FORMATION OF SCIENTIFIC-METHODICAL WEB-ACTIVITY OF STUDENTS OF PEDAGOGICAL AREAS OF EDUCATION ON THE BASIS OF THE WEB-QUEST

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Abstract. The urgency of the article is determined by the striving introduction of informatization in education. Modern forms of learning are mutated as a result of this process. Today, the use of ICT technologies, including the Internet and computer technologies, also becomes topical. A great popularity is acquired by web quests (interactive sites with assignments for students in the information environment). The article describes the use of the educational web-quest in providing lecture classes. Also, as an example, there is given technological map. It shows step-by-step exercise of the class using ICT, including web-quest. Use of the web quests will help to increase the teacher's efficiency and educational motivation

Keywords. ICT, web-quest, web-activity, technological map of the lesson, ICT in education, Bloom's Cube, T-scheme.

With the spread of digital technologies, learning takes the form of a continuous, individually-oriented, flexible and dynamic process. UNESCO [10] pays special attention to the development of high-tech educational competencies and skills in demand in the 21st century through the use of modern information and communication technologies (ICT).

The member States of the European Union have made a number of commitments in the area of Informatization of education related to innovative pedagogical techniques aimed at finding and selecting the necessary information through ICT, with its subsequent analysis in order to transform it into new knowledge.

In the Strategy of further development of the Republic of Uzbekistan [1] special attention is given to "Promotion of research and innovation, the creation of effective mechanisms for the implementation of scientific and innovative achievements", which indicates that the development of innovation in educational institutions is important. "In modern conditions, when the main indicator of the country's competitiveness is increasingly becoming the level and quality of life of

the population, the role of education is increasing — the most important factor of progress. ... sustainable socio-economic progress is impossible to imagine without innovative development, broad scientific and technical cooperation and the introduction of new technologies, science and technology". These words of the President of the Republic of Uzbekistan were said in 2016 [2] to enhance innovation and technological exchange in various fields of science and education with partner countries in the framework of the OIC.

It is known that the development of scientific research on the use of ICT, based on fundamental studies [4, 7] Crowder N., Skinner, B., Pasca, G., J. piaget etc. In modern science the use of ICT in education were investigated by such scientists as A. Abdukodirov, Begimkulov, U., Galperin P., Ershov A., A. Oripov., Pervin Yu. a., Talyzina N., Tigay O. et al. They note [8] that the use of ICT gives the opportunity to change the forms and methods of training, correction of educational theory and practice.

As you know, the effectiveness of each teacher is determined by his professionalism, ability to adapt to the changing educational information environment [3]. One of the types of professional activity of the teacher is scientific and methodical activity, namely the ability to independently find new approaches to the implementation and improvement of pedagogical activity [5].

Modern ICT has become a prerequisite for the emergence of a new type of scientific and methodological activities, we call scientific and methodological web-activities [6]. This form of activity is a synthesis of the search and exchange of new approaches to teaching using modern ICT.

Determining the conditions for the formation of scientific and methodological web-activities of future teachers-students of higher educational institutions of pedagogical directions of education will increase the competitiveness of the trained teaching staff in the information society. The introduction of innovative pedagogical technologies and modern ICT in the system of training teachers and the development of scientific and methodological activities in the context of Informatization of education will contribute to the quality of education [9].

The content of scientific and methodological web-activities, in our opinion, should include not only the search and download of educational materials from the Internet, but also contain such important elements as:
- analysis and evaluation of information,
- preparation of reports with bibliographic and thematic lists of sites,
- organization of communication in the network,
- publish content in the network.

At the same time, each teacher should be able to use in their professional activities such innovative forms and methods of training as an electronic library, a virtual Museum, a virtual laboratory, simulators, a virtual Olympiad, a network conference, a network forum, a teleconference, a video conference, etc., as well as be able to create and use multimedia teaching materials that include information not only in text form, but also multi-video- and audio information, be able to create and use your personal websites, blogs, forums, web quests and carry out scientific

and methodological web-activities. All these components of scientific and methodical web-activity should be included in the content of professional pedagogical activity.

