

DOI: 10.21802/artm.2019.1.9.194.

UDC 378.147+378.22+613+616.9+616-053.2

## MODERN PRINCIPLES OF INNOVATIVE EDUCATIONAL TECHNOLOGIES USE IN THE MASTERS OF MEDICINE TRAINING

O.V. Tymoshchuk

*Ivano-Frankivsk National Medical University, Department of Hygiene and Ecology,  
Ivano-Frankivsk, Ukraine,  
ORCID ID: 0000-0001-9179-9951,  
e-mail: oksanavorob4ak@gmail.com*

**Abstract.** The article analyzes the factors that influence the effectiveness of the training of Masters of Medicine, highlights innovative educational technologies and their influence on the application of knowledge, skills and abilities of students of the medical university and the maximum approach of the learning process to the real practical activities of Masters of Medicine. To evaluate the use of modern principles of innovative educational technologies, an assessment of the indicators of qualitative learning success was carried out in the application of new methodological approaches developed by the teams of Departments of Hygiene and Ecology, Infectious Diseases of Children and Phthisiology and Pulmonology with the Course of Occupational Diseases of the Ivano-Frankivsk National Medical University. Also, the results of the use of innovative educational technologies were evaluated by questioning the students during the courses of these disciplines. The introduction of the credit-transfer system of education is accompanied by substantial advantages, including the increase of motivation of the students to study, control of the teacher in mastering the theoretical material and practical skills, increase of the time for independent study of the educational material. The assimilation of the methods and the above-mentioned pedagogical techniques will promote the improvement of the quality of education and character building in higher educational institutions of Ukraine and will bring them closer to the European level. Thus, one of the main advantages of innovative educational technologies is the approach of the learning process to the practical work of the future professionals. The main task of the introduction of interactive forms of study is the training of highly skilled, innovative-oriented specialists on the basis of a single process of obtaining, distribution and applying of the new knowledge. Thus, the use of innovative-pedagogical technologies in the educational process at the Ivano-Frankivsk National Medical University meets the modern requirements of high-quality training of the Master of Medicine.

**Keywords:** educational process, independent work of students, Masters of Medicine, credit-transfer system.

**Introduction.** The use of traditional (explanatory-illustrative) teaching methods in higher education in these modern high school settings is ineffective, since they are mainly focused on memory, but not thinking (Atkinson R., 1980), not aimed at the development of creative abilities, self-dependence and active participation of students. According to the research of the American scientists Karnikau R. and McElroy F., a reliable pattern of learning was determined: a person remembers 10% of the read material; 20% of the heard material; 30% of what someone saw; 50% of the seen and heard material; 80% of what someone says himself; 90% of what someone has achieved in the process of independent activity [1]. The special value of interactive learning is that the students learn how to work effectively in a team [2]. The question of the use of interactive teaching methods is actively discussed in the pedagogical press [3].

**The aim of the research:** the analysis of the factors influencing the effectiveness of the training of Masters of Medicine, the study of the role of innovative educational technologies in enhancing the educational motivation and the formation of self-dependence, as personal traits for the acquisition of knowledge, skills and abilities by the students of the medical university for the period of study.

**Materials and methods:** to evaluate the use of modern principles of innovative educational technologies, an assessment of the indicators of qualitative learning

success was carried out. It was done in the application of new methodological approaches developed by the teams of Departments of Hygiene and Ecology, Infectious Diseases of Children and Phthisiology and Pulmonology with the Course of Occupational Diseases of the Ivano-Frankivsk National Medical University. Also, the results of the use of innovative educational technologies were evaluated by questioning the students during the courses of these disciplines.

**The results of the study and their discussion:** the educational technologies, and teaching methods include debate, brainstorming, business and role-playing educational games, master class, discussion type of forum, discussion, "round table", method of small groups, lecture – "press-conference", the analysis of clinical cases, the preparation and protection of the history of the disease, the use of computer training programs, visiting scientific-practical conferences, congresses, symposiums, student's scientific-research work, performance of the subject competitions, preparation and protection of the library-research papers and coursework.

