

Creation the Site-Quest by using the Cloud Services: From the Experience of Teaching Future Teachers

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Abstract. The paper highlights the author's experience of teaching future teachers the creation of a site-quest by using cloud services. Referring to the understanding of the concept of "web-quest", the explanation of "site-quest" is defined. The methodology of teaching future teachers about the creation of a site-quest by using cloud services is offered. Possible methods of their application for the organization of student work during the development of model and structure of the site-quest, didactic materials (mind maps, virtual boards, clouds of words, interactive exercises, etc.) and it is filling out are indicated. The experience of implementation of the described methodology on the example of creation by the future teachers of the site-quest "School of young programmers" in the lessons of the discipline "Cloud technologies in the educational process" is presented.

Keywords: site-quest; cloud services; creation of a site-quest; future teachers.

1 Introduction

Today's students will actively participate not only in consumption but also in the creation of information resources soon, regardless of their field of professional activity. Exactly they will become the driving force of the scientific and socio-economic development of society. Before the education of today became a problem of forming new-generation personalities who need to think analytically and act in a new way in times of uncertainty and crisis situations. In the system of training competitive specialists to come to the fore the qualities, such as: developed emotional intelligence and independence, high motivation and initiative, as well as the abilities to search and analyze information, to quickly learn and apply new knowledge, to create innovations, to self-master the necessary skills, to communicate effectively and collaborate as a team.

One of the ways of raising to a new level of quality of education is the use of pedagogues in the educational process of gaming technologies, which are implemented through information and communication technologies, in particular, cloud services. Their use allows to make the educational process both interesting and informative, promotes an increase of motivation, self-organization. This is achieved through the application of elements of gamification in the learning process, one of which is a web-quest. They make the lessons more effective, attractive and unforgettable for the students. As

a result, there is their comprehensive development, activation of cognitive interest, education of independence and responsibility for acquiring new knowledge. However, the development of cloud technologies and their implementation in education requires enhancing the ICT-competence of future teachers. This trend requires the modern teacher to have the ability to effectively use cloud services in the educational process. That is why, in this situation, the task to teach pedagogical students to design and create sites using web-quest technology or sites-quests is becoming increasingly important.

2 Analysis of Publications

Today the problem of the use of quests in the educational process is being actively studied by: B. Dodge, T. March, M. Andreeva, Y. Bykhovsky, O. Baguzina, O. Volkova, G. Vorobyov, O. Gapeev, M. Grinevich, L. Zhuk, L. Ivanova, N. Kononets, G. Shamatonova, O. Shulgin and others.

Recently, the use of the Internet for the implementation of modern technologies is impossible without the use of cloud services. Prospects for their active introduction into the educational space are highlighted in the scientific reconnaissances by V. Bykov, T. Vakalyuk, O. Gribyuk, O. Kuzminskaya, S. Litvinova, O. Merzlikina, N. Morse, Y. Nosenko, V. Oleksiuk, S. Seydametova, S. Seytvelieva, S. Semerikov, A. Stryuk, M. Shishkina, N. Khmil, and others.

Researches of Ukrainian and foreign scientists show considerable attention to the issues of web quest development using various services and web applications (O. Leshchynska, S. Ryabets and K. Gavrilenko (Google Blogger), L. Kozubay (One-Note), Y. Kornilov and I. Levin (through Platform of Interactive Storytelling and Text Games AXMA Story Maker) and others). The problem of training future professionals in the development and use of web-quests is exploring by M. Kademiya, N. Kononets, L. Savchenko, I. Sokol and others. However, N. Khmil draws attention to the fact that the scientific literature does not sufficiently cover the issues of theoretical and methodological substantiation of strategies, models of teaching future teachers the effective use of cloud technologies in the modern educational process [1, p. 105]. We believe that one of these strategies is to attract higher education students to create sites-quests with their help. This allows not only the use of cloud services as a means of training but also as a prerequisite for the formation of competencies in them for their use in future professional activity.

The purpose of the article is to describe the methodology for teaching future teachers to create a quest site using cloud services and to demonstrate relevant author's experience.

3 The theoretical basis of research

The formation of future teachers of general competencies is facilitated by the use of specially organized educational sites in the educational process. In the scientific-pedagogical literature, they are commonly referred to as web-quests.

