

В.М.Грінкевич, О.В. Костилюв; за ред. О.В. Романенка. – К.: ВСВ «Медицина», 2015. – 472 с. **11. Нісімчук А.С.** Сучасні педагогічні технології: Навчальний посібник / А.С. Нісімчук, О.С. Падалка, О.Т. Шпак. – К. Видавничий центр «Просвіта», пошукове-видавниче агентство «Книга Пам'яті України», 2000. – 368 с. **12. Medical biology:** The study guide of the practical classes course / Romanenko O.V., Golovchenko O.V., Kravchuk M.G., Grinkevich V.M. / Edited by O.V. Romanenko. – Kyiv: Medicine, 2008. – 304 p.

Kravchuk, V.M.Grinkevych, O.V. Kostylov; za red. O.V. Romanenko. – K.: VSV «Medycyna», 2015. – 472 s. **11. Nisimchuk A.S.** Suchasni pedagogichni tehnologiyi: Navchal'nyj posibnyk / A.S. Nisimchuk, O.S. Padalka, O.T. Shpak. – K. Vy'davny'chyj centr «Prosvita», poshukovevy'davny'che agentstvo «Kny'ga Pamyati Ukrayiny», 2000. – 368 s. **12. Medical biology:** The study guide of the practical classes course / Romanenko O.V., Golovchenko O.V., Kravchuk M.G., Grinkevich V.M. / Edited by O.V. Romanenko. – Kyiv: Medicine, 2008. – 304 p.

References

1. Bavykina N.Yu., Savchenko O.P. Samostijna robota studentiv yak umova efektyvnosti navchal'nogo procesu u VNZ // Pedagogika formuvannya tvorchoyi osoby'stosti u vy'shij i zagal'noosvitnij shkoli. – 2009. – № 1. – S. 17-21. **2. Byelykova Yu.A.** Samostijna robota studenta yak skladova profesijnogo samorozvytku majbutn'ogo faxivcy'a // Naukovi praci DonNTU. Seriya: «Pedagogika, psy'xologiya i sociologiya». – 2014. – № 1 (15). – Ch. 2. – S. 12-15. **3. Vashhenko G.** Zagal'ni metody'ky' navchannya: Pidruchnyk dlya pedagogiv. – Vy'dannya pershe / Grygorij Vashhenko – Kyiv: Ukrayins'ka Vy'davny'cha Spilka, 1997. – 441 s. **4. Dovmatovy'ch N.G.** Formuvannya samoosvitn'oyi kompetentnosti studentiv medy'chny'x uchy'ly'sh u procesi pry'rodny'cho-naukovoyi pidgotovky' / N.G. Dovmatovy'ch // Neperervna profil'na osvita: teoriya i prakty'ka. – 2014. – Vy'p.3 4. – S.77 80. **5. Kolisny'k Ya. I.** Organizaciya samostijnoyi roboty' studentiv v umovax kredy'tno-modul'nogo navchannya / Ya. I. Kolisny'k, B. Z. Cy'bulyak // Visnyk L'vivs'kogo universy'tetu. Seriya pedagogichna. – 2009. – Vy'p. 25. – № 4.2. – S. 332-341. **6. Kravchuk M.G.** Znachennya poza audy'tornoji samostijnoyi roboty' studentiv pry'vy'chenni medy'chnoyi biologiyi / M.G. Kravchuk, O.V. Starostenko, O.V. Romanenko // Gumanitarny'j visnyk DVNZ «Pereyaslav-Xmel'ny'cz'ky'j derzhavny'j pedagogichny'j universy'tet imeni Grygoriya Skovorody'» - Dodatok 1 do Vy'p. 36, Tom VI(66): Tematy'chny'j vy'pusk «Vy'shha osvita Ukrayiny' u konteksti integraciyi do yevropejs'kogo osvitn'ogo prostoru». – K.: Gnozy's, 2015. – S. 185-193. **7. Kuz'mins'ky'j A. I.** Pedagogika vy'shhoji shkoly': navch. posib. / A. I. Kuz'mins'ky'j – K.: Znannya, 2005. – 486 s. **8. Maksy'menko S.D.** Pedagogika vy'shhoji medy'chnoyi osvity': pidruchnyk / S.D. Maksy'menko, M.M. Filonenko – K.: «Centr uchbovoyi literatury'», 2014. – 288s. **9. Medy'cyn'skaya by'ologiya:** posoby'e k prakty'chesky'm zanyaty'am / A.V. Romanenko, M.G. Kravchuk, V.N. Gry'nkevych, A.V. Kosty'lev; pod red. A.V. Romanenko. – K.: VSY' «Medy'cy'na», 2015. – 488 s. **10. Medy'chna biologiya:** posibny'k z prakty'chny'x zanyat' / O.V. Romanenko, M.G.

