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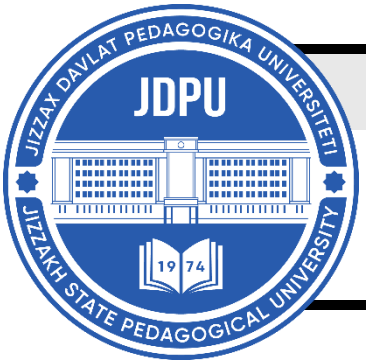

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TECHNOLOGICAL MAPPING OF COURSE DESIGN IN THE TRAINING OF FUTURE TECHNOLOGICAL EDUCATION TEACHERS

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ABOUT ARTICLE

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Abstract: In this paper we present a technological map of design activities in the educational process, in particular, the design of educational activities. This approach is considered one of the ways of organizing the educational process and is an effective system for achieving the expected result from the training session.

INTRODUCTION

As stated in the "Concept of the Development of the Higher Education System of the Republic of Uzbekistan until 2030", one of the important tasks of the National Program is"... to introduce methods and technologies aimed at strengthening competences in the educational process, to direct the educational process to the formation of practical skills, in this regard, to introduce advanced pedagogical standards to the educational process based on international educational standards it is necessary to widely introduce technologies, educational programs and teaching-methodical materials[1].

In order to form a new system and content of higher education, it is necessary to introduce a unique innovative approach to education in accordance with the abilities and opportunities of students, advanced pedagogical technologies of education, to create improved educational and methodological complexes, and to provide didactic support for the educational process.

In order to successfully solve these tasks, it is important for pedagogues to be aware of the nature of modern educational technologies, to be able to use them effectively in the educational

[1]"Concept for the development of the higher education system of the Republic of Uzbekistan until 2030" // Collection of normative documents of higher education . Tashkent. East. 2019

process, and to carefully design lessons. In this process, the teacher should be able to organize the specific aspects of the subject, technical and didactic teaching tools, and most importantly, the opportunities and needs of the students, as well as their cooperative activities, so that the intended result is achieved.

The purpose of the project is that learners are willing to acquire independent and broader knowledge from a variety of sources; they learn to apply the acquired knowledge to solve practical problems; learn communication skills by working in different groups; they improve their scientific research skills, including problem-solving skills, information gathering, observation, testing, analysis, hypothesizing, generalization, and systematic thinking.

MATERIALS AND METHODS

According to the results of our research in this field, we found it appropriate to conduct the following stages of the design of training sessions in the training process of future technological education teachers: *research-selection, construction, educational construction, technological, didactic-technological, project implementation and the final stage* .

We notice that, each stage has specific requirements, which include:

correct definition of educational goals; designing the expected results in the educational process;

collect information about the educational process;

preparation of information based on data;

classification of information into systems according to the goals and tasks of education;

ensuring interdependence of educational technology providers, etc.

In the process an unique learning environment is created between the teacher and the students at each stage of the design. In this case, we created the following technological map based on the design for the formation of the continuous education process of teachers and students (Table 1). In the development of the technological map, we took as a basis the technological map of the use of the "Strategy of Actions" developed by researchers H.O. Torakulov, J.R. Akhmedov [4].

It will be possible to develop a technological map of preparation for the design of BTTO, and with its help, it will be possible to legally implement our research.

In general, the technological map consists of a set of practical actions for the implementation of teaching activities and the design of its targeted (effective, optimal) implementation, determines the peak of pedagogical activity, that is, the level of pedagogical skill of the teacher (researcher). The reason we say this is that the actions performed during the training are systematically described step by step in the technological map [4].

The opinion on the expression of the technological map is also given in scientific works of Z.Q. Ismailova: "Technological map is a step-by-step, step-by-step, consistent description of the process (with additional graphic methods) showing the tools used" [5].

RESULTS AND DISCUSSIONS

We fully agree with the above-mentioned ideas on the formation of a technological map, and we offer the following technological map of the organization of training based on a project approach:

Table 1. The main stages of designing educational activities and the educational tasks performed in them

TECHNOLOGICAL MAP

T.r	**THE MAIN STAGES OF DESIGNING TRAINING COURSES FOR FUTURE TECHNOLOGICAL EDUCATION TEACHERS AND EDUCATIONAL TASKS PERFORMED IN THEM**	
I	**SEARCH - SELECTION STAGE**	
1.1.	**Educational tasks**	
	1.1.1	choosing a project topic
	1.1.2	planning design activities by stages
	1.1.3.	data collection, study, processing and analysis
	1.1.4	determining the direction of the project and analyzing it in relation to the problem
	1.1.5.	gathering information on the subject of the project
1.2.	**Teacher activity**	
	1.2.1.	supports students' suggestions and ideas
	1.2.2.	sets a problem for the students and organizes its discussion
	1.2.3.	explains the purpose of the project
	1.2.4.	teaches you how to use the internet and recommends sites to help you master the subject
	1.2.5.	monitors students' activities and gives instructions when necessary
1.3.	**Student activity**	
	1.3.1.	get acquainted with the content of the problem recommended by the teacher
	1.3.2.	they study the content of the information related to the problem
	1.3.3.	identify and analyze the necessary information
	1.3.4.	using the internet and websites, they take advice from the teacher and make a plan for the formation of the project
	1.3.5.	they define an action plan suitable for the set goal and have it checked by the teacher
	1.3.6.	they record the results of research and discussion
II	**CONSTRUCTION STAGE**	
2.1.	**Educational tasks**	
	2.1.1.	looking for convenient solutions to the issues raised in the project
	2.1.2.	study construction options taking into account design requirements
	2.2.3.	choosing the manufacturing technology of the project product
	2.2.4.	environmental expertise of the prepared project product
	2.2.5.	formation of design and technological documents related to project work
2.2.	**Teacher activity**	
	2.2.1.	organizes the search and development of creative ideas, activates students and directs them to an effective process
	2.2.2.	it tells the assumptions about the solution, the result of the project

