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USE OF INTERACTIVE TECHNOLOGIES OF EDUCATION IN THE SYSTEM OF POSTGRADUATE EDUCATION OF PHARMACISTS

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Introduction. Today, Ukrainian education needs to be reformed in the light of modern challenges such as digitalization, distance education, online learning and others. This requires the solution of the following tasks, which are designed to implement the transformations taking place in education in general and in the system of postgraduate education of pharmacy professionals (PhP) in particular: expanding access to education; improving the quality of education through the use of interactive learning technologies; improving the efficiency of education.

The aim of the study. The possibilities of using interactive teaching methods in the system of postgraduate education PhP are discovered.

Research methods. The formal-logical method, method of observation and survey, system analysis, method of analogy and comparison, analysis of information sources are used.

Results of the research. The issue of using interactive educational technologies in the system of advanced training of PhP is investigated. The essence, relevance, efficiency and features of the application of interactive learning in the process of professional development of PhP are determined.

Conclusions. Interactive technologies of training in the system of advanced training of PhP can be considered as one of the most flexible means of improvement of professional knowledge of PhP which promote improvement of educational process of listeners in the system of postgraduate education of PhP and allow to carry out its self-actualization which is a basis of innovative behavior in the labor market and encourages lifelong learning.

Key words: *distance learning; interactive learning technologies; system of postgraduate education of pharmacy specialists; pharmacy professionals.*

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- expanding access to education;
- improving the quality of education through the use of interactive learning technologies;
- increasing the efficiency of education.

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Research methods. The formal-logical method, method of observation and survey, system analysis, method of analogy and comparison, analysis of information sources are used.

Results of the research. Modernization of all types of education requires changes in the system of advanced training of PhP, as it creates staffing for change in the pharmaceutical industry of Ukraine.

The strategic objectives of reforming the postgraduate education of PhP are the introduction of a flexible system of retraining and advanced training of PhP in new areas of science, advanced technologies, management methods and organization of the pharmacy sector. This involves a methodological reorientation of the educational process from information form to professional and personal development of various qualification categories of PhP based on the implementation of the principles of humanization, differentiation and individualization of the postgraduate education and the use of interactive learning technologies.

Modern pedagogy abandons the firm "authoritarian rule", where the student is the "object" of educational influences, and moves to a system of support and stimulation of independent cognitive activity of the object of study [1]. For this purpose, at the Department of Management and Economics of Pharmacy the Institute for Advanced Training of Pharmacy Specialists (IATPS) is a structural unit of the National University of Pharmacy of the Ministry of Health of Ukraine (NUPh) (MEPh IATPS NUPh) in the system of advanced training PhP, in new socio-economic conditions are developing new training courses of advanced PhP's skills, using new forms, teaching methods, in particular interactive technologies. (Fig. 1).

Interactive learning (English "inter" - mutual and "akt" - to act) involves the organization and development of dialogue, which leads to mutual understanding, interaction, to the joint solution of common, but important for each participant in the learning process. Interaction eliminates the dominance of one thought over another. In domestic didactics there are forms of interactive learning - "big circle", "Aquarium", "Debate", "Brainstorming", "Project method", "Business game", "Rug of ideas", "World cafe", etc. [2].

In the modern postgraduate education there is an active use of interactive technologies, which makes them competitive in the market of educational services. It makes the use of interactive technologies in the system of professional development PhP relevant and timely.

Examining the literature on this topic, it was found that interactive learning can dramatically increase the percentage of assimilation of the material, as it affects not only the human consciousness, but also his feelings, actions, practices.