Panchuk O. V., Candidate of Biological Sciences, Bogomolets National Medical University, tel: +380974878886, e-mail geranium@ukr.net

Kravchuk M. H., Candidate of Medicine, associate professor Bogomolets National Medical University, tel: +380974585782, e-mail marykrav78@gmail.com

Romanenko O. V., Doctor of Biological Sciences, Associate Member of the National Academy of Sciences of Ukraine, professor Bogomolets National Medical University, tel: (044) 454-49-95, e-mail: bio@nmu.kiev.ua

WAYS OF BIOLOGICAL COMPETENCE FORMATION IN A MEDICAL STUDENT: PRINCIPLE OF CONTINUITY

Panchuk O.V., Kravchuk M. H., Romanenko O.V. Ways of biological competence formation in a medical student: principle of continuity

This article analyses usage of modern educational technologies as a method to activate cognitive activity among medical students. The work focuses on the role of continuity in education, which is the main condition of all-round personal development, method of realization of skills and improvement of gradually acquired knowledge, skills at the pre-university and post-university level of education.

Key words: cognitive interest, continuity, pre-university education, educational technologies, problematic studying, information and communications technologies of studying.

The important task of higher medical educational institutions of Ukraine is to train highly qualified specialists, who are ready and interested in life-long learning and improvement of their professional skills. One of the conditions of reaching this is to develop cognitive interest among medical students.

Activation of cognitive activities among future doctors is one the main conditions of their conscious learning of educational material, development of thinking skills, analysis, comparison, generalization.

The formation of an individual's need to perceive the world is happening at the pre-university level of education.

Necessary factors of individual's cognitive interest formation follow the principle of continuity and application of effective pedagogical methods in the process of organization of the training process.

It is important to provide education integrity at all its levels: pre-university, university and post-university, to develop a talented personality.

At the pre-university level it is required to find talented youth, create conditions for development of its intellectual and artistic skills. Professional orientation is an essential precondition for the youth in order to choose goal-oriented and motivated future profession.

Motivated students are determined by relatively high intellect development, long-term memorizing of educational material, developed skills of self-control within the educational activities, high work efficiency. They are distinguished by high mental activity, increased tendency to mental and cognitive activity, ingenuity, freedom of self-expression, fertility of imagination, formation of different types of memory, quick reaction capability. They always show their attentiveness, organisation, readiness to hard work, which turns into ambition and the need to work with due diligence. Their thinking is distinguished by operational efficiency, and their circle of cognitive interests is not restricted to one problem, but it is constantly expanding.

Organization of out-of-school education, as one of the integral parts of the system of continuous education, that is focused on discovery of skills, talents of an individual, satisfaction of its interests and needs in the professional self-determination [3] through engaging into search, experimental, scientific research works plays important role, especially at the early stages for artistic self-realization and development of youth. In this case realization of "research education" strategy (education activation, that provides research nature), "problematization" strategy (orientation on setting scientific and education problems to an individual), "individualization" strategy (creating conditions for full appearance and development of individual traits in the subjects of an educational process) is provided [1, p 20].

Forms of out-of-school education can be: auditorium of the relevant fields of science, profile project groups, seminars about problematic issues, individual research work. In most cases, education programs of project groups, classes, auditorium involve fields of science and practical activity that are beyond the scope formal education programs, consider individual interest and artistic skills of specific members of the educational process.

To make a future student to become a member of the research work, it is necessary to awake his desire, build his motivation, and activate his cognitive interest. That's why out-of-school education has to be focused on development of specific knowledge, which would help young researchers look at the surrounding world in a new way from the perspective of achievements of modern science.

