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TECHNOLOGIES OF COOPERATION EDUCATION IN STUDENT INDEPENDENT WORK

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Abstract
This article provides detailed information on the use of collaborative learning technologies in the organization of independent student work in the credit-module system under the guidance of a teacher, the possibilities of collaborative learning technologies and the technological model of the strategy "Ajurli saw".

Keywords: credit-module, independent student work, collaborative education, collaborative learning technologies, “Sawmill strategy”.

INTRODUCTION

In the context of globalization, the reform of the education and science system is a factor determining the solution to many problems, and precisely because of this, educational models characterized by high quality of professional education are increasing. Education is one of the important tasks in many countries of the world. Fundamental reforms aimed at creating a flexible education system that meets the new requirements of global competition are being implemented in most countries. The main goal of these is to expand the adaptability of higher educational institutions and educational programs, which is being implemented by reforming academic and organizational structures, updating infrastructure, educational methods and technologies, improving the pedagogical process, and improving the quality and composition of teachers.

The transition of the education system of our country from a reproductive state to a continuously developing, open state and the processes of directing learners to reveal their educational and socio-cultural interests require the main subjects of the education system - learners and educators - to change their attitude to their activities. This situation fully corresponds to the organization of the educational process under the currently introduced credit education system [1].

LITERATURE ANALYSIS AND METHODS

Analyzing the practice of universities operating in the credit-module system, we can observe that in most of them, the ratio of classroom hours to independent study hours is 40% to 60% in subjects and modules with classroom hours. In other words, this ratio corresponds to 1:1.5. That is, for every 1 hour of lessons set for a specific subject, the student will have to study and prepare for an hour and a half independently outside of the lesson. Independent work of students is a unique educational activity of a student, which is aimed at independently completing didactic tasks, interest in learning and increasing knowledge in a specific field of science. Of course, the content of the student's independent work is related to the performance of practical tasks that allow the formation of logical

thinking, creative activity, and a research approach to mastering the educational material. Student independent work usually includes student-directed independent work outside the classroom along with fully independent student work. Under the guidance of the teacher, the role of the student's independent work as a team is considered high. When organizing independent work in collective, small groups, students unite towards a common goal, which is cooperative learning in education.

Collaborative education is an education that represents the joint acquisition of knowledge by students in a team, small group, and pair, mutual development, and the cooperative organization of the "teacher-student(s)" relationship during the educational process. is to perform [2].

The principles and essence of cooperative education for conducting independent student work as a team are as follows:

1. Mutual unity of pair and subgroup members. According to him, in the educational process, learning materials are mastered based on the mutual actions of the members of pairs and small groups. The pedagogue should be able to create the necessary conditions for their effective and thorough assimilation of the entire educational material based on the formation of pairs or small groups.

2. In pairs and small groups, each member is responsible for individual and group success. It is necessary to create a comfortable environment for each student to fully realize his inner potential in pairs or small groups, as well as ensuring mutual and joint education of students. In addition, since learning is based on cooperation, it is necessary for each student to fight for the interests of the pair and small group to which he belongs, to take a responsible approach to success with his pair and teammates.

3. Organization of educational activities based on cooperation in pairs and small groups. According to cooperative education, students organize learning activities in pairs and small groups.

4. Overall assessment of pair and small group work. According to cooperative education, the performance of all students working in pairs and small groups is evaluated based on the general performance of their direct partner and group mates[3].

In the organization of cooperative education, students are required to:

- Achieving cooperation with partners and teammates;
- Active work, responsible approach to the assignment;
- Having a positive attitude towards your partner or group mates;
- Feeling responsible not only for one's own achievement, but also for the success of one's partner and group;
- To feel that working in pairs and groups is serious and responsible work;

The application of cooperative education takes place in a certain order. That is:

