

**MODELS AND INTERACTIVE METHODS OF TEACHING THE BASICS OF PROGRAMMING**

**G.Yo.Buronova<sup>1</sup>, S.S.Elmurodova<sup>2</sup>, N.J.Juraqulov<sup>3</sup>**

<sup>1</sup>Senior Lecturer, Department of Information Technology, Bukhara State University, Uzbekistan, [gulnoraburonova@gmail.com](mailto:gulnoraburonova@gmail.com), 0000-0001-7512-3505

<sup>2</sup> 4rd year student of the Faculty of Information Technology, Bukhara State University, Uzbekistan, [misselmurodova@gmail.com](mailto:misselmurodova@gmail.com)

<sup>3</sup> 3rd year student of the Faculty of Information Technology, Bukhara State University, Uzbekistan,

**Abstract:** In the organization of teaching the science of programming basics, there is a demand to organize and design lessons based on the current requirements of today, that is, new pedagogical technologies. The goal is to form independent, free thinking in students.

**Keywords:** Brainstorming, Working in groups (pairs), Work with the book, Study of situations

### **Indroduction**

Today, the attention paid to education plays an important role in increasing the effectiveness of the educational process. The use of new forms and methods of teaching in the educational process is aimed at educating students spiritually.

The results of many years of research show that traditional classes remain one of the effective models of education. A traditional lesson is designed for a certain period. The educational process is more focused on the personality of the teacher, it is an educational model consisting of the stages of introduction, clarification, strengthening and completion of the topic.

When the educational material is new and more complex, the traditional lesson - in many cases - remains one method of the educational process. It is known that in a traditional lesson, the teacher is at the center of the educational process. Therefore, sometimes the traditional lesson is called a teacher-centered teaching method.

The purpose of the educational process, the lesson, and its positive aspects, in which the teacher is the center, are based on the following principles:

- increasing the student's enthusiasm for studying;
- coordinating the speed of the study process;
- supporting student's initiative and commitment;
- learning through practice;
- provision of double opinion - opinions;

- to set up the study process correctly;
- teacher - a person who facilitates the learning process for students;
- evaluation of the educational process.

In the traditional teaching model, methods such as lecture, question-answer, and practical exercises are used more. For this reason, in these cases, the effectiveness of traditional lessons is much lower, and students become passive participants in the educational process. Studies show that while preserving the traditional form of the lesson, enriching it with methods that activate the activities of students of different districts, it leads to an increase in the level of mastery of students.

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### **Materials**

For this, the lesson process should be organized rationally, the teacher should increase the interest of the students and encourage their activity in the educational

process, divide the educational material into small parts, and discuss and discuss their content. , working in small groups, using interactive methods, providing various interesting examples, encouraging students to do practical exercises independently, using different assessment methods, using educational tools on the spot and on time is required[4].

The main components of a traditional lesson consist of the following stages.

1. Introduction stage:

- repeating the previous educational material;
- explaining the purpose of the lesson,
- introducing the content and plan of the lesson.

2. Covering a new topic:

- dividing the new topic into small pieces;
- presentation of various examples as far as possible;
- not to deviate from the topic;
- re-explaining the complex aspects of the educational material;
- to check the level of students' understanding;
- providing feedback.

3. Exercise to strengthen the material.

Complete analysis of the solution of a task (problem) with students.

4. Guided exercise.

Pupils perform the task (problem) independently, and the teacher controls them and makes corrections.

5. Independent exercise.

Students perform the exercise independently without the teacher's help.

6. Checking the level of students' understanding.

7. Termination.

Traditional teaching methods (with the teacher at the center of the educational process) have the following advantages and disadvantages.

Advantages:

- having certain skills and useful in learning specific concepts, science;
- a high level of control of the teaching process and the teaching environment by the teacher;

- efficient use of time;

- relies on accurate scientific knowledge. Disadvantages:

- students remain passive participants;
- full control of the teacher does not create motivation for all students;
- students cannot communicate directly with the teacher;
- because the level of memorization is not the same for all students, the level of mastery by group may be low;
- conditions are not created for independent learning and decision-making[5].

Currently, modern forms and methods of teaching are widely used in educational institutions. The use of modern methods of teaching leads to high efficiency in education. In traditional teaching, freedom is mainly given to the teacher (subject-object), and in non-traditional teaching, freedom is given to the student, democratization of teacher-student relations (subject-object lesson processes are organized on the basis of "ekt").