The analysis of the essence of the concept of "web-quest" has led to the conclusion that the researchers (T. Bondarenko, M. Kademiya, E. Polat, N. Kononets, L. Savchenko, I. Sokol and others) understand its content differently. Common to all of the interpretations we consider is the availability of an online resource for organizing search activities during training. In the works of G. Moskalevich it is noted that "next to the term "web quest" is used the term "site-quest", which is interpreted as an online resource, which organized competitions for solving coherent and interconnected logical riddles" [2].

In our study, a quest site will be understood as an Internet resource presented in the form of a site on which certain situations are modeled for pupils (students) to carry out search activities to solve sequential and interconnected tasks.

Developing an educational web-quest is a creative process that depends on the skills and ideas of the author, as well as the choice of tools to create one. Analyzing the pedagogical literature and various examples of realized web-quests, it should be noted that cloud services are the most effective means of doing so. In our study, we will follow the definition of cloud services formulated by V. Bykov and M. Shishkina, who treat them "as services that provide the user with network access to a scalable and flexible organized pool of distributed physical or virtual resources delivered in a self-service and admin mode at his request (for example, software, storage space, computing power, etc.)" [3, p. 38].

In her research, N. Khmil emphasizes that cloud services used in the educational process can be "systematized by purpose and their pedagogical capabilities, namely: services for preserving and publishing didactic materials; services for visualization of educational information; services for creating interactive game exercises" [4]. This approach will allow us to demonstrate to future teachers a set of effective pedagogical scenarios for their use in the educational process when creating sites-quest.

4 Results of the Research

Consider the methodology of teaching future teachers to create a site-quest by using cloud services. It can be represented as a scheme (see Fig. 1).

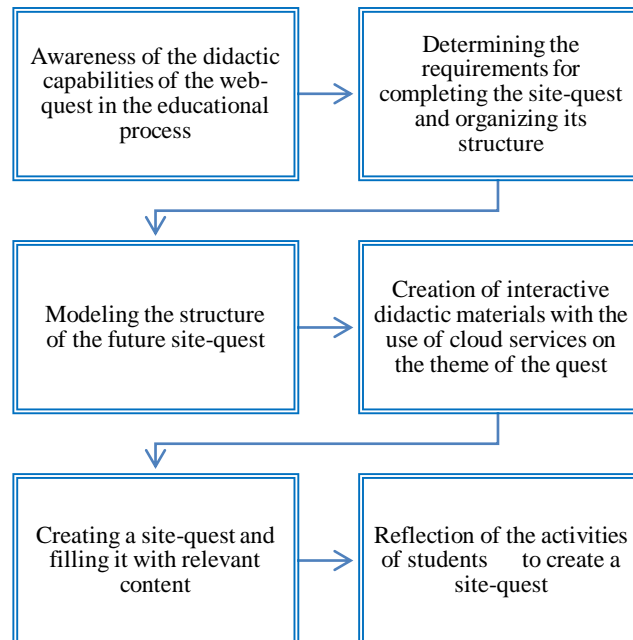


Fig. 1. The methodology of teaching future teachers about the creation of a site-quest using cloud services.

The first stage of "Awareness of didactic opportunities of web-quest in the educational process" involves acquaintance of students with web-quest technology; identification of its features and identification of its application in the educational process. To do this, it is appropriate for students to be offered to complete a web-quest in groups of 2-5 people. The selected or created site should meet the following requirements: availability of a task and a link for finding tips, a common table for showing the results of the tasks, the virtual board or any document for joint discussion of the results of the activity in the quest, etc. With the completion of the first stage, a scheme outlining the didactic capabilities of the web-quest for the educational process should be created in a joint document.

The second stage, "Determining the requirements for completing a site-quest and organizing its structure", involves discussing with students the structure and content of sites created using web-quest technology. To do this, you should invite them to analyze and evaluate in advance selected examples of sites-quest with a different methodology for organizing search and feedback. While working, students should state the purpose of creating the site; to consider and evaluate the task of the quest (to determine the purpose of the proposed task and the method/approach to its completion); evaluate the relevance of the content of the site to the theme of the quest and the quality of the proposed tasks for accessibility. The result of the second stage is to create quality assessment forms jointly in the Google Docs and Google Forms by indicating the identified criteria.

The purpose of *the third stage "Modeling the structure of the future site-quest"* is to create a model for students of the structure of the future site-quest, indicating the content of its filling. At this stage, it is necessary to familiarize students with the rules for finding information of various kinds, emphasizing the copyright of them when using the data found. It is important to focus the attention of future teachers on a common set of tasks, the definition of their presentation (text, picture-puzzle, interactive exercise, interactive video, etc.), and how they plan to organize the interaction of the participants of the quest. To build students' ability to create a site model, it is important to focus their attention on the fact that they must determine the list of objects that will be placed on it; determine their place and role, indicate possible or necessary transitions between them.