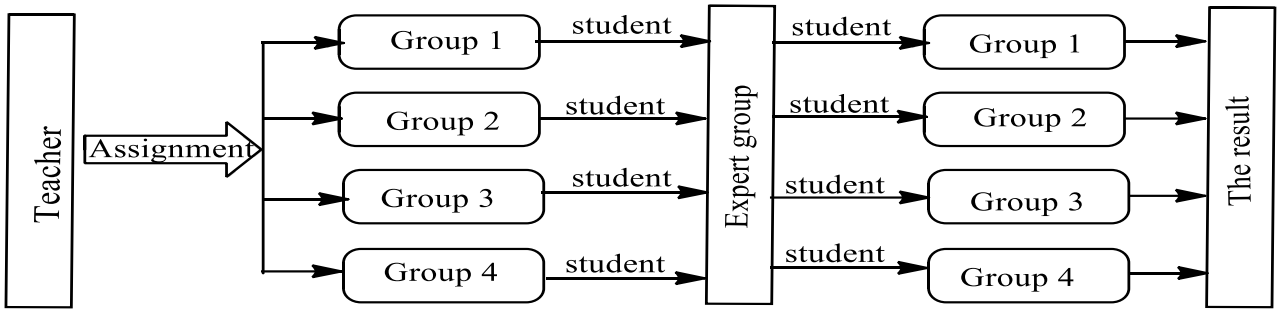
- Students (4-5 people) work in small groups;
- Uniform training material is provided for the team;
- Each group finds an answer to a separate question;
- An expert group is formed;
- This group gets to know the work of each group in detail;
- The expert group has the opportunity to individually assess the performance of each student;
- The points collected by the students are summarized and the activity of the small group is evaluated;
- The team with the highest score is considered the winner [4].

Collaborative educational technology is an educational technology that ensures the joint acquisition of knowledge by students in a team, small group and pair, mutual development, as well as the cooperative organization of the "teacher-student(s)" relationship during the learning process. A

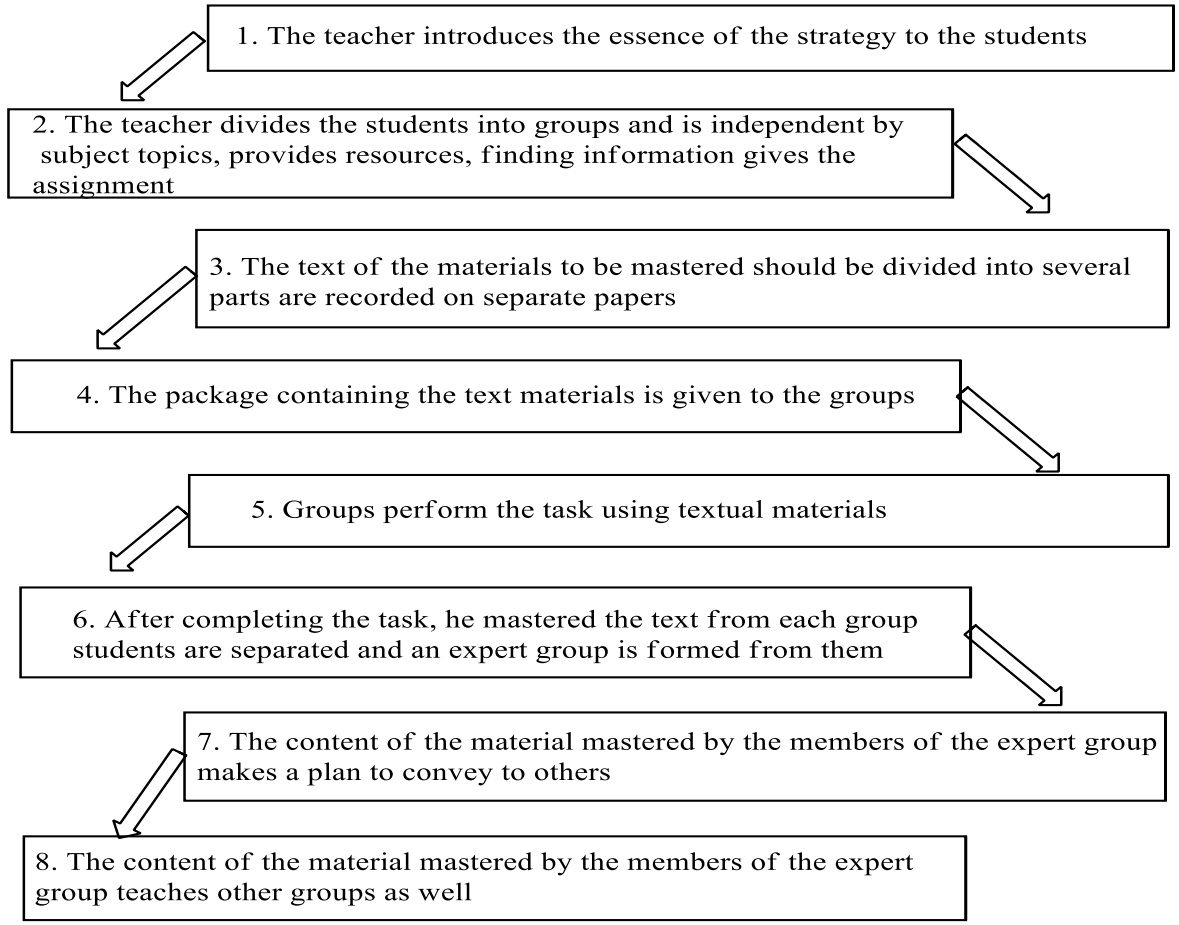
number of technologies (such as "Let's study together!", "Small group research", role-playing and business games, creative competition) are used in the organization of cooperative education. It is important to note that any chosen technology should be able to ensure effective and successful learning of educational materials by students in pairs, small groups or teams[6].

