

INFORMATION TECHNOLOGIES IN THE SYSTEM OF TRAINING OF PHARMACY SPECIALISTS

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Short introduction. The paper deals with the problem of using an interdisciplinary approach to the training of future pharmacists in the system of teaching professional disciplines in modern higher medical educational establishment, in particular during practical classes using information technologies in pharmacy. At the current stage of development of information technologies, a high level of computer skills of graduates of higher medical educational establishments of pharmaceutical profile allows one to get a trained specialist ready to work with specialized software that promotes high efficiency of pharmacists, improving service to pharmacy visitors and increasing sales of medicines and medical devices. All this necessitates substantive and methodological adjustments to the training and retraining of pharmaceutical workers with the approximation of their level of education to international standards. That is why the quality of education in higher educational establishments needs to be improved under the conditions of effective organization and informatization of the educational process, introduction of innovative scientific developments in the practice of teaching information technologies in pharmacy, ensuring teachers' high professionalism, creating modern teaching and clinical bases.

Key words: pharmaceutical industry, interdisciplinary approach, educational activities, professional disciplines, information technologies in pharmacy, educational process, integration, distance learning, innovations, creativity, curriculum.

Problem An important task of pharmaceutical education is to train a highly qualified specialist who will provide quality services and use advanced information-and-communication technologies in their activities. At the current stage of development of such technologies, the high level of computer skills of graduates of higher educational establishments of pharmaceutical profile allows to obtain a trained specialist ready to work with specialized software that contributes to the efficiency of pharmacists, improving pharmacy visitors.

The purpose of the study is to analyze the possibilities of an interdisciplinary approach to the training of future pharmacists in the system of teaching professional disciplines and features of the use of modern information technologies in the process of forming of future pharmaceutical industry specialists' professional competence.

Research novelty Own experience of using an interdisciplinary approach in integration with information technologies in higher medical educational establishments confirms the effectiveness of its application in the process of forming future graduate's professional competence, and also gives the opportunity to change approaches to preparing and conducting theoretical and practical classes with mandatory use of information technologies taking into account COVID-19 epidemic and the introduction of distance learning.

Presentation of the main material. At present, without knowledge of information technologies, the development is impossible in any of the fields of knowledge, including pharmacy. Therefore, during junior bachelor's, bachelor's and master's professional training it is necessary to use the optimal

selection of tools and methods of teaching, forms of organization of the educational process in accordance with the goals and objectives, the main of which is the training of highly qualified specialist who will provide pharmaceutical services of high quality and use information-and--communication technologies in his/her activities [1].

The new paradigm of higher education development, health care reform, transition to modern principles of primary health care and insurance medicine need to improve the existing system of pharmaceutical training, which would meet modern world standards. The reform of the health care system provides for the training of specialists of a qualitatively new level of professionalism and competence, experienced and promising health care organizers [2–4]. At the same time, the integration of Ukrainian society into the European space leads to a reorientation of approaches to health care, intensifies the search for ways to improve the quality of medical workers' and pharmaceutical professionals' training.

All this necessitates adjustments in pharmaceutical workers' training and retraining with the approximation of the content of their education and methods of preparation to international standards. That is why the quality of education in higher educational establishments needs to be improved under the conditions of effective organization and informatization of the educational process, introduction of innovative scientific developments in teaching practice, ensuring teachers' high professionalism, creation of modern teaching and clinical bases.

This "Introduction" can be read in almost every fifth scientific work, and this is an indisputable fact. Scientists, analyzing the state of science, medicine, economics, politics and other areas of human activities in order to identify gaps or problems in a particular field, conducted research to identify ways to improve a process to work for the future to achieve a positive result. And none of them could foresee a "possible" single and at the same time common problem for all - COVID-19. There were many epidemics, but they passed fairly quickly and only affected individual countries. But for one to paralyze almost the whole world, such a thing never happened and was never foreseen.

We usually take measures to minimize unpleasant consequences, insure business risks of loss of property, time, money, but no one has insured against loss of opportunities from unforeseen situations, because such, in principle, could not be. This situation with the epidemic and long-term quarantine made us all immediately see and feel the inconveniences, shortcomings, lack of opportunities, both as an individual employee and the company as a whole.

The epidemic affected all segments of the population, all types and forms of ownership of enterprises and educators, in the first place. Almost every third person is a participant in the educational process: schools, colleges, universities see within their walls a large number of pupils, students, graduate students, teachers, educators, teachers and others.

Starting with the first week of quarantine and abruptly moving to distance learning, a pilot project which was planned to launch for part-time students in the future, and then suddenly for everyone. How to do it, taking into account many limitations of opportunities?

Hurry to download VIBER, ZOOM platform, Google Meet, Moodle which would give at least some opportunity to communicate with listeners. And when you see that not everyone has the opportunity to use all these methods, you understand that we, as teachers, are not ready for such changes, society is not ready and the state is not ready either.