	2.2.3.	helps students make positive decisions
	2.2.4.	monitors the learning process and gives advice
	2.2.5.	Recommends project development to students in several options
2.3.	**Student activity**	
	2.3.1.	work with construction information
	2.3.2.	evaluate, analyze and synthesize ideas
	2.3.3.	create a project view and sequence of work using a computer
	2.3.4.	perform graphic works (such as tables, diagrams, pictures).
	2.3.5.	draw up the necessary construction documents
III	**EDUCATIONAL CONSTRUCTIVE STAGE**	
3.1.	**Educational tasks**	
	3.1.1.	identifying and forming the main concepts of the project that should be mastered
	3.1.2.	formation of knowledge that should be mastered in relation to the project
	3.1.3.	formation of skills that should be mastered in the implementation of the project
	3.1.4.	formation of skills that must be mastered in the implementation of the project
3.2.	**Teacher activity**	
	3.2.1.	refers to theoretical information related to the project topic
	3.2.2.	introduces the practical information of the project
	3.2.3.	introduces the knowledge, skills and competences formed on the basis of theoretical and practical information
3.3.	**Student activity**	
	3.3.1.	acquire concepts related to the project topic
	3.3.2.	acquires knowledge related to the topic of the project
	3.3.3.	acquire skills in project implementation
	3.3.4.	they acquire skills in the implementation of the project
IV	**TECHNOLOGICAL STAGE**	
4.1.	**Educational tasks**	
	4.1.1.	drawing up a project implementation plan
	4.1.2.	execution of planned technological operations
	4.1.3.	selection of necessary tools, materials and equipment for training
	4.1.4.	to control the quality of the products being prepared
	4.1.5.	making changes to the design and technology where necessary
4.2.	**Teacher activity**	
	4.2.1.	determines whether the material basis for training is provided
	4.2.2.	directs students' activities
	4.2.3.	ensures the organization of the technological process and, if necessary, coordinates it
	4.2.4.	introduces new modern methods of material processing
4.3.	**Student activity**	
	4.3.1.	they prepare for practical work and prepare products
	4.3.2.	they control and correct their own activities
	4.3.3.	they learn methods of product quality control
	4.3.4.	they use specific methods in the processing of materials
V	**DIDACTIC TECHNOLOGICAL STAGE**	
5.1.	**Educational tasks**	
	5.1.1.	use of methodological resources (textbooks, educational and methodological manuals) related to the topic
	5.1.2.	use of computer-based educational programs
	5.1.3.	use flashcards and handouts
	5.1.4.	internet data usage
	5.1.5.	use of daily press news

	5.1.5.	use of didactic tests
	5.1.6.	use of electronic means
5.2.	**Teacher activity**	
	5.2.1.	gives advice for the effectiveness of training
	5.2.2.	provides methodological support to students
	5.2.3.	recommends didactic materials used in the preparation of the project
	5.2.4.	teaches methods of presentation of prepared didactic materials through electronic means
5.3.	**Student activity**	
	5.3.1.	get acquainted with textbooks and training manuals related to the project topic
	5.3.2.	improve their capabilities in computer-based educational programs
	5.3.3.	they get to know and analyze the internet and daily press information about the project
	5.3.4.	they develop task-cards and didactic tests related to the project
	5.3.5.	they achieve the optimal level of mastery of the subject through the use of electronic means
VI	**PROJECT IMPLEMENTATION STAGE**	
6.1.	**Educational tasks**	
	6.1.1.	analysis of project solutions, followed by project presentation.
	6.1.2.	choosing appropriate methods from pedagogical methods and methods such as "Brainstorming", "Cluster", "Blitz-survey", "BBB" (I know. I want to know. I found out)
	6.1.3.	the use of technical means of teaching such as video-audio equipment, television and computer,
	6.1.4.	performing practical tasks using small devices
	6.1.5.	Familiarity with large amounts of information through the use of digital technology resources.
6.2.	**Teacher activity**	
	6.2.1.	gives advice
	6.2.2.	provides methodological support
	6.2.3.	monitors student activity
	6.2.4.	listens to each participant
	6.2.5.	corrects inaccuracies
	6.2.6.	leads the audience
6.3.	**Student activity**	
	6.3.1.	they reveal the essence (goal, subject, function) of the subject being studied
	6.3.2.	they show the prepared slides
	6.3.3.	use video or audio materials
	6.3.4.	they use pedagogical technologies appropriate to the topic
	6.3.5.	they use methods appropriate to the topic.
	6.3. 6 .	organizes and conducts the defense of its projects
VII	**THE FINAL STAGE**	
7.1	**Educational tasks**	
	7.1.1.	providing additional information on the topic depending on the result of the training
	7.1.2.	determining the quality indicators of the obtained results
	7.1.3.	analysis of the project execution process and results
	7.1.4.	study the possibilities of applying the results of the project
	7.1.5.	determining the degree of achievement of the intended goal
	7.1.6.	of the project efficiency analysis
7.2.	**Teacher activity**	