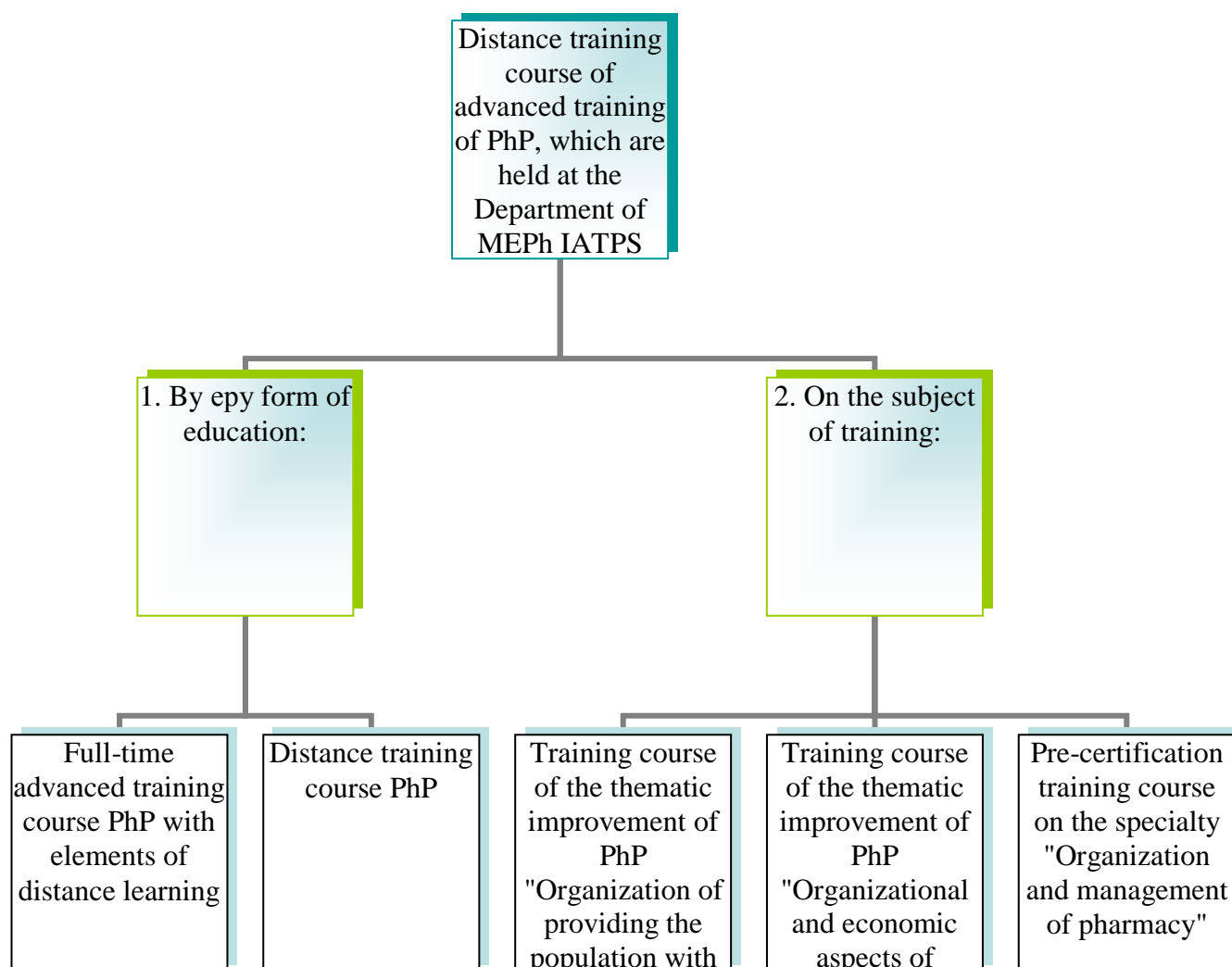


Fig.1. Training course of advanced training of PhP at the department of MEPh IATPS NUPh

According to the "Pyramid of Learning" is:

- lecture - 5% mastering;
- reading - 10% of mastering;
- video / audio materials - 20% of mastering;
- demonstration - 30% of mastering;
- discussion groups - 50% of mastering;
- practice through action - 75% of mastering;
- teaching others / applying the acquired knowledge - 90% mastery.

These data are fully confirmed by studies of modern psychologists, so according to their estimates, a person can read with his eyes, remember 10% of information, listening - 26%, looking - 30%, listening and looking - 50%, discussing - 70%, personal experience - 80%, joint activities with discussion - 90%, training of others - 95%.

It should also be noted that the adult age group learns best when:

- when they want it, they feel the need and responsibility for the learning process;

– adults can best be taught through activities in an informal atmosphere, by solving real problems that concern them;

– adults seek partnerships, like to share their own experiences, so they learn better when the material is related to their experience and prefer active, practice-oriented activities that demonstrate how to achieve a certain goal.

– As a result of research conducted at the Department of MEPh IATPS NUPh, by observing the organization of training in advanced training courses PhP using different models of training: active, passive and interactive, the following conclusions can be drawn:

– students memorize 90% of the material if interactive methods were used;

– the identification of the material and its use in professional activities is improved if interactive methods were used;

– work in small groups promotes the development of such personal qualities as sociability, cooperation, the ability to defend their point of view, to compromise.

The results of a survey conducted at the Department of MEPh IATPS NUPh among students of refresher courses (100 people took part in the survey), show that PhP needs to find ways to solve practical problems facing the modern pharmaceutical industry, which in itself involves the active participation of PhP.

We consider it appropriate to further group the interactive methods according to educational activities given the above (Table 1).

