

PROBLEMS IN USING INNOVATIVE EDUCATIONAL TECHNOLOGIES IN TEACHING THE SCIENCE OF MOLECULAR GENETICS

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Abstract

This article analyzes the problems of applying innovative educational technologies to the science of molecular genetics and provides information on ways to solve them.

Keywords: problem-based learning technologies, creative technologies, didactic games, technology (technical map).

Introduction

Today, in the rapidly developing world, the formation of new social relations in our society, the integration of education into the world education system, and the introduction of the credit-module system in education show the need for a new approach to modern pedagogical technologies in the educational process. Also, in the Law on Education, the need to introduce and master modern pedagogical technologies, their introduction and introduction to higher educational institutions is legally based.

The conditions that have arisen in our country at the same time require a review of the form, content and mechanisms of the improvement of the qualifications of representatives of all fields and the introduction of appropriate changes to the process. In particular, the implementation of measures aimed at improving the higher education track these days is the decree of the President of the Republic of Uzbekistan "On approval of the concession for the development of the higher education system of the Republic of Uzbekistan until 2030" No. PF-5847, 2019 Decision No. PQ-4391 of July 11, 2020 "On measures to introduce new principles of management into the system of higher and secondary special education", "Education and education" of November 6, 2020 "On additional measures to further improve the system" by ensuring the implementation of decisions PQ-4884, provides for improving the content of the processes of improving the qualifications of students and pedagogues of higher education institutions and regularly increasing their professional competence.

The main part. According to the conducted analysis, it is natural to raise questions and comments about why teaching of all fields, especially molecular genetics, on the basis of modern pedagogical technologies has increased to such an extent, and whether the effectiveness of previous classical methods is so low. Educational institutions have unique methods of pedagogy that have produced many knowledgeable and qualified personnel. The majority of the pedagogical community is following this path, but our recent history has shown that this



path will not bring the expected results to a society that is striving towards a fully independent and highly developed future. There are certain reasons behind this, namely;

1. In order to take a place among the most developed countries in the world, the need to effectively use modern pedagogical technologies in order to effectively accelerate the level of education of our trained specialists and increase its effectiveness;
2. High level of development of science and technology, precisely in the field of molecular genetics, as a result of the emergence of advanced technologies in the world, the volume of the information system is increasing;
3. Implementation of modern techniques and technologies in education, digitization of the educational process, widespread use of information technology and technical tools in the educational process;
4. To set the activity of the student and the professor-teacher in the right way, the teacher should know the purpose and content of education thoroughly, should have mastered the methods, methods and tools of education, should be able to direct the student's interest and aspirations in the right way;
5. The need for professors-teachers to clearly define the goals and tasks for organizing the educational process at a high level and effectively, to record the educational results in advance, to prepare the necessary educational tools to achieve full mastery of the educational subjects;
6. Creation of the necessary material and technical base for the educational process;
7. Objective and objective evaluation of the results of the educational process, control and evaluation of the process of acquiring knowledge and skills of students has been achieved;
8. The demand for perfect preparation of a young specialist for life is in such problems as the need to use the principle of a comprehensive approach to objective existence, which is considered the most advanced way of imparting knowledge to them.

Therefore, innovative educational technology is an educational event that meets all the requirements of the above conditions.

Today, the main way to understand pedagogical technology is to focus on clearly defined goals, to establish regular interaction with the learner, and to teach through the behavior of the learner, which is the philosophical basis of modern pedagogical technology. Interaction should form the basis of pedagogical technology and fully cover the educational process. Currently, the credit-module system has been introduced in education, and the need to use different methods arises when students are given assignments and instructions for independent education.

A pedagogue who conducts training to eliminate the above-mentioned problems is a skilled master of his field, who has a deep understanding of his subject, is sought to eliminate its problems, applies theory to practice, and is a master of science and art. he should be a specialist who is familiar with the relevant fields, has a good understanding of general and today's youth psychology, has a comprehensive knowledge of teaching and upbringing methods, and has high culture and competencies. As A.S. Makarenko said: "A teacher should know how to organize, walk, joke, be cheerful or angry."

