Online-learning organization methodology as component of it technologies at students of technical universities

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Abstract—The article describes the application of innovative web-quest technologies as online methodical component. It was advisable to apply the Web-quest for technology as a tool for innovation and the introduction of ICT. Consequently, all the methodological developments were developed in the pro-historical course "PCP PO" in the online mode, i.e. a special Internet resource was developed. The relevance of using Web-quest technology: provides users with complete, reliable and easy to read information resources; creates a convenient interface for accessing information resources; Formation of such key factors as specialists' ability to acquire new knowledge and skills, creative activity in decision making, initiative, professional competence; Improving the effectiveness of the educational process.

Keywords— innovation, information and communication technologies, pedagogical activity, teacher, student, "Vocational education", methodology, pedagogical technologies.

1. Introduction

In the Republic of Uzbekistan, the educational policy of the state is focused on achieving an important goal - increasing the efficiency of education and guaranteeing the level of training of specialists that meets the requirements of the domestic economy and international standards. In the process of professional training of pedagogical staff, active use is found by innovative technologies. The increase in the information resources of society, and the pace of their development are determined to a large extent by the rate of accumulation, processing of information resources. This process has created an urgent need to create new tools and technologies that allow you to systematize, transmit, receive, process information flows, creating a convenient interface for accessing information resources, and thereby providing users with complete, reliable and easy to read information resources. Thus, the Web-quest can be adequately applied in the study of the propaedeutic course "PCT VE" by students in the direction of professional education aimed at developing motivational processes for pedagogical activity, to further studying pedagogical disciplines.

In order to develop and improve pedagogical technologies, the Web-quest occupies a special place among the types of information resources used by teachers, the sources of which lie in the design methodology (A. S. Budilova, Y. S. Bykhovsky, G. A. Vorobyov, etc.) [1, 2].

A number of researchers consider Web-quest as a problematic task with elements of a role-playing game, which requires the use of Internet information resources. Others understand this concept as an organized type of independent research activity using the capabilities of the Internet. Still others are like a web page organized in a special way or developed independently on the basis of a didactic structure and proposed for performing on this topic an Internet resource, a web project in which all or part of the information that students work with is located on various websites. Fourth - as a didactic model of understanding, interpretation of rational work with a personal computer and information resources of the Internet, which serves as a way to enhance learning activities [3,4].

Taking into account the theoretical analysis, studying the practical experience of teachers, the search work, we come to the conclusion that Web-quest is a type of informational, problem-oriented tasks of individual or group training aimed at the formation and development of skills of independent activity, search and student research activities in preparation for teaching activities. The purpose of using Web-quest in training is to develop the skills of analysis, synthesis, and information assessment in the rational use of study time to obtain the necessary information on a specific issue, topic, problem, and its subsequent processing.

We have identified the most significant advantages of using Web-quest: the development of critical thinking, the definition of one's own position, the broadening of the world outlook, raising the student's intellectual level, and the formation of the future specialist's readiness for pedagogical activity.

2020 International Conference on Information Science and Communications Technologies (ICISCT) | 978-1-7281-9969-6/20/$31.00 ©2020 IEEE | DOI: 10.1109/ICISCT50599.2020.9351487

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The Web-quest technology is an innovative educational technology in which the teacher forms the interactive search activity of students, during which they are motivated to independently acquire knowledge, sets the parameters for this activity, controls it and determines the time limits. This technology allows you to work in groups, develops communication skills, leadership qualities of everyone, increases not only motivation for the process of obtaining knowledge, but also responsibility for the results of one's own activity [5].