Table 1

Examples of using interactive methods

Stages	Description	Interactive methods
1	2	3
Motivation of educational activity	In the beginning, it is important to create a certain level of motivation in students for further active and productive activities. They should be interested, aroused in the interest of studying the topic, convinced of the practical, theoretical or social significance of the material. It is advisable to use an introductory presentation on the topic or create a problem situation	"Loan position", "Brainstorming", discussion

1	2	3
Actualization of basic knowledge	At this stage, the work of students can be organized by performing a variety of exercises; solving problems and examples; execution of graphic works and work on tables, schemes, etc.; written answers to questions from the passed material; testing	Work in pairs, "Loan position", "Brainstorming", "Microphone", "Incomplete sentences", "Snowball"
Learning new material	Teaching new material with the help of online lectures, explanations, news forums, organization of independent work of the listener with the use of interactive technologies	"Openwork saw", "Search for information", "Learning to learn", group work, "Microphone"
Consolidation of knowledge and skills	At this stage, it is advisable to perform the task, taking into account the differentiation and taxonomy of Bloom. This allows you to move on to solving problems on your own	"Learning to learn", discussion, group work, "Carousel", role games
Practical consolidation of acquired knowledge, skills and abilities	In order to develop practical skills, it is necessary for students to independently perform work, conduct research by identifying essential elements for the task, which contributes to further mental generalization and the transition from assessment to self-assessment and reflection.	Discussion, work in pairs, world cafe, circle, case, role games
Results	In conclusion, you should always summarize what has been done. Summing up, it is important to understand the level of knowledge acquisition by students and their impressions	"Incomplete sentences", "Microphone", group work

Thus, we can conclude that interactive learning provides an opportunity to achieve high performance in postgraduate training PhP, given their professional level and psychological characteristics.

Interactive teaching methods allow the teacher to combine the features of both teacher and facilitator, while achieving high results. During such training, students learn to think critically, solve complex problems based on the analysis of circumstances and relevant information, weigh alternative opinions, make informed decisions, participate in discussions, communicating with other people. For this purpose, individual, pair and group work is organized at distance courses, research projects, role games are used, work with documents and various sources of information is carried out, elements of creative work are used [3-5].

Group forms of learning include group work, analysis of specific situations, "brainstorming", project implementation, discussion. These forms of work are interactive in nature, as they consist of the exchange of information, resulting in the production of new educational information, namely:

- discussion related to professional issues is always interesting PhP;
- work in small groups allows you to set each student to contact and determine the level of knowledge, which is very important for the category of adult students;
- project method is a way of learning when the student independently formulates a learning problem and takes a set of measures to solve it. The experience of the project method among students shows that performing tasks, they use their knowledge, skills, experience and update their professional competence;
- "brainstorming" is widespread in the process of professional development PHP. It is a tool of the search method, when you need to make a rating according to certain criteria, justify the conclusions and their consequences;
- analysis of specific situations - a popular learning technology for understanding and analyzing life situations, developing ways out of the problem, etc.

Another type of interactive learning is frontal method. It should be noted that they are more common than group. Their conditional division into games, trainings, information technologies further emphasizes the nature of interactivity, which makes them the most used in the teaching process. Frontal methods allow the teacher to increase the information content of the courses by organizing the synchronous actions of the teacher and the student to achieve the learning objectives in a small number of teaching hours.

Interactive learning technologies do not exclude individual work of students. Traditional pedagogical training includes purposeful formation of skills of work with individual means of training. The combination of the coordinating position of the teacher and the independence of the listener gives everyone the opportunity to solve their problems.

Thus, the use of interactive technologies in the system of advanced training PhP makes it possible to solve the following tasks:

- to intensify the educational activities of students;
- use the knowledge and practical experience of teachers;

- assess the level of learning material;
- accelerate the process of liberation from stereotypes of professional behavior and authoritarian rule;
- to develop business skills: independence in decision-making and goal setting, the ability to defend their point of view, focus on success and cooperation by expanding the communication space [5].

Conclusions. Interactive technologies of training in the system of advanced training of PhP can be considered as one of the most flexible means of improvement of professional knowledge of PhP which promote improvement of educational process of listeners in the system of postgraduate education of PhP and allow to carry out its self-actualization which is a basis of innovative behavior in the labor market and encourages lifelong learning.

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ВИКОРИСТАННЯ ІНТЕРАКТИВНИХ ТЕХНОЛОГІЙ НАВЧАННЯ У СИСТЕМІ ПІСЛЯДИПЛОМНОЇ ОСВІТИ ФАХІВЦІВ ФАРМАЦІЇ

М. В. Зарічкова

Вступ. Сьогодні українська освіта потребує реформування з урахуванням сучасних викликів часу таких як діджиталізація, дистанційна освіта, он-лайн навчання та ін. Це потребує вирішення наступних завдань, які покликані реалізувати перетворення, що відбуваються в освіті в цілому і в системі післядипломної освіти фахівців фармації (ФФ) зокрема: розширення доступності освіти; підвищення якості освіти за рахунок використання інтерактивних технологій навчання; підвищення ефективності освіти.

Мета дослідження. Розкриття можливостей застосування інтерактивних методів навчання у системі післядипломної освіти ФФ.

Методи дослідження. Формально-логічний метод, метод спостереження та опитування, системний аналіз, метод аналогії і порівняння, аналіз інформаційних джерел.