EUROPEAN HUMANITIES STUDIES:
State and Society

EUROPEJSKIE STUDIA HUMANISTYCZNE:
Państwo i Społeczeństwo

Degtiar V. A., Barsuk A.M., Kharitonuik L.N., Kaminskaya M.O., Sadovenko E.G., Savenko M.V., Lukianenko D. N., Savenko T.M.

Place of information technologies of training at the process of medical education

Today it is difficult to imagine the branch, profession, specialty without participation, in the majority of cases, of information technologies with various extent of their integration into activity processes. Active development of information streams in a turn demands adaptation a model of educational-information and education environments. As the result, a person could cultivate its own self-improvement and responsibility for education, and realize the creative potential completely and better developed personal abilities [4].

One of definitions main objective of informatization is a global rationalization of the intellectual activity, which provides autoformalization

of the subject domains and autonomy process of knowledge of each individual, towards with free access to all types, forms and levels of educational knowledge [5].

Informatization should include three interconnected processes:

- Mediatization – process of improvement means of collecting, storage and dissemination of information.
- Computerization – process of improvement means of search and information processing.
- Intellectualization – development of knowledge and abilities of people to the perception and generation of information, which naturally causes increase of intellectual potential of society, including a possibility of using artificial intelligence techniques [5].

Given tendency leads to the formation of uniform informational-methodical space, for each establishment, and, totally, for all education system. In this regard there is a problem of effective integration of computer and traditional means of information support, and creation of modern educational technologies [4, 5].

Educational technologies as a part of process of informatization are an effective use of technological tools at the training. Key concept means a massif of tools, such as: mass media, computers and network equipment, their effective and rational application [14]. Nevertheless, electronic educational technologies became an important part of modern society, including massif of information, components and ways of their delivery [13].

Degree of electronic training promotes or replaces other (standard) types of training, which depends on the approach to informatization process, beginning from zero level and to the full online or distance learning [9]. According to numerous literary reviews, various descriptive terms of classification degree of using technology of informatization are carried out. For example, "the hybrid type of training" or "the mixed training type" can belong to the usage of laptops in the educational classes or to the approaches, which focused on the traditional training, replaced on the Internet focused training [14]. On the other hand, "the distributed training" can describe a component of electronic training from hybrid approach or completely on-line environment of distance learning [9].

There are concepts of synchronous and asynchronous electronic training. The synchronous way of training occurs in real time, where all participants of training process could interact with each other at one time. The asynchronous way of training implies independent process of

training, which allows taking part in the exchange of ideas or information, irrespective from other participants.

Therefore development and integration of information resources of electronic training should be guided by a model of trained expert, corresponded to the training purposes. For developing a model of expert the following methods as analysis real practice of the given experts with using and providing a forecast data, concerning to the development given field of activity for the future needs of ready expert, have been found. In this regard, for example, interest of medical specialists for the using of information technologies amplifies and was shown from positions of information resources usages, realization of cross-cultural communications, personality needs for continuous self-education and adaptation, in the conditions of information society [5, 6, 7].

Information and communication systems, united in a network, serve as the concrete carrier at the process of knowledge transfer. At the same time, educational information technologies, which are often replaced with a word "e-Learning" (from English - electronic training), covers all forms of electronic training and are not limited of high technologies. E-Learning is a wide range of applications and processes, such as: training on Internet, computer training, virtual classes and digital cooperation. Electronic training includes delivery of content through: Internet, intranet/extranet, audio and video tape, satellite transfers, interactive television and CD/DVD-ROM, etc. [11]. One of the main objectives of electronic training is granting of the individual, comprehensive and dynamic content in a real time in order to keep a quickly happen rate of changes [11].

Traditionally medical education meant oral, practical and more passive redistribution of knowledge and skills from teachers to students and health workers. For clinical disciplines the basic principles, such as "training at the bed", are promoted by medical literature. At the same time, these methods allow students to communicate with teachers and refer to a corresponding literature. Disadvantages of these educational methods are lack of the teachers' time. Besides, they aren't really convenient for horizontal and vertical integration of training, creation of weak or any self-education and a poor skill level with the bad integration of education in the real social environment [7].

In the educational process of medical establishments is popular usage of videos, due to the fungal development of digital computer technologies. Emergence and widespread introduction of capacious and inexpensive carriers of information, powerful personal computers and a high-speed

Internet revives interest to the video training and allows giving a new way of using videos at the educational process.

One of the major pedagogical principles – principle of presentation, allows realizing training of video records (assimilation of the video information with soundtrack – on 51% after the first viewing, against 9% of the printing text and 17% of audio recording) [2, 3].