2. Methodology

The technology of using Web-quest in the study of the propaedeutic course includes the following steps. At the first stage, the teacher conducts detailed preliminary instruction for students on the topics of the propaedeutic course "PKP ON" preliminarily makes brief explanations, acquaints students with the most important points of the instruction, points to the electronic files uploaded by him (instruction on the technologies for organizing and managing the pedagogical process, methodological recommendations, tables, presentations, etc.). At the second stage, students study additional literature, consistently complete assignments for practical and sightseeing classes through a Web-quest. At the third stage, the results of completed tasks on the Web-quest are evaluated, prospects for further cognitive activity are outlined. The learning process is implemented as follows, each student in the direction of vocational education is determined by the learning path of lectures, practical, excursion classes based on Web-quest, which they gradually study and perform, the transition to the next stage of the study of pedagogical tasks is impossible without the previous stage, the tasks are qualified, based on the degree of complexity, determined on the basis of control questions, tests and pedagogical tasks at the end of the study of a certain topic in the propaedeutic course "PCT VE".

When using Web-quest in the process of preparing students for vocational education, cognitive activity of students is activated, creative thinking develops. The teacher organizes the effective work of students in the development of creative activity using problem situations; joint control (under the guidance of a teacher and student responsibility) of learning outcomes serves to increase motivation for further study of pedagogical disciplines.

Testing the model of preparing students for the propaedeutic course.

In the development of the site and web quests for the propaedeutic course "PKP ON", as a tool for creating an online resource, placing files, we used the wixsite.com site creation designer. Wix is a specialized website builder with a special online editor. After preparing the platform of the online resource, it was advisable to proceed to the creation of the Web-quest. To do this, in the constructor of Web-questzunal.com, we created an account, developed an online resource.

The role of the teacher in the learning process using the Web-quest is very different from its traditional functions. In the framework of the traditional teaching system, the teacher appears to be the main source of knowledge that he transfers to students. When teaching and interacting with the subjects of the pedagogical process using Web-quest, as a means of learning, the teacher, in a certain sense, ceases to be a "subject", and becomes a pedagogue of a wide profile, he acts as a coordinator in working with practical and excursion lessons, and how scientific consultant, and as an adviser. Fulfillment of practical and excursion tasks using the Web-quest requires from the teacher not so much teaching as creating conditions for students to show interest in cognitive activity, self-education and putting the knowledge gained into practice. For this, he, as the coordinator of the pedagogical process, must have a high level of culture and organizational abilities.

Using a Web-quest as a means of studying the propaedeutic course "PKP ON" the main learning objectives can be achieved:

1. Formation of general educational and general cultural skills of working with information. This goal assumes that students using Web-quest as a source of information, develop the ability to competently use information sources and critical thinking skills, while they correlate the information received with the necessary knowledge for the proper organization of work on pedagogical tasks;

2. Mastering of information and communication technologies, as a necessary condition for the transition to a system of continuing education. The need for such training follows from the features of lifelong education: the implementation of individual educational "trajectories", the differentiation of educational processes, and the strengthening of the role of teaching aids.

Since the duration of the Web-quest for studying the propaedeutic course "PCT VE" as a circle is designed for 10 hours of practical classes and 4 hours of excursion classes, the educational process boils down to interest students to work with the Web-quest on their own, relying on this on the design training methodology (Figure 1).

Figure 1. Web quest for practical work of the propaedeutic course "PKP Software"

In groups where training using the Web-quest technology will be practiced, practical and excursion tasks can be performed by small subgroups of students or independently by an individual student. Training in subgroups contributes to the formation of skills for independent task solving, synthesizing a common opinion

when discussing practical and excursion tasks. Students learn to listen to each other, collaborate and communicate. Such training also helps build interpersonal skills. Learning in this vein helps accelerate thought processes.

Therefore, at the beginning of the training (at the first class lesson), the teacher needs to divide the students in the group into several small subgroups of 10-15 people, in each group a leader is appointed who will act as the organizer of the practical and excursion tasks. At the same time, each group is allocated specific computers for work, so that in the process of working on their projects they do not have to constantly transfer their files and there is no confusion about which group worked on which computer. After that, the teacher acquaints students with the tasks ahead for them when working with the Web-quest for the study of the propaedeutic course "PCP Software", they need [5-10]:

- organize work in a subgroup, distribute the roles of members of the subgroup;

- familiarize yourself with the materials provided in the Web-quest;

- develop your own theme for the project, or use the task that is offered in the Web-quest (Figure 2).

