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IMPROVING LESSON DESIGN COMPETENCY OF SCHOOL TEACHERS BASED ON "WEB-QUEST" TECHNOLOGY

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Abstract. This article discusses issues of improving the competences of designing lessons of school teachers on the basis of Webquest technology during the continuous professional development system.
Keywords. Competency, Quest, WebQuest, design, online-platform, web-resources, mobile App, web-site.

Introduction. Globally, research is being carried out on the adaptation of the professional development system to the conditions of globalization and the introduction of innovative technologies in lesson design in the study of organizational and methodological foundations of continuous professional development of school teachers. According to the results of the research, it is relevant to stimulate motivation for the development of personal and professional competence of teachers on the basis of the modernization of the continuous professional development system, as well as to increase the volume of scientific developments related to the modern educational process.

Improving the process of continuous professional development of public education workers in our country, increasing the opportunities to develop the competencies of lesson design for school teachers to a new level in the system of continuous professional development.

The Resolution of the Republic of Uzbekistan “On measures for development of education and science sectors in the period of new development, creation of necessary conditions for systematic professional development and capacity building of teachers, improvement of professional development system based on the principle of "lifelong learning". [1] has defined priority tasks.

In this regard, in the system of continuous professional development the issue of improving the competence of school teachers in terms of designing lessons using "Quest" technology on the basis of modern tools, as well as the development of competence with regard to designing

Literature review. Problems of continuous development of teachers' professional competence in the process of modernizing the system of professional development, studies of the theory and practice of improving the system of professional development of teachers in our country: Aminov A.H., Boymurodova G.T, A.S. Juraev, M.T. Jumaniezova, A.A. Ibragimov, Sh.K. Mardonov, D.M. Mamatkulov, M.H. Lutfullaev, A.E. Obidov; Studies on improving the training methodology of designing lessons in the system of continuous education, the formation and development of students' competence in designing: A.J. Khurramov, D. N. Mamatov, B. B. Mamurov, I. M. Rasulov, I. G. Shamsieva.

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Research work on improving the system of teacher training and teacher training in the Commonwealth of Independent States: Berezhnaya S.K., Emuzova S.G., Ivanova L.V, Kalkova G.V., Serganova Z.Z., Tsyrempilova N.H.; in the field of formation and development of teachers' project competence: N.N.Ogoltsova, N.O.Yakovleva, E.V.Kruchain, O.I.Sabynina, L.N.Kovdratenko; Volkova O.V, G.A. Vorobyev, L.O. Afanasyeva, E.A. Igumnova, I.V. The application of "Quest" and "WebQuest" technologies in the design of subject teaching and the formation and development of teachers' project competence, I.V. Research was conducted by scholars such as Radetskaya.

Such scholars as I.P. Manakov, V.D. Shadrikov, A.K. Markova, V.Y. Adolf, P.F. Anisimov, improving subject teachers' pedagogical experience and their functional development during professional training and organizing lessons systematically manifest knowledge, skills, abilities and personal qualities to successfully solve assigned tasks, mental state that allows acting independently and responsibly, ability to perform certain work functions, which are the results of pedagogical activity of a teacher, is, without a doubt

Project activity is a joint educational, cognitive, creative activity of all participants with a common goal, coordinated methods, ways of activity aimed at achieving a common result [3]. According to E.S. Polat, an important condition of project activity is the presence of pre-developed ideas of the final product of the activity, concepts defining the goals and objectives of the project, existing and optimal sources of activity, making a plan, organization of programmes and activities to implement projects together with project implementation, including comprehension and reflection of the activity results [3].

Thus, a teacher's competence in lesson design is the ability to correctly and appropriately use educational technology in the learning process, to organize the stages of the lesson in the correct sequence, ensuring coherence and continuity of subjects and topics.

According to T. March, a 'Quest' or 'WebQuest' is an educational structure that uses links to important Internet resources and real-world tasks to motivate and encourage the learner to investigate a given problem with an ambiguous solution. It is possible to achieve a deeper knowledge either individually or in groups by searching for information on the subject of study. One of the advantages of the quest technology is that learners are actively engaged in the learning process and learn to reflect on their own learning [8].

Quest technology can also be attributed to educational technologies that meet modern requirements. Because "Quest" technology is a purposeful search for necessary information.

