



Competency-building natural scientific training model for bachelor of physical education

UDC 796.077.5



PhD, Associate Professor **L.A. Osadchaya**¹

¹Ural State University of Physical Culture, Chelyabinsk

Corresponding author: lydmila_osadchaya@mail.ru

Abstract

Objective of the study was to analyze progress of the natural scientific training service in the bachelor of physical education training system in the context of the new Federal State Higher Education Standards.

Methods and structure. We analyzed the modern bachelor of physical education training service modernization trends versus variations in the bachelor of physical education natural scientific training standards and requirements.

The natural scientific training content with the learning materials was designed at the university based on the modern post-non-classical paradigm.

Results and conclusion. Modern bachelor of physical education natural scientific training service is known to heavily contribute to the individual worldview formation and personality progress agendas, and this is the key reason why the academic communities give a special priority to every issue of this service. The natural scientific training service model offered by Yekaterinburg Institute of physical culture affiliated with Ural State University of Physical Culture has proven beneficial for the systemic informed critical thinking skills formation mission, conditional on a good integration of the learning materials with a special attention to the humanitarian and natural sciences knowledge harmonization/ synergizing aspects.

Keywords: *natural scientific training, natural scientific knowledgebase, integration, world view, natural scientific worldview, competency-building approach, system approach, critical thinking.*

Background. It is natural for the ongoing reforms of the academic education system to advance serious changes in the bachelor of physical education training system. Revision of the national educational paradigm with a growing priority to the competency-building educational model as provided by the new Federal State Higher Education Standards require the academic curricula being efficiently modernized. It should be mentioned that the ongoing reforms of the bachelor of physical education curriculum has resulted in a notable sag of interest in the natural sciences disciplines. This negative trend may be due to the following: (1) natural disinterest of humanitarians in the natural sciences as alien to their genuine scopes of interests [1]; and (2) growth of the competency-building education in the bachelor education system.

Natural scientific training we would consider as synonymic to the notion of competency in natural sciences that may be defined as the process and result of

the individual natural sciences knowledgebase formation service. It should be mentioned that the reference literature in psychology and pedagogy defines natural scientific training as the purposeful process and result of individual natural scientific knowledgebase, skills and experience formation service with the relevant theoretical/ cognitive and practical elements, in the context of the relevant values and priorities [2, p.10].

Many scientists (O.N. Golubeva, L.Y. Zorina, V.S. Stepin, A.D. Sukhanov et al.) believe that natural scientific training should be considered among the personally important and social values due to its enormous worldview forming, methodological, analytical and cognitive progress potential [6]. One of the modern trends in the general education system is a special focus on the literacy in natural sciences interpreted as the individual ability to employ the natural sciences knowledgebase with the relevant facts, rate their meanings, identify problems, forecast potential



Table 1. Comparative analysis of the FSHEs for the competency-building bachelor of physical education natural scientific training service

FSHES-2010 for 034300 Physical Education discipline set by the Minister of Education Decree (MED) №121 of 15.02.2010 [9]	FSHES-2014 set by MED No.935 of 07.08.2014 [7]	FSHES-2017 set by MED No.940 of 19.09.2017 [8]
<ul style="list-style-type: none"> - Good thinking culture; data processing, summarizing and analyzing ability; goal-setting and attaining ability (GC-1); - Ability to analyze worldview-specific, social and personally important philosophical issues and processes (GC-12); - Ability to use natural science knowledgebase basics for professional service needs, and apply efficient theoretical and experimental research methods for the professional service (GC-13); - Knowledge of the IT role for modern social progress; awareness of the relevant IT risks; competency in the IT security basics, including the state security related ones (GC-14); - Competences in the data mining, storage and processing methods, models and tools; good computer literacy for the professional service data processing missions (GC-15); - Data processing skills in the global computer networks; efficient application of the traditional and innovative communication tools for the professional service in the state language (GC-16) 	<ul style="list-style-type: none"> - Well-shaped worldview with the professional service standing (GC-1); - professional-service-specific problems solving skills with application of the professional service database and bibliography, modern data processing and communication technologies; and compliance of the data security codes (GC-13) 	<ul style="list-style-type: none"> - Data mining, critical analyzing and synthesizing skills, with a systematic approach to attain the professional service goals (UC-1)

changes and make informed conclusions to better understand the modern reality in the context of the human activity [4].

Therefore, the natural scientific training lays a foundation for an individual worldview with its integral natural sciences knowledgebase and, hence, affects the humanitarian education aspects as it expands the general cultural outlooks and contributes to the professional culture. Of special importance are also the natural scientific training cognitive and developmental functions as they largely facilitate intellectual progress and creativity. An efficient natural scientific training service develops a research culture and thinking, i.e. the students learn to think to gradually develop the critical interpretation, analyzing, fact-finding, assessment and interpretation abilities with the relevant emotional elements and creative imagination. These considerations urge the modern academic education communities give a special priority to the bachelor of physical education natural scientific training service improvements.

Objective of the study was to analyze progress of the natural scientific training service in the bachelor of physical education training system in the context of the new Federal State Higher Education Standards.

Results and discussion. We analyzed the modern bachelor of physical education training service modernization trends versus variations in the bachelor of physical education natural scientific training standards and requirements: see Table 1 hereunder.

As demonstrated by the above Table, presently the bachelor of physical education natural scientific training service mission is to form the universal competency in “Systemic critical thinking” domain as a basis for the general and specific professional competences.

