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INTEGRATION OF EDUCATIONAL COMPONENTS IN THE TRAINING OF FUTURE MASTERS OF PHARMACY

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Abstract. *The article analyzes the integration of three key professionally oriented disciplines—Pharmaceutical Management and Marketing, Pharmaceutical Law, and Introduction to Pharmacy—in the development of core competencies among students of the master’s educational degree in pharmacy. Modern pharmaceutical education increasingly relies on interdisciplinary approaches that combine managerial, legal, and foundational pharmaceutical knowledge. The integration of these disciplines enhances students’ professional readiness, strengthens analytical thinking, supports evidence-based decision making, and contributes to a holistic understanding of the pharmaceutical sector. Special attention is given to aligning the structure and content of educational courses with current regulatory requirements, healthcare system challenges, and the competency-based model of pharmaceutical training. The study highlights effective pedagogical strategies and interdisciplinary teaching methods that foster the practical and professional skills of future pharmacy masters. The conclusions emphasize the importance of systematically updating educational programs to ensure high professional standards and competitiveness within the pharmaceutical field.*

Keywords: *pharmaceutical education, pharmaceutical management and marketing, pharmaceutical law, introduction to pharmacy, professionally oriented disciplines*

Introduction.

In the current conditions of reforming the higher education system of Ukraine, the problem of improving the quality of training of future specialists who are able to meet the requirements of the labor market, standards of professional activity and challenges of a globalized society is of particular importance (Hmeljar & Burban, 2019, p. 192 – 197; Vovk, 2023, p. 26 – 32). New-generation educational programs focus on the formation of not only professional knowledge but also holistic orientations, communication skills, managerial, and legal competencies that ensure the



competitiveness of applicants (Bushuieva et al., 2023, pp. 82–94; Lysenko, 2020, pp. 132–137).

The modern pharmaceutical market necessitates the training of specialists who can professionally address complex tasks spanning various areas of pharmaceutical activity (Frolova, 2023, pp. 277–286). This implies not only a thorough knowledge of theoretical knowledge, but also the ability to apply it in practice when organizing the circulation of medicines, managing pharmacies, implementing marketing policy, and complying with the requirements of pharmaceutical legislation (Alekseev, 2020, pp. 115–121; Gromovyk & Pankevych, 2024, pp. 35–42; Semeniv, 2021, pp. 45–52).

Software such as results preparation is possible only by the conditions implementation of modern educational technologies, updated methodologies, teaching, improvement forms control of knowledge and systems evaluation of educational achievements in accordance to international educational standards (Shulhai et al., 2018, pp. 113–116). In the conditions of market competition activity pharmaceutical enterprises puts forward elevated requirements to quality managerial decisions, which causes a need for specialists from developed analytical abilities, strategic thinking, and practical skills in management (Melnychuk, 2023, pp. 23–28).

One from the leading directions of improvement educational process becomes interdisciplinarity, which provides integration of content, methods, and forms of teaching for the sake of creation integral models of professional education (Knysh & Yakymets, 2022, pp. 184–194; Melnychuk & Fedoniuk, 2023, pp. 27–31). An interdisciplinary approach provides a relationship and complementarity of content educational disciplines, forms a systemic knowledge in master's thinking, ability to analyze professional positional problems in different scientific directions, and apply received knowledge comprehensively in legal, economic, managerial, and ethical contexts (Pohorila et al., 2023, pp. 58–67; Zholudenko, 2024, pp. 217–227). Its implementation in the curriculum process of pharmaceutical faculties contributes formation of integrated competencies, a professional worldview, and provides conformity preparation specialists with modern requirements of pharmaceutical practices (Pelhyo et al., 2020, pp. 4–8).



Research objective – to find out the pedagogical and methodological conditions for implementing an interdisciplinary approach in the process of training higher education applicants studying in specialty 226 "Pharmacy, Industrial Pharmacy" for obtaining a master's degree at the Bukovina State Medical University, and to assess its impact on the formation of their professional competencies.

Theoretical part.

The interdisciplinary approach to training higher education specialists is based on the integration of the content of academic disciplines belonging to different fields of knowledge. Its essence lies not only in the coordination of curricula, but also in the creation of a single educational space in which disciplines interact and complement each other, contributing to the formation of systemic thinking, analytical skills and the ability to integrate knowledge in real professional activities.