### **Methods**

The effective use of non-traditional methods of teaching depends on the professional qualifications and skills of the teacher.

In the process of non-traditional teaching, with the help of organizational forms of teaching (frontal, group work, individual work), the teacher can use the following methods during the lesson:

**Brainstorming.** In this method, the teacher gives a task (question) to the students, and the opinions of the students about the tasks are collected. Pupils try to solve a complex problem in cooperation. They put forward their personal ideas to solve it.

**Working in groups (pairs).** Pupils participating in the lesson are divided into groups (4-6 pupils) or in pairs and perform the tasks given by the teacher.

**Dispute.** The study group is divided into two teams. Debates and discussions are held on the relevant topic, mutual opinions are exchanged[6].

**Guest exercises.** In this case, the lesson will be held with the participation of an expert. The students themselves do all the organizational work, such as inviting the specialist, welcoming them, organizing the lesson process and monitoring it.

**Survey.** During the teaching of science, after the end of each section, chapter, the teacher conducts a survey.

**Oral and written exercises.** Oral exercises develop students' speech culture and logical thinking, their cognitive abilities. Through written exercises, students' relevant skills and competencies are formed, deepened and strengthened

**Self-certification.** Each teacher and learner is a method aimed at controlling their own activities.

**Analysis of results.** The result of the teacher's assessment of the students and the level of achievement of the goal set in the lesson are analyzed.

**Use of video materials.** Use of multimedia system, video recordings, educational television, computers displaying information in the course of the lesson.

**Research.** Independently performing some research works, i.e. diploma and course projects, graduation works on a scientific basis, writing them and analyzing the set goals and results.

**Improvisation.** Students' ability to independently solve non-standard situations during lessons.

**Monitoring and reporting.** Students observe each other and provide information on the problem.

**Games.** Business or staged games are a type of difficult task. In this case, instead of textual material, a life situation is staged in which students play roles.

**Design work.** This is a comprehensive educational method that involves the analysis and evaluation of knowledge and skills. In the project method, students are more involved in planning, organizing, checking, analyzing and evaluating the results of the work done.

**Work with the book.** This method is related to students' independent mastering of the educational material, improving their self-examination skills, and being able to fully and consciously describe the content of the given text.

**Individual - practical method.** Learners solve practical tasks based on the knowledge they have acquired, that is, they apply their theoretical knowledge to practice.

**Working with visual materials** (diagrams, cards, photography, works of art, posters). Learners work independently with visual materials. They also prepare exhibition materials.

**Conversation.** This is a communication, question-and-answer method of teaching and learning.

The interview can be held individually or as a whole group.

**Study of situations.** Standard situations that arise in educational institutions are studied and ways to solve them are developed.

**Teaching others.** In this way, learners exchange information and information with each other regarding the problem.

**Evaluation.** In this case, students will determine how much they have achieved the goal. Learners evaluate each other through the teacher or among themselves. There are the following types of assessment: examination, question-and-answer, multiple-choice questions, correct and incorrect answers, self-assessment, peer assessment, teacher feedback, action plan, various recommendations, rating, presentation, interview, tests, video camera or human observation, micro-assignments, assessment through projects, etc. k.[7]

## **Results**

In the control group, training was conducted based on the experience of teachers of the institution based on textbooks and manuals.

The created content was determined according to the results of the exercises conducted in the control groups, the evaluations corresponding to the rating points, and the effects of increasing the students' practical skills and knowledge levels in the field of computer technologies.

The same level of knowledge of the students in the groups was taken into account. In order to determine the effectiveness of the proposed methodical system, the

results of control training and summative training received from students were analyzed in terms of quality and quantity.

Mathematical statistics methods were used to process the experimental results.

Comparison of learning of experimental and control groups

the average value of the mastery grade in groups

$X_{xi} m_j N$  that

received. Here,  $x_i$  is the mastery index (grade value), which is 2, 3, 4, 5; accepts values.  $m_j$  - the number of repetitions of grades,  $N$  - the number of students participating in the experiment.

We conducted experiments using the following mathematical statistical formulas.

### Conclusion

The use of modern forms and methods of teaching in the lessons of the basics of programming is of great importance in the development of students as well-educated and well-educated individuals.

It is necessary to take into account the activity of students in order to ensure the effectiveness of education during the use of modern forms and methods of teaching in programming basics classes. When working with students, the teacher should be aware of his personality, abilities, opportunities, interests, level of mental and spiritual activity.

### Literature

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