Video training has the following didactic potential:

- is informational resource;
- to save educational hours, energy of the teacher and pupils;
- illustrate connection of the theory with practice;
- rationalize forms of presentation the educational information;
- concretize the concepts, phenomena, events;
- organize and direct perception;
- the most fully equitable to the scientific and cultural interests and inquiries of pupils;
- to create emotional relation of students to the educational information;
- to make available for pupils an inaccessible educational videos;
- to create cognitive activity of pupils, promote conscious digestion of material, development of thinking, spatial imagination, observation;
- being the means of repetition, generalization, systematization and control of knowledge.

The principles of using videos at the educational process:

- scientific character
- availability of statement information
- systematic, sequence and logicality
- activity and independence of students

In the process of creation videos on a discipline could possible to allocate two key moments, on which the quality of final material is depend. First, it is theoretical material, which the student has to acquire, having watched the movie. Secondly, it is proving of video series and the correct installation. During creation of videos for their effective perception should be well-spread means of television expressiveness - installation, a close up, a foreshortening, change of the plan, etc. At the choice of contents and structure of videos is necessary to consider a rational frequency of the figure and background, sound and visual ranks. The leading role of educational videos for training students of the medical specialties is played by a visual row, which has to move forward on the first place. [2, 3]

One of the important methodical features of video records on a discipline is the focus on an independent work of students. Perhaps not the main, but rather important function is assigned to the educational video, which carried out systematization of subject maintenance, disclosure methods of the knowledge application. In this case, student having the abilities to integrate concrete knowledge to the practice, updating of this knowledge. The primary important, that the student has known what result he would require. Video fragments can be effectively used at the distance learning. It is effective to use the educational videos on the practical training in a form of video training. At the same time, it is necessary to organize discussion of the shown material, answer to the questions. Sometimes it's important to stop video on a particularly complex moment. After viewing the teacher should pass to a procedure of control or performance of manipulation on the exercise machine. Video training becomes relevant, if forming a professional competence of students in the medical educational organizations. [2, 3, 7]

Creation of educational movies allows students to look repeatedly the video fragments, remembering and repeating a sequence of actions. This form of visualization training material in the formation of professional competences of experts explains numerous prospects.

One of the stages of formation e-Learning is a distance learning, for which development is important the telematics (a field of informatics, covering sphere of processing and transfer information and telecommunication systems and services for the satisfying information needs of the user).

Today the distance learning and web education are often used as the synonyms. However, distance learning is more general and comprehensive term. It can be defined as the follows: "Distance learning is a planned training, which happens on the remote website of teachers, as a result it needs special methods, curriculum development, special techniques of training, and special methods of communication, special organizational and administrative methods (Moore and Kearsley, 1966). Forms of distance learning include: individual participation, teleconference, TV seminar, web conference, electronic classrooms, etc. [10, 11, 12].

Thus, distance learning represents a multilevel, hi-tech product of the world scientific and technical development, which uses an idea of marketing distribution of the service both for the students and teachers. There is an active promoting around the world. The most part of appearing new opportunities in the sphere of information technologies quickly find an application in a distance learning. [2, 8]

Possibilities of the distance learning:

- independent process of training – is an opportunity to be trained independently (along with a possibility of remote training). Use of the training systems allows to provide educational services to a wide range of trainees – makes education available. Availability and openness of training allows the student, intern or a specialist doctor to study.
- individual training assumes the independent scoping of training, time and orientation. The listener (a student, doctor-intern, attending physician, etc.) could remote education: when, in what volume he needs to be trained.
- increase of motivation to application a various funds and methods of information technologies, which focused on the distance learning for effective application in their professional activity;
- use of modern computer technologies allows to make the studied material more evident, interesting and easily memorable, that is especially important in the process of training and doesn't depend on the level of educational institution and disciplinary orientation.
- speed and efficiency to access the information allows a student to study more deeply the interesting topic or discipline;
- active participation in the videoconferences, webinars;
- distance learning form of education is rather financially effective at the expense of low cost, especially in the conditions of a large number of participants of the process.

Speaking about advantages of distance learning form of education, you shouldn't forget that it is more effective than traditional. It forms a certain number of all-educational abilities, especially develops computer competence (thanks to a frequent work with data carriers, telecommunication networks, webcamera, the Internet – resources, etc.). At the same time, it is possible to note some short comings, connected with a distance learning, which can be divided on the psychological. It is closely connected with a lack of "live" communication with the teacher, high requirements to the self-organization and technical needs, which are caused by imperfection of the content, technologies and telecommunication infrastructure [2, 7].

Distance learning, in the majority, doesn't provide personal contact with the teacher and communication between trainees. If the teacher is absent, who could paint emotionally knowledge; it is considerable minus for a training process. However, development of communication channels,

allows to remove this disadvantage, due to application of webinars and videoconferences.