Having studied the working programs of the directions " Professional education (by fields of activity)" we have identified such academic disciplines as "Professional pedagogy", "Introduction to professional pedagogical activity", "Information technologies in education", as well as topics that can play a key role in the formation of scientific and methodological web-activities (table.1).

Table 1.
Academic discipline and subject to formation of scientific-methodical web-activities

Academic disciplines	Semester	Subjects according to the calendar plan
Introduction to the professional teaching activities	second	Information culture. Information literacy Scientific organization of teacher's work. Self-education and self-improvement. The compilation of best practices Professional competence of the teacher
Professional pedagogy	third	Forms of organization of the educational process Design of educational process in professional education Pedagogical activity and pedagogical abilities Pedagogical and professional skills of the teacher Innovative technologies in the organization of educational process
Information technologies in education	fourth	ICT and their role in the education system E-education Mobile education Distance learning Media education ICT competence

Also, we have developed a method of training based on the following innovative methods and means of training, namely:

● interactive methods and methods of creative learning: creative and search tasks, case-method;

● methods of educational design: information and research projects;

● means of modern ICT: mobile technologies, Internet technologies, web-quests.

Educational web-quest (web-quest) is a task with elements of role – playing game, which uses information resources of the Internet. Educational web-quests are developed for maximum integration of Internet resources in various disciplines at different levels of education in the educational process. Web-quest covers a particular problem, subject, subject, may be interdisciplinary, involves rational planning of students ' time, focused not on finding information, but on its effective use [11].

A feature of educational web-quests is that some or all of the information for independent or group work with students is on various web sites. In addition, the result of working with a web quest is the publication of students ' works in the form of web-pages and web-sites.

Educational web-quest contains the following main elements:

1) introduction-describes the main roles of the participants or the script, a preliminary work plan, an overview of the entire quest;

2) the main task is to determine the final result of independent work;

3) a list of information resources in electronic form-on CDs, video and audio media, links to resources on the Internet, web-site addresses on the topic needed to perform the task;

4) list of roles-students should be presented with a list of roles (2 or more) on behalf of which they can perform tasks (for each role prescribed work plan and tasks);

5) description of the work procedure to be performed by each participant of the web-quest when performing the task independently;

6) a description of the criteria and parameters of evaluation of the web-quest;

7) guide to action-describes how to organize and present the information collected;

8) conclusion-summarizes the experience that will be obtained by the participants in the performance of independent work on the web-quest.

Web-quest helps to achieve several tasks:

☐ increasing motivation for self-learning, encouraging students to learn independently from the teacher;

☐ formation of new competencies based on the use of ICT to solve educational problems (including to find the necessary information, design of the results in the form of computer presentations, web sites, flash movies, databases, etc.).);

☐ the ability to find several ways to solve a problem situation, to determine the most rational option, to justify your choice;

☐ realization of creative potential;

☐ improving personal self-esteem;

development of unclaimed in the educational process of personal qualities (eg, organizational, leadership skills);

 the development of independence;

 development of communicative abilities and skills group work (planning, distribution of tasks, mutual support, mutual control);

 the development of thinking;

 improving vocabulary;

 skill of public speaking (required conducting prejudic and protection projects with the performances of authors, with questions, discussions).

On the basis of development and use of educational web-quests the technique of web-quest-lessons was developed.

As an example, here is a technological map of the theoretical lesson on "ICT and their role in the learning system" of the discipline "Information technology in education" (Table. 2).