Among cooperative education technologies, the "Jigsaw" strategy is extremely popular. The "Jigsaw" strategy is an important type of collaborative learning technology.

The strategy of "openwork saw" (fr. "ajour" - passed from one side to the other, open on both sides) - on the basis of clarifying the content of a single topic by dividing it into several parts, students master it thoroughly, the ability to convey their knowledge to others having is an enabling strategy.



The technological model of the "Jigsaw" strategy is as follows (1- picture)



Application of the "Jigsaw" method in training is carried out in the following stages (2- picture)

In applying this strategy, it is important that students master the subject thoroughly and have the ability to convey the knowledge they have to others. [6.7].

RESULTS

Two groups of one educational field were selected as an experiment. The first group was given more opportunity to work as a team in mastering the independent education specified in the science program. The students in the comparison group were given the task of independent preparation of independent education tasks as usual. After that, the students of both groups were evaluated through a multiple-choice test using the same control tasks for the module[8].

1.1- table Changes in students' knowledge of organic chemistry

Groups	Number of students	Answers					
		Initial			completive		
		direct	half right	wrong	direct	half right	wrong
Experimental	28	9/32,2%	9/32,2%	10/35,6%	12/42,8%	13/45,7%	3/11,5%
Comparison	25	5/21,8%	8/30,4%	12/47,8%	5/21,8%	9/34,8%	11/43,4%

The final results of the summation of academic groups (stream) by module. 1.2- table

Groups	Number of students	Grades			
		"excellent"	"good"	"satisfactory"	"unsatisfied"
Experimental	52	11/21,2	27/51,9	12/23,1	2/3,8
Comparison	49	10/20,4	15/30,6	21/42,8	3/6,2
Percentages in denominators.					

DISCUSSION

The change in the level of knowledge of the students in the first module of the organic chemistry course was determined (1.1- table).

In the experimental groups, correct and complete answers increased by 11%, correct and incomplete answers increased by almost 3%, and incorrect answers decreased by 12%. In the comparison groups, such positive results were not beyond the range of experimental error.

The final results of the module (Table 1.2) show that the number of "satisfactory" and "unsatisfactory" grades in the experimental groups decreased by almost 2 times compared to the comparison groups.

The obtained results were processed using the χ^2 (chi-square) statistical criterion. The χ^2 (chi-square) criterion was used to show how effective the proposed method is. The value of the statistical criterion indicated in it

$$T_{кузэ} = \frac{1}{n_1\, n_2} \sum_{i=1}^{C} \frac{(n_1 Q_2 i - n_2 Q_1 i)^2}{Q_1 i + Q_2 i}$$

is calculated according to the formula[5].

CONCLUSION

Thus, cooperative education occupies an important place in the student's independent work and among all types of person-oriented education. At the same time, attention is paid to the wide use of cooperative education in the educational practice of leading foreign countries. Studying educational materials on the basis of mutual cooperation in pairs, small groups, and sometimes in teams creates interest in the teaching process and educational material in students, increases learning activity. In addition, cooperative learning helps learners to socialize effectively. Therefore, while learning on the basis of cooperation, learners will develop the skills to use each other, help each other, fight for the success of pairs, groups and teams. Wide use of cooperative education in the continuous education of the republic is desirable.

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