Existence of a strong motivation of the student is the key to successful passing of programs of distance learning. If the person isn't capable to study without constant surveillance of teachers and isn't ready to spend much time near the computer, the distance learning is not for him. It is one of decisive factors, which influences on the opportunity to study remotely, but also independently work. One of shortcomings is the insufficient computer literacy of the training and trained, lack of experience of a distance learning. Not all higher educational institutions, teachers and students are ready for such method of teaching and giving preference to the classical education. [2]

At the initial stage of creation, training system needs investments, both in software of the training system, and for the educational process. Considerable lag of informatization in Ukraine from the most developed countries in the world, in particular USA, is connected with a low level of equipment computer and other information facilities. The average level of equipment in the Ukrainian higher education institution (for the training and carrying out scientific research) is estimated at 90 computers per one higher education institution today. On the average, in American university about 15-35 computers covered 100 students. In the most prestigious educational institutions of USA, number of personal computers is commensurable with number of students. Besides, the personal computers, used in our higher education institutions, are generally lower on a class, are poorly equipped with the peripheral equipment, office equipment and means of telecommunications. Percent of annual expenses in USA on the informatization of education exceeds the corresponding expenses in Ukraine more than on 3 orders. [1]

It is necessary to consider the costs of hardware. Not all electronic training courses, used within the training systems, having the necessary level of feedback (interactivity). Substantial basis of the majority existing courses is provided by lectures in a form of text materials and the simplest graphic objects (drawings, photo), blocks of control knowledge in a form of test tasks. Respectively, at such approach to submission information, the involvement of students into educational process can't be high. It has an adverse effect on assimilation of knowledge and also acquisition of skills and abilities. [5, 7, 8]

Creation of the effective training system requires the professional structure of developers in a field of information support of educational

process. Introduction of training system demands an existence of own or licensed developments in a field of applied software.

In the medical educational process distance learning is more effectively used in the postgraduate education, and solves several main objectives:

- providing of students with remote access to databases and sources of medical information;
- holding of TV or video lectures, teleseminars;
- remote observation of the performance diagnostic and medical manipulations;
- carrying out of master – classes of modern surgeries in real time;
- implementation of qualification testing and holding of remote examinations in a real time [3].

System of distance learning in the postgraduate education assumes: holding of remote lectures or within the thematic courses, or in a relevant directions of medicine; holding seminars with profound studying of earlier read lecture material; practical classes in these or those methods of diagnostics, treatment and surgeries; individual telemedicine consultations. [3, 8]

Advantages of a distance learning in the postgraduate education:

- possibilities of lecturing at the same time for several institutes from different regions; communication with unique experts in a course of teletraining and holding of the thematic lectures;
- possibility of a direct conversation between lecturer and listeners during the telelectures and TV broadcasts;
- carrying out of the master – classes from the modern surgeries along with comments of a doctor – operator;
- lecturing with clinical examples and discussions on the discussed problem;
- whole educational process comes without considerable separation from a work in the establishment.

Introduction a distance learning form of education in the practice of higher education have to provide formation of autonomy of the trainee, as her development is closely connected with needs of manifestation an informative activity, independence, initiative, responsibility, freedom of choice, skills of self-checking, motivation and mastering of a new knowledge.

Finally, despite on the quickly developing of modern technologies, visible positive effects of informatization, it is necessary to understand, that purposeful common activity of the teacher and trainee is a key to success of educational work.

References:

1. Гордиенко Т. П., Смирнова О. Ю., Проблемы информатизации высшего образования современной Украины. //"Наука i освіта", №8, 2012
2. В.Н. Серов, Основные концепции создания видеолекции для электронного учебника // Дистанционные образовательные технологии. Пути реализации: сб. науч. трудов. Москва, 2004
3. Казаков В.Н., Климовицкий В.Г., Владзимирский А.В. Телемедицина. // Донецк: ООО «Норд», 2002
4. Межведилова Л.Б., диссертационная научная работа «Теория и методика профессионального образования, 2005
5. Минцер О.П., Информатизация медицинского образования.// Український медичний часопис - №5 (37) IX-X 2003
6. Новоселова Л.И., Информатизация образования как фактор повышения профессиональной мобильности.// Перспективы интеграции медицинского, социального и гуманитарного образования. 2012
7. Павленко И.И. E-learning в информатизации образования // Информационные технологии в гуманитарном образовании : материалы III Междунар. науч.-практ. конф. 2010.
8. Пуговкин А.П., Агапонов С.В. Использование системы дистанционного обучения ELEARNING SERVER для программированного контроля в медицинском образовании // Новые технологии в медицине: Сб. докладов Первой международной дистанционной науч.- практ. конф. – СПб, 2004.
9. Bates, A. and Poole, G. Effective Teaching with Technology in Higher Education San Francisco // Jossey-Bass/John Wiley, 2003
10. Devedzic V. Semantic web and education. // Springer Science-hBusiness, Media, LLC, 2006.
11. Masic Z, Novo A, Masic I, Kudumovic M, Toromanovic S, Rama A, Dzananovic A, Bander I, Basic M, Guso E, Balta E. Distance learning at Biomedical faculties in Bosnia and Herzegovina. // Stud HealthTechnol Inform. 2005;
12. Moore, J. I..; Dickson-Deane, C.; Galyen, K. "E-Learning, Darning, and distance learning environments: Are they the same?" // The Internet and Higher Education 14 (2), 2011.
13. Selwyn N. Education and Technology // Issues and lunate London Continuum International Publishing Group, 2011
14. Strauss, Valerie (2012-09-22). "Three fears about blended learning" // Washington post. Retrieved 31 March 2013.