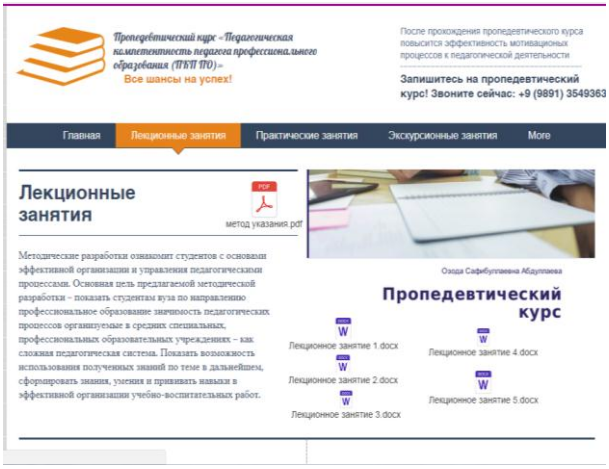

Figure 2. Methodological developments in the lectures of the propaedeutic course "PKP ON"

Having familiarized themselves with the tasks that they have to complete, students begin to work directly with the Web-quest. Sitting down at computers and starting to carry out practical and excursion tasks, students first get acquainted with the introduction, which contains the task, or, using other terms, the statement of the problem that students should work on. The task involves an easily carried out and interesting type of activity, involving the analysis, synthesis and evaluation of materials in order to solve the problem.

While working with a Web-quest, students are provided with basic information that is used as a "reference point" for a deeper study of the subject. Typically, such information is on the Internet and in other literature. At the initial stage of working with a Web-quest, students are faced with the choice:

- or just start to study the theoretical material on the propaedeutic course "PKP ON";

- either study the minimum necessary techniques, in addition to which, by completing small related tasks, the student fills the so-called "Student Portfolio" with files and thereby increases his chances of receiving more positive assessments;

- or in addition to all of the above, the student can use the hyperlinks located on the Web pages of this Web-quest, and further use these opportunities in addition to the necessary requirements that are presented to the project, as well as the development of additional animation projects for obtaining additional assessments .

The teacher, during the independent work of students with Web-quest, acts as an independent expert or coordinator of student work. As mentioned above, students should keep a diary of their project work, this is necessary so that the teacher can at any time evaluate the degree of work they have completed, as well as mastering the knowledge of the propaedeutic course "PCT VE". In this case, the teacher can, in the course of students' work, when their work slows down or difficulties arise, direct their work in the right direction.

Students are given about 4-5 extracurricular hours to work on practical implementation and project preparation, while the teacher warns students that students will allocate the necessary time so that they have one extracurricular hour to prepare for the defense of their project. They will need to present their project within a few minutes, while doing a brief analysis of how the project was conducted.

At the final stage, students demonstrate their created projects (assignments given to them), while giving a small report in defense of their project.

When using the Web-quest, a restructuring of the learning process is needed and, accordingly, the selection of the most common criteria for evaluating project results.

One of the difficult problematic issues is the objective assessment of student performance. Pedagogical control does not always meet the principles of objectivity, scientificness, comprehensiveness, and students are especially keen on the injustice of an assessment, remember it for a long time, often perceive it as an assessment of their own personality, and not as an assessment of the result of their work.

For a more effective assessment of completed tasks (project), how students worked on it, what roles were assigned to each of the group members, students collect a kind of "portfolio" that includes all the additional work that each group member performed, the diary of the whole group's work, as well as a plan for organizing project activities [11-14].

The training portfolio related to the results of practical and field trips should:

- firstly, include everything that can be evidence of the efforts, achievements and progress in the training of this student, be aimed at the cooperation of the teacher and student in achieving goals;

- secondly, organically integrate the three learning processes: teaching, learning and assessment;

- thirdly, to allow combining quantitative and qualitative assessment of the abilities of students through the analysis of various products of educational and cognitive activities;

- fourthly, to promote the promotion of not only assessment, but also self-esteem and mutual appreciation of students, as well as introspection and self-control of students.