In particular, real educational practice fully confirms that the wide introduction of advanced pedagogical technologies into practice serves to increase the quality of education. However, a number of problems related to the application of advanced pedagogical technologies to the



process of higher education are clearly visible, and their attention and solution will serve to improve the quality of education.

These include:

1. The classification of interactive methods intended for use in the teaching of molecular genetics in higher education and the inadequacy of instructional manuals clarifying their content. Despite the fact that a number of instructional manuals on pedagogical technology have been created in our republic, interactive methods that can be used in the process of higher education and methodical instructions for their use are not clearly expressed in these instructional manuals. This situation leads to professors and teachers of molecular genetics not being fully aware of the information on the use of interactive methods. Observing the educational process in higher education institutions shows that the interactive methods widely used by professors are lacking.

2. Professors-teachers should fully follow the methodical rules when using interactive methods. That is, interactive methods should be used taking into account the characteristics of the subject, the goals and objectives of the subject, the age characteristics of the students, the form of training, and the presence of favorable conditions in the auditorium.

Improper use of the interactive method does not increase the effectiveness of education, but, on the contrary, leads to a decrease in the quality of training.

3. In order to create educational technologies, professors and teachers should have the ability to transform educational goals into pedagogical tasks and determine them in accordance with the expected result. All faculty members are required to have the skills and competencies to apply Bloom's Taxonomy in practice. It is impossible to achieve a successful design of the training process without having the ability to transform the identified learning goals into learning tasks.

4. The application of advanced pedagogical technologies to the higher education process should serve as an alternative to the traditional education system. It is not necessary to use interactive methods in all audience training. The main thing is that the expected result should be achieved in the training session based on the technological approach. In this process, you can use any acceptable methods that allow you to achieve the goal. Also, it is not appropriate for professors to demand that students pass the lectures themselves, misinterpreting the technological approach. Such an approach to lecture training does not fully serve to ensure its effectiveness. As the main form of teaching in higher education, there are special requirements for the lecture, including the lecturer. Full fulfillment of these requirements can be effectively implemented only through a professor-teacher (lecturer). There is an opportunity to organize conference-lecture classes based on the lectures of students, and our republic has a lot of experience in this field. In this case, the requirements for organizing and holding a conference-lecture should be observed.

Special importance is attached to lectures in higher education. Professors and teachers can use several methods of lecture training. Even when these methods are effectively used, it can be considered that innovative technologies are used. Because the use of conference, binary, problem, demonstration, advisory, provocation (training with pre-planned errors) lectures requires a great responsibility, preparation, creative approach, and a lot of work from the professor-teacher. Students of molecular genetics specialists are given a number of classes



during the course of classes, i.e. lectures, seminars, practical and laboratory classes. Each of these exercises has a special feature. Currently, many higher education institutions are equipped with laboratory inverters, as well as computer equipment and electronic boards and multimedia equipment that provide an opportunity for innovative education. This makes it possible to apply innovative educational technologies to the educational process, and the effectiveness of the quality of education is achieved.

Conclusions

Based on the above comments, we believe that it is appropriate to perform the following methodological tasks in order to increase the effectiveness of the use of innovative educational technologies in the teaching of molecular genetics:

- 1) it is necessary for professors and teachers to clearly understand the meaning of concepts such as "interactive method", "technology", pedagogical technology of innovative educational technologies. In the teaching of molecular genetics, the main attention should be focused on the design (technological model) and planning (technological map) of the teaching process, that is, on technology;
- 2) methodical rules and instructions should be followed when using interactive methods in the process of teaching molecular genetics in higher education. It is possible to effectively use interactive methods by following clear methodological instructions. This serves to increase the quality of education;
- 3) In the creation of educational technologies in the field of molecular genetics, it is desirable to be based on diversity, creativity, and innovative approaches, and to avoid falling into the same pattern.

It is necessary to use elements of innovative educational technologies, graphic organizers, problem-based educational technologies, creative technologies, and didactic games in the process of imparting knowledge to students in higher education and in the assessment of mastery of subjects.

Of course, thanks to our ongoing efforts, we will be able to prepare the young generation as highly intellectual and competitive specialists, as the President said.

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