

# Technology in Teaching Classroom: Experience Review

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**Abstract**–This paper offers a description of a WebQuest technology applied to a foreign language teaching. It provides a brief report on the experimental work carried out by Samara State Technical University instructors on WebQuest technology in the classroom. Theoretical study of the subject matter helped to classify WebQuests, their tasks and forms, advantages and disadvantages. Then a suitable WebQuest type was chosen and practiced in a FL classroom. Implications for teaching and learning with WebQuests were made. The findings suggested that integrating web resources into FL instruction, using the WebQuest model was effective for enhancing students' performance and provided a positive learning experience.

**Keywords**–WebQuest; technology in the classroom; foreign language learning; higher education; innovative technologies; higher education instruction

## I. INTRODUCTION

Efficiency of the educational process is a relevant issue in modern society, which is caused not only by the considerably increased complexity of management, production, technology, science and other spheres of activity, but also by the overall trend of the world development and current social-economic situation in Russia. In accordance with the concept of Russian education modernization the main goal of professional high school education is to prepare qualified, competitive, competent graduates, who are able to work effectively at the world level standards. In the course of professional training, the role of a foreign language is actualized. Fluent English becomes a prerequisite for the successful professional activity in terms of increasing world community integration and entrance of our country into the world trade and economy.

According to the researchers, innovative technologies in education provide tremendous opportunities for students' active involvement in the educational process. With the use of innovative technologies, the process of education acts not only as a way to gain knowledge, but also as a means of professional competencies development [1]. The innovative

technologies application increases students' cognitive activity, allows them to be engaged in communication, increases the level of socialization.

Both state institutions regulating educational process and instructors themselves are involved in the development of educational technologies. Their aim is not only to transfer knowledge directly, but rather develop competencies required to achieve a higher level of students' skills development and to increase their motivation for higher quality professional training.

Experience proves that the latest developments in the field of a foreign language teaching are both diverse technical devices and innovative systems for educational process design with various degree of interactivity. The use of computer technology in language teaching in terms of competence-based approach allows one to make the educational process more individualized, enhance visible aid application, that is to provide visualization of education, a deeper and more comprehensive analysis of the processes undergoing in various systems [2].

Automated learning; use of computers as a tool for demonstration of various processes by means of suitable design programs; implementation of active learning; access to databases; distance education are only a few obvious features of computer technologies for education. Active learning techniques yield many benefits: they are student-centered; they maximize participation; they are highly motivational; and they give life and immediacy to the subject matter by encouraging students to move beyond a superficial, fact-based approach to the material. This type of learning is important to all disciplines and fields, but it is critical to the humanities.

When developing prerequisite students' competencies, not only the differentiation of learning tasks but also the differentiation of teaching methods, techniques, the use of computer technology in education are required [3]. These aspects of computer technologies implementation into the

educational process should not be neglected, as they are motivating design and development of learning systems for specific area of study. Penetration of modern information technology into education allows one to change the methods and organizational forms of learning, making it more convenient and affordable [4, 5]. Innovative techniques and methods of training include: WebQuests, on-line learning, video conferencing, an open source policy (principle of “distributed” formulation), case study, virtual reality technology.

A WebQuest as an inquiry-oriented approach in web learning has gained considerable attention from educators and has been integrated widely into higher education curricula [6].

## II. DISCUSSION

### A. Background

A WebQuest is an innovative educational technology using Internet resources. Bernie Dodge, a professor of educational technology at the University of San Diego, and Tom March, an Innovative creator of new models for education (United States), introduced the term “WebQuest”. The authors have developed innovative Internet applications to integrate them into the process of teaching different subjects.

Since the term WebQuest is relatively new (1995), its notion is still being specified. According to early Dodge’ definition “A WebQuest is an inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet...” [7, 8].

We find various interpretations of WebQuest notion. Y. Bykhovsky implies “an Internet site which employs students in order they perform a training task”. These WebQuests are designed for maximum Internet integration into various academic subjects at different levels of the educational process [9]. They cover a specific problem, subject, topic and could be interdisciplinary.

N. Goncharova’s definition in our opinion clearly conveys the essence of the work with a WebQuest: “WebQuest is script for students’ project activity on any topic with the use of the Internet resources [9].

T. March describes a Web Quest as “a scaffold learning structure that uses links to essential resources on the World Wide Web and an authentic task to motivate students’ investigation of a central, open-ended question, development of individual expertise and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding” [10, 11]. Creators believe that WebQuests inspire students to reveal diverse thematic relationships. This technology can facilitate a contribution to the world of learning and reflect on students’ metacognitive processes.

