

HUMANITARIAN APPROACH TO TEACHING AND STUDYING CHEMICAL DISCIPLINES

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Due to a high incidence of chemical compounds and chemical technologies, ethics of chemistry should apply in-depth knowledge aimed to reach the maximum of expected utility. This requires a certain concept of ethical and chemical orientation. The article describes certain elements of humanitarian approach used by us while studying chemical disciplines intended for 1st and 2nd year students in General Medicine, Pediatrics, Dentistry, Medical Biochemistry and Pharmacy.


Keywords: humanitarian approach, pedagogical technologies, problem-based learning, rating of educational achievements, objective and reliable control of educational achievements, personality-oriented approach

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ГУМАНИТАРНЫЙ ПОДХОД К ПРЕПОДАВАНИЮ И ИЗУЧЕНИЮ ХИМИЧЕСКИХ ДИСЦИПЛИН

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В связи с широким распространением химических соединений и химических технологий этика химии должна применять углубленные знания, направленные на максимум ожидаемой полезности, что требует определенной концепции этико-химической направленности. В статье описаны некоторые элементы гуманитарного подхода, используемого нами при изучении химических дисциплин для студентов первого и второго курсов, обучающихся по специальностям «Лечебное дело», «Педиатрия», «Стоматология», «Медицинская биохимия» и «Фармация».

Ключевые слова: гуманитарный подход, педагогические технологии, проблемное обучение, рейтинг учебных достижений, объективный и надежный контроль учебных достижений, личностно-ориентированный подход

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The issues of quality and its assessment are particularly true for such areas of human activity as medicine and pharmacy. The level of competence, which is founded at a university today, will be presented to patients tomorrow. Among natural sciences, chemistry occupies a significant place in professional preparation of future physicians, pharmacists and chemists. It is perfect for formation of key competencies being an ideal testing ground for development of abilities to analyze data, think logically, make hypotheses and conclusions.

BODY OF THE TEXT

1st year students in General Medicine, Pediatrics, Dentistry, 1st — 5th year students in Pharmacy (in the higher education program.), 1st, 2nd, 4th and 5th year students in Medical Biochemistry, 1st and 2nd year students in Pharmacy (in the program of secondary vocational program) study at the department of chemistry with a course of pharmaceutical and toxicological chemistry of the Yaroslavl State Medical University. The following chemical disciplines are being taught: chemistry, general and inorganic chemistry, inorganic chemistry, physical chemistry, physical and colloidal chemistry, analytical chemistry, pharmaceutical chemistry, quality control of medicines, and toxicological chemistry.

Under conditions of mass education, the process of knowledge transfer and control of knowledge acquisition require that teachers should use the most up-to-date pedagogical technologies. The technologies allow to provide the minimum guaranteed knowledge and skills in accordance with the educational program and requirements of the Federal

State Educational Standard. Individual characteristics of every student should be taken into consideration such as the basic level, rate of mastering the material, and cognitive abilities.

It is noted that the 1st year students can't work with literature, single out the most important things, and can't work independently. So, a humanitarian approach should be used during the academic process. Its elements are contained in the following forms of organization of the academic process at the department.

1. Another approach to a traditional form of education (lecturing). It consists in enlargement of didactic units, concentration on basic notions, terms, phenomena, generalization and analysis of notions. It is about the focus on those moments that can definitely be checked in any case, presentation not of the general, but of the basic information flow, which is subject to examination and verification. On the one hand, it significantly simplifies the process of adaptation of the 1st year students to learning at a university. On the other hand, teachers did useful work on structuring and selection of academic content, which is subject to control. The strategy is successfully implemented only when tests are actively used during certification. In lecturing content, a great attention is being paid to the history of most important discoveries in chemistry, biographies of known scientists, and illustration of interdisciplinary connections. To this end, visual multimedia aids are being actively used. Examination of life of scientists and their discoveries results in the establishment of connections between generations in Russian and world history of science. In this case, an instructional goal of the

educational process has been gained. Thus, the younger generation is provided not only with certain knowledge and skills, but also with moral values. As a result, an integrated personality is being formed. Ethics of chemistry is not possible without deepened knowledge [1].

2. Using the elements of problem-based learning, problem statement and finding solutions activate the mental activity of students and enhance cognitive interest. The set problems are solved during the joint activity of a teacher and a student.
3. Monitoring of academic achievements of students with regular tracing and publication of the current rating as elements hereof. This is a motivating factor for all students. Weak students are trying to improve their positions, whereas strong students are attempting not to lose what has been achieved. A competitive element in academic achievements has been utilized. Moreover, students from the bottom of the list are urged to visit consultations, use departmental texts and collections of tests developed at the department. It has long been noted that the rating system allows to activate the cognitive activity, stimulates daily independent work and increases interest in the subject [2, 3].
4. Stable rules assessing academic achievements and assessment predictability. Students can get familiar with requirements to the lower and upper ranges of estimates of their academic achievements in accordance with the Discipline Rating Regulation during the first lesson.
5. Open requirements to the minimal scope of content of controlled data formulated as an open bank of tests, which can be used for self-preparation and self-checking. Thus, the humanitarian principle of warranted educational minimum (active cooperation in self-preparation and self-checking) has been implemented. Formation of the bank of tests is preceded by a hard work of the most experienced teachers who carefully select the content of controlled material. The 'nucleus' of the academic discipline, key notions and regularities take the form of tests. Scientifically valid tests, a part of which has a reliability coefficient of 0.90, have been developed at the department. Those who pass the tests get a just and objective mark. Paper-based tests are unified by content and moderate difficulty.
6. Writing a paper on one of the issues for obligatory independent studying by choice or on the topic suggested by a teacher promotes development of the skills of independent work.

7. Combination of criterion-oriented and regulation-oriented approach to assessment of academic achievements of students. The objective of the regulation-oriented approach is to differentiate students by their achievements, finding the strongest ones who can be exempted from an exam, and giving aid to the weakest. The approach forms the basis of the rating system. The purpose of criterion-oriented approach is to check the educational minimum. In this case, criterion-based tests (incoming control, control of knowledge survival and exam) are used [4].
8. Interim step-by-step certification on the discipline. The stages include as follows: a) estimation of practical skills, b) assessing the skill to solve standard tasks, c) assessing knowledge of theory basis according to the results of an examination testing considering the final rating. To solve the tasks, the student needs to be aware of certain data, have solving skills, quick thinking, general intelligence, be able to perform important tasks, correctness of which is checked with participation of a teacher. Problem solving is not specifically taught, no ready-made solutions are available in books. The probability of providing a correct decision is a function of human mental abilities (ability to process information) and poorly depends on whether the test was passed successfully (correctness of answers to tests) [5]. The educational minimum is tested for compliance with educational standards when every tested subject can try to do all tests at least once (unlimited testing). Setting up a time limit for the test brings (thinking) abilities of students to the forefront.

As compared with a traditional exam, three-stage certification is characterized by less emotional stress, and more objective and reliable assessment. The selected form is organically combined with the form of final certification of graduates of the pharmaceutical faculty.

CONCLUSION

Summarizing the above, it should be noted that the humanistic orientation is an important aspect of the entire preparation process of specialists. However, chemical sciences occupy a special place in this case. They are fundamental and have certain logic of construction and solid interdisciplinary connections. They help to provide a student with an integral idea of chemistry of life on their basis.

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