During the implementation of the third stage, students' activities should be directed to the joint fulfillment of the proposed tasks, in particular: to discuss and choose the theme and purpose of creating a future site-quest, to ensure joint storage of the found data - content (texts, audio, video, etc.), to determine the content, structure of the site and develop his model, work out the selected material. This approach makes it possible to understand the importance of working together in the process of creating a site-quest. The result of the students' activity should be a jointly created model of the future site-quest in the cloud service.

The fourth stage of *"Creating interactive didactic materials using the cloud services on the topic of the quest"* involves the systematization of students' knowledge of cloud services (services for creating clouds of words, infographics, interactive posters, interactive exercises, and online questionnaires, virtual interactive boards, etc.). To make students aware of the appropriateness of using a particular service, we pay attention to the didactic functions and practical tasks that they can accomplish. This approach allows them to form in them the skills of analyzing and defining the capabilities of cloud services, identify indicators of their functionality and security, to outline the purpose. In the next step, students are encouraged to design and develop electronic didactic materials to meet information security requirements by using cloud services.

The implementation of *the fifth stage of "Creating a site-quest and filling it with relevant content"* involves the formation of skills for future teachers to jointly develop a map of the site-quest and filling its pages with relevant content. Students' activities should be directed to joint interaction in the process of posting pre-created electronic didactic materials on the site pages. It is appropriate to organize a presentation of student site-quests with further self-evaluation and mutual evaluation of their quality.

For the future teachers to understand the importance of understanding the process of creating a site-quest for its further use in student learning, it is advisable to organize *the final stage "Reflection of student activity on the creation of a site-quest"*. It is aimed at developing students' ability and ability to evaluate completed actions, to analyze the process of mental activity during the creation of a site-quest.

Our methodology was tested in the process of teaching future elementary school teachers in the course "Cloud technologies in the educational process" during the study of the following topics: "Web-quest in the educational process", "Technology for developing web-based quests using cloud services" and "Creating a site-quest structure and filling it with content".

In the lesson on the first topic, we have implemented the first two stages of the proposed methodology. To become aware of the didactic capabilities of the web-quest in the educational process, future teachers were encouraged to complete the quest "The Secure Internet" (<https://cutt.ly/htWLzjA>). For this purpose, a special site was created that met the above in the first stage requirements. After completing the joint paper, they have drawn up an appropriate list of didactic opportunities web-quests.

Further, students were encouraged to familiarize themselves with other examples of quests that were created by future teachers studying at other higher education pedagogical institutions (<https://cutt.ly/7tWLCGK>, <https://cutt.ly/ntWLvV7>, <https://cutt.ly/mtWLB3k>), and by teacher-practitioners (<https://mediainpact.at.ua/publ/>, http://webquest_artificial_intell.tilda.ws/, <https://cutt.ly/AtWLYrT>). As a task, they were asked to evaluate the quality of the submitted text and formulated tasks to perform, the ability to represent the results of the quest, the clarity of the criteria for evaluating the quest, etc. To do this, students were grouped and an online joint analyzed one of the resources offered in the selected cloud service.

In the second lesson "Technology for developing web-based quests using cloud services" skills of development and creation of a model of future site-quest are formed. The first stage involved discussing the conclusions of an independent analysis of the quality of one of the proposed quests and defining the criteria for their evaluation, as well as jointly creating forms in Google Docs and Google Forms for assessing the quality of web-quests, including of site-quests. They identified three sets of criteria. The first group included characteristics regarding the presence of the following elements: the purpose of doing the quest, the algorithms of work of the teams, reference material or references to it, instructions for the tasks, evaluation criteria, the timing of the stages of the quest, etc. The second group consisted of criteria for evaluating the quality of the design of the placed materials: reference material (taking into account the age characteristics of the target audience); sources; clarity and comprehensibility of tasks, instructions for their execution; performance evaluation criteria, etc. The third group included - the relevance of the content of the submitted material to the purpose of the quest; observance of copyright; organization of transitions between stages of the quest; quality of sources of information for processing when performing tasks; ways of organizing interaction between the participants of the quest; availability of memo for reflection.

In the next stage of the class, students were asked to choose a topic and to formulate the purpose of creating a future site-quest. To do this, they needed to: 1) select a course and become familiar with its program; 2) determine the theme of the future site-quest; 3) to formulate the purpose of its creation, taking into account the content of the educational material and the achievements of the students identified in the program.

