

A distinctive feature of the proposed structural and functional model is its focus on the comprehensive combination of sports-technical, psychological-pedagogical, methodological, and health-preserving training of future Physical Education teachers, which ensures the formation of the professional competencies necessary for the effective organisation of the educational process by means of badminton.

Prospects for further research are seen in determining the criteria for evaluating the effectiveness of the proposed model and in the experimental verification of the effectiveness of the proposed pedagogical conditions.

REFERENCES

Kryshtanovych, S., Sushchenko, L., & Skalskyi, D. (2021). A model of professional competence formation as a result of pedagogical modeling of the future specialist's development. Educational Horizons, 53(2), 36–39. Retrieved from https://journals.pnu.edu.ua/index.php/obrii/article/view/5857/6125 (accessed 11 June 2026) [in Ukrainian].

Bermudes, D. (2017). Substantiation of the model for preparing future physical education teachers to implement elective modules in their professional activity. Pedagogical Sciences: Theory, History, Innovative Technologies, 7(71), 26–36.
10.24139/2312-5993/2017.07/026-036 [in Ukrainian].

Tkachivska, I. (2024). A model for developing the didactic competence of students majoring in 014 Secondary Education (Physical Education). Bulletin of Vasyl Stefanyk Precarpathian National University. Series: Physical Culture, (41), 75–81. https://doi.org/10.15330/fcult.41.75-81 [in Ukrainian].

Khodakovska, A. (2023). Structural and functional model of preparing future primary school teachers for the application of educational game-based technologies in the educational process. Theory and Practice of Social Systems Management, 3, 17–33 https://doi.org/10.20998/2078-7782.2023.3.02 [in Ukrainian].

Chey, W. S., Ward, P., Cho, K., Tsuda, E., Atkinson, O., & Oh, D. (2022). Evaluating the content knowledge in badminton of preservice physical education teachers: A case study. Journal of Physical Education and Sports Studies, 14(2), 87–101. https://doi.org/10.55929/besad.1133035.

Chey, W. S., Ward, P., Dillon, L., Watanabe, R., Meyerhoff, S., & Arroyo-Rojas, F. (2025). The Effectiveness of Content Knowledge Instruction in Tennis and Badminton in Physical Education Teacher Education. Journal of Teaching in Physical Education, 44(2), 261–271. https://doi.org/10.1123/jtpe.2023-0302.

Fjellner, R. L., Varea, V., & Barker, D. (2024). How physical education teachers are positioned in models scholarship: A scoping review. Physical Education and Sport Pedagogy, 29(4), 329–345. https://doi.org/10.1080/17408989.2022.2083098.

Received: *06.08.2026*
Accepted: *26.08.2026*
Published: *15.09.2026*