FUNDAMENTALIZATION OF SCIENCE TEACHER TRAINING IN HIGHER EDUCATIONAL INSTITUTIONS

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Formulation of the problem. In modern scientific literature and educational periodicals, the issue of improving the system of professional training of the future teacher is increasingly raised, and the content of his professional and pedagogical culture is discussed. This indicates certain shifts in the awareness of the role and place of the teacher, and therefore, the rejection of a simplified consideration of professional and pedagogical activity and the system of professional training of teachers. We believe that the teacher is the defining figure of the educational process, the carrier of the content of education, and the pedagogical technologies of learning and education. He manages the educational and cognitive activities of the students and implements the program of education of the student body, on a scientifically based basis, providing appropriate conditions for the development, self-realization, and self-determination of students in various types of activities. Increased requirements for the teacher's professional activity and personality determine the specifics of the organization of his professional and pedagogical training [3].

The development of the teacher's personality and the acquisition of relevant knowledge and abilities allow him to make reasonable conclusions about the state and course of the pedagogical process and to act effectively, which is the goal, basis, and condition of effective professional activity. However, leading scientists investigating the issue of improving the content of professional education (V. Bondar, S. Honcharenko, N. Hrytsai, N. Guz, I. Zyazyun, V. Kremen, V. Kuz, V. Lugovoi, O. Moroz, N. Nychkalo, V. Radul, O. Savchenko, S. Sysoeva, L. Khomych, etc.), rightly believe that in modern conditions the formed image of professional and pedagogical culture no longer ensures the professional and career success of the teacher, his competitiveness, high level of professionalism and pedagogical skill.

Presenting main material. The solution to the problem of theoretical and methodological prerequisites for the professional training of natural science teachers should be sought in the understanding of the categories «culture» and «methodology» and, as a result, in the awareness of the fact that, probably, not every activity requires a certain culture of its organization, as well as methodological justification. Reproductive activity, the reflection of which can be the routine daily work of a teacher - functioned at the level of once and for all mastered technologies, and does not require methodological approaches. Another thing is productive activity aimed at obtaining an objectively new or subjectively new result in a situation of uncertainty of methods, techniques, and ways of organizing the educational process [1].

The relevance of methodological culture for the teacher is explained by the rapid development of both general scientific and thematic methods in combination with the processes of globalization and informatization. S. Honcharenko aptly calls this state a «cluster» of various knowledge, methods, approaches, and directions [2]. As a result, teachers often lack the tools they need to solve specific problems. It is they who need reflective analysis and reconstruction to obtain (create) a new scientific system, with the help of which it is possible to perform tasks and achieve pedagogical goals [2]. As a result, a methodological situation arises, for the solution of which the teacher needs to self-determine his scientific views, professional preferences and preferences, and evaluate and summarize his own pedagogical experience and the experience of other teachers, form a certain methodological position, which should be generally consistent with the professional and pedagogical position.

The methodological culture of the teacher in the field of teaching is of great importance. In the conditions of pluralism, the flexibility of curricula, variability of programs, textbooks, and educational technologies, wide influence of the mass media, increasing the role of research work of students, and deepening of professional orientation, a significant role is played by the level of mastery of the teacher in leading modern scientific theories, the history of science, research strategies, procedures of methodological analysis, a complex of epistemological, theoretical and cognitive questions about the relationship between theory and experiment, fundamental and factual levels of knowledge, about the relationship between absolute and relative truths, about knowledge as an endless process of approaching absolute truth as a result of learning about relative truths. Methodological culture in the field of natural sciences allows the teacher to reach a general scientific, general philosophical level of perception of the surrounding world. Because of this, we believe that methodological culture is an important personality trait in modern society, it reflects the level of education and erudition of the future science teacher, and it manifests itself and develops during his assimilation of practical and research pedagogical activities, as well as research activities in the field science

Recently, conceptual provisions have been developed, which are based on the principles of the Constitution of Ukraine, the State Theory of Education Development, the Laws «On Education» and «On Higher Education», and the modernization of educational programs for training future teachers of biology and human health and natural science, the Concept «New Ukrainian School», of the UNESCO Global Action Program on Education for Sustainable Development (Partner Networks of the Global Action Program on Education for Sustainable Development), aimed at transforming the educational environment, developing the creative potential of teachers.

A change in the orientation of the educational methodology – from personality formation to personality development strategies and its self-development – requires a differentiated, diversified, multi-level, basic, computerized, personalized, continuous, humane culturalization and humanization of the theory and practice of education and

is considered an absolute priority of the 21st century. These priorities are indicated in the main document adopted as part of the Bologna process [7].