At the same time, a number of researchers have carried out research on "Web-Quest" technology and provided definitions about it. According to them, "WebQuest" is a problem task with elements of role-playing, which is considered to be a web search and requires information resources of the Internet [4]. Other researchers put forward the view that a "WebQuest" is a technology designed to conduct independent research activities using the Internet [5].

In this regard, according to T. Marth, the advantage of the WebQuest is the creation of an active learning environment. "The WebQuest can be designed for both group and individual work. He noted that the use of "WebQuest" technology in small groups increases the learner's motivation, develops his creativity and shapes critical thinking [6].

In our opinion, the use of WebQuest technology in science education creates an opportunity to increase students' interest and motivation to science, develop their creativity, form and develop competences of independent decision-making and design. It also enhances students' skills in working with computer technology and develops a culture of searching for Internet technologies and learning information on them.

Research methodology. The use of modern educational technologies, in particular the Quest technology, is effective in developing students' project competence. Researchers point out that the main element of the quest is a list of links to resources which are needed for the task and have been pre-selected by the teacher.

In terms of the duration of the quest, it is carried out in short-term and long-term forms. Short-term Quests are used during teaching and long-term Quests outside the classroom. In doing so, it guides its trainees to work independently in the field and to search for educational information from various sources.

Analysis of data on the introduction and testing of the Quest technology shows that their inclusion in the teaching of general education subjects creates the following opportunities [9]:

- development of information skills;
- formation of positive emotional attitude to the learning process, increase of motivation for learning, quality of knowledge assimilation in the studied subject;
- development of students' creative potential;
- formation of general skills in mastering the strategy of studying the material.

"Quest" - on the part of the participant, education requires a game to solve mental problems, to go through the story. The tasks are presented in real and virtual form. Participants of the quests help to develop logic, attention, ingenuity as an attractive aspect of this game activity.

To increase learning motivation of students and to organize group research activity, the technology "Quest" acts as a modern educational technology. [98]:

- needs-oriented activity through a global network of part or all of the information with which the learner interacts; - problem tasks are created with elements of role-playing. In doing so, it directs scientific and methodological resources to explore different literature as well as to search the global web;
- guidance in the preparation of various pedagogical and web-based projects.

Information and communication technologies serve as an important tool in developing students' competence in designing lessons based on the Quest technology. The possibilities of information and communication technologies are such that they set the stage for the audience to independently learn and repeat theoretical information about design.

Therefore, the use of information and communication technologies, in particular didactic electronic educational resources, is appropriate to develop students' competence in designing lessons based on the Quest technology.

Didactic e-learning resources are a tool with the ability to collect, describe, update, present knowledge in an interactive form, monitor and evaluate based on modern information technologies [7].

Didactic e-learning resources are important because they aim to develop students' imagination, enhance their professional skills and provide them with necessary additional information, as well as to develop their competence in lesson planning.

Therefore, the reforms underway in the public education system have identified the need to improve information provision from developing learners' competencies to designing lessons on the basis of the Quest technology in the system of continuous professional development. This can be done through e-learning didactic tools. These tools create an opportunity for students to develop their competence in continuous design during learning and independent learning activities.

The following tasks should be included in the system of continuous professional development to develop students' competence in designing lessons using "Quest" technology: plot and legend of the educational game; tasks and problem situations; final goal that can be achieved by overcoming challenging tasks. We recommend doing it on the basis of the following steps: Introduction. At this stage, students should understand what sources they will study and what they will do in the research process. In doing so, the trainer proposes a scenario, story or problem in such a way as to interest the audience in a particular topic. This is the basic stage of any research. At this stage, the trainer proposes a pre-designed task to work on the topic, including asking various questions. The task should be realistic, feasible and contribute to the main learning topic. The subtasks should be simpler than the main task and should deal with specific aspects of the topic;

Methodology. At this stage, the trainees are asked to complete a given problem task. Students are provided with the addresses of information and educational environments on the global network in order to find a solution to the problem; Assessment of effectiveness. At this stage, students will have the opportunity to evaluate the results of their work and compare them with the results of their peers. The trainer will comment on the trainees' work;

Summary. At this stage the trainees should compare the result obtained by the trainees with the objective set at the beginning of the work. Also at this stage trainees need to understand the possibilities of using the acquired knowledge and skills in other spheres of activity [8].

