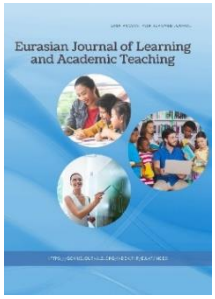

Active Forms and Teaching Methods in Biology Lessons

Urazova Ra'no Stanislavovna, Associate Professor of the Department of Zoology, Samarkand State University, Uzbekistan

Surayyo Radjabova, Researcher of Samarkand State University, Uzbekistan

ABSTRACT

Active learning aims to organize comfortable learning conditions in which all students take an active part in the lesson. The use of active methods by the teacher in his lessons speaks of his innovative activity. The organization of active learning involves the modeling of life situations, the use of role-playing games, the general solution of issues based on the analysis of circumstances and situations, the penetration of information flows into the mind, which cause its vigorous activity. The purpose of the article is to identify and scientifically substantiate the possibilities of using active forms and methods of teaching in the classroom and in extracurricular work in biology lessons at the university.

Keywords: Active learning model, active technologies, discussions, tournaments, disputes, debates, "mini-lessons", brainstorming, business games, simulation games, situational exercises, tasks, problems, exercises

In the management of education in the natural disciplines, in accordance with the general theory of management, the leading place is occupied by the function of planning (programming, design). General guidelines for the development of education in natural disciplines are defined in educational programs, in accordance with which it is supposed to achieve a qualitatively new level of study of the natural sciences, the optimal combination of the humanitarian and natural-mathematical components of education, the formation of an ecological culture in student and youth, love for their motherland, harmony of relations with nature. Specific tasks regarding the environmental education of students are defined in the curricula on the basics of sciences for the corresponding levels of education [1].

Under these conditions, the study of biology in university is of great importance. However, now new approaches are needed to study biology. The old methods are deprecated. One of the general tasks of reforming education in Uzbekistan is the preparation of an enlightened, creative personality, the formation of its physical and moral health. The solution to this problem provides for a psychological and pedagogical substantiation of the content and methods of the educational process, which is aimed at developing the personality of students. In this regard, teachers and psychologists feel the need to introduce methods that would help implement a personal approach to the student. It is this approach that is one of the principles of organizing educational work, which is substantiated by modern psychology. In this regard, such an organization of the educational process in university becomes important, in which the formation of the student's personality will be a purposeful and effective process. In this regard, it is relevant and important to consider active learning methods.

It is clear that the structure of a lesson with the use of active technologies will differ from the structure of a regular lesson; this also requires the professionalism and experience of the teacher. Therefore, the structure of the lesson includes only elements of the active learning

model - active technologies, that is, specific techniques and methods that allow you to make the lesson unusual and more intense and interesting. Although you can conduct fully active lessons.

Many forms and methods of active learning in biology lessons have been developed. This includes work in small groups, discussions, tournaments, disputes, debates, “mini-lessons”, brainstorming, business games, simulation games, situational exercises, tasks, problems, exercises, “Puzzle”, etc. These forms and methods in biology lessons can be used both for teaching, learning new material, and for testing knowledge [2].

The model of group problem solving with the help of metaphorical thinking is called synectics. This is a model of group creative activity and educational research, which has been developed in foreign pedagogy since the 1960s. Synectics (Synectics) fits the experience of applying the well-known method of group generation of ideas, which is called “brainstorming”. Synectics has evolved as a general exploratory activity in problem solving by expert groups using conjecture, bold hypotheses, "wrong ideas" and intuitive solutions. At the beginning of its development, this model was created as a technique for stimulating creative work in search of innovative solutions to problems in industry and management. In the 60s. in the United States, where "industrial" samples of synectics were launched, experiments began to be carried out to introduce its "educational" version into primary, secondary and higher educations. The main thing for didactic searches was the stimulation of search educational activity, which is based on emotional-figurative, metaphorical thinking.

