

# The didactic value of educational and methodical complex to improve the quality of education on the subject of human physiology

## Short Communication

Modern technologies of education in the field of physiology allow not only to implement its humanistic orientation (preservation of life for living objects in the study of physiological mechanisms), to form the necessary professional competencies, but also to increase cognitive activity of students to the subject, creating psychological comfort in class. The application of educational and methodical complex improves the quality of physiological training and provides training of future specialists at the modern level.

In the era of rapid changes of technology, should be a question of forming a fundamentally new system of continuous education, involving constant updating, individualization of demand and opportunities to meet it. Moreover, the key characteristic of such education is not only the transfer of knowledge and technology, but also the formation of creative competencies, readiness for retraining and self-education.

The first condition for successful training is the wide knowledge of the teacher of the taught subject, the degree of scientific training in this specialty, related subjects, in general education; then in acquaintance with the methodology of the subject, general didactic principles. The basis of modern educational standards is the formation of the basic competencies of modern man:

- information (ability to search, analyze, transform, apply information to solve problems);
- communication (ability to work effectively with other people);
- self-organization (ability to set goals, plan, take responsibility for health, fully use personal resources);
- self-education (willingness to design and implement its own educational path throughout life, ensuring success and competitiveness).

At the same time, with the updating of the structure of the educational standard, the organization of work on the content of the educational programs, the conditions of their provision and the results of development have to ensure the transition to the new standard, a systematic update of the content of textbooks and manuals, the development and implementation of methodological support for the teachers. The modern system of higher education (bachelor's and master's degrees) requires fundamentally new didactic means to enable students to assign information and improve their professional level in a computerized environment. Competitiveness in the modern labor market depends largely on how much a person is able to acquire and develop skills, competences that can be used or transformed in relation to professional activity.

To this end, we have created an educational-methodical complex on Human and Animal Physiology, which has been tested in many universities in Russia, including medical. The complex has been

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repeatedly awarded with awards of different levels (Big Gold Medal at the "Siberian Fair", an International grant, Diplomas for the best methodological complex in physiology). This educational-methodical complex in Physiology fills a gap in the educational literature for pedagogical universities, as this has not been published in recent years.

The complex has been created as a course for pedagogical institutes and universities, covers the core issues of the program of higher education and corresponds to the new educational standard. The educational-methodical complex is intended for independent study of discipline by students. The structure of the complex includes a program, a theoretical course in the form of a textbook and 26 video lectures, tasks for seminars and laboratory classes, guidelines for the implementation of control and course works, test tasks, references. The components of the course are benefits on paper and electronic media: "Physiology of excitable tissues", "Physiological basis of health" and "Molecular basis of human physiology."<sup>1-15</sup> This complex can assist not only in the preparation of bachelors, masters, but also used in training of teachers of human and animal physiology of higher education institutions. The use of computer technology in the learning process (electronic textbook and video lecture hall, electronic manuals on individual sections of human physiology, electronic workshop "Virtual physiology") contributes to: effective learning of educational material, helps to make the learning process more diverse and exciting, personal-developing; allows one to fundamentally expand the capabilities of the teacher in the selection and implementation of tools, methods and technologies of training, provides great opportunities for the student to realize its creative abilities.

Such forms of presentation of lecture material on physiology as multimedia lectures, lectures with Internet support are widely used. Control work on the subject of students also perform in the form of presentations, individual or group projects using information, television and communication technologies. In this case, various

channels of perception of the material are used, which allows you to lay information not only in the factual, but also in the associative form in the memory of students.

During the testing of the educational and methodical complex in physiology as one of the criteria was studied psychological comfort in the classroom. Psychological comfort can be divided into three types: emotional, intellectual, social. Emotional comfort is a state when positive emotions prevail in a person. Intellectual comfort is expressed in the proportionality of the knowledge that the student receives with his intellectual potential and capabilities. The result of such training will be the assimilation of the program on the subject. Social comfort is characterized by the predominance of positive emotions in social contacts. Based on this understanding of psychological comfort, we have identified the following criteria of psychological comfort in the classroom:

- a. Students' attitude to the learning process;
- b. Level of anxiety in the classroom and before the exam;
- c. Level of cognitive activity;
- d. The level of assimilation of the program on the subject;
- e. Ability to express themselves.

We provided a study to evaluate the criteria of psychological comfort in the classroom on Human physiology of students-biologists of the 4th year (Table 1).

**Table 1** Data on the levels of emotional attitude to the subject (N=39 students)

NN	Levels of emotional attitude to the subject	% of answers
1	Productive	78
2	Positive, without a pronounced cognitive activity	12
3	Positive with increased sensitivity to the evaluative aspect of the exercise	10
4	Diffuse, indeterminate	0
5	Negative with varying degrees of severity	0

Among the students of the 4th year 100% had a positive attitude to human physiology, 78% of students had a productive emotional attitude, that is, not only emotionally comfortable in the classroom, but also interesting, they feel researchers ready to get to the core of the studied material.

The attitude of students to the arrangement was manifested in such indicators as anxiety in the classroom, cognitive activity, negative emotional experiences in the exam. Table 2 shows the results for these scales.

**Table 2** Results of the study on the scales of methodology (N=39 students)

Dials	Level of methodology (%)		
	High	Average	Low
Anxiety in the classroom	0	6	94
Cognitive activity	70,5	26	3,5
Negative emotional experiences in the exam	11	14	75

As can be seen from the table, 94% of students have a low level of anxiety in the classroom. There are no students with a high level of anxiety. 70.5 % of students have a high level of cognitive activity. At a high level, 11% of students experience negative emotions, at an average level – 14%, and at a low level – 75%. This can be explained by the fact that the technology of the exam (computer testing for a while) for part of part-time students causes difficulties.

Analysis of quantitative and qualitative progress in human physiology showed that the first was 100%, and the second –75%. More than half of the students have revealed a desire to perform coursework and diploma works on human physiology. At the same time, three years ago (2008), the quantitative performance was 95%, and qualitative –57%. These data once again confirm the effectiveness of the educational and methodical complex in human physiology and its impact on improving the quality of education.

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## Conflict of interest

The author declares no conflict of interest.

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