The term "portfolio" in the broad sense means a collection of results achieved by a student in a variety of activities: educational, creative, social, communicative. The main purpose of the portfolio is to show everything the student is capable [12,13].

The pedagogical philosophy of the portfolio involves:

- a shift in emphasis from the fact that the student does not know and does not know how to what he knows and knows about this topic, section of the subject;

- integration of quantitative and qualitative assessments;

- transfer of pedagogical stress from assessment to self-esteem.

Thus, the use of a portfolio - a portfolio of individual student achievement, is a new technique for assessing student achievement.

Portfolio is a form of authentic assessment of educational results on a product created by a student in the course of educational, creative, social and other activities. Thus, the portfolio corresponds to the goals, objectives and ideology of practice-oriented training (Figure 3).

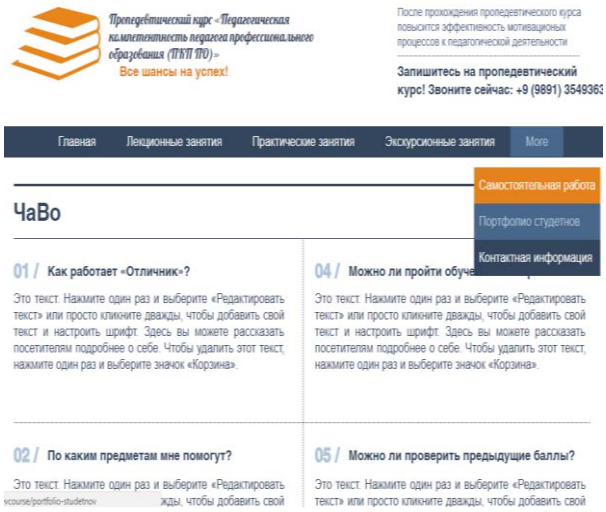

Figure 3. Access to student portfolio

When students are given the opportunity to direct the learning process themselves, its value in their eyes increases. Since the study of an additional course is deep and comprehensive, students acquire knowledge that goes beyond the scope of the curriculum. In addition, students master valuable research skills and abilities that are not formed in the course of traditional studies (Figure 4).

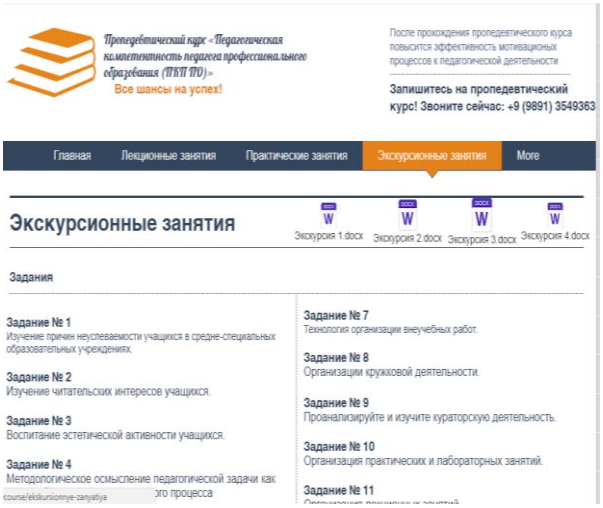

Figure 4. Web quest for excursion work

3. Realization of the concept

We have developed criteria and indicators for assessing the effectiveness of the process of preparing students for educational material at the propaedeutic course, which serve as a complex factor in the successful development of a specialty, both professionally and creatively. Each criterion as a system-forming one includes a group of indicators and indicators that qualitatively and quantitatively characterize it. The criterion is more stable, although it reflects the essence of the development of the pedagogical process and its subjects. The indicators are characterized by dynamism, interconnectedness and interdependence. Therefore, the criteria for evaluating the effectiveness of the students' readiness process at the propaedeutic course require the selection of the necessary indicators (table 1).

