



## Pedagogical Technologies and Methodological Methods of Teaching in Medical Universities

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**Abstract:** Modern medical science is characterized by a high level of mathematization of all its directions, starting with the processing of observational and experimental data and ending with the construction of mathematical models of various states of the human body. The training of future doctors in the mathematical foundations of biomedical knowledge should meet the demand of society, which needs highly competent specialists who are able to apply the mathematical knowledge they have acquired to solve problems of medicine and healthcare. Moreover, they should be creative and active individuals who strive for self-development, self-education and self-improvement. Therefore, in the course of training, medical students should not only stock up on a certain amount of mathematical knowledge, but also learn how to use it for educational, scientific, informational, diagnostic and therapeutic purposes, as well as master the skills of working with mathematical information, computer programs, computer technology.

**Keywords:** innovative teaching methods, pedagogical workshop, thematic crossword.

### Introduction

Classical medical education of the twentieth century was based on the direct transfer of knowledge from teacher to students and had as one of the main tools lectures and teaching "at the bedside" of the patient, which does not meet the requirements of today. Modernization of domestic higher professional education is characterized by its reorientation to the personal paradigm and the priority of the competence approach [1]. The features are: orientation to the student as the main value and purpose of education (axiological approach); the development of the personality of its subjective properties and individuality (personal approach); motivation to join the world of culture (culturological approach); awakening of the creative potential of the individual (activity approach); stimulating students to independently solve their own life tasks, including those related to professional activities, society, etc. (synergetic approach) [6].

According to a number of scientific pedagogical workers, for the improvement and activation of the educational process in higher education, it is of great importance to take into account the peculiarities of university education, which requires students to restructure the stereotypes of academic work that have developed in school, and arming with new skills and skills of educational and cognitive activity. One of the significant components of the strategy for the restructuring of vocational education was the widespread introduction of active forms of education into the educational process, which cover all types of classroom and extracurricular classes with students [7].

Active learning is, first of all, new forms, methods and means of teaching that encourage students to actively think and practice in the process of mastering educational material. It is assumed that the use of such a system of methods is mainly aimed not at the presentation of ready-made knowledge by the

teacher, their memorization and reproduction, but at the independent mastery of knowledge and skills by students in the process of active thinking and practical activity. Methods of active learning, as a means of developing students' cognitive activity, can be divided into three groups of methods that are most interesting for use in order to control the formation of thinking. These are methods of programmed learning, problem-based learning, interactive (communicative) learning. Interactive teaching methods give a double effect: educational and educational [4].

### **Main part**

During the course of the obstetrics and gynecology cycle (4th and 5th year of medical universities), the student must form and demonstrate a number of general cultural (ability and readiness for logical and reasoned analysis, public speech, discussion and polemics, editing texts of professional content, cooperation and conflict resolution, tolerance) and professional competencies (ability and readiness to the formation of a systematic approach, the analysis of medical information, based on the comprehensive principles of evidence-based medicine, based on the search for solutions using theoretical knowledge and practical skills in order to improve professional activity). In order to master the above competencies, as well as to encourage the student to think, develop his creative thinking, skills and skills of independent work, which is very important for a practitioner, we have introduced a number of innovative learning technologies into the educational process.

We present the most productive forms of organization of extracurricular independent work implemented at the department within the framework of the discipline "Obstetrics and Gynecology": pedagogical workshop of knowledge building, compilation of a thematic crossword puzzle, compilation of sinkveyn.

The technology "Pedagogical workshop of knowledge building"

Workshop is a non-standard form of organization of classes, an innovative learning technology that helps to create a creative atmosphere, psychological comfort, promotes professional and personal growth of the teacher and students, the development of their cognitive, creative and communicative abilities, cognitive interest, motivation of educational and cognitive, research activities, allows and emotionally experience the process of creativity, the search for knowledge [2].

Let's consider an example of a workshop whose strategic goal is the emergency conditions of obstetrics in works of fiction.

As an "inducer", questions were raised: obstetric bleeding, septic conditions, what depends on the doctor, how to save a woman? The creation of an individual creative product involves the student's immersion in the literary search for a work of art, which describes a particular clinical situation on an obstetric topic (complicated course of pregnancy, childbirth, postpartum period). Reconstruction makes it possible to create a whole new phenomenon (clinical situation) from scattered episodes of description, which must be presented to the workshop participants.

During the discussion, the participants ask each other questions, discuss possible solutions. From passive listeners, students become active participants in the educational process. The culmination of the creative workshop is the "gap". This is an epiphany, a new vision of the subject, a surprise. The clinical situation acquires a vital coloring, realism. An information request appears. The role of the master (teacher) is to provide information to resolve the contradictions that have arisen.