Today, the main methodological innovations in higher education are related to the use of innovative interactive learning methods based on the principles of interaction, students' activity, team-oriented and feedback.

Interactivity is one of the important innovative methods. This is a way of interaction, conversation, dialogue with someone (a person) or something (a comput-

er). In other words, it is easier for students to understand and memorize the material they studied through active involvement in the learning process. Already in the final and modular sessions of the bulk of the university's disciplines it is clearly observed that the effectiveness of education depends not only on the learner, but also on the one who teaches. In a modern high school, the teacher should have a broad erudition, to know the subject perfectly, to be able to interest students with it [4]. A skilled instructor must be able to develop students' motivation, curiosity, the ability to see the depth of the problem, and the ways to solve it, to generalize the studied, to perform the scientific experiments, to draw the correct conclusions. Therefore, the teacher must constantly improve his skills and pedagogical thinking. A great teacher V.O.Sukhomlynsky emphasized: "A strong, experienced teacher becomes able to analyze his work" [4]. For the successful professional activity of the future physician, the oath of Hippocrates provides for the education of the following qualities: business (hard working, discipline, obligation), impulsive-volitional (emotionality, restraint, tact, self-criticism), moral (truthfulness, modesty, justice, mercy, sense of compassion and etc.) [5].

In addition, one of the leading places in pedagogical practice is the didactic principles (according to H. Vashchenko – "the principles of learning") – these are the fundamental ideas that penetrate all levels and components of education and attest to their systemic integrity. Most expressively they manifest themselves in the process of education and concern the teaching of all disciplines. Professional techniques adapt them to their needs, and with time, they deduce their own from them – the applied level – the principles.

K.Ushynsky and his follower H. Vashchenko highlight and reveal the following principles:

- the principle of scientificity – determines the content and form of the educational process. He adheres to clear boundaries between the "scientificity of the subject" and the simplification of the presentation of information in order to maximally approximate them to an easy level of accessibility;
- the principle of systematicity implies that the acquisition of knowledge takes into account the consistency and availability of presentation, as well as the connection of the subject with other disciplines;
- the principle of character building contributes to the formation of worldview and influences the human behaviour. Educational value have also the methods of teaching that contribute to the development of individualism or propensity for the cooperation, perseverance, diligence, responsibility, etc.;
- the principle of connection of learning with life – the transfer to the younger generation of experience of the past;
- the principle of nature correspondence – compliance with the teaching of the nature laws;
- the principle of individualization – directed against the pattern and standardization of training;
- principle of activity – while listening to a teacher, the students could be both "active" and "passive";
- the principle of visibility – in the process of knowledge different feelings must be applied;

These are the basic principles of classical pedagogy.

One of the most effective and demonstrative methods is "brain storming". According to it, one of the reasons limiting people's creativity is the fear of criticism and failure, as well as dependence on authority. That is why, its creator, Alex Osborn offered to solve the problems in two stages. The first one – is the generation of ideas in a free discussion, absence of critique, fantasy. At the second stage, the ideas are tested for "survivability". The essence of the method lies in the fact that it is necessary to express the greatest number of ideas for a small amount of time, discuss and make their selection. This method is used to develop creative abilities or to solve the complex problems.

As a result of the implementation of the program for the introduction of new innovative educational technologies in Ukraine, there is the application of a whole range of innovations in the education system in modern medical education. Since Ivano-Frankivsk National Medical University is one of the leading medical universities in our country, we couldn't stay away from this innovation. The following ways of this project implementing at the university were offered:

1. Students of all faculties from the first to the sixth course are transferred to the credit-transfer system training.
2. All educational and methodological bases for the correct and effective organization of students' educational process have been completely renewed.
3. New steering documents have been developed for each discipline at the university, to maximize their adaptation to the needs of the student and high implementation of the tasks.
4. Methodological instructions at all practical and theoretical departments for students of each course, faculty and forms of education have been renewed.
5. New teaching-methodical manuals have been published.
6. Conditions, meeting the best requirements, for teaching the English-language students were created, adapted teaching-methodical manuals were developed, and textbooks were published and purchased, since until recently, there was no experience of such training of foreign citizens.
7. A new training platform for test assignments for the students of the I-VI years of study is created, which covers fully the material of the calendar-thematic plans for all lectures, practical classes and themes provided for independent study.
8. In addition, there was provided an open access to the resources of all departments in the virtual space, which greatly facilitates students' preparation for practical classes and final module control, adapts the modern student to existence in high-tech realities of the present and teaches to actively apply in practice the latest progressive methods of work.
9. Advisory classes for students with teachers were introduced into the broad practice, in which every active, inquisitive and ambitious student could get the answer to the most difficult, most inconvenient and awkward questions of every discipline from the teacher who is impressed with him, both generally and individually.

10. Particular attention is given to the evaluation of the knowledge and skills of students in practical classes, since not only the future professional and personal qualities of the future Master of Medicine, but also the psychological comfort of each student, his further motivation to reach the maximum result in learning depend on the objectivity of the assessment of the initial level of knowledge and skills. An assessment of the results of the student's work is performed by a comprehensive method and includes the process of gathering the objective evidence of student's knowledge, his understanding, demonstrated skills and professionalism in performing the tasks assigned to him, clearly fulfilling the duties.

11. The implementation of situations that are characteristic and as close as possible to the real ones into the practical classes is also interesting, effective and creative. Thus, the team of the Department of Hygiene and Ecology has developed a whole database of practical classes on the theme "Food Poisoning" for students studying this subject according to the curriculum.

Such classes are bright and memorable. There is a lively discussion of a particular offered specific situation. Students offer many ways to solve it. The teacher directs the created controversial situation into the correct direction, does not allow it to be out of control. In parallel, students remember and study the classification of food poisonings, their common features, the algorithm of the physician's actions in the occurred food poisoning, the correctness and amount of material input for research and learn to diagnose correctly. Due to the introduction of this practice, students show a high level of knowledge on this theme, have no questions on this topic during individual counseling classes, there is a revival and a desire to respond when during the final module lesson this theme issues are discussed. Also, the best results of knowledge on this theme were found on the state final exams, which indicates a high level of survival of this knowledge.

Here is an example of one of the following tasks (case of food poisoning):

At 11.39 on October 12, the city laboratory center of the town of Rivne received an emergency message from the city children's hospital for a child V., 7 years old, with a doubtful diagnosis of "rotaviral infection". During October 12, four more emergency messages about the children with the same diagnosis were received. All patients complained of difficulty in swallowing and loss of voice. The skin of the patients was red, dry, eyes were bright, with enlarged pupils. The reaction to light was almost absent. The pulse was very frequent – up to 150 beats per minute, blood pressure was moderately elevated, body temperature was subfebrile. Mucous membranes were dry. Existing visual impairment – double vision, inability to see near objects. A child V. had a stomach upset.

According to the parents' words, the children collected the plums in a garden, while eating part. The patient V. advised to choose and eat raw plums, which seemed delicious to them. Each of the children ate 9-10 fruits.

It was necessary to draw up a protocol to investigate the case of food poisoning and provide an answer to the question:

1. Was the diagnosis of doctors of medical institutions made correctly?

2. What diagnosis should be established by a doctor of a medical establishment?

3. What additional laboratory research methods should be prescribed to the patient?

4. Which group of food poisoning is this case referred to?

5. List the actions of a doctor of a medical institution inpatient's applying for a help.

6. What violations of sanitary standards can lead to food poisoning?

Such modern, innovative and interesting methods of implementation were used in performing the research on the study of comprehensive hygienic assessment of the life quality and adaptive abilities of pupils and students who are in the conditions of modern educational establishments.