Based on this sequence, information and learning environments and didactic electronic resources for mobile devices serve as an important tool in developing learners' competence in designing lessons based on the Quest technology.

Therefore, in this study we will develop the competences of school teachers in designing lessons by building skills in creating linear, circular, problem-based, web quests on the online educational platforms ***Genial.ly, Learnis, OnlineTestPad.*** The use of these online educational platforms does not require teachers to know any programming languages and makes it possible to use interactive services through a user-friendly and comprehensible interface. In addition, teachers need to have the following competencies in creating quests.

1. Create an account on Google.com; To do this, teachers must have a gmail.com email;
2. To register on this platform to use online education platforms;
3. Ability to choose interactive services suitable for linear, circular, problem and web quest types on Genial.ly, Learnis, OnlineTestPad online educational platforms. Define webquest formats (JPG, PNG, MP3,MP4, AVI) for uploading selected webquest scenarios.

4. Download additional programs needed for preparing web assignments (Adobe Flash Player, Crossword Forge, FastStoneCapture, Camtasio Studio, Bandicam, iSpring Pro).
5. Ability to prepare web assignments in various forms: presentation, picture, text, graphic, drawing, video audio, etc. (Ms Power Point, Paint, Crossword Forge, FastStoneCapture, Camtasio Studio, Bandicam, iSpring Pro). Creating non-standard tests in diagnostic pedagogical software tools (iSpring Quiz, EasyQuizzy, Hotpotatos);
6. Save the prepared web quests in the presentation view.

In the course of the research, we introduced the technology for creating and running web quests on Genially, Learnis and OnlineTestPad electronic platforms (see Figure 1).

In developing the lesson design competencies of school teachers, the skills of designing lessons in an interactive form are practiced by creating various interactive quizzes, games, electronic vocabulary, video lectures, web quests using web quest scripts available on Genially, Learnis and OnlineTestPad e-learning platforms.

The use of these online e-learning platforms provides the following opportunities for teachers in the school:

1. To organise lessons in the web quest game section through the effective use of quest scenarios suitable for linear, cyclical and web quest types of quest technology, students will solve additional puzzle problems to reach the finish line by working their way through the sequential-chain based tasks step by step. The idea is that web quests cannot progress to the next task without solving one task, because the answer to the first task in the chain of tasks is the key to the second task, or the sequence of tasks is different in the importance of solving the problem. In these scenarios, students take the task seriously and try to find their way through the adventure to the next level.

a) In the interactive video section, the interactive method of solving problem tasks as well as solving non-standard tests while watching the video provides a full viewing of the video content. This process requires careful viewing of the video and attention to the content.

b) In the smart quiz game section, we can create tasks suitable for linear and web quizzes. As students solve tasks arranged from simple to complex, their scores for each task increase in that sequence. This increases the motivation of the participant to gain points upwards from each stage of the game.

2. The game of definitions and terms is designed to work with general vocabulary, building skills to remember new words related to the topic. At the same time, this game is suitable for a problem-based type of quest and increases the students' motivation to learn vocabulary and definitions.

In addition to using the features of the Learnis platform, using the Genially. online platform to create interactive videos, interactive presentations, animated didactic materials and various interactive games and web quests also creates opportunities to design our lessons using creative, interactive resources. This platform Learnis. provides the opportunity to create and use a variety of interactive nonstandard test questions, use different scenario plots for web quests, use ready-made learning games, learning management platforms, infographics presentations. The techniques for using this platform, creating materials and storing them are

exactly the same as those of the Learnis platform, so it does not require additional knowledge from school teachers.

Components of the Genial.ly online platform

Presentations - the ability to create presentations on this platform through various ready-made templates;

Infographics - the ability to create infographics, slides;

WebQuests - icon for creating web quests using ready-made quest script templates;

Video presentations - possibility to create presentations in video formats;

Interactive pictures - possibility to create various forms and infographics;

Online Courses - the ability to organise online classes or courses;

Management - the ability to manage learning and the learning process online;

The Genially online platform allows interactive services to organise the educational process through its various ready-made templates. By organising their lessons through this platform, school teachers develop their competence in lesson design.