Let's consider the most significant of them:

The fundamentalization of higher education involves a revision of axiological guidelines and priorities, and a transition from the primacy of practical and highly specialized knowledge to the development of general cultural and scientific forms of thinking. The basis of fundamentalization is methodologically important, main, core, systemically formed, and unchanging knowledge that corresponds to the general outlook and thinking of the individual and its adaptation to changing socio-economic and technological conditions.

Socio-humanitarian training involves purposeful deepening, concretization, and professionalization of linguistic, philosophical, political science, cultural, sociological, legal, economic, physical culture, and health education, as well as its professional and pedagogical direction, to spread their content to universal human values [4].

Professional pedagogical training is a multi-level system that covers the full continuous training of teachers at different educational levels. According to this, scientists define and describe the content of three levels of professional-pedagogical training [5-6].

Conclusion. Therefore, we determined that new models of professional training are currently based on the principles of differentiation, diversification, multi-level, fundamentalization, standardization, computerization, individualization, continuity, humanization, and humanitarianization. In it, general scientific, fundamental, subject, psychological-pedagogical, methodical, practical, scientific-pedagogical, information-technological, methodological, social-humanitarian, and other types of training are distinguished as separate, independent, but quite significant components. The considered aspects of professional training are structured in curricula and programs into three cycles of disciplines. Different options of professional and pedagogical training are modeled on established conceptual approaches to its structure and content based on a holistic and systematic understanding of the essence of this process.

REFERENCES

1. Valko N. Analysis and prospects of training future teachers of the integrated course *"Natural Sciences". Series: Pedagogical sciences*. Vol. 2. Berdyansk: BDPU, 2019. P. 170–178. [in Ukraine]
2. Goncharenko S. U. Fundamentalization of professional education as a didactic principle. *Theory and practice of managing social systems: philosophy, psychology, pedagogy, sociology*. 2008. No. 2. P. 87–91. [in Ukraine]
3. Gramatik N. Professional training of the future biology teacher: basic theories of natural science discourse. URL: http://mdu.edu.ua/wp-content/uploads/ped-visnik-66-2019-15.pdf [in Ukraine]
4. Lypova L. A model of fundamentalization of the content of science education in a secondary school. *Handbook of the school director*. 2014. №1–2. P. 39–47.

5. Order of the Ministry of Education, Culture, Sports, Science and Technology of August 3, 2018 No. 863 «On the Conduct of the All-Ukrainian Level Experiment «Development and Implementation of Educational and Methodological Support for the Integrated Course «Natural Sciences» for Grades 10-11 of General Secondary Education Institutions» for August 2018 - October 2022". URL: https://imzo.gov.ua/2018/08/06/nakaz-mon-vid-03-08-2018-863-pro-provedennyaeksperymentu-vseukrajinskoho-rivnya-rozroblennya-i-vprovadzhennya-navchalnometodychnoho-zabezpechennya-intehrovanoho-kursu-pryrodnychi-nauky-dlya/
6. National doctrine of education development of Ukraine. URL: http://zakon5.rada.gov.ua/laws/show/347/2002
7. Khomych L. O. Axiological bases of professional training of the future teacher. Kyiv-Nizhyn: Publisher PP Lysenko M.M., 2010. P. 7-21.

IMPLEMENTATION OF IDEAS FROM THE AMERICAN EXPERIENCE DURING NATURAL SCIENCES TEACHERS TRAINING IN UKRAINE

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The problem statement. In today's world, when science and technology are the major factors in the development of society, the importance of quality education in the field of natural sciences is of particular importance. Natural sciences teachers are key figures in shaping the future of our country, influencing the development of students' intellectual and practical skills.

In recognition of this important role, Ukraine is committed to continuously improving its system of natural sciences teachers training by adapting the best practices and ideas from around the world. Among the countries that stand out for their achievements in this area, the United States of America holds a special place [2].

This work aims to study and adapt the most effective ideas of natural sciences teachers training taken from the American experience for further implementation in the Ukrainian educational system. This will help improve the quality of natural sciences education in our country, prepare a new generation of teachers who will be able to meet the challenges of today and prepare young people for a successful future.

The results and discussion. The American experience in natural sciences teachers training is an important source of innovative approaches and methodologies that allow the effective adaptation of educational programs to the needs of the modern world. This experience includes not only academic knowledge, but also practical