Let's give as an example the experience of teaching future teachers the creation of a site-quest "School of young programmers".

Students selected one of the sections of the subject "Informatics" – "Fundamentals of algorithmization and programming" (for elementary school students). The purpose of creating a site-quest is to get acquainted with the concepts of "program", "object", "algorithm"; properties and methods of objects; software projects and principles for creating them in a visual application development environment, etc. To increase

students' motivation for learning the topics of this section, the Scratch Interpreted Dynamic Visual Programming Language (online) was used; each page of the site-quest corresponded to one of the topics of the section; offered theoretical material, tasks for practical and independent execution were presented in the form of mind maps, interactive posters, presentations, screencasts, interactive games and more.

To determine the content of the site-quest content, students were asked to: 1) analyze available distance courses or sites designed to master the basics of the Scratch programming language; 2) develop a study plan for the selected section; 3) discuss the content of training, types of training materials and tasks, possible ways of organizing the presentation of their implementation (see Fig. 2).

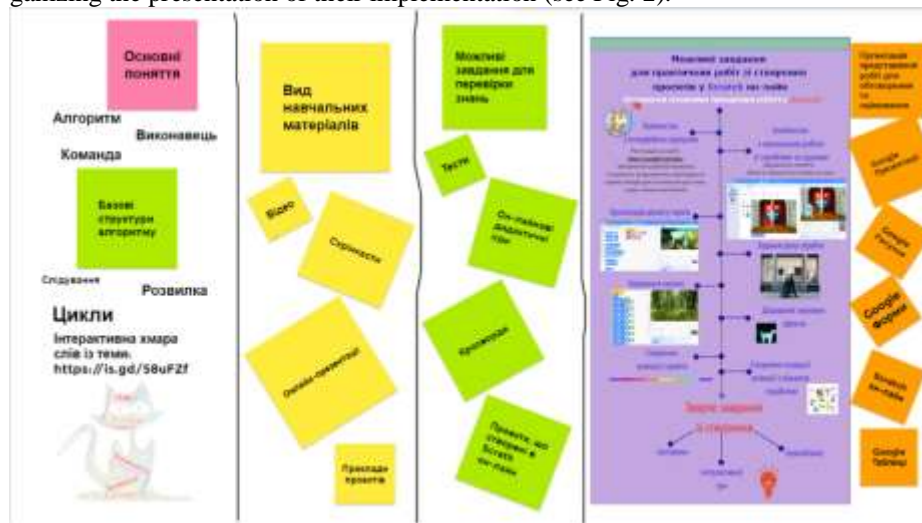


Fig. 2. The completed virtual interactive whiteboard for discussing the content and training forms of the selected topic (<https://cutt.ly/UtTa08P>).

Students independently selected material on the topic "Algorithmization. Basic structures of algorithms" and "Programming in Scratch": compiled a list of basic concepts in this topic and created a cloud of words; determined which materials will be provided for study and which should be given in the examples; formulated tasks for independent or practical implementation by students; chose ways to test knowledge, present and evaluate projects created, etc. The result of the students' activity was the development of the structure of the future site-quest, the definition of content for its filling.

The students also shared the responsibilities of completing their chosen tasks, including: the creation of didactic materials in the form of a cloud of words, infographics, interactive posters, online drawings and presentations, screencasts, interactive exercises, questionnaires, project examples and the site itself.

The third lesson, "Creating a Site Structure and Filling Content of Quest", was the final joint creation by students of the site "School of Young Programmers" using Google Site, its presentation, and subsequent reflection. Students analyzed the sites created; determine whether the learning aim has been achieved; discussed the advantages

and disadvantages of organizing their joint activities to create a site-quest using cloud services.

5 Conclusions

Summarizing the above, the following conclusions are drawn:

1. It has been found that there are objective prerequisites for finding ways to enhance the skills (ability) of future teachers to use cloud services effectively in the educational process, in particular, to create elements of gamification, one of which is a web-quest.

2. We have developed a methodology of training the creation of a site-quest by using cloud services, which involves six stages. Its realization helped to activate the creative and cognitive activity of students, to form in them the ability to search, process and analyze information from various sources; the ability to generate new ideas (creativity), to work autonomously and in a team, and so on.

3. Students will be able to apply the acquired skills to create pedagogical scripts of web-quests and appropriate didactic tools for their realization using cloud services, in particular, during the passage of various types of pedagogical practice. In the future, their competencies will become the basis for innovations in professional activity.

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