Thus, an educational WebQuest is a problem task with role-play elements; in order to carry out the task of a WebQuest, students have to use information of global network resources. WebQuest is aimed at developing students’ analytical and creative thinking skills. However, its main feature is that searching for the necessary information on the

network is limited by the list of the sources which comply with the theme of the project and students’ foreign language proficiency level. Being provided with the list of suitable sites in advance, students can significantly reduce the time spent on the project.

From the methodical point of view, WebQuest technology is not brand new. It is a way to integrate a number of methodological strategies, using the Internet to a large degree. WebQuest as an educational technology relies on a constructionist learning approach, according to which, instructor’s function is to advise, organize, and coordinate problem-oriented, research-based learning and cognitive activity of students. An instructor facilitates independent students’ activity and supports their initiative. Whereas, students become full-fledged “accomplices” of learning procedure, sharing responsibility for the educational process and learning outcomes with their instructor.

Kenton Letkeman has created of number of educational WebQuests. He considers this technology to be “a super-learning tool, since it uses a constructionist learning approach.” When performing WebQuests, students do not receive ready-made answers or solutions; they independently solve the task. Consequently, WebQuest projects help to: organize an active individual or group search activity; enhance the development of creative thinking and problem solving skills; allow one to implement individual approach; exercise mental abilities (explanation, comparison, classification, interpreting data, integrating information) [12, 13]. WebQuest creation and development implies a certain level of subject, methodological, information and communication competence of the instructor.

## III. METHODS

### A. Types of WebQuests

*Compilation WebQuest* tasks consist in gathering and compiling information from various sources and integrate it into a common format. The result of final compilation can be allocated on the Internet or represented in the form of a non-digital product, for example, a brochure, an album with cards for tourists.

A WebQuest designed on the basis of a puzzle task needs synthesizing information from numerous sources and the creation of a puzzle that cannot be solved simply by searching for the answer on a web page.

*Creative products WebQuests* imply the creation of a final product in a given format (picture, play, poster, game, song, website, multimedia presentation). Creative projects are similar to design ones, but are more flexible and unpredictable in the output results.

Working on the *Journalistic WebQuest tasks*, students gather facts and organize them in the genre of a report, an interview, or any other journalistic genre.

*Persuasion WebQuest* is aimed at creating a product that can convince someone of something. Such task goes beyond the frames of a retelling. Students have to develop arguments in favor of any statement, opinion, solution of a problem based

on the materials obtained in course of work on the Quest project. The final product of this project could be a letter, an article, a press release, a video, a multimedia presentation or a web page.

A *Design WebQuest* requires creating a product or plan of action to achieve a specified goal within a defined framework. For example, students have to design a kitchen plan that could meet the needs of a particular family or look for a job for a graduate.

*Consensus building task* is a WebQuest aimed at solving controversial problems involve finding and presenting different, sometimes opposing, opinions on the same problem and trying to bring them to the consensus.

*Self-knowledge-oriented WebQuests* are aimed at improving students' self-understanding, which can be developed through online research. Such projects are rare, however examples can be found, such as a WebQuest for examining Internet resources related to students' future career and employment.

An *Analytical WebQuest* explores the correlation of real world objects in frames of the specified topic. These tasks give ground for obtaining knowledge in the conditions where it is necessary to examine one or several items carefully, find their similarities and differences, as well as to realize the meaning of these similarities and differences, understand the relationship between cause and effect and discuss their value. For instance, when comparing cultures of two countries or nations, not only their similarities and differences should be revealed – students have to speculate on their meaning, causes and consequences as well.

*Scientific WebQuests* are intended to familiarize students with scientific knowledge and initiate their research in various fields of study. Several examples of WebQuests for teaching English can be found on the Macmillan's website resources page [www.onestopenglish.com](http://www.onestopenglish.com).

### B. Description

Scientists consider two types of WebQuests: short-term (goal is to enhance and integrate knowledge, designed for one or three classes) and long-term (goal is to deepen and transform students' knowledge, designed for an academic term or a year). A feature of an educational WebQuest is that information for "individual or group work is located on various websites, besides the result of students' WebQuest project work may be the designed and presented as web pages and websites (locally or on the Internet)".

Students can report on the WebQuest results in the form of an oral presentation, Power Point presentation, an essay, a designed web page with regard to the material being studied. B. Dodge describes the following types of tasks for WebQuests [7]: retelling; planning and design; compilation; creative task; consensus; journalistic investigation; scientific research. In the light of modern requirements for university graduates, the most important types of tasks are considered as creative assignments, consensus building, journalistic investigations, and scientific research. The above types of a WebQuest tasks will allow students to study the subject matter

comprehensively, to present personal attitude to the topic, which helps to enhance the learning process.