Table 2.
Technological map of the theoretical lesson

Discipline	IT in education	
Type of lesson	Lecture with visualization and reflection using web-quest	
Duration	80 min	
Subject	ICT and their role in the education system.	
Plan	1. ICT and its types. 2. Focusing on the use of ICT. 3. ICT in the conduct of auditoria. 4. ICT for the organization of independent work of students.	
The aim of the lesson	Teaching:	To increase knowledge and understanding of the effective use of ICT in the learning system.
	Educational:	To form the ability to choose and adapt ICT depending on the didactic purpose of the lesson.
	Developing:	To develop the ability to effectively apply ICT in the educational process. To develop visual-efficient thinking based on interactive learning.
Methods of teaching	Conversation, questions and answers, Bloom's Cube.	
Learning tools	Computer, projector, presentation, web-quest.	

Here are also guidelines for this theoretical lesson, which will allow a better understanding of the basic methodological techniques of lectures with reflection and visualization based on the use of web-quest.

Reflection is self-analysis, self-esteem, "look inside yourself." With regard to classes, reflection is a stage of the class, during which students independently assess their condition, their emotions, the results of their activities. The purpose of reflection is to recall, identify and understand the main components of activity: its meaning, types, methods, problems, ways of their solution, the results, etc.

There are several types of reflection. Reflection of the content of the material is recommended during the lesson or at the stage of summing up. It gives students the opportunity to understand the content of the passed, to assess the effectiveness of their own work in the classroom. Reflection activities it is recommended to use when verifying jobs, at the stage of consolidation of the material, while protecting the projects. It helps students to understand the types and methods of work, to analyze their activity and, of course, to identify gaps.

Visualization is achieved through the use of graphic organizers, presentation material, as well as educational web-quest.

Methodical instructions to the theoretical lesson
The organizational phase (3 min.)
The greeting has two purposes. The first is to really say Hello. The second is to draw attention to the fact that the teacher is standing in front of the audience. Therefore, the greeting of the teacher should be the most positive, sincere, friendly, likeable, encouraging cooperation.

Control of attendance registers, the attendance or absence of students, identifying the reasons for the absence.
Motivational stage (7 min.)
At this stage, the teacher puts forward a problem, while creating an appropriate emotional mood to study the topic.

It is recommended to show a caricature (pic.1).

The teacher listens to the opinions of students.

Picture 1.
Caricature

CARICATURA.RU

Main stage (60 min.)

The main stage is divided into two sessions: informative and interactive.

The purpose of the informative stage is activation and systematization of students ' knowledge.

The teacher, addressing the audience, asks the following questions:

1. What are ICT?

2. How do they change the nature of theoretical, practical, laboratory, seminars?

3. The advantages and disadvantages of ICT in education?

Students answer, the teacher records the students ' answers in various graphic organizers (table.3, 4).

Table 3.
The use of ICT in the classroom

| The use of ICT theoretical lesson:	Using ICT in practice:	Using ICT in lab:
Demonstration of computer presentation; Testing with choice of answers; The use of electronic textbooks, video-lessons, drawings, etc.	Practice skills with a computer simulator or simulator; Demonstration of visual materials in the form of videos; Testing with choice of answers	Conducting virtual lab; Recording of the world, phenomenon, etc.

Table 4.
T-scheme

Advantages		Disadvantages
	Use ICT in educational process	

Thus there is a systematization of existing knowledge of students.

Further, the teacher, based on the answers of students, presents new educational material in the form of lectures using presentation material.

The purpose of the interactive stage is to consolidate the received and activated knowledge of students.