So we gradually went through this formation of the educational process, reached a new level of work in quarantine and today we have the opportunity to more carefully prepare for possible changes in

the future. It has become clear that computer science and computer technologies are becoming as important as other disciplines in educational establishments at all levels.

After analyzing the educational process in higher medical establishments during distance learning and working on an interdisciplinary approach to future pharmacists' training in the system of teaching professional disciplines, we concluded that this process requires not only the cooperation of all teachers, but also a full understanding of the conditions. distance learning using computer technologies to achieve results.

The following features are characteristic of information technologies:

- the user's work in the mode of manipulation, but not programming, data. The user must see (output: screen, printer) and act (input: keyboard, mouse, scanner), but not know and remember;
- end-to-end information support at all stages of information processing on the basis of an integrated database, which provides a single, unified form of presentation, storage, retrieval, display, recovery and data protection;
- paperless process of document processing, in which only the final version of the document is transferred to paper, and intermediate versions and necessary data remain on the machine media;
- the possibility of collective use of documents based on a group of personal computers connected to a local network [5].

Therefore, today, training specialists at all levels, we should reconsider the attitude to such a discipline as information technologies in pharmacy and at the same time refine the curriculum of this discipline taking into account today's challenges and future prospects, because in the spirit of the latest innovations information technologies in pharmacy are referred to the category of elective disciplines.

To obtain approval or denial of such changes in the educational process, we conducted a marketing study by surveying students of graduating groups and specialists in practical pharmacy on the topic: "Information technologies in pharmacy." Of the 179 respondents, 75.5% (135) agreed with the statement that information technologies in pharmacy should be among the professional disciplines, 21.8% (39) partially agree with this statement. 84% (151) of respondents indicated a lack of knowledge of information technologies in pharmacy in preparation for theoretical and practical classes and communication with teachers. Only 15.6% (28) of respondents did not experience problems working remotely with the use of information technologies.

If respondents from 18 to 30 years of age want to study software for pharmacies, work with documents, etc., then respondents over 30 years of age expressed a desire to additionally include in the course of information technologies the analysis and study of work with programs (platforms) downloaded to smartphones as personal use and for training.

Summing up the results of the survey, it should be noted that 64% (165) say that the acquired theoretical knowledge and practical skills in information technologies in pharmacy are extremely necessary in everyday life and only 7.8% (14) do not agree. This gives grounds to consider it necessary to study information technologies in the system of training pharmacists, taking into account modern social trends.

The practice of recent years shows that the interdisciplinary integration of information technologies in pharmacy is observed with the organization and economics of pharmacy, pharmacology and clinical pharmacology – professional disciplines of the specialty "Pharmacy". Drug sales management systems are designed to automate the activities of pharmacies, helping to perform many routine operations and ensuring the implementation of organizational-and-operational functions: retail sales of

drugs and medical devices; wholesale sales of inventory by cashless payment; ordering and purchasing medicines from suppliers; inventory; accounting and auditing; control over compliance with the rules of proper storage of inventory; revaluation and write-off of goods and other. In this case, the automated computer system must collect and store statistical information about operations in the process of selling drugs, as well as perform statistical processing of this information. For the functioning of the system it is necessary to have a database of goods (medicines) with all their characteristics (names, dosage forms; wholesale, retail, customs – factory prices; expiration dates; balances in the warehouse); databases of companies (suppliers, customers and partners) with their details; databases of documents (invoices for arrival, expenditure, write-off of goods, their internal movement) [6].

Typically, a computer system allows one to easily perform such practical tasks, as searching in databases, tracking the movement of a particular product or group of products for a certain period, to analyze sales of drugs (groups of drugs) for a particular period. It should be noted that all performed operations must be displayed in the database in real time and be available immediately to all users of the pharmacy computer network. Thus, a computer system for the sale of drugs can be imagined as a network database management system with some functions of an accounting computer system and add-ons for analysis and statistical data processing in theory, in the study of professional disciplines, and in practical pharmacy [7].

The "Affordable Medicines" program, which involves a large number of pharmaceutical institutions, requires considerable knowledge of pharmacology and clinical pharmacology on the release of drugs according to the electronic prescription, monitoring compliance with the rules of dispensing drugs and medical devices, taking into account the imperfections of this program [8]. As the state program "Affordable Medicines" directly involves pharmaceutical workers, it needs additional study and analysis in practical and theoretical classes to understand and comply with the requirements of the law by future specialists. This once again proves the importance of information technologies in pharmacy, which is an indisputable assistant for teachers of these disciplines.

The World Economic Forum in Davos (2016) was remembered for its special focus on education and development as a guarantee of solving the humanitarian problems that exist today and will arise in the future. For comparison, the analysts of the forum presented a table showing which skills are relevant for a successful career and will be important in 2020:

- a comprehensive multi-level vision of the problem;
- critical thinking;
- creativity;
- managing people, motivating them;
- coordination of actions with others;
- emotional intelligence;
- making judgments and making decisions;
- service orientation;
- interaction, negotiations;
- cognitive flexibility.