According to scientific approaches, interdisciplinarity is considered as a purposeful combination of knowledge, methods, and ways of thinking from several disciplines to solve complex professional problems. The educational process, built on interdisciplinary principles, involves the interaction of teachers of the Department of Pharmacy of the Bukovina State Medical University, the integration of the content of educational topics, and the use of cases and projects that cover managerial, economic, legal, ethical, and social aspects of pharmaceutical activity.

The theoretical basis of interdisciplinary learning is a set of pedagogical approaches, such as:

- ✓ a systematic approach that ensures the integrity of the structure of the educational process;
- ✓ a competency-based approach focused on the formation of integrated professional skills;
- ✓ a contextual approach that recreates real situations of future professional activity;
- ✓ interactive and activity-based approach that promotes the active involvement of students in the cognitive process.



In world educational practice, the interdisciplinary approach is recognized as one of the leading trends in the development of higher education. Thus, according to research by Holley KA (University of Alabama, 2024), interdisciplinarity forms “skills of the future” - flexibility of thinking, ability to integrate information, critical analysis, and making managerial decisions. According to materials from European Association of Faculties of Pharmacy (EAFP), modern pharmaceutical education should implement the principle of “One Health” – the unity of biomedical, economic and social aspects of a pharmacist’s activities.

In pedagogical science, it has been proven that the effectiveness of an interdisciplinary approach in pharmaceutical education increases under the conditions of coordination of curricula between departments, joint development of integrated tasks, creation of cross-cutting modules (“Legal and Economic Foundations of Pharmacy Activities”), use of simulation methods, and business games. The use of such technologies contributes to the formation of analytical thinking, professional flexibility, and the ability to correlate knowledge with practice in students.

In an international study conducted at medical universities in Poland and Lithuania (Wroclaw Medical University, Lithuanian University of Health Sciences, 2021), it was found that the combination of the disciplines "Pharmaceutical Legislation", "Pharmaceutical Management and Marketing" and "Clinical Pharmacy" contributes to an increase in the level of analytical thinking of students by 27% compared to the traditional model learning system. This confirms the effectiveness of interdisciplinary integration as a factor in the development of professional competencies.

In the Ukrainian educational context, the idea of interdisciplinarity is enshrined in the Laws of Ukraine “On Education” (2017) and “On Higher Education” (2014), which emphasize the importance of a competency-based approach and integration of knowledge. In accordance with the Standard of Higher Education of Ukraine in specialty 226 “Pharmacy, Industrial Pharmacy”, field of knowledge 22 “Health Care”, for the second (master's) level of higher education, approved by the Order of the Ministry of Education and Science of Ukraine dated November 4, 2022 No. 981, all



working curricula of disciplines are developed in accordance with the provisions of the standard.

These programs implement the educational and professional program “Pharmacy, Industrial Pharmacy” (specialization 226.01 “Pharmacy”) and are aimed at forming in applicants for the second master's level of higher education a complex of general, special, and integrated competencies determined by the industry needs of healthcare. The content of the academic disciplines is consistent with the competency model of specialist training and meets modern European standards of pharmaceutical education.

Conclusions and prospects for further research.

The study confirmed that an interdisciplinary approach is the methodological basis for the modernization of pharmaceutical education, aimed at developing in applicants integrated professional competencies, critical thinking, self-education, and the ability to make effective decisions in a dynamic professional environment. Integration of the content of the disciplines "Pharmaceutical Management and Marketing", "Pharmaceutical Legislation", and "Introduction to Pharmacy" contributes to a comprehensive understanding by students of the economic, legal, ethical, and organizational aspects of professional activity.

An important result of interdisciplinary training is increasing the efficiency of the educational process, developing analytical thinking, increasing motivation for learning, and forming the ability to work in a team. The use of integrated methods allows you to harmonize the theoretical and practical components of the training of future masters of pharmacy, ensuring their readiness for professional activity in accordance with European standards.

Prospects for further research include creating a structural and functional model for implementing an interdisciplinary approach in pharmaceutical education, determining criteria for the effectiveness of integrated learning, and analyzing the impact of innovative technologies (simulation, blended, and problem-based learning) on the formation of professional competencies of applicants.