Particularly important and advantageous is an individual research work of youth under the supervision of scientists. Organization of research activity at the pre-university level of education contributes to development of an individual's creative thinking, improvement of the system of theoretical knowledge and practical skills. It is important that the research work comply

with interests, age-related, individual and intellectual abilities of the performer's personality. Objects and natural phenomena, which most typically reflect significant sides of local natural conditions, and which are available for systematic and regular observations, can be the research subjects of the youth, which will help future students form and develop cognitive interests and logical thinking, as well as improve relevant skills.

In this case young scientists learn to conduct researches carefully, acquire methods for data processing and make sure that real science-proved facts are based on the results of correctly conducted researches. Besides, the youth is acquiring skills for working with scientific literature, preparing reports, that are based on the results of scientific inquiries, taking part in scientific discussions. The platform for presenting research results, sharing work experience is traditional Ukrainian competitions for defending research projects of students who are members of the Junior Academy of Sciences of Ukraine. Its work is organized by teachers and professors working in educational institutions of pre-university education and higher educational institutions, scientists of the National Academy of Sciences of Ukraine. This is the way to create better opportunities for self-realization of talented children, formation scientific communication atmosphere. In the future they will need acquired knowledge, skills of search and research work, skills to conduct independent experiments and work with scientific literature.

Activity of the Junior Academy of Sciences of Ukraine is essential for solving a wide range of issues, that are based on pre-university education, for example: pedagogical (personality development of a student-researcher); scientific (obtaining interesting and important scientific results); practical (for example, in the sphere of protection of rare plants and animals); educational (for example, active positions on the issues of preservation of the environment, disease prevention etc.) [1, p 21].

Young researchers open opportunities of personal development, form some kind of ideals, have internal necessity of scientific cognition of the world.

Many of those, who showed interest to research activity at the pre-university level of education, take an active part in the work of scientific student community as soon as they enter higher educational institutions.

Scientific skills, that are gained at the pre-university level of education form the basis of effective realization of creative potential of an individual in the process of studying in the higher educational institution.

Work with such students requires personal qualities of university professors, such as, high level of intellectual development, wide range of interests and skills, kindness and delicacy, psychology knowledge, feeling of student's needs and interests, ability to support and help students, interpersonal skill, organisational skills. Besides, it is important that professor can organize his pedagogical activity considering psychological features of each student, activate his creative potential.

Effective organizational forms, methods, educational techniques focused on formation of student's cognitive interest include: problematic and research methods of education, educational experiment, research practical works, independent searching work of students, application of information and communications technologies etc.

One of effective methods of activation of students' cognitive interest is problematic studying. It is distinguished as active student's interaction with problematic part of education, that is organized by a professor, where a student is getting involved in solving objective contradictions of scientific knowledge, which helps to develop creative thinking, acquisition of knowledge [3, p. 30-36]. Problematic studying is based on gaining some knowledge, acquirement of some skills on the basis of solving theoretical and practical issues defined. Problematic studying provides creation of problematic situations, realization, acceptance and solving such situations in the process of professor and

student cooperation [2, p. 56]. So, problematic studying is focused on realization of a complex of such goals of teaching process as formation of the necessary system of knowledge, research skills in students; reaching a high level of student requirement for self-education, self-improvement; formation of a special style of mental activity, tendency to research activity and independence in decision making.

The method of problematic presentation of educational material is based on problematic interpretation of scientific and educational information [3, p.177].

Problematic studying activates cognitive activity of medical students, develops their intellectual abilities and forms their ability to make reasonable decisions in strange situations, which are in general features of a creative personality.

Problematic situations appear, when students don't have enough knowledge to solve the task successfully. Problematic situation is based on contradiction between what students know and what they have to learn. Problematic method gives an opportunity to involve all students in the class at the same time, makes them think intensively, look for and find answers to questions, which help them gain knowledge form cognitive interest [4, p 172]. This method is useful when organizing the teaching process of medical biology in Bogomolets National Medical University; it should be used while discussing and reinforcing new educational material. When presenting new material, there is problematic situation in order to awake cognitive interest of students to the topic of the lesson. In this case professor defines a problem, and students take part in its solving. Solving cases helps students to find alternative ways for solving problems, think logically, scientifically, creatively. Such approach makes educational material more convincing; contributes to formation of knowledge; influences emotions of students, builds confidence, satisfaction from mental activity.