Despite the fact that more and more mechanical work is transferred to machines, more and more processes are automated, creativity is not yet inherent in artificial intelligence, which means that making important decisions and responding to rapid changes are left to man, and namely the creative approach to the case can help to choose the best variant.

Higher medical educational establishments are the employers who must set requirements for their employees in accordance with the listed skills. And in today's conditions, the student's personality, who is in constant professional and personal development, should be the priority of modern medical and pharmaceutical education and one of the tasks of the educational establishment, represented by the teacher, is to teach future professionals to learn, to work, to live [9].

That is why there is a need on the agenda to modernize the psychological-and-pedagogical training of scientific-and-pedagogical staff of higher medical educational establishments (faculties). The main features of such training are the requirements of society, which led to the legitimization of alternative education, the main parameters of which are: 1) interdisciplinary approach to the organization of education, 2) the innovative nature of the content and methods of teaching.

However, under any circumstances, more attention should be paid to the training and quality of teaching information technologies in pharmacy. Not everything depends on the student (whether he wants to study or not); the lion's share of educational "achievements" falls on the teacher, and not just a teacher of an educational establishment, but a teacher who understands the issues of the pharmaceutical industry, a teacher who must be a practitioner of pharmaceutical business. To combine these requirements for a teacher of information technologies in pharmacy, namely an economist and a specialist in practical pharmacy, requires a mandatory and systematic internship in pharmacies in the city or region.

During the internship, the teacher will be able to gain practical experience working with such software of a pharmaceutical institution, to feel its importance and effectiveness for the pharmaceutical worker and will be able to share their experience with students. Textbooks do not provide an opportunity to 100 per cent reveal the issues of discipline for students – their own experience, solving unusual situations and their impressions of such work, which are transmitted emotionally, give the opportunity to raise the quality of students' training to a completely different level. The cost of initial methodological resources for internships will be justified if we all aim to get a high-class specialist, a graduate of higher medical educational establishment of Ukraine, so it is worth paying more attention to this issue, as training in information technologies in pharmacy should be organized in stages, in continuous interaction of stakeholders and taking into account the needs of practical medicine, health care and pharmacy.

Highly qualified graduates of higher medical educational establishment is a valuable "commodity" in the labor market for which employers must fight to get it for their company, and not to select among all possible options. This implies competition not only among graduates, but also among educational establishments in terms of the graduate's level of knowledge and practical skills. Knowledge and practical skills must be really proven in internships, probationary periods and interviews with representatives of companies that set their own requirements for future employees of their companies, and who will be sure that the school prepares high-quality professionals.

Conclusions, prospects for further research, proposals. Summarizing the above mentioned, we can say that the scientific-and-pedagogical research on the formation of an interdisciplinary approach to future pharmacists' training in the system of teaching professional disciplines proves the importance of the discipline "Information Technologies" in pharmacy, which requires modern curriculum for timely and adequate response to current economic, managerial, social demands, for the fullest use of the potential of students and teachers of higher medical educational establishments. It is important to realize that the interdisciplinary approach does not absorb and does not encroach on the content and methods

of each discipline, but creates the preconditions for a more relief and broader view of a particular subject (object) of research, increases scientific knowledge to solve problems with higher efficiency.

Working with students at the professional and specialized levels of teaching computer science and information technologies allows one to prepare a highly qualified pharmacist who has special knowledge and skills in working with automated workstation and network administration, which, in its turn, allows more efficient use of existing software products and complement them with own programs that are commercially attractive for pharmacy chains [10].

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ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ В СИСТЕМЕ ПОДГОТОВКИ СПЕЦИАЛИСТОВ СПЕЦИАЛЬНОСТИ «ФАРМАЦИЯ»

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Аннотация

Раскрыто значение междисциплинарного подхода к профессиональной подготовке будущих специалистов фармацевтической отрасли в процессе преподавания специальных дисциплин. Выявлены и проанализированы проблему использования междисциплинарного подхода в частности при проведении теоретических и практических форм занятий по информационным технологиям в фармации. За основу работы автором взято маркетинговые исследования в области сервисного обслуживания посетителей аптек с использованием информационных технологий и собственный опыт во время проведения практических занятий в вузе.

В статье также представлены результаты маркетингового исследования подтверждающие необходимость использования информационных технологий в фармации в качестве обязательной дисциплины, с учетом изменений и дополнений в учебную программу соответственно.

Ключевые слова: фармацевтическая отрасль, междисциплинарный подход, образовательная деятельность, профессиональные дисциплины, информационные технологии в фармации, учебный процесс, интеграция, дистанционное обучение, инновации, креативность, учебный план.

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