The results of the study can be used to improve working curricula, methodological recommendations and educational programs for master's degree training in specialty 226 "Pharmacy, Industrial Pharmacy" in higher education institutions.

References:

1. Alekseev, O. H. (2020). Pharmaceutical sector of Ukraine: Current state of legal regulation. *Aktualni pytannia farmatsevychnoi i medychnoi nauky ta praktyky*, 13(1(32)), 115–121. DOI:10.14739/2409-2932.2020.1.198185
2. Bushuieva, I. V., Tkachenko, N. O., Kremzer, O. A., Odintsova, L. H., & Cherkovska, V. M. (2023). Modern approaches to implementing higher education standards for specialty 226 “Pharmacy, industrial pharmacy.” *Farmatsevychnyi zhurnal*, 78(3), 82–94. DOI:10.32352/0367-3057.3.23.08
3. Frolova, O. H. (2023). Pharmaceutical activity: Approaches to understanding and legal features. *Administratyvne pravo i protses; finansove pravo; informatsiine pravo*, (4), 277–286. DOI:10.24144/2788-6018.2023.04.46
4. Gromovyk, B. P., & Pankevych, O. B. (2024). Pharmaceutical education through the prism of national security: Analytical view under conditions of full-scale aggression. *Farmatsevychnyi chasopys*, (1), 35–42. DOI:10.11603/2312-0967.2024.1.14517
5. Hmeljar, I. M., & Burban, O. I. (2019). Formation of professional competence of future pharmaceutical workers in the context of interdisciplinary integration. *Visnyk Uzhhorodskoho universytetu. Serii: Pedagogika. Sotsialna robota*, 1(44), 192–197. DOI: 10.24144/2524-0609.2019.44.192-197
6. Knysh, S. V., & Yakymets, O. I. (2022). Legal regulation of pharmacy business activity in Ukraine. *Pravo i bezpeka*, 4(87), 184–194. DOI:10.32631/pb.2022.4.15
7. Lysenko, N. V. (2020). Ideas of management and marketing in the context of professional disciplines in the training system of future pharmacists. *Osvitni obrii*, 132(2(51)), 132–137. <https://eprints.cdu.edu.ua/4419/>
8. Melnychuk, I. M. (2023). Interdisciplinary approach in the system of professional training of future pharmacists. *Molodyi vchenyi*, (6), 23–28.



9. Melnychuk, I. M., & Fedoniuk, L. Ya. (2023). Implementation of the interdisciplinary approach in the professional training of future pharmacists in higher medical school. *Osvita. Innovatyka. Praktyka*, 11(6), 27–31. DOI:10.31110/2616-650X-vol11i6-004

10. Pelhyo, I. M., Reva, T. D., Nizhenkovska, I. V., Kozak, N. D., & Konovalova, L. D. (2020). Trends in the professional training of pharmacy specialists in Ukraine. *Medychni perspektyvy*, 25(3), 4–8. DOI:10.26641/2307-0404.2020.3.214362

11. Pohorila, L. M., Pasichnyk, Yu. I., Ovcharuk, M. M., Chaikovskiy, M. Ye., & Leonov, V. P. (2023). Foreign experience in the training of pharmacy masters and possibilities of its adaptation in Ukraine. *Medychna osvita*, (4), 58–67.

12. Semeniv, D. V. (2021). Methodical approaches to teaching the discipline “Introduction to Pharmacy” in the training of future pharmacists. *Farmatsevychnyi chasopys*, 3(37), 45–52.

13. Shulhai, A. H., Fedoniuk, L. Ya., & Mudra, A. Ye. (2018). Interdisciplinary integration as a component of problem-oriented learning in a medical university. *Medychna osvita*, (4), 113–116.

14. Vovk, I. Ya. (2023). Service-oriented approach to forming an individual educational trajectory. *Medychna osvita*, (4), 26–32.

15. Zholudenko, T. I. (2024). Innovative marketing in the pharmaceutical industry: Trends and development prospects. *Eco-Science ta Upravlinnia*, 6(24), 217–227. DOI:10.5281/zenodo.14807937

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