Table 1. Criteria and indicators for assessing the effectiveness of the process of preparing students for the propaedeutic course

№	Performance Evaluation Criteria	Performance Evaluation Indicators	Indicators
1	Organization of pedagogical processes based on a situational approach	Constant increase in activity, the formation of initiative and a creative attitude to the study of pedagogical disciplines	The percentage of students showing an interest in the study of pedagogical disciplines; availability of elective courses in accordance with the needs of students
2	Applications of a systems approach technology	The use of a motivational structure inherent in preparing for pedagogical	The level of formation of the need for self-education, enrichment of knowledge,

		activity; motivation to enrich knowledge, skills and pedagogical experience	skills, abilities and experience
3	Applications of technology systems approach	Improving the level of knowledge, skills, experience and development of pedagogical skills	Realizations of self-development and self-education; increasing the level of knowledge, skills and experience and the development of pedagogical skills
4	Creating a creative environment	Satisfaction of students with additional training, improving the student's personality, increasing self-awareness	The level of objectively consciously creative activity of students
5	Organization of the process of "additional education"	Students' satisfaction with additional education, improvement of student's personality, self-awareness increase	Percentage of students pursuing individual educational plans.
6	Applications of reflexive approach technology	Formation of a reflective educational environment aimed at shaping students' interest and striving for pedagogical activity	The manifestation of awareness, analysis and objective assessment of their knowledge, skills, and pedagogical experience
7	Development of a special program and the creation of a system for the formation of relevant knowledge and skills of students	Formation of pedagogical skills, providing opportunities for independent use of modern pedagogical and information technologies	The level of desire to learn the rich life experience and put it into practice at a new, higher level
8	Applications of student-centered approach technology	Organization and development of subject-subject relations in the system of preparing students for pedagogical activity	Formation of personal and humane motives for pedagogical activity and orientation of the motivational sphere of students towards the development of their creative potential
9	Organization of innovative processes (online Web-quest)	Formation of students' interest in innovation processes as subjects of this process	Percentage of students who understand the value of innovation and the need for their implementation
10	Diversified Growth Strategy Applications	Using the entire set of functions and methods of organization and management of pedagogical processes	The growth of students who have the ability to introduce new approaches in the organization of the educational process

Discussion of results

The impact of Web-quest on the learning process of discipline (Figure 5):

-increase the technical level of teaching material;

-significantly increased interest in learning material from students;

-the complexity of the teacher's work will decrease;

-continuously impact learning outcomes.

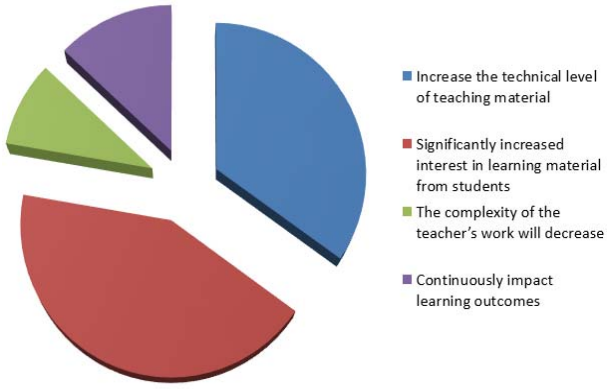

Figure 5. Performance indicator

The developed platform for online learning of the propaedeutic course "Pedagogical Competence of a Vocational Education Teacher", through a Web site with Web-quest, mobile applications for students in the field of professional education based on modern, corporate, technological, innovative, humanistic approaches, contributes to the formation of skills self-solving tasks. Students learn to listen to each other, collaborate and communicate. Such training also helps build interpersonal skills. Based on the selected object of study, i.e. the process

of preparing for the pedagogical activity of students in the field of vocational education (for example, 5521900-Informatics and information technology), it was advisable to use the Web-quest technology as a tool for innovation and the implementation of information and communication technologies. Consequently, all the methodological developments on the propaedeutic course “PKP ON” in the online mode were completed, i.e. an online resource was developed.

Acknowledgements: The work is partially supported by the projects "BV-Ateh-2018 - (399-487)" and "A5-026-81/2017" of the Republic of Uzbekistan”.

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