

METHODOLOGY OF USING INTERACTIVE METHODS IN THE EDUCATIONAL PROCESS

Atakulova Manzura Nematovna

Associate Professor, Navoi State Pedagogical Institute, Uzbekistan

Murtazayeva Fazilatxon Baxadirovna

Master`s Degree Student,

(998990814228)., manzuraatakulova98@gmail.com

Abstract:

This article talks about the effectiveness of using case study technology in the development of student research activities in a biology education course.

The universe was created in development, change, it exists outside the thinking of the human mind. As a result of human study, research and analysis of this existence, information has been collected, re-learned and put into practice over the centuries. This is the result of human life and scientific activity.

In essence, science is an area of human activity aimed at developing and systematizing objective knowledge about reality.

In higher education, the pedagogical process is directly related to scientific research and complements each other. Especially if the training is of an educational and research nature, students acquire research competencies in the process of independent work. For this purpose, the topic of scientific research is determined on the basis of the educational program of higher education on methods of teaching biology. Along with acquiring certain skills, the student can continue research work on a previously chosen topic or a new topic.

At the present stage of development of methodological sciences and qualifying practice carried out at school, it is necessary to study the history of the problem under study, improve the educational process, various teaching aids and organizational forms based on determining the current deep state of the problem.

Along with pedagogical, practical, project, organizational and managerial activities, bachelor's research activities are carried out as an obligatory part of the educational process at the university. Using a number of the methods mentioned above, students, under the direct supervision of the teacher, receive research assignments on various topics, collect data on this topic, and, if necessary, conduct observations (identify indicators, collect data), in the case of design work, engage in design work in the prescribed manner. After this, he analyzes the data, summarizes and draws the necessary conclusions, and can also make suggestions and recommendations in accordance with the content of the work.

The variety of objects and processes in biology lessons creates ample opportunities for research activities. When organizing research activities, you can conduct independent research

based on the topic specified when students re-submit missed classes, record the results, and also draw up case studies, problem maps, intellectual task maps for students, and conduct research. based on the media laboratory and protect the results.

Satisfying the needs of students in increasing their interest in mastering the basics of science, harmonizing the priority of national and universal values and the relationship of the environment in the educational process, conscious discipline and a valuable sense of human dignity among students, spirituality, social thinking are also approached in a new way in the teaching of biological sciences.

In this regard, in order to increase the effectiveness of education, it is advisable to use various educational technologies in the development of student research activities when teaching biological sciences in pedagogical universities. In general, in the process of biology education, many interactive methods are used to guide research activities. For example: “Case Study” (or “Teaching Cases”), “Bliss Study”, “Simulation”, “Creative Work”, “Relationship”, “Plan”, “Interview”, etc. [1].

The “Case-study” method is successfully used in the practice of higher educational institutions in our country to develop students’ interest in learning, independent work skills, and research activities, and today it is becoming increasingly popular in family educational institutions in our country. Specifically, the case study method is a learning situation in which students identify the causes of a problem to be solved, find a more appropriate solution, and detail certain conditions. The case also contains additional information, including audio, video and electronic presentations and training materials.

In conclusion, as a result of the Case, students will achieve the following results:

- students create the learning process, and during this process there is a real exchange of ideas.
- gives freedom to analyze problems, find ways to balance and solve problems.
- Case studies link learning to authenticity: Case studies model students' practical activities in diagnosing situations, identifying problems, collecting additional information, formulating hypotheses, refining hypotheses, and developing specific steps to solve problems, thereby expanding opportunities.

According to the literature, in the process of searching for solutions to problem situations based on specific situations, the analysis of practical situations is carried out at certain stages[3].

They are as follows:

- Analysis;
- Promoting the problem;
- Identify the participants in the situation;
- Determine the sequence of events.
- Identification of conceptual aspects;
- Development of conclusions;
- Presentation (demonstration)

Having found a solution to the problem, students summarize their findings and bring them to the attention of students.

In addition, during biology lessons, students can conduct independent research on a given topic, record the results, and also create case studies, problem maps, and intellectual maps of tasks for students, conduct research in the media laboratory database and defend their results. In particular, the case study method is a hands-on learning situation in which students identify the causes of a problem being solved, find a more appropriate solution, and present specific conditions in detail. At the same time, the file contains additional information, including audio, video and electronic presentations and educational materials[2;].

In order to develop students' research activities in the process of biological education, students can use the following interactive methods (case study method):

(Exercise 1). The Case of the "Greedy Dragonflies": We meet beautiful dragonflies that fly quickly in the meadows and reed beds near the water. They "walk" all summer. The dragonfly moves at a speed of 104 km per hour, which is due to the fact that it flaps its wings 30 times per second. During the flight, the dragonfly makes complex movements - it, like a falcon, dives down and soars in the air. This is the most "greedy" of all insects. A dragonfly eats 40 flies and mosquitoes in 2 hours. It can even catch its prey while flying. If you compare a dragonfly with a lion, then in one meal the lion has to eat one cow. Now you can imagine how many flies a dragonfly flies over a whole day. What is the reason that the dragonfly is so "greedy"? What do you think?

Case assignment: 1. Read the source and find answers to the questions.

2. Agree on the answer to the case with a friend and explain the answer.

(Teacher's decision)

1. Belongs to the dragonfly family.

2. If a dragonfly eats 40 insects in 2 hours, then taking into account the length of the summer day, the dragonfly flies during the day for 15-16 hours and eats 300-320 during this time insects

3. Helpful. It benefits by killing harmful insects.

4. Based on the above information, the energy generated from the food consumed is spent on the muscles that perform the function of flapping the wings.

(Task 2.) Case report. A child with blood type I was born from parents with blood groups II and IV. Does the father have the right to go to different suspects in this case? Was the baby changed in the maternity ward?

Purpose of the case. Explain the solution to this situation.

Teacher's decision. According to the interaction of allelic genes (codominance), children with blood groups III and IV are born from parents with blood groups II and IV. If we take into account that the genotype is not a mechanical sum of genes, then the essence of the matter can be fully understood. In this case, recessive epistasis appears (the "Bombay" phenomenon). In

people with the Bombay phenomenon, the N-antigen is not produced in the blood in the homozygous state (hh). Agglutinogens A and B are formed from the N-antigen. In this case, a child was born into the family with blood group I, since the parents were heterozygous for the N-antigen [4].

(Task 3). Why is the head of a sea urchin able to survive several days (1-2 weeks), even if it is cut off from the body?

Question about the case. Tell us about the structure of the respiration, blood circulation and nervous system of water sparrows?

Teacher's decision. The respiratory and circulatory systems of waterfowl are located in the abdomen; the brain is also made up of ganglion cells located in the abdomen.

The content of the development of research activities of students of pedagogical universities in the process of biological education, educational and creative research tasks (case - stage) on the formation of personal intellectual qualities in the process of solving problem situations, technologies, development of research activities (problem-based, project, mind-mapping) teaching based on self-development students in an information and educational environment at a creative, artistic level. As a result, it becomes possible to improve the methodology for developing students' research activities using electronic educational resources [4].

Thus, in acquiring the skills and competencies of independent educational and research activities in students, the skills of analyzing and designing their own activities, independent research, positive solutions to professional problem situations are also formed, and through this, independent study and research activities develop. Self-awareness, self-control, and self-control are important features of acquiring skills.

Thus, when developing a problematic task, the teacher is required to have pedagogical skill and great responsibility. At the same time, such tasks allow us to connect theory with practice. This allows students to develop individual and interdisciplinary competencies and improve their skills in applying theoretical knowledge into practice in the future.

Sources:

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