	7.2.1.	provides final guidance and counseling to students
	7.2.2.	provides methodological support
	7.2.3.	organizes the discussion and defense of the project
	7.2.4.	listens to students and observes their activities
	7.2.5.	participates in the analysis and evaluation of project results
	7.2.6.	evaluates the students' project performance
7.3.	**Student activity**	
	7.3.1.	they mutually analyze the results of the project and evaluate themselves
	7.3.2.	prepare documents for defense
	7.3.3.	prepare the project
	7.3.4.	participate in collective discussion and evaluation of project results
7.4	**Summary**	
	7.4.1	Forming conclusions on the concepts mastered by students
	7.4.2	Forming conclusions on the knowledge acquired by students
	7.4.3	Forming conclusions on the skills formed in students
	7.4.4	Forming conclusions on the skills formed in students
7.5.	**Suggestions and recommendations**	
	7.5.1	development of recommendations on the wider use of project-based learning in educational activities
	7.5.2	recommendations for the use of design as a leading method in the organization of independent education of students
	7.5.3	when organizing the educational process on the basis of design technology, it is necessary to always control the quality change of the content of the general process aimed at personnel training
	7.5.4	It is necessary to always remember that the activities of the teacher (qualified specialist) and student (perfect person) in the process of social production and their effect lead to the acceleration of social development.
	7.5.5.	recommendations on the importance (role and place) of the studied subject in the professional activity of students

If the goal of the project has been achieved, then we can consider that a qualitatively new result has been obtained, expressed in the development of the student's cognitive ability and his independence in educational activities.

If a student knows how to work with educational projects, we believe that he will achieve many victories in his later life: he will be able to plan his activities , he will be able to get the desired goal in different conditions, he will learn to work with different people, he will achieve conditional flexibility and so on.

The educational process aims to systematically awaken the student's activity and curiosity throughout the training.

Design activity as a "method of knowing" provides practical help to future teachers of technological education in understanding the place of knowledge in life and education, becoming the main tool in professional training, and contributing to the formation of thinking culture. Designing activities also contribute to the psychophysical, moral and intellectual development of future teachers of technological education, to activate their inclinations and abilities, important forces and pedagogical profession, to enter into future successful pedagogical activity and the system of

universal human values, to form and satisfy their activity, cognitive demands and needs, to determine their own destiny, aimed at creating conditions for determination, creative self-expression and continuous education. While implementing projects, students in their experience create an idea about the life cycle of a project (product) - from the emergence of an idea to material implementation and practical application, the main thing is the optimization of the objective world, the interdependence of costs and the achieved results. Future teachers of technological education understand the tactics of action in solving problems at the level of their understanding at different stages of project activity, form ideas about the content of projects of different complexity. In designing, students get experience of using knowledge to solve "non-standard" tasks (lack of or excess of information, when there is no standard solution). Thanks to this, it is possible to master creativity and experience, to combine and improve certain solutions to achieve a new result by changing external conditions.

CONCLUSION

The "project method" is used to solve an existing problem, and solving a problem implies the need to use various information sources and technologies, educational materials, as well as to combine knowledge and skills, to apply knowledge from various fields of science, technology, engineering and creativity. Due to the use of this method, such an interaction between the teachers of future technological education occurs when the creative actions of a person are used to achieve the intended goal , as a result of which, along with the achievement of the set goal, the inner world of the growing person is improved.

The organization of the educational process on the basis of the technological map based on the design stages described above creates the following educational advantages:

- teaches logical thinking, scientific and creative problem solving;
- teaches the independent creative search for the necessary knowledge;
- teaches to overcome difficulties;
-makes the educational material more evident;
-makes learning material deeper and stronger;
- help to turn knowledge into confidence;
- creates positive attitudes towards studying;
- forms and develops interest in learning;
- forms a creative personality [6].

So, *design* is a purposeful educational activity specially organized by the teacher to ensure that students act independently from searching for a problem, planning and organizing activities to solve it, and presenting a method of solving it for public evaluation of an intellectual or simple product.

The conclusion is that the organization and implementation of educational training based on design technology serves to form and develop professional skills and competencies of future teachers of technological education.

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