OnlineTestPad, another software for creating web quests and interactive services, works similarly to Learnis and Genially platforms. The main difference between this software and the Learnis and Genially platforms is the ability to create online non-standards, use tests on ready-made subject areas, use web quizzes, and create scripts for web quizzes. The components of the OnlineTestPad online platform include tests, quizzes, crossword puzzles, discussions and lessons. The advantage of the platform is primarily the use of pre-designed sample tests, questionnaires, ready-made lessons and interviews, as well as the possibility of creating these independently using the platform's features. In the surveys section, you can create your own quest scenarios and test tasks corresponding to these scenarios.

Crossword - the ability to create sample and crossword puzzles from ready-made crossword puzzles on science;

Quizzes - the ability to create samples and new quizzes from ready-made quizzes in areas of science;

Dialogue - the ability to create and print web quizzes;

Q&A - the ability to use ready-made survey questions and create new ones;

OnlineTestPad - an online e-platform that provides the ability to use ready-made templates and create new services when designing lessons through a web quest, such as Learnis and Genially.

Analysis and results. At the first stage of the pedagogical experiment-experimental work in the 2018-2019 academic year, scientific-theoretical, scientific-methodological basis of the research problem was studied, goals and objectives of the research were determined, the object of research, its indicators and relevant criteria were analyzed and studied from theoretical sources. The curricula of the subjects taught at the regional retraining centres of public education workers of the selected region and their qualifications, the distribution of teaching hours allocated to the subject by forms of teaching, the content of the model subject programme were studied and the problems of their teaching were identified.

Various questionnaires and observations on the use of the Quest technology among the trainees of the Continuing Professional Development course were also conducted. As a result, the need to develop the competence of school teachers in designing lessons based on the Quest technology was identified. The second stage of pedagogical experiment-testing in 2019-2020 academic year, electronic educational resources for development of competence in designing lessons with the use of "Quest" technology, information and educational environment "Qvest.uz" and computer game "Wheel of Mind", Mobile application "Quest", Telegram-bots "Create_Qvest_bot" were created. In addition, the development of technological charts of classes aimed at developing the design of classes on technology "Quest", the creation of lesson-quest scenarios, creating a plan for the quest, the development of obstacles for the stages of the quest, samples and developed a methodology for their use. In addition, motivational-valuable, cognitive-activational, personal, reflexive-creative criteria and evaluation indicators were developed to determine the level of competence formation in designing lessons using the "Quest" technology.

According to the results of pedagogical experimental testing, the average level of learning in the experimental and control groups was analyzed using one of the mathematical and statistical methods - Student-Fisher criterion, and the results were analyzed. It was found that the average acquisition in the experimental group was 4.302 and the average acquisition in the control group was 4.004.

The results of the experimental work showed that the information educational environment "Qvest.uz" and mobile applications "Quest" associated with the effective use of "Quest" technology in the development of competences of school teachers in lesson design developed the skills of school teachers, such as creative thinking, professional flexibility and professional work capacity, and increased their interest in organizing modern lessons.

Thus, according to the results of the statistical analysis of the pedagogical experimental work organized on the basis of the development of the competence of lesson design using "Quest" technology in the students of the system of continuous professional development, the rate of mastering by the experimental group increased by 9.9% in comparison with the control group.

Conclusions and suggestions

1. The analysis of scientific and methodological literature has identified the necessity of using modern information and communication technologies in designing the lessons of school teachers in the process of training in the system of continuing professional development, as well as in developing their competence in designing lessons based on the didactic capabilities of the "Quest" technology.
2. In the process of lesson design (type of a lesson, goals and tasks, content of a lesson, structure of a lesson, methods and means, result) school teachers were determined to be competent in creating linear, circular, problem and web quests with the help of possibilities of educational online platforms Genially, Learnis, OnlineTestPad.
3. The study proposed the stages of creating a quest scenario (introduction, hero, task, direction and reflection) when designing lessons based on the Quest technology.
4. Short-term courses to develop competencies in designing lessons based on the Quest technology should be organised as part of continuous professional development for school teachers.

5. The organization of cluster-based mobile groups to develop the competences of school teachers in designing lessons based on the Quest technology in the system of continuous professional development is desirable.

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