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Improving the Quality of Education in Higher Educational Institutions with the Using Innovative Educational Technologies

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Abstract. The article deals with the features of improving the quality of education using innovative technologies of the disciplines of the specialty in the direction of "Technological Education" in higher education institutions, problems related to science, analysis of learning conditions, setting educational goals, the importance of activating educational, cognitive and independent learning activities of students in the learning process, innovative teaching technologies and evaluation system, methods of organizing and implementing the development of independent thinking of students, as well as their creative abilities. In order to conduct theoretical and practical classes based on innovative technologies and active methods in the discipline "Practical training in technology (Technology and Design)" were developed training materials, control questions and assignments for each topic, as well as tests to assess students' knowledge

INTRODUCTION

The dynamics of the rapid development of the processes of socio-economic reforms in the republic sets the educational system the task of training qualified specialists with the ability to be creative and proactive, capable of making independent decisions and quickly adapting to technics and technology. In addition, one of the important tasks facing the system of higher education is to strengthen state support for students, improve their services, enhance the quality learning opportunities, wide use of innovative teaching technologies and scientific achievements in the learning process, their introduction into the educational process, as well as the application of best practices of developed countries to the educational system of our country.

MATERIALS AND METHODS

It is becoming increasingly clear that scientists, teachers and practitioners of the Republic of Uzbekistan in the educational process of higher educational institutions do not attach sufficient importance to the activation of educational, cognitive and independent learning activities in teaching special disciplines of the direction of "Technological education" using innovative technologies. In addition, educational technologies and the assessment system do not ensure the development of creative abilities and independent thinking of students [1]. The ongoing scientific research and practical work in this area using innovative technologies demonstrate an insufficient level of their effectiveness.

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THE MAIN PART

Our research and the preliminary results obtained have shown that students of higher educational institutions through the acquisition of knowledge and activation of educational activities can develop their educational opportunities, independent work abilities and practical skills [2].

We conducted an experimental approbation when teaching specialized disciplines in higher educational institutions using a number of effective educational technologies. One of such technologies is the "Project" technology. The "Project" technology is the collection, research and implementation of information on a given topic by students, for a certain period of time individually or in a group form. Within the framework of this technology, students participate in the processes of planning, decision-making, execution, examination and conclusion, as well as evaluation of results. Project development can be both individual and group, but each project is a coordinated result of the joint activities of the study group [3].

Tasks have been developed to assess knowledge and practical skills, test questions for students from the control and experimental groups on the subject "Practical training in technology (Technology and design)".

The goals and objectives of the experimental work of our research were defined as follows;

- training of specialized disciplines in selected universities based on innovative technologies has been established ;
- development and implementation of methodological recommendations and guidelines to support innovative technologies and active methods of teaching specialized disciplines in control and experimental groups participating in experimental work;
- the use of educational materials prepared in the learning process on the basis of innovative technologies, active methods for students during theoretical and practical classes;
- control, assessment of students' knowledge and skills and analysis of the results obtained when teaching specialized disciplines [4,5]. To determine the effectiveness of the results obtained during the experimental work, to assess the professional knowledge and skills of students, in two stages the comparison of the results obtained in two parallel experimental and control groups at the Bukhara Engineering-Technological Institute was carried out. If the educational process in the control groups was carried out on the basis of the current methodology, then in the experimental groups it was carried out on the basis of the teaching methodology proposed by us with the effective use of active methods and innovative technologies.

The main emphasis was placed on ensuring the firm assimilation of knowledge and skills, the development of their independent learning abilities by activating students in the learning process.

In the direction of light industry of Bukhara Engineering-Technological Institute, experimental work aimed at intensifying the teaching of the subject "Practical training in technology (Technology and Design)" was carried out. In order to organize and conduct experimental work the following activities are planned:

- selected control and experimental groups in the direction of "Technological education";
- to carry out experimental and experimental work, an experimental and practical structure of the lesson, educational developments, flow charts, educational materials, didactic and handouts based on the use of innovative technologies in specialized disciplines have been developed;
- in higher educational institutions, where experimental work is carried out, the state of equipping classrooms for teaching core disciplines with computers, projectors, magnetic and pin-boards, as well as sewing machines has been studied.

Based on the proposed technology "Project", we have formed the development of practical exercises, from which we will give the following example:

DEVELOPMENT OF A PRACTICAL LESSON

Theme of the lesson: Decorative elements in the creation of models of clothing: applique, gadjima preparation and decoration (4 hours).

Students draw cards of different shapes and identify their own groups. Small groups are formed, each of which consists of 4-5 people. The teacher explains the topic of the class, the goal, the expected results, the order of its organization and conduct, and announces to the students the criteria for evaluation. Determines the level of students' knowledge of the specified topics. To do this, questions are asked about the topic covered.