Namely, the children's examination at various educational institutions of Ivano-Frankivsk was carried out: Ivano-Frankivsk Boarding School For Gifted Children from rural areas, Ivano-Frankivsk Professional Lyceum of Motor Transport and Construction №15, Ivano-Frankivsk Music Specialized School named after Denys Sichynsky, Ivano-Frankivsk Financial-Commercial Cooperative College named after S. Hranat, Precarpathian National University named after Vasyl Stefanyk. In all of these five institutions, the measures for psycho-hygienic correction, optimization of adaptive processes and improvement of the life quality of pupils and students in modern educational institutions were implemented.

Totally, there were examined 300 girls and boys. The performed studies testify to high efficiency (more than 25%) of this program.

The criteria for assessing a student at the university correspond to the following principles: the obtained information is objective; the method of determining the quality of the student's training is most relevant to the essential circumstances and conditions of professional activity; procedures for assessment of the quality of training are performed efficiently and transparently. The result of the discipline studying at the department is to conduct the modular control using the procedures of objective evaluation: criterion-oriented testing, solving situational tasks, oral questioning and knowledge of the professional devices and techniques used in the real professional work of the Master of Medicine.

**Conclusion.** The introduction of the credit-transfer system of education is accompanied by substantial advantages, including the increase of motivation of the students to study, control of the teacher in mastering the theoretical material and practical skills, increase of the time for independent study of the educational material. The assimilation of the methods and the above-mentioned pedagogical techniques will promote the improvement of the quality of education and character building in higher educational institutions of Ukraine and will bring them closer to the European level. Thus, one of the main advantages of innovative educational technologies is the approach of the learning process to the practical work of the future professionals. The main task of the introduction of interactive forms of study is the training of highly skilled, innovative-oriented specialists on the basis of a single process of obtaining, distribution and applying of the new knowledge. Thus, the use of innovative-pedagogical technologies in the educational process at

Ivano-Frankivsk National Medical University meets the modern requirements of high-quality training of Masters of Medicine.

#### References:

1. Moroz VM, Humnyskiy YuI, Fomin LV, Polesya TL. Rishennya problemnykh pytan' pry vprovadzhenni osnovnykh osnovnykh polozhen' YEKT-S u VNMU im. M.I. Pyrohova. Materialy KH yuvileynoy Vseukr. navch.-nauk. konferentsiyi z mizhnar. uchastyu "Kredytno-modul'na systema orhanizatsiyi navchal'noho protsesu u vyshchykh medychnykh zakladakh". Ternopil. 2013; 35-38.
2. Dychkivska IM. Innovatsiyni pedahohichni tekhnolohiyi: praktykum: navch. posib. [dlya stud. vyshch. navch. zakl.]. M-vo osvity i nauky, molodi ta sportu Ukrayiny. Kyiv. Slovo. 2013. P.447.
3. Vlasenko OM. Vykorystannya interaktyvnykh metodiv navchannya u suchasniy vyshchiiy shkoli. Visnyk Zhytomyrskoho derzhavnoho universytetu. 2012; 64: 94-97.
4. Moiseyuk N. Pedahohika: navch. posib. dlya studentiv vuziv. Kyiv. 2007. P.656.
5. Horuzhyi HF. Akademichna kul'tura: tsinnosti ta pryntsypy vyshchoyi osvity: navch. posib. Kyiv. 2012. P.320.

УДК 378.147+378.22+613+616.9+616-053.2

#### СУЧАСНІ ПРИНЦИПИ ВИКОРИСТАННЯ ІННОВАЦІЙНИХ ОСВІТНІХ ТЕХНОЛОГІЙ У ПІДГОТОВЦІ МАГІСТРА МЕДИЦИНИ

О.В. Тимошук

*Івано-Франківський національний медичний університет, кафедра гігієни та екології,  
м. Івано-Франківськ, Україна,  
ORCID ID: 0000-0001-9179-9951,  
e-mail: oksanavorob4ak@gmail.com*