Modern methodological support of educational process assists in formation of

interest to learning an educational subject, systematic acquisition of knowledge and skills, formation of a creative self-sufficient personality among students.

In the process of teaching of medical biology the Department of Biology in Bogomolets National Medical University uses practical textbook for medical biology [8, 9, 10]. Educational material of each practical lesson includes research and methodology reasoning of the topic with specification of objective and list of knowledge and skills to be learned by a student; detailed description of practical work performance together with relevant pictures, diagrams, tables; cases; test questions and tasks; test exercises and tests to sections.

Nowadays one of the most potentially effective means for development of cognitive interest and student activity is information and communications technologies [5,6,7]. Their usage helps increase student cognitive interest.

Usage of information and communications technologies facilitates student access to multimedia animated images and graphical schemes, which explain the course of molecular, biochemical, physiological, pathological processes in human organism, intensify cognitive activity due to visualization of some professional procedures, that are performed by a doctor, opportunities of virtual presence in the process of surgeries etc.

Usage of information and communications technologies in the process of organization of future doctors contributes to creation of problematic situations, intensification of emotional condition of studying, building student motivation to studying, individualization of the process of studying.

Usage of information and communications technologies facilitates the process of organization of student independent work. Search systems give students an opportunity to find maximum amount of relevant information in their professional sphere of knowledge.

Usage of modeling education programs, different on-line encyclopedias, guides, textbooks increases efficiency of independent process of studying. Independent learning of educational material is a logical continuation of educational process, which begins and is duly planned during class exercises.

Usage of information and communications technologies in the system of distant organization of student independent work promotes to ability to synthesize knowledge among students; realization of the tasks of professional self-development and reaching desired goals.

Under conditions of wide usage of modern information and communications technologies a professor has to be constantly in creative research and methodology search, as his unique personality, individuality and indisputable influence are very important for students.

Continuity of studying organization, introduction of information and communications technologies to educational process promotes to increase of education quality, development of cognitive interest among future doctors, formation of competent specialist's personality who is capable of constant improvement and life-long studying.

References

1. Бугай О.В. Залучення школярів до науково-дослідницької діяльності з біології / О.В. Бугай, В.Т. Кириченко // Біологія. – 2005. – № 5. – С. 20-21. **2. Галиця В.В.** Особливості роботи викладачів вищих навчальних закладів з обдарованими студентами: досвід і перспективи / В.В. Галиця, А.В. Самко, Н.М. Толмосова, П.А. Варванський, О.П. Білий // Запорозький медичний журнал. – 2011. – № 2, т. 13. – С. 64-65. **3. Вітвицька С.С.** Основи педагогіки вищої школи: Методичний посібник для студентів магистратури. – Київ: Центр навчальної літератури, 2003. – 316 с. **4. Гулай О.І.** Перспективи впровадження проблемного навчання у вищих навчальних закладах / Гулай О.І. // Педагогіка формування творчої особистості у вищій і загальноосвітній школах. – 2009. – № 3. – С. 170-178. **5. Гуревич Р.С.,** Кадемія М.Ю. Інформаційно-комунікаційні технології у навчальному процесі: посібник для педагогічних працівників і студентів педагогічних вищих навчальних закладів. –

Вінниця: ДОВ "Вінниця", 2002. – 116 с. **6. Дичківська І.М.** Інноваційні педагогічні технології: Навч. посібник для студентів вищих навч. закладів. – К.: Академвидав. – 2004. – 334с. **7. Дзюбенко А.А.** Новые информационные технологии в образовании / А.А. Дзюбенко. – М., 2000. – 104 с. **8. Romanenko O. V.** Medikal biology: The study guide of the practical classes course / O. V. Romanenko, O. V. Golovchenko, M. G. Kravchuk, V. M. Grinkevych / Edited by O. V. Romanenko. – K.: Medicine, 2008. – 304 p. **9. Медицинская биология: пособие к практическим занятиям / А.В. Романенко, М.Г. Кравчук, В.Н. Гринкевич, А.В. Костилёв;** под ред. А.В. Романенко. – К.: ВСИ «Медицина», 2015. – 488 с. **10. Медична біологія: посібник з практичних занять / О.В. Романенко, М.Г. Кравчук, В.М.Гринкевич, О.В. Костильов;** за ред. О.В. Романенка. – К.: ВСВ «Медицина», 2015. – 472 с.