The topics of WebQuests can be diverse, problem tasks can vary in degree of complexity. According to the WebQuest quality assessment criteria developed by T. March, a good educational quest should have an "intriguing introduction, a clearly formulated task that provokes higher-order thinking, a distribution of roles that provides different perspectives on the problem, a reasonable use of Internet sources". The best examples of WebQuests demonstrate a connection with real life, their conclusion is directly related to the introduction and summarizes the cognitive skills; they can be applied for other subject areas and disciplines.

We should bear in mind that the use of a WebQuest and other Internet based assignments in foreign language teaching requires appropriate level of students' language skills, as they have to work with authentic Internet resources [14]. In this regard, effective integration of WebQuests in the process of foreign language teaching becomes possible in cases where a WebQuest is a creative task that can complete a specific topic study or accompanied by lexical and grammar exercises based on the language material used in the WebQuest authentic resources. Training exercises either can precede the work on the quest, or be carried out concurrently.

WebQuest can become an effective instructional tool of learning if the following criteria are observed:

- a WebQuest should be content-based, as the aim of the task is to encourage learners to use the target language for communication;
- the task should be functional and realistic, so the materials needed for the task execution must be authentic;
- a task should be flexible to allow students to choose their own learning trajectories;
- a task should encourage students to exchange information, interact and create a sound rivalry in the class so that the product will be interesting to present to other learners.

### C. WebQuests Advantages and Disadvantages

Project work involving web resources has a number of advantages for both students and instructors [15, 16]. Some of them are listed below:

- for an instructor, who uses the Internet for the first time in the classroom, a WebQuest technology is a relatively straightforward and effortless way to acquire network resources application for educational purposes;
- WebQuests provide a clear example what is the way of carrying out project work;
- academic assignments in WebQuests format are used in different countries, thus a number of challenging ready-to-use WebQuests can be found in the net. Any of them can be chosen to use unchanged;

- WebQuest templates downloaded from the Internet can be adjusted for specific purposes of the classroom. These templates are extremely useful for those who want to create new WebQuests and various tasks. Open Internet sources offer methodological tips and advice on WebQuest design and development, as well as a list of search engines and instructions for their use;
- the instructor provides a list of Internet sites to be used in course of project work. As a result, less time is spent on searching the information rather than task completion;
- interest in the subject has considerably increased recently, students are willing to work with WebQuest technology and improve their language skills.

On the other hand, WebQuest technology has several disadvantages. Firstly, designing a WebQuest requires high level of subject knowledge, methodological and information and communication competency of an instructor. A WebQuest creating is complicated by the selection of high quality and thematically relevant sites corresponding to the level of students' language proficiency and age. Secondly, WebQuest technology imposes certain technical requirements: Internet access; poor Internet connection can restrict type of downloadable resources (e.g. video).

#### IV. EXPERIMENT REVIEW

##### A. *The Activity*

Thus, Samara State Technical University (SSTU) instructors of Foreign Languages Department tried out a *Design WebQuest* with first-year master students in frames of the discipline "Business Foreign Language" [17]. According to the WebQuest assignment, students had to design a successful resume template, distribute it to the companies and recruitment agencies, and get a job for a university graduate. WebQuest finalized the educational module on graduate profile "Job Search and Career Development". The instructors determined the goals of the WebQuest:

- provide authentic input for the material;
- encourage students to linguistic cooperation (using a foreign language to achieve specific goals in real, non-academic communication).

A long term WebQuest was chosen to emphasize students' ability to extend and refine knowledge. It has taken three weeks a classroom setting.

The WebQuest had a traditional structure and consisted of the following sections:

*Introduction* (intends to attract students' interest);

*Task* (describes the final product of the project);

*Process description* (a step-by-step outline of the procedure, requirements for project implementation; it also lists the websites that contain the necessary information);

*Evaluation* (this section contains criteria for project assessment);

*Conclusion* (summarizing project activities).

These sections guided students through the WebQuest activities. They provided descriptive background information, defined tasks, listed Internet resources to complete tasks and described the process students should have gone through in accomplishing tasks.

The first section of the WebQuest was presented in the form of video of a job seeker real-life interview and its group discussion. Students were encouraged to answer the instructor's questions on how successful the candidate had been was; what could be improved; what would the advice the candidate and other. After the discussion students were asked to share their experience in job searching. This activity awoke interest to the subject matter.