Students are invited to perform interactive tasks on computers based on the web-quest developed by us (pic.2).
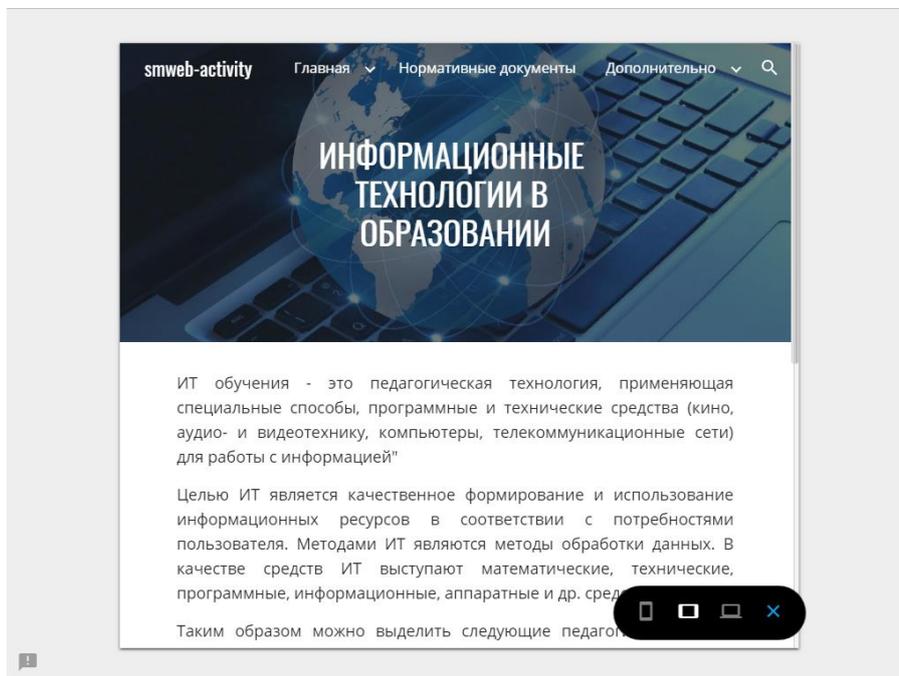
Picture 2.
General view of the web-quest "Information technologies in education»
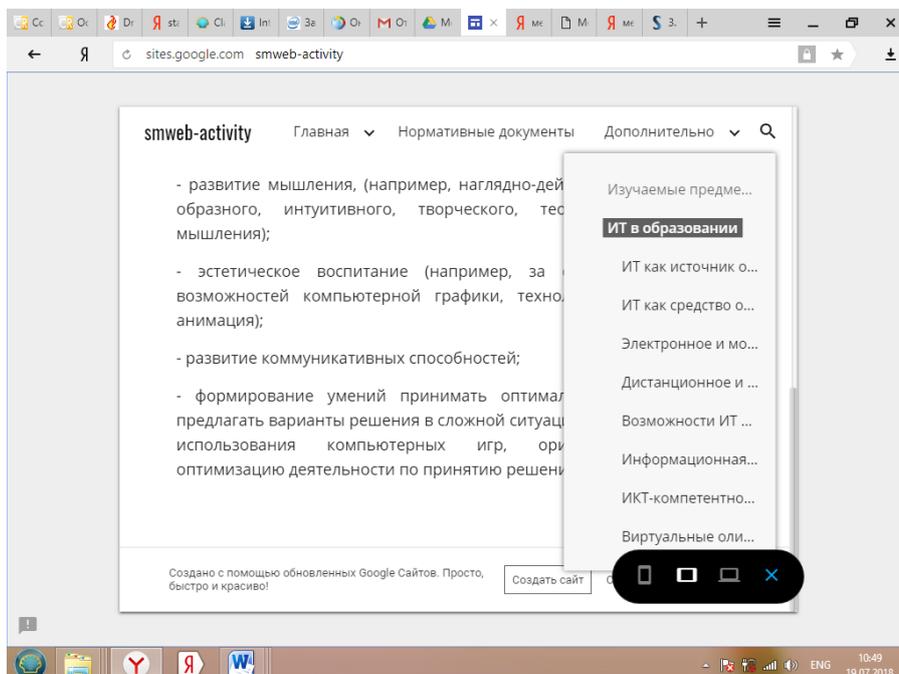
Let's describe the stages of work on the web-quest.

Initial stage (team). Students get acquainted with the basic concepts on the topic. Distribute roles in the team: for 1-4 people for 1 role. All team members should help each other and teach how to work with computer programs.

