УДК 61:378.14

H. Morokhovets
Head of the postgraduate science department
of the Higher State Educational Establishment
of Ukraine «Ukrainian Medical Stomatological Academy»,
PhD in Pedagogical Sciences

Y. Lysanets
Associate Professor of the Department of Foreign Languages with Latin
and Medical Terminology of the Higher State Educational Establishment
of Ukraine «Ukrainian Medical Stomatological Academy»,
PhD in Philology

O. Silkova
Acting Head of the Department of Medical Informatics, Medical
and Biological Physicsof the Higher State Educational Establishment of Ukraine
«Ukrainian Medical Stomatological Academy»,
PhD in Pedagogical Sciences, associate professor

L. Ostrovskaya
Associate Professor of Therapeutic Dentistry Department
of the Higher State Educational Establishment of Ukraine
«Ukrainian Medical Stomatological Academy»,
PhD in Medical Sciences

T. Purdenko
Associate Professor of the Department of Nervous Diseases with Neurosurgery
and Medical Genetics of the Higher State Educational Establishment of Ukraine
«Ukrainian Medical Stomatological Academy»,
PhD in Medical Sciences, associate professor

THE FORMATION CRITERIA, INDICATORS AND LEVELS OF INFORMATION AND COMMUNICATION COMPETENCES IN FUTURE DOCTORS

When preparing the student for life in the information society, it is necessary to form not only the skills of working with various types of information, but also the ability to use modern information technologies in processing this information. Scientists, when considering issues of competence, differentiate the criteria, indicators and levels of its formation. We consider it expedient to distinguish the criteria, indicators and levels of formation of information and communication competences in future doctors.

КРИТЕРИИ ФОРМИРОВАНИЯ, ИНДИКАТОРЫ И УРОВНИ ИНФОРМАЦИОННО-КОММУНИКАЦИОННЫХ КОМПЕТЕНЦИЙ У БУДУЩИХ ВРАЧЕЙ

При подготовке студента к жизни в информационном обществе необходимо сформировать не только навыки работы с различными видами информации, но и умение использовать современные информационные технологии при обработке этой информации. Ученые, рассматривая вопросы компетенции, дифференцируют критерии, показатели и уровни ее формирования. Мы считаем целесообразным выделить критерии, показатели и уровни формирования информационно-коммуникативных компетенций у будущих врачей.

The peculiarities of using information and communication technologies in education have been described in detail by V. Bykov, R. Gorbatyuk, R. Gurevich, S. Sysoyeva, A. Khutorskyi and others.

The concept of «criterion» in pedagogical literature is regarded as the most general essential feature, on the basis of which the evaluation and comparison of real pedagogical phenomena are carried out. In this context, the degree of expression, qualitative formation, certainty of the criterion is expressed in specific indicators, which, in turn, are characterized by a number of features.

The results of work, which in turn specify the criteria, are indicators of the level of information and communication competencies formation.

Let us consider in more detail the formation criteria of information and communication competences in future doctors.

The cognitive criterion of information and communication competences reflects the level of mastering knowledge in a particular discipline. This criterion reflects the level of general or professional training (understanding the relevant phenomena in their relationship, laws, theories, etc.). The cognitive criterion is aimed at determining the level of knowledge, necessary for effective performance of professional activity; the ability to find and analyze the necessary scientific information; formation of creative thinking. The cognitive criterion is estimated by the performance indicators.

An indicator of a cognitive criterion is acquisition of knowledge that involves the use of ICT for training, scientific and professional activities, which are manifested in the following indicators: understanding of the role of ICT in professional activities, and the ability to use ICT tools to present information.

The motivation criterion reflects the attitude of future doctors to the chosen specialty, training and future professional activity; it shows the level of awareness of the right choice of the future profession, its social and personal significance. The criterion for motivational component is the formation of positive motivation for future professional activities using ICT, which is manifested in the following indicators: the pursuit of a high level in information and communication competences; the desire to

creatively perform educational tasks with the help of ICT; interest in using ICT for solving the tasks.

The personality component. The criteria of personal component are the ability to independently evaluate the results of the work, the desire to implement and develop one's own capabilities, abilities, personal qualities; the degree of cognitive activity and independence in the process of learning activities, interest in applying the acquired knowledge and skills in the future professional activities. Indicators that reflect the personal component are: commitment, responsibility when using ICT in professional activity; interest in using ICT in teaching, research.

The activity criterion characterizes the ability to apply one's knowledge to solve typical cognitive and practical tasks; the formation of the basic skills of scientific research; mastering the communicative skills; the ability to use the acquired integrated experience to solve creative educational and professional tasks; the ability to apply the acquired knowledge in the process of professional activity; the ability to make decisions in terms of their professional efficiency; the ability to independently plan further professional and personal self-development. The activity criterion is evaluated by the processual indicators: the ability to integrate and present information; the ability to make judgments about its quality, importance; the ability to generate information, to adapt, apply, design, and develop it; the ability to transfer information in the ICT environment in a certain way.