The Authors

Degtiar V. A.,
Barsuk A.M.,
Kharitonuik L.N.,
Kaminskaya M.O.,
Sadovenko E.G.,
Savenko M.V.,
Lukianenko D. N.,
Savenko T.M.
*State Establishment «Dnipropetrovsk Medical
Academy Health Ministry of Ukraine»
Child's surgery, orthopaedy and
traumatology department*

Abstracts

DEGTIAR V. A., BARSUK A.M., KHARITONUIK L.N., KAMINSKAYA M.O., SADOVENKO E.G., SAVENKO M.V., LUKIANENKO D. N., SAVENKO T.M. **Place of information technologies of training at the process of medical education.** *Today it is difficult to imagine the branch, profession, specialty without participation, in the majority of cases, of information technologies with various extent of their integration into activity processes. Active development of information streams in a turn demands adaptation a model of educational-information and education environments. One of definitions main objective of informatization is a global rationalization of the intellectual activity, which provides autoformalization of the subject domains and autonomy process of knowledge of each individual, towards with free access to all types, forms and levels of educational knowledge We want to reveal the potential of informatization in relation to training in higher medical institutions, to show opportunities and share experiences, but finally, despite on the quickly developing of modern technologies, visible positive effects of informatization, it is necessary to understand, that purposeful common activity of the teacher and trainee is a key to success of educational work.*

Key words: *informatization, education, medicine, video, distance education*

ДІГТЯР В.А., БАРСУК О.М., ХАРИТОНЮК Л.М., КАМІНСЬКА М.О., САВЕНКО М.В., САДОВЕНКО О.Г., *ЛУК'ЯНЕНКО Д.М.*, САВЕНКО Т.М. **Місце інформаційних технологій навчання в процесі медичної освіти.** *Сьогодні складно уявити галузь, професію, спеціальність без участі, в більшій чи меншій мірі, інформаційних технологій з різним ступенем їх інтеграції в процеси діяльності. Активний розвиток інформаційних потоків в свою чергу вимагає адаптації моделі освіти та інформаційно-освітніх середовищ. Одне з визначень основної мети інформатизації - це глобальна раціоналізація інтелектуальної діяльності. Ми хочемо розкрити потенціал інформатизації стосовно навчання в вищих медичних установах, показати можливості і поділитися власними думками та досвідом. Але при цьому хочемо нагадати, що не дивлячись на видимі позитивні ефекти інформатизації, необхідно розуміти, що запорукою успіху освітньої роботи залишається цілеспрямована спільна діяльність викладача та самого учня.*

Ключові слова: інформатизація, освіта, медицина, відео, дистанційна освіта

ДЕГТЯРЬ В.А., БАРСУК А.М., ХАРИТОНЮК Л.Н., КАМИНСКАЯ М.О. САДОВЕНКО Е.Г., САВЕНКО М.В., *ЛУКЬЯНЕНКО Д.Н.*, САВЕНКО Т.Н. **Место информационных технологий обучения в процессе медицинского образования.** в настоящее время сложно представить отрасль, профессию, специальность без участия, в большей или меньшей степени, информационных технологий с различной степенью их интеграции в процессы деятельности. Активное развитие информационных потоков в свою очередь требует адаптации модели образования и информационно-образовательных сред. Одно из определений основной цели информатизации – это глобальная рационализация интеллектуальной деятельности. Мы хоти раскрыть потенциал информатизации применительно к обучению в высших медицинских учреждениях, показать возможности и поделиться опытом. Но при этом хотим напомнить, что не смотря на видимые положительные эффекты информатизации, необходимо понимать, что залогом успеха образовательной работы остается целенаправленная совместная деятельность преподавателя и самого обучаемого.

Ключевые слова: информатизация, образование, медицина, видео, дистанционное образование.