Role-playing stage. Individual work in the team on the overall result. Participants simultaneously, in accordance with the selected roles, perform tasks. Since the purpose of the work is not competitive, in the process of working on the web-quest there is a mutual training of team members to the skills of working with computer programs and the Internet. The team jointly summarizes the results of each task, the participants exchange materials to achieve a common goal.

Final stage. The team works together, under the guidance of the teacher, feels responsible for the results of the research published on the Internet. According to the results of the study of the problem conclusions and proposals are formulated. A contest of works is held, which assesses the understanding of the task, the accuracy of the information used, its attitude to a given topic, critical analysis, consistency, structuring of information, certainty of positions, approaches to solving the problem, individuality, professionalism of the presentation.

The final stage (10 min.)

The purpose of this stage is to check the residual knowledge of students.

At this stage, students are offered pedagogical technology "Bloom's Cube". The teacher should manage the group dynamics all the time in order to contribute to the development of new knowledge, as well as to exclude the prerequisites of conflicts.

What is Bloom's Cube?

Reception of development of thinking, allows to formulate "open" questions. To use this technique, you need a normal cube, on the faces of which is written:
- Call.
- How.
- Explain.
- Request.
- Concoct.
- Share.

The topic of the lesson is formulated. The teacher throws the dice. The precipitated line will indicate what type of question should be asked. Easier to navigate by word in face of the cube — and with it should begin a question.

Classification of issues
- Call. It involves the reproduction of knowledge, simple questions. Students are invited to name the subject, phenomenon, term, etc.
- How. Allows to formulate cause-and-effect relations, i.e. to describe the processes that occur with the specified subject, phenomenon. Explain. Clarifying questions help to see the problem in different aspects and focus on all sides of the problem.

• Request. The student should offer his task, which allows to apply this or that rule, his vision of the problem, his ideas.

• Concoct. Creative questions that contain an element of speculation, fiction.

• Share. Designed to activate mental activity, learn to analyze, highlight facts and consequences, to assess the significance of the information, to focus on their assessment.

Sample questions for the reception "bloom's Cube" on the topic of the lesson

Name 1. What are the main types of ICT.

2. What are the ICTs that can be used to conduct lectures.

Why 1. Why do ICTs increase motivation?

2. Why do ICTs reduce teacher workload?

Explain 1. Explain the main advantages of ICT in education.

2.Explain the model of using ICT during the lesson and outside the lesson.

Offer 1. Suggest ways of optimizing control by means of ICT.

2.Offer e-learning options at your educational institution.

Think of 1. Figure out how to organize the intermediate or final control with the use of ICT.

2. Figure out how to organize independent work of students using ICT.

Share 1. Share how you can contribute to the formation of information culture.

2. Share how you can organize a joint training project?

The main activities of the teacher using a web-quest in the educational process are:

1. Review and analysis of educational material presented on electronic media.

2. Selection and structuring of this material in informative blocks taking into account individual abilities of students.

3. Inventing ways to motivate students to master the training material.

4. Providing assistance to students in mastering the skills of working on the computer, tracking specific difficulties associated with the attitude to the computer form of communication, especially the presentation of information.

5. Development of control tasks, evaluation criteria, methods of error analysis.

6. Organization of consultations during the study of the training course, aimed at promoting the solution of personal, educational, communicative problems of students.

7. Tracking and recording the dynamics of achievements of the group as a whole, and each student separately.

The developed method was introduced into the educational process of Navoi state pedagogical Institute (act of introduction of 13.04.2018 according to the order

№ 151 AFO of 17.02.2018) with a sample of 180 students of the direction "Professional education". According to the act, using the methods and means described in the methodology in the teaching of disciplines such as "Professional pedagogy", "Introduction to professional teaching activities", "Information technology in education" increased interest and willingness of students to participate in online conferences and online seminars, which led to an increase in the number of students engaged in scientific and methodological web-based activities.

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