References

1. Bugaj O.V. Zaluchennya shkolyariv do naukovodoslidny'cz'koyi diyal'nosti z biologiyi / O.V. Bugaj, V.T. Kyry'chenko // Biologiya. – 2005. – № 5. – S. 20-21. **2. Galy'cyia V.V.** Osobly'vosti roboty' vy'kladachiv vy'shhy'x navchal'ny'x zakladiv z obdarovany'my' studentamy': dosvid i perspekty'vy' / V.V. Galy'cyia, A.V. Samko, N.M. Tolmosova, P.A. Varvans'ky'j, O.P. Bily'j // Zaporozhsky'j medy'cy'nsky'j zhurnal. – 2011. – №2, t. 13. – S. 64-65. **3. Vitvy'cz'ka S.S.** Osnovy' pedagogiky' vy'shhoi shkoly': Metody'chny'j posib-ny'k dlya studentiv magistratury' / S.S. Vitvy'cz'ka – Ky'yiv: Centr navchal'noyi literatury', 2003. – 316s. **4. Gulaj O.I.** Perspektivy'vy' vprovadzheniya problemnogo navchannya u vy'shhy'x navchal'ny'x zakladax / Gulaj O.I. // Pedagogika formuvannya tvorchoyi osoby'stosti u vy'shhij i zagal'noosvitnij shkolax. – 2009. – № 3. – S. 170-178. **5. Gurevy'ch R.S.,** Kademiya M.Yu. Informacijno-komunikacijni tehnologiyi u navchal'nomu procesi: posibny'k dlya pedagogichny'x pracivny'kiv i studentiv pedagogichny'x vy'shhy'x navchal'ny'x zakladiv / R.S. Gurevy'ch, M.Yu. Kademiya – Vinny'cyia: DOV "Vinny'cyia", 2002. –116 s. **6. Dy'chkivs'ka I.M.** Innovacijni pedagogichni tehnologiyi: Navch. posibny'k dlya studentiv vy'shhy'x navch. zakladiv / Dy'chkivs'ka I.M. – K.: Akademvy'dav. – 2004. – 334 s. **7. Dzyubenko A.A.** Novue y'nformacy'onnye tehnology'u' v obrazovany'u' / A.A. Dzyubenko. – M., 2000. – 104 s. **8. Romanenko O. V.** Medikal biology: The study guide of the practical classes course / O. V. Romanenko, O. V. Golovchenko, M. G. Kravchuk, V. M. Grinkevych / Edited by O. V. Romanenko. – K.: Medicine, 2008. – 304 s. **9. Medy'cy'nskaya by'ology'ya: posoby'e k prakty'chesky'm zanyaty'yam / A.V. Romanenko, M.G. Kravchuk, V.N. Gry'nkev'y'ch, A.V. Kosty'lev;** pod red. A.V. Romanenko. – K.: VSY' «Medy'cy'na», 2015. – 488 s. **10. Medy'chna biologiya: posibny'k z prakty'chny'x zanyat' / O.V. Romanenko, M.G. Kravchuk, V.M.Grinkev'y'ch, O.V. Kosty'lov;** za red. O.V. Romanenka. – K.: VSV «Medy'cy'na», 2015. – 472 s.

**Fundacja Central European Academy Studies and Certification (CEASC),
Polska
Wyższa Szkoła Informatyki i Umiejętności (WSIU),
Łódź, Polska**

**NOWOCZESNA EDUKACJA:
FILOZOFIA, INNOWACJA, DOŚWIADCZENIE**

Nr1(5) - 2016

**Łódź
Wyższa Szkoła Informatyki i Umiejętności
2016**

ISSN 978-83-60282-31-1