The organization of educational work on synectics contains:

1. Initial presentation of a problem that is quite difficult to solve.
2. Analysis of the problem and communication of the necessary information. The role of an expert who must competently evaluate a report-message can be performed by a teacher or a student prepared for such work. At this stage, a variety of information sources are attracted, since collecting facts lays the foundations for solving the problem.
3. Finding out the possibilities for solving the problem through a detailed analysis and commenting by the teacher and the expert of all the options put forward with an explanation of the reasons, and some of them are discarded.
4. Reformulation of the problem by each student independently in his own words as he understands it, in order to bring the problem closer to himself.
5. The general choice of one of the variants of the reformulated problem, the initial version is temporarily discarded.
6. Nominations of figurative analogies with the involvement of “metaphorical” descriptions of those phenomena that the problem contains. It is important at this stage of work, along with a direct comparison of objects and phenomena, to give “personal” and “symbolic” analogies (two or three words), even “fantastic” analogies are possible.
7. "Adjustment" of the approaches to the solution outlined by the group or ready-made solutions to the requirements that are inherent in the problem itself. At this last stage, we find out whether the problem has been solved, whether it is necessary to choose a new path to find the right solution.

Thus, it should be remembered that synectics as a form of work contains a number of ideas about the nature of creative activity and the possibilities of its purposeful introduction into the educational process [4].

There are two options for using the model:

1) creation of new representations (from known to unknown);
2) mastering new ideas (from the unknown to the known).

Discussion is a teaching method that provides for the organization of a common language activity in order to find an effective solution to a specific problem.

Discussion as an educational form of work with the class should not be turned into a pseudo-discussion, a pseudo-solution of those problems that are known to the teacher and which he could express in the usual way. After all, the discussion should be problematic. World pedagogical experience has accumulated a

number of techniques for organizing knowledge exchange, which are folded forms of discussion. These, according to M.V. Klarin, include [3]:

- *"round table":* a conversation in which a small group of students (up to 5 people) takes part on an equal footing and during which an exchange of opinions takes place both between them and with the "audience" (group surrender);
- *"expert group meeting" ("panel discussion"):* general discussion of the problem raised by the group members (4-5 students with a pre-determined chairman) and discussion of the report (quite short) by each of them, in which the speaker expresses his position;
- *"forum":* a discussion that is reminiscent of an "expert group meeting" during which the group exchanges views with the "audience";
- *"debate":* a formalized discussion, which is built on the basis of pre-fixed speeches of the participants - representatives of two opposing opposing teams and objections.
- *"trial sessions":* discussions that mimic a hearing in a court, in which the roles of all participants are clearly distributed.

Among the forms of educational discussion, one can single out the *"aquarium technique"* - a special variant of the organization of group interaction [4].

This type of discussion is used when working with material, the content of which is associated with conflicting approaches, conflicts, and discrepancies. In a biology lesson, this can be a discussion of environmental problems, a statement of points of view on Darwin's theory, etc.

M.V. Clarin believes that it is this version of the discussion that focuses on the process of presenting a point of view and its argumentation.

The educational discussion contains the question of the teacher and the answer of the students. Therefore, the main role in the course of the discussion belongs to the teacher, his ability to ask a question, conduct a dialogue, pause, waiting for an answer. Throughout the discussion, the role of the teacher should not be reduced to directive remarks or statements of personal judgments.

Long-term practice shows the high efficiency of open-ended questions that stimulate thinking. These "divergent" or "evaluating" questions are called heuristic questions. And the form of their conduct is a heuristic or Socratic conversation. Heuristic questions do not provide a short, unambiguous answer. These are questions like: How? Why? Under what conditions? What might happen if...? "Divergent" questions (as opposed to "convergent ones") do not provide an unequivocal answer, they awaken to search, creative thinking. "Assessing" questions enable the student to develop his own assessment of this or that other phenomenon, his own judgment.

During the discussion, it is necessary to adhere to the rules (friendly attitude and attention to each participant, keeping from approving or disapproving statements, focusing the entire discussion on its topic, fixing the attention of the participants on the issues that are being discussed, conciseness, content, argumentation as in the process of discussion, so when summing up, the general conclusion is not the end of reflection on the problem, but the next step in the study of a new topic).

Didactic (educational) game; a role-playing game is a game according to the rules, subject to the achievement of a pre-drawn game result (for M.V. Klarinim) [5]. Unlike play activity, purposeful play accommodates the moment of competition.

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All in all, we can draw the following conclusion. Each teacher has the right to choose such active forms of work that correspond to the purpose of biology as an academic discipline. Of course, the teaching of biology needs to change. This process is lengthy. It will depend, first of all, on the activity of students, on their desire to constantly improve themselves in this subject.

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