The assignment of the second section provided students with the clear description of the task: to create original template and make a PowerPoint presentation introducing final product description, its designation as well as the techniques had been used.

The third section provided the list of Internet sites where students could get acquainted with the technologies used by employers and recruiting agencies when searching for employees, and selecting candidates. It implied that students had to visit several internet sites where they could download resume and cover letters templates, select five and analyze them using assessment table provided by the instructor.

The evaluation section included instructor's criteria for project assessment. It was advisable for students to get acquainted with the criteria before they commenced the project in order to comprehend final product and procedure requirements.

Instructors have created their own criteria for students' work evaluation, taking into account specific learning conditions, and also added special criteria for assessing language proficiency.

Finally, the conclusion section contained a reminder for students to take advantage of their critical and analytical thinking skills. They should have been aware of selection criteria for applicants' resumes. The students were also informed that upon project completion they would have to be able to resume and select candidates among the applicants according to company's criteria.

The final section of the WebQuest included instructors and students' comments on how the work on the project helped to improve their foreign language proficiency.

In order to avoid technical difficulties, e.g. in case of no coverage or poor Internet connection, lack of computers, our instructors had thought ahead offline options for project implementation.

Below we provide some examples. The Introductory section assignment can be easily replaced by any motivating

task, for example, discussing students' experience in job search or watching topic related videos.

Information of the first section can be printed out in advance and distributed to students in class. Students will continue working on the project at home.

The third section Power Point presentation can be replaced by a role-play on the topic "Interview".

### B. Result

As a result, the WebQuest as an instructional tool for inquiry-oriented learning stimulated students to interact with Internet resources, developed small group skills in collaborative learning and engaged in higher level thinking.

TABLE I. CONTROL AND EXPERIMENTAL GROUPS STATISTICS IN "BUSINESS FOREIGN LANGUAGE"

Tasks Performed (out of 50)	Control	Experimental
45-50	43 %	77, 8 %
30-45	31, 3 %	13,2 %
15-30	23,7 %	9 %
below 15	2 %	no

Table I presents statistics for control and experimental groups across the discipline "Business Foreign Language". These results suggest that the group exposed to the web-based learning activities outperformed those taught by traditional methods. The results presented in Table 1 provide clear evidence that students who engaged in the inquiry-oriented learning activity performed significantly better than those exposed to the traditional methods. Both groups took a written test during class in which they answered 50 questions on the topic "Job Search" and had an oral interview with the instructors. The Interview answers were then graded by the instructors on a ten-point scale.

At the end of the course students of an experimental group filled in a questionnaire about the WebQuest they had completed. The results revealed interest in the topic and the subject itself, which was confirmed by the comments on the activity. They considered the technique as "extremely useful/interesting" or "useful/interesting". The students' comments were generally positive, with emphasis put on the effectiveness of the activity.

The WebQuest task was considered as an effective way to organize chaotic resources of the Internet and helped students gain new knowledge through a guided learning environment.

### V. CONCLUSION

We believe that WebQuest technology could not substitute for traditional project activities. However, for those instructors who want to use Internet resources in foreign languages classroom environment, it might provide a handy tool that will help not to get caught in the net traps.

When organizing students' independent work, the Internet is used to perform individual and group research projects [18]. However, research technique hardly "fits" into the classroom

hour frames. Most of the time for information search, processing and analysis, as well as the making presentation of the research results is spent in course of extracurricular activity.

Thus, WebQuest technology using the Internet resources and integrating them into the learning process help to effectively deal with practical issues, as a WebQuest creation develops a number students' of competencies:

- ability to use information technologies for addressing professional issues;
- ability for self-learning and self-organization;
- ability to work in a team;
- ability to find diverse ways of solving problem situations.

Modern educational goals induce instructors to choose techniques and forms of work organization that promote an active learning process, develop the ability to learn: find the necessary information, use various information sources, memorize, reflect, deduce, self-organize work. That is why application of computer technologies in education provides new opportunities. The effectiveness of innovative technology, namely WebQuest, is confirmed by motivation of students' cognitive activity and interest towards foreign languages, the possibility of making learning process more individualized, the increase of future specialists' socialization level, the development of their professional competencies. The ability of an instructor to use innovative technologies in the educational process, to select the most optimal teaching tools based on the level of students' knowledge is also an important feature.

However, when taking advantage of new techniques, classical teaching methods should not be neglected. An instructor should strike the right balance between classical techniques and innovative technologies, which make the educational process up-to-date, change the structure of the tutorial and instructor's role in this process.

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