1-small group:

1. What is the basis of rhythmic formations, what is the concept of rhythm?
2. What difference do you observe between the metric and rhythmic series?
3. What is the influence of the metric series on the accessories of clothing?

2-small group:

1. Specify the difference between the radial direction and the light rhythmic development.
2. What is included in the elements of the costume?
3. Describe the rhythmic orientation of the costume.

n-small group: ....

1. ...
2. ...
3. ...

Activates students, listens to answers. Organizes listening to independent opinion. Gives directions and recommendations. Reinforces knowledge of the past topic. Organizes didactic aids, recommendations, road maps, study maps, scientific literature, tables, boards, and technical means of instruction for students to perform tasks in the workshop [6].

Explains to students the general content of the class and how to conduct it. Classes are supported by "Project" technology and creative assignments. Technology "Project" is carried out in 6 stages:

1. Data collection. At this stage, students will be provided with all the necessary sources about the types of application and gadjim preparation, as well as a list of questions and tasks. On this sheet, students are given information in the form of questions or tasks about a step-by-step procedure for collecting information about sewing methods, colors, shapes, and the embodiment of colors.

1-small group:

1. What applications can be sewn from pieces of fabric?
2. What is gadjim prepared from? How do you explain this?
3. What are the types of applications?

2-small group:

1. How many different ways of making fringe with a needle do you know?
2. Sew various applications from pieces of fabric.
3. Show how to make a gadgim from auxiliary materials, sew it.

n is a small group:

4. ...
5. ...
6. ...

Students analyze the work assignment given to them and collect information about the working stages or the necessary equipment based on textbooks, teaching guidelines, diagrams and tables, technical documents.

2. Planning. At this stage, students should independently draw up a plan for the preparation of the gadgim and the application, that is, plan the stages of their work (for example, the processing process, material, equipment and auxiliary tools), which are aimed at solving the task. Students here rely on their initial theoretical knowledge and use their personal records. Based on the sequence, it is planned to sew such types of applications as: applications depicting landscapes, birds and animals, applications depicted on paper, sewing types of hajims.

3. Making a decision. Students make a decision on the implementation of the plan for making an application and a gadgim. If different solutions are found when solving a problem, then the most effective one is chosen. The teacher must always be present as a consultant.

4. Implementation. At this stage, the task of making applications and gadgets is carried out according to the established plan. Depending on the set time and on the basis of the sequence, various types of applications are sewn: applications that depict animals, landscape and birds, applications depicted on paper, sewing of various types of gadjim. The teacher, in turn, must monitor their work.

5. Verification. Students can independently record their completed tasks, that is, the results of applications and gadgets sewn by them (for example, quality results) on the "Evaluation sheet" and check each other's work. The teacher writes down the results on the "Final sheet".

6. Conclusion. The teacher, after analyzing the results of various applications and rhymes that they have prepared, conducts a final conversation, talks about what aspects should be paid attention to next time.

Part 2 of the lesson - 80 minutes

When creating a clothing model, creative tasks are performed for the production of decorative elements: applications, and decoration. Information is provided on technical and labor safety, sanitary and hygienic rules, the procedure for manufacturing decorative elements when creating models: applications, about the shortcomings arising in the work process, as well as ways to eliminate them. Each small group receives creative tasks. Each student in small groups performs a small creative task [7]. For sewing decorative elements, each group of students is given pieces of fabric and technological maps. The head of a small group distributes the work. Sets the time for cutting and sewing. A master of industrial training or a teacher supervises the work of students. Students who perform their work efficiently are encouraged. Each group of students must prepare ready-made applications, gadgets within a given time. The master or teacher checks ready-made applications, finished products and evaluates them based on certain criteria.

The creative approach to the task should also be evaluated separately. A student who performs work creates any product or composition as a product of creative work [8]. After evaluating the work done by students, you can learn about their independent and creative abilities. Also, the work of students can be evaluated as follows: a student who failed to complete the work - unsatisfactorily (below 55%), satisfactorily (56-71%), well (72-85%), performed perfectly (86-100%).