We studied the bachelor of physical education natural scientific training service structures and contents in the key national physical education universities that offer the Vocational Sports Training curricula. The prior FSHEs-2014 specified a natural scientific training cycle in the bachelor of physical education training curricula among the key training cycles including the following standard disciplines: mathematics, computer science, physics, chemistry and biology with the basics of ecology [3]. Draft 49.03.01 physical education curriculum within the obligatory Disciplines and Modules offers the physical education-and-sports-specific IT discipline [5]. Our analysis of the physical education curricula at the leading physical education universities in Russia found that the customizable part of the bachelor of physical education curriculum includes limited natural scientific training sets with: mathematical statistics in the physical education and sport sector, statistical data processing, and natural sciences basics in physics and chemistry.

Therefore, the efforts to retain the bachelor of physical education natural scientific training traditions may be successful conditional on the new approaches in the modern education service being advanced on a continued and consistent basis with a range of key (fundamentalization, humanization, humanization, individualization and differentiation) concepts and the competency-building, practice-prioritizing, personality-sensitive and interdisciplinary approaches and provisions.

Yekaterinburg Institute of physical culture affiliated with Ural State University of Physical Culture has taken efforts to improve the bachelor of physical education natural scientific training to form good scientific worldview, reality analyzing skills and professional ser-



vice facilitating intellectual resource with due cognitive process management abilities. The academic natural scientific training discipline may be defined as giving a set of modern natural sciences concepts to overview and explain in general outlines the objective reality on the whole with the natural processes and aspects of the life/ humanity emergence on the planet.

The natural scientific training content with the learning materials was designed at the university based on the modern post-non-classical paradigm. For example, the Physical Progress Picture of the World subject considers progress of the movement ideas, with the learning material delivered in chronological sequence, with a special attention to the worldviews development history and the key progress milestones in the context of the new paradigm formation process – to help the students realize the natural sciences progress logics. The discipline is designed to encourage the students' independent creativity by a variety of problem-solving practices in the natural sciences methodology mastering process.

Conclusion. Modern bachelor of physical education natural scientific training service is known to heavily contribute to the individual worldview formation and personality progress agendas, and this is the key reason why the academic communities give a special priority to every issue of this service. The natural scientific training service model offered by Yekaterinburg Institute of physical culture affiliated with Ural State University of Physical Culture has proven beneficial for the systemic informed critical thinking skills formation mission, conditional on a good integration of the learning materials with a special attention to the humanitarian and natural sciences knowledge harmonization/ synergizing aspects.

References

1. Busygin A.G., Levina S.V., Aleksandrova A.A. Natural science education in higher pedagogical institution: search for new approaches. *Izvestiya Samarskogo nauchnogo tsentra Rossiyskoy akademii nauk. Sotsialnye, gumanitarnye, mediko-biologicheskie nauki.* 2019. No. 69. [Electronic resource] Available at: <https://cyberleninka.ru/article/n/estestvennonauchnoe-obrazovanie-v-vysshey-pedagogicheskoy-shkole-poisk-novyh-podhodov> (date of access: 23.02.2021).
2. Vasilyeva N.A. Formation of natural science education in Russia in the 18th - first half of the 19th centuries. (before the reforms of the 60s). PhD diss. abstract. Chelyabinsk, 2008. 24 p.
3. State educational standard of higher professional education - bachelor's degree in 521900 - Physical Education. Introduced by the Decree of Ministry of Education dated 02.02.2000. [Electronic resource] Available at: docviewer.yandex.ru (date of access: 15.02.2021).
4. Kovaleva G.S. Towards solution of strategic tasks. *Vestnik obrazovaniya Rossii.* 2019. No. 14. Available at: <https://skiv.instrao.ru> (date of access: 23.02.2021).
5. Sample educational program 49.03.01 Physical education (bachelor's level). [Electronic resource] Available at: http://lesgift.spb.ru/sites/default/files//u144/upload/bakalavriat_poop_24.06.2019_0.pdf (date of access: 15.02.2021).
6. Starostina S.E. Natural science education in higher education: state, problems. *Vestnik ZabGU.* 2010. No. 10. [Electronic resource] Available at: <https://cyberleninka.ru/article/n/estestvennonauchnoe-obrazovanie-vysshey-shkole-sostoyanie-problemy> (date of access: 23.02.2021).
7. Federal state educational standard of higher education - bachelor's degree in 49.03.01 Physical education. Introduced by order of the Ministry of Education and Science of Russia dated 07.08.2014 N 935. [Electronic resource] Available at: http://fgosvo.ru/uploadfiles/fgosvob/49_03_01_Fisra.pdf (date of access: 15.02.2021).
8. Federal state educational standard of higher education - bachelor's degree in 49.03.01 Physical education. Introduced by the order of the Ministry of Education and Science of the Russian Federation dated September 19, 2017 No. 940. [Electronic resource] Available at: <http://fgosvo.ru/uploadfiles/fgos/3/20111115115812.pdf> (date of access: 15.02.2021).
9. Federal state educational standard of higher professional education - bachelor's degree in the direction of training 034300 Physical culture. Introduced by order of the Ministry of Education of the Russian Federation of 15.02.2010, No. 121. [Electronic resource] Available at: <http://fgosvo.ru/uploadfiles/fgos/3/20111115115812.pdf> (date of access: 15.02.2021).