Based on the distinguished criteria, we determined the following levels of formation of information and communication competence of future doctors: reproductive (low), reconstructive (average), and productive (high).

The reproductive (low) level is characterized by the fact that the applicant: is not aware of the lack of information and its need for solving a specific task; to search information uses one information source, proposed by the teacher; demonstrates an understanding of the obtained information; experiences difficulties in using ICTs when creating new information.

Reconstructive (average) level is characterized by the fact that the applicant: in general, understands the lack of information to solve any task; uses several information sources, offered by the teacher; interprets the information received in the context of the task being solved; applies ICT tools, demonstrating standard operating skills.

Productive (high) level is characterized by the fact that the student: is aware of which information is available to solve the problem and which is not; independently selects information sources according to the given purpose; independently uses ICT tools to create new information, can integrate multiple software.

The reproductive (low) level implies that the applicant has certain ideas about the information processes involved in professional activity, understands the basic concepts and principles of using ICT, has elementary skills and the ability to use software in the performance of competency tasks, in particular: is able to use the main on-line resources and software in the educational activities; demonstrates some interest in using ICT in training.

The components of information and communication competencies formation are reflected using the criteria. *The cognitive criterion* reflects the level of mastering the knowledge from a particular discipline; illustrates the level of general or professional training. *The motivational criterion* marks the attitude of future doctors towards the chosen profession, training and professional activity, which confirms the level of awareness of the correctness in the choice of specialty, its social and personal significance. *The personality criterion* demonstrates the ability to independently evaluate the results of one's work, the desire to implement and develop one's own capabilities, abilities, personal qualities; the degree of cognitive activity and autonomy in the process of educational activity. *The activity criterion* characterizes the ability of applicants to apply the acquired knowledge to perform typical cognitive and practical tasks; the formation of basic skills of scientific research; possession of communicative skills; the ability to use the acquired integrated experience to solve creative educational and professional tasks; the ability to use the acquired knowledge during professional activity; the ability to make decisions in terms of their professional efficiency; the ability to independently plan further professional and personal self-development.

The study identifies three levels of information and communication competences formation for future physicians. The low (reproductive) level assumes that the applicant has certain ideas about the information processes involved in the professional activity, understands the basic concepts and principles of using ICT, and has basic skills and abilities to use the software while performing the competency tasks. The adequate (reconstructive) level is based on the fact that the applicant has fundamental knowledge regarding the use of ICT in education and professional activities, seeks to improve the skills of using ICT in professional activities, but cannot do this. The high (productive) level indicates that the applicant effectively and creatively combines the knowledge, skills and abilities of using ICT, aspires to professional self-improvement.

According to the study conducted in 2015–2017 among the students and postgraduates of the field of training 22 – Health care, we observe the high level of information and communication competence formation in 10.34 % of the studied subjects, while the total percentage of subjects with low level of formation of these com-

petencies reaches 50.96 % by the motivational, cognitive, activity, and personality criteria. In the course of the study, we have applied a set of pedagogical conditions and techniques at the formative stage of the experiment, which made it possible to observe improvement of the results for all criteria. To achieve the positive results of the experiment, we used a number of techniques for the creation and use of electronic resources in the learning process, which require the availability of administrative and informational support for the learning process, ensuring the transfer and exchange of learning information. We used the following elements of the informational educational environment: electronic analogues of educational literature; online versions of scientific journals; interactive learning tools, including professionally oriented materials based on the Blackboard platform (clinical cases, multimedia and video, interactive clinical cases, etc.); interactive test systems to test applicants' knowledge. The use of the above techniques was carried out through active forms of learning – interactive, independent and individual work with the use of information and communication technologies, defense of individual projects, consultations; teaching methods – research-oriented, activity-based, case-method, task method; teaching and methodological support, in particular, our own work curriculum and manual; theoretical, practical tasks involving the use of information and communication technologies, multimedia presentations, Internet resources.

Thus, at the end of the experiment, 7.08 % of the subjects with the low level and 22.16 % with the high level of information and communication competence formation were observed.

We identified three levels of information and communication competences formation for future physicians. The low (reproductive) level assumes that the applicant has certain ideas about the information processes involved in the professional activity, understands the basic concepts and principles of using ICT, and has basic skills and abilities to use the software while performing the competency tasks. The adequate (reconstructive) level is based on the fact that the applicant has fundamental knowledge regarding the use of ICT in education and professional activities, seeks to improve the skills of using ICT in professional activities, but cannot do this. The high (productive) level indicates that the applicant effectively and creatively combines the knowledge, skills and abilities of using ICT, aspires to professional self-improvement.