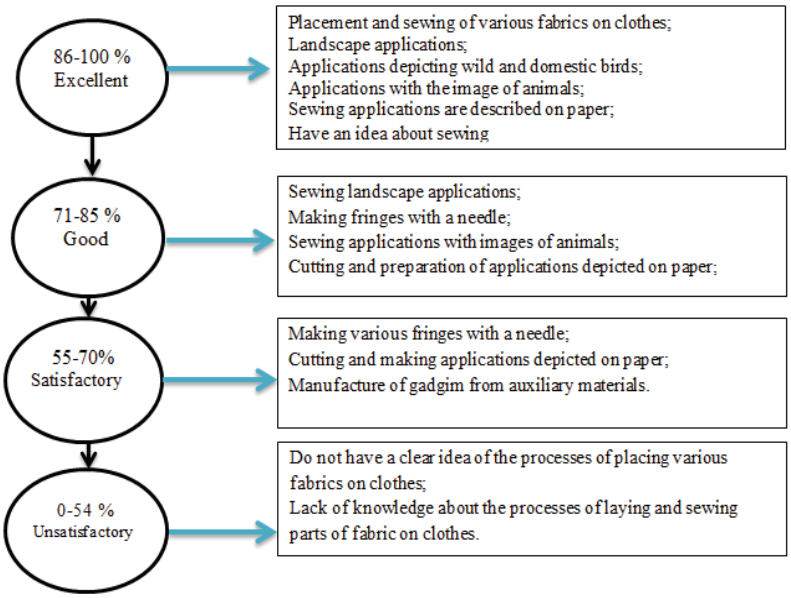

FIGURE 1. Diagram with the criteria for assessing students' knowledge.

RESULTS

The results of the control and experimental groups obtained at the beginning and end of the experiment were continuously analyzed, compared and conclusions were made. In the experimental group theoretically and practically proved the effectiveness of teaching with maximum use of innovative technologies and active methods.

Part 3 Final - 10 minutes

The points scored by the students of the group are announced and the winning group is encouraged. Evaluation criteria are an indicator of the extent to which educational goals have been achieved. They can be expressed in numbers ("5", "4", "3", "2") or in words ("excellent", "good", "satisfactory", "unsatisfactory"), as well as using a 100-point rating system that is currently used to control students' knowledge. The criteria for assessing students' knowledge are given in scheme 1. The achievements and shortcomings of the work done are analyzed, the reasons for the mistakes made are identified and the ways to eliminate them are explained. A homework assignment is given. Items in the workshop are collected and put in order.

Table 1. Results of control and assimilation of students in the experimental groups on the discipline "Practical training in technology (Technology and design).

Level of assimilation	In the experimental groups		In the control group	
	At the beginning of the experiment	At the end of the experiment	At the beginning of the experiment	At the end of the experiment
Excellent	7	20	4	10
Good	25	56	15	36
Satisfactory	49	24	28	44
Unsatisfactory	8		15	7

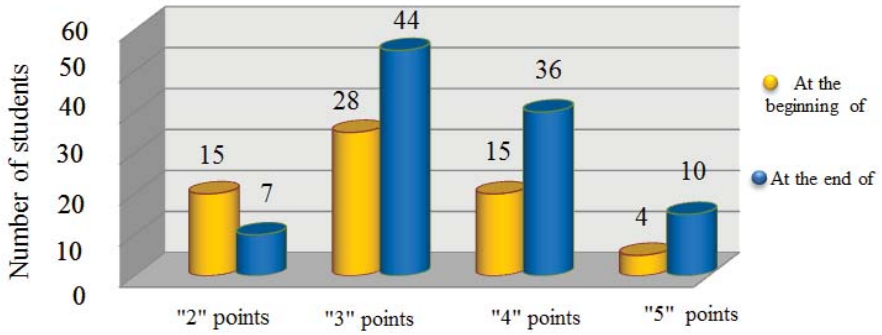

FIGURE 2. Histogram of test results in the control group at the beginning and end of the experiment.

As can be seen from the histogram, at the beginning of the experiment the number of students who received a grade of "excellent" in the experimental groups when teaching core disciplines increased by 11%, and the number of students who received a grade of "good" by 41%, the number of students who received a grade of "satisfactory" decreased by 81%, the number of students who received a grade of "unsatisfactory" by 13%. Accordingly, at the end of the experiment students who received a grade of "excellent" increased by 33%, students who received a grade of "good" increased by 93%, the number of students who received a grade of "satisfactory" relative to the control groups increased by 33%, students who received a grade of "unsatisfactory" are absent.

In the experimental groups, in contrast to the control groups, the number of those who received the ratings "satisfactory" and "unsatisfactory" relatively decreased.

Mathematical and statistical processing of the results of the experimental work showed that the position of the experimental and control groups differs from each other. Thus, by organizing the educational process through the support of innovative technologies in specialized ones, it is possible to achieve high efficiency.

CONCLUSION

According to the results of the study the following recommendations for improving the teaching of specialized disciplines using innovative technologies in higher education institutions were given:

- On the basis of the organization of educational process on profile disciplines with the use of innovative technologies it is necessary to properly determine the psychological capabilities and mental abilities, independent thinking and work capacity of the student
- Paying special attention to a number of aspects such as proper use of free time outside of the university, creative approach to their work, the ability to solve problems independently in the future professional field.

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