**Резюме.** У статті проводиться аналіз факторів, які впливають на ефективність підготовки магістрів медицини, обговорюються інноваційні освітні технології та їх вплив на застосування знань, умінь та навичок студентів медичного університету і максимальне наближення процесу навчання до реальної практичної діяльності магістрів медицини. Для оцінки використання сучасних принципів інноваційних освітніх технологій проводили оцінку показників якісної успішності навчання під час застосування нових методичних підходів, розроблених колективами кафедр гігієни та екології, дитячих інфекційних хвороб та фтизіатрії Івано-Франківського національного медичного університету. Також оцінювали результати застосування інноваційних освітніх технологій шляхом анкетування студентів під час проходження курсів цих дисциплін. Запровадження кредитно-трансферної системи навчання супроводжується суттєвими перевагами, серед яких – підвищення мотивації студентів до навчання, контроль викладача при засвоєнні теоретичного матеріалу та практичних навичок, збільшення часу на самостійне опрацювання навчального матеріалу. Засвоєння методик та вищезазначених педагогіч-

них прийомів сприятиме підвищенню якості освіти й виховання у вузах України й наближатиме їх до європейського рівня. Таким чином, одним із основних переваг інноваційних освітніх технологій є наближення процесу навчання до реальної практичної діяльності майбутніх фахівців. Головним завданням впровадження інтерактивних форм навчання є підготовка висококваліфікованих, інноваційно орієнтованих фахівців на основі єдиного процесу отримання, розповсюдження і застосування нових знань. Отже, використання інноваційно-педагогічних технологій в навчальному процесі в Івано-Франківському національному медичному університеті відповідає сучасним вимогам високоякісної підготовки магістра медицини.

**Ключові слова:** навчальний процес, самостійна робота студентів, магістри медицини, кредитно-трансферна система.

УДК 378.147+378.22+613+616.9+616-053.2

#### СОВРЕМЕННЫЕ ПРИНЦИПЫ ИСПОЛЬЗОВАНИЯ ИННОВАЦИОННЫХ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ В ПОДГОТОВКЕ МАГИСТРА МЕДИЦИНЫ

О.В. Тимошук

*Івано-Франківський національний медичний університет, кафедра гігієни та екології,  
г. Івано-Франківськ, Україна,  
ORCID ID: 0000-0001-9179-9951,  
e-mail: oksanavorob4ak@gmail.com*

**Резюме.** В статье проводится анализ факторов, влияющих на эффективность подготовки магистров медицины, обсуждаются инновационные образовательные технологии и их влияние на применение знаний, умений и навыков студентов медицинского университета и максимальное приближение процесса обучения к реальной практической деятельности магистров медицины. Для оценки использования современных принципов инновационных образовательных технологий проводили оценку показателей качественной успеваемости при применении новых методических подходов, разработанных коллективами кафедр гигиены и экологии, детских инфекционных болезней и фтизиатрии Ивано-Франковского национального медицинского университета. Также оценивали результаты применения инновационных образовательных технологий путем анкетирования студентов во время прохождения курсов данных дисциплин. Введение кредитно-трансферной системы обучения сопровождается существенными преимуществами, среди которых – повышение мотивации студентов к обучению, контроль преподавателя при усвоении теоретического материала и практических навыков, увеличение времени на самостоятельную проработку учебного материала. Усвоения методик и вышеназванных педагогических приемов будет способствовать повышению качества образования и воспитания в вузах Украины и приближать их к европейскому уровню. Таким образом, одним из основных преимуществ



ществ инновационных образовательных технологий является приближение процесса обучения к реальной практической деятельности будущих специалистов. Главной задачей внедрения интерактивных форм обучения является подготовка высококвалифицированных, инновационно ориентированных специалистов на основе единого процесса получения, распространения и применения новых знаний. Итак, использование инновационно-педагогических технологий в

учебном процессе в Ивано-Франковском национальном медицинском университете соответствует современным требованиям высококачественной подготовки магистра медицины.

**Ключевые слова:** учебный процесс, самостоятельная работа студентов, магистры медицины, кредитно-трансферная система.

Стаття надійшла в редакцію 18.02.2019 р.