If students have "passed" through the knowledge building workshop, then the most complex theoretical concepts will "come to life" during the workshop, contact with them will be life-giving. In our opinion, such an option of independent work allows the student to significantly increase his cultural level, get new information, consolidate the material he has passed, virtually see the application of theoretical knowledge in practice, get an additional skill of independent work with literature, generalize and systematize the knowledge gained. The teacher in this situation performs not only the role of a teacher, but also an educator, mentor. Workshop participants are not evaluated according to a point system, participation in the creative process itself implies a positive result.

### Technology "Thematic crossword"

Hardly anyone will remember and think about who was the pioneer in the compilation of crosswords. For many years this wonderful game has been living, growing, developing and changing. Many teachers will agree that the use of crosswords, their compilation, solution, contributes to the development of students' thinking, teaches them to express their thoughts clearly, logically and concisely [5]. Crossword puzzles are focused on the development of intellectual, creative, general cultural and professional competencies. After studying the thematic block of the discipline, the teacher, as an option for independent work, offers each student to individually compose a crossword puzzle in order to repeat and consolidate the material passed. When composing a crossword puzzle, students are encouraged to refer to educational and scientific literature. For example, a lesson on the topic: "Extragenital pathology and pregnancy". Student 1 – makes a crossword puzzle on the topic "Kidney diseases and pregnancy", student 2 – "Thyroid diseases and pregnancy", etc. The minimum number of words in the crossword is at least 30.

Solving crosswords is an alternative to the test control of students' knowledge. An open-form test is a set of tasks (questions) for which no answers are offered, closed-form tests offer a question and answer options to it. The presence of questions in the crossword puzzle, which should be answered, brings crosswords closer to open-form tests, and the presence of a hint (letters at the intersection of words) - with closed-form tests. At the lesson, students first work in pairs (offer each other to solve their crosswords), which allows you to check the individual preparation for the lesson of each student, and then there is a general discussion of crosswords that the author himself presents in the group – checking the overall readiness of the group for the lesson. Thematic crosswords involve scoring: both compilation and solution. In order to stimulate the creative and educational process, students choose the best crossword puzzle, which allows the author to receive incentive points.

In our opinion, this type of training stimulates the cognitive activity of the student (active work with medical literature); expands his horizons on the topic under discussion; enriches the professional glossary; promotes the development of logical thinking and creative abilities. All these skills are necessary for a modern medical specialist. Using this method of teaching, the teacher implements a differentiated approach (both by creating resources of different levels of complexity, and by setting tasks: solve / compose).

### Technology of "Critical thinking"

A system of mental strategies and communicative qualities that allows a person to interact effectively with information reality is called critical thinking. The compilation of sinkveyn is a methodical technique for the development of critical thinking. A sinkveyn is a poem that requires the synthesis of information and material in short terms, which allows you to describe or reflect on any occasion. The ability to summarize information, to express complex ideas, feelings and ideas in a few words is an important skill. It requires thoughtful reflection based on a rich conceptual stock. Translated from French, the word "sinkveyn" means a poem consisting of five lines: the first line is the keyword noun, the second line is two adjectives, the third is three verbs, the fourth is a sentence, the fifth is a synonym for the keyword [3]. Its writing requires the realization of all the personal abilities of the compiler (intellectual, creative, imaginative).

Examples of sinkveyn on the topic of "Childbirth":

Example 1:

- Life
- New, harsh
- Move, think, fight
- If you want to live, be able to spin
- Power

Example 2:

- Newborn
- Healthy, active
- Born, struggling, striving
- Once to give birth, then it is impossible to be fit
- Life

The procedure for compiling a synquain allows you to harmoniously combine elements of all three main educational systems: informational, activity-based and personality-oriented.

Our experience of implementing personality-oriented teaching technologies has shown that students remain interested in the subject throughout the course of studying the discipline, and their creative potential is stimulated. The most gifted students, as a variant of reflection, voluntarily present quatrains, statements.

For example: What will stay with me about obstetrics...

- To be afraid of pregnancy – to be protected
- To be afraid of pregnant women – not to appear in the maternity hospital
- Pre-gravidar preparation - fundamental
- Extragenital pathology is the opposite – complicates
- Preeclampsia insubordinate – kills
- Giving birth is a dubious pleasure
- Exam for two – birth
- The most difficult way is passing through the birth canal of the mother
- Obstetric bleeding – massive underreported
- Obstetrics is a comprehensive, fundamental science

### Conclusion

Thus, the teaching technologies we have considered: a pedagogical workshop, the compilation of thematic crosswords and synquines are an innovative alternative to the traditional lecture and practical methodology. They allow us to harmoniously combine elements of all the main educational systems and approaches: informational, personal, activity-based; to form a competence-based approach to learning; to increase the general cultural and professional level of students' knowledge. The synergy of the above pedagogical approaches in teaching contributes to the development of students' skills of independent work and the search for necessary information; makes practical classes active and interesting; gives each student the opportunity to reveal their cognitive and creative potential both